



REQUEST FOR BID RESPONSES:

(RFQ 325-022) Assessment Services for Puget Sound Pump Out

Facilities Enhancement

BRIEF DESCRIPTION: The Washington State Parks and Recreation Commission (WSPRC) is seeking proposals from qualified firms to provide assessment services for the enhancement of pumpout facilities located in the Puget Sound Area. Resulting contract(s) will be an RCW 39.26 See details within

Bids are due Friday, December 01, 2023 1:00 PM Pacific local time.

ELECTRONIC BID RESPONSES ONLY: Bid responses will only be accepted electronically via Email/Email Attachment to BidBox@parks.wa.gov. (PDF scan encouraged). See Section 4.1 – Submission of Responses for expanded details.

• See also §4 Responses – Preparation and Submission requirements	• See also §3.1 CHECKLIST of required submittals
• See also §4.1 Submission of Responses	•

Procurement Coordinator: Brenden Houx, Contracts@parks.wa.gov

Email Inquiries to: Contracts@parks.wa.gov

- See also (special communication instructions) §1.5, §1.6, §1.7

WA State’s Official Bid Notification System: Bidders are responsible for properly registering in the Washington’s Electronic Business Solutions (WEBS) system, <https://fortress.wa.gov/ga/webs/> and downloading the solicitation document and all appendices and incorporated documents related to this solicitation. WEBS Registration Information: <https://des.wa.gov/services/contracting-purchasing/doing-business-state/webs-registration-search-tips>. WEBS is the system of record for this competition.

It is the responsibility of each Bidder to carefully read, understand, and follow all of the instructions contained in this competition document and all amendments hereto.

CAUTION: Microsoft WORD (section heading) Expand and Collapse feature. This feature allows language under a section heading to be hidden (collapsed) or visible (expanded). When this document is opened, the WORD software should by default be in an expanded posture. The software does not allow the author to disable this feature. The Reader is responsible for ensuring language under a section heading is not collapsed and is therefore visible to the reader. The feature usually appears as small triangles to the left of a section header.

TABLE OF CONTENTS

1	SUMMARY OF OPPORTUNITY.....	4
1.1	ACQUISITION AUTHORITY	4
1.2	INTRODUCTION	4
1.3	BACKGROUND INFORMATION	5
1.4	PREBID CONFERENCE	6
1.5	COMMUNICATION REGARDING THIS COMPETITION	6
1.6	QUESTION AND ANSWER PERIOD:.....	7
1.7	COMPLAINT PERIOD:	7
1.8	PROCUREMENT SCHEDULE:.....	8
2	SPECIAL TERMS & SOW & SPECIAL INFORMATION.....	9
2.1	ADVANCED PAYMENT PROHIBITION.....	9
2.2	BUSINESS STRUCTURE & EMPLOYEES (COMPLIANCE WITH LAW).....	9
2.3	CAUTION: THE RESULTING CONTRACT AND ITS TERMS AND CONDITIONS	9
2.4	STATEMENT OF WORK: PUMP OUT FACILITY ENHANCMENT ASSESSMENT ...	10
2.4.1	Services:.....	10
2.4.2	Standards of Work:.....	11
2.5	Contract Highlights For Any Resulting Contract	11
3	RESPONSES - REQUIRED CONTENT, FORMAT, AND SCORING:	12
3.1	CHECKLIST OF REQUIRED SUBMITTALS.....	12
3.2	(APPENDIX A) – CERTIFICATIONS, ASSURANCES, AND WAIVER (Mandatory) ...	14
3.3	(APPENDIX B) – BIDDER PROFILE (Mandatory)	14
3.4	COMPETITION AMENDMENTS (IF ANY)	14
3.5	TECHNICAL PROPOSAL (APPENDIX C)-Scored.....	15
3.6	MANAGEMENT PROPOSAL (appendix D)-Scored.....	15
3.7	COST PROPOSAL (appendix E)-Mandatory	15
3.8	REFERENCES (Appendix F).....	16
3.9	(APPENDIX G) – OMWBE/ Veteran Owned Businesses CERTIFICATION	16
4	RESPONSES - PREPARATION AND SUBMISSION REQUIREMENTS.....	16
4.1	SUBMISSION OF RESPONSES	16
4.2	RESPONSE LAYOUT REQUIREMENTS.....	17
5	EVALUATION AND AWARD.....	17
5.1	DETERMINATION OF RESPONSIVENESS.....	17
5.1.1	Rejected Bids/Bidders & Rejection Notification & Rejection Response	18
5.2	GENERAL EVALUATION PROVISIONS.....	19
5.3	EVALUATION OF COMPLETION BY DATE.....	19
5.4	EVALUATION STEPS.....	19
5.4.1	Preliminary Evaluation (Procedural)	19
5.4.2	Substantive Evaluation: Phase 1.....	19
5.4.3	Substantive Evaluation: Phase 2 (Optional).....	20
5.5	SELECTION OF APPARENT SUCCESSFUL BIDDER(S).....	21
6	ANNOUNCEMENT OF ASB, PUBLIC DISCLOSURE, DEBRIEF, AND PROTESTS.....	21

6.1	ANNOUNCEMENT OF APPARENT SUCCESSFUL BIDDER (ASB).....	21
6.2	PROCUREMENT RECORDS DISCLOSURE.....	21
6.3	DEBRIEFING OF BIDDERS	22
6.3.1	How To Request A Debrief Conference.....	22
6.3.2	Debrief Meeting, Discussion, And Delay.....	22
6.3.3	Debrief Is A Prerequisite For Protest.....	22
6.4	PROTEST	22
6.4.1	General:.....	22
6.4.2	Form And Content:	23
6.4.3	Content Limitations:.....	23
6.4.4	Submission Of Protests	23
6.4.5	Grounds Which May Be Protested.....	23
6.4.6	Manager Assignment And Review.....	24
6.4.7	Protest Determinations And Findings.....	24
6.4.8	Agency Decision is final.....	24
7	ADDITIONAL GENERAL PROVISIONS FOR ALL BIDDERS.....	25
7.1	ANNOUNCEMENT AND SPECIAL INFORMATION	25
7.2	CONTRACTING WITH CURRENT OR FORMER STATE EMPLOYEES.....	25
7.3	AMENDMENTS TO THE COMPETITION	25
7.4	RESPONSIVENESS OF BIDDER'S RESPONSE.....	25
7.5	CLARITY AND CLARIFICATIONS.....	25
7.6	COST OF RESPONSE PREPARATION	26
7.7	OWNERSHIP OF RESPONSES.....	26
7.8	FINAL SELECTION & NO OBLIGATION.....	26
7.9	INCORPORATION OF RESPONSE IN CONTRACT	26
7.10	AGREEMENT TO WSPRC'S CONTRACT TERMS AND CONDITIONS.....	26
7.11	STATEWIDE VENDOR PAYMENT REGISTRATION	26
7.12	MINORITY WOMEN OWNED AND VETERAN OWNED BUSINESS	27
7.13	PUBLIC DISCLOSURE & WAIVER OF PROPRIETARY INFORMATION.....	27
7.14	CIVIL RIGHTS COMPLIANCE	27
8	APPENDICES AND EXHIBITS	28
8.1	(APPENDIX A) – CERTIFICATIONS, ASSURANCES, AND WAIVER.....	29
8.2	(APPENDIX B) – BIDDER PROFILE.....	32
8.8	(EXHIBIT A) – Sample Contract & General Contract Terms And Conditions	34

1 SUMMARY OF OPPORTUNITY

1.1 ACQUISITION AUTHORITY

In accordance with RCW 39.26.070, the purpose of this Request for Bids is to establish a contract to procure assessment services for the enhancement of pump out facilities across Puget Sound. goods and/or services as described herein. The agency at all times reserves the right to separately compete for similar/same products or services during the life of the contract.

1.2 INTRODUCTION

SPECIAL INTRODUCTORY NOTE: The U.S. Department of Defense funds a resource group generically called the **Procurement Technical Assistance Center (PTAC)**, which has multiple offices across the country. While these Centers do not speak for or supersede the competition document, the Centers can help a qualifying business in understanding and navigating the competition. Per WA-PTAC: “No cost, confidential, one-on-one technical assistance in all aspects of selling to federal, state, and local governments. We have eight locations across Washington State assisting small businesses with marketing to the government, solicitations, drawings, and other areas relating to government selling.”

Link: [Washington PTAC - PTAC - Washington State Procurement Technical Assistance Center](#)

Washington State Parks and Recreation Commission (WSPRC or State Parks) seeks qualified supplier(s) of Assessment and Consulting Services with a focus on the specialties as seen needed by WSPRC.

The initial term is expected to be through the end of the 2023-25 biennium but at WSPRC's discretion it may be a shorter or longer period, thereafter, subsequent terms will be mutually negotiated contract extensions between the parties. Bidder must be registered to do business in the state of Washington (hold a Universal Business Identifier (UBI)).

Proposals will be evaluated based upon factors detailed in Section 3.

To the extent reasonable, WSPRC intends to include qualified firms with expertise in the category of work that are certified diverse businesses. Diverse businesses are defined as; small business, microbusiness, mini-business, minority owned business (MBE), and women owned business (WBE), as defined in RCW 39.26.010 and veteran-owned businesses as defined in RCW 43.60A.010.

All submitting firms are encouraged to register in Washington's Electronic Business Solution Application (WEBS) at:

<http://www.des.wa.gov/services/ContractingPurchasing/Business/BidOpportunities/Pages/bidNotification.aspx>. WEBS is the system of record for this competition.

Bids Received Electronically:

The Bidder's bid response will only be received electronically by email/email attachment. WSPRC has set up a special email address **solely** for the receipt of bid responses. Any communication other than the actual bid response into this special email address will be **ignored**. See Section 4.1 – Submission of Responses.

Should you need to contact WSPRC, you must do so through the appropriate email address set up for communication and use the proper email subject line. See Section 1.5 – Communication Regarding This Competition.

CAUTION: Submit your bid response early as a safeguard against any technological slow-down or delays. Bids received after the deadline for any reason, no matter the cause, regardless of responsibility, will be rejected.

1.3 BACKGROUND INFORMATION

Boating is a popular recreational activity and economic driver in Washington State. In addition to recreational vessels, there are a significant number of people living on vessels. Boaters of all types may contribute to water quality decline and shellfish bed degradation if they do not follow proper sewage discharge regulations and procedures.

Furthermore, Puget Sound and Lake Washington are now part of an Environmental Protection Agency (EPA) designated No Discharge Zone (NDZ). The NDZ is a body of water where boats may not release sewage (blackwater/toilet waste), whether treated or not. The NDZ (Chapter 173-228 WAC) was adopted on 2018, after a five-year public process led by the Washington Department of Ecology, and with final approval from the EPA. With the NDZ now in effect, no boat of any kind or size can discharge sewage wastewater anywhere within the zone. All boats and vessels must store their sewage until they can safely dispose of it at an onshore or mobile pump out facility or hold it until it can be discharged in the open ocean beyond three miles from shore.

The Clean Vessel Act (CVA) of 1992 established grant funding for the construction, renovation, operation, and maintenance of sewage disposal systems serving recreational boaters. The WSPRC – Boating Program manages the state’s Clean Vessel Act (CVA) Grant Program, and received a state appropriation for the 2023-25 biennium to conduct a needs assessment of recreational pumpout facilities with the goals of this effort being the following:

- a) Identifying areas statewide, underserved by current pumpout infrastructure.
- b) Identifying new projects or pumpout programs that will help meet the Puget Sound No Discharge Zone requirements.
- c) Prevent recreational vessels from discharging sewage directly into areas that fall within the Puget Sound No Discharge Zone.

The most recent needs assessment of this nature was completed in May of 2001. This study provided an update on the *Comprehensive Boat Sewage Management Plan for Washington State* completed in 1995. Both of these reports are provided as Attachment A and Attachment B and posted separately on WEBS. Since that time, there has been no effort to undertake an assessment that accounts for the Puget Sound No Discharge Zone and present-day recreational boating trends.

An updated assessment will assist lawmakers, the recreational boating industry, and state agencies in long-term planning for projects, programs, and funding to

ensure recreational boaters have the necessary infrastructure to comply with the Puget Sound No Discharge Zone and keep our waters free from sewage.

1.4 PREBID CONFERENCE

Bidders are invited to attend a pre-bid conference where the Bidder may ask questions, seek clarifications, and request changes to the competition document. The Prebid conference meeting will be conducted virtually via Microsoft TEAMS.

Bidders interested in joining the prebid conference must RSVP to Contracts@parks.wa.gov no later than **Monday, November 6, 2023**. The email subject line must include 325-022 RSVP.

Example email subject line: 325-022 RSVP .

The following day we will send out a meeting request (with hyperlink) to the email address that you used to RSVP. Attendees should not display video and keep their microphone muted if not talking. ***The Prebid Conference will take place on Tuesday, November 07, 2023, starting at 10:30 am and ending at 11:00 am.***

Only WSPRC responses posted on Washington Electronic Business Solutions (WEBS) are deemed official. All other WSPRC communication whether it be verbal or in writing are deemed unofficial and nonbinding.

If for some reason this conference fails, if you were unable to ask a question, or if you want to ask a question, simply send in the question before 3PM (Pacific local time) the same day. WSPRC will review the questions and using our discretion, responses if any, will be posted on WEBS (State of Washington's bid notification system).

WSPRC accepts no responsibility for the quality of the prebid conference, technological difficulties, or failure to participate in the conference.

1.5 COMMUNICATION REGARDING THIS COMPETITION

All communication should be directed to the WSPRC Contracts, Grants, and Procurement Office (CGP), specifically the Procurement Coordinator using the email address both of which are listed on the face page.

Bidders should not contact any other WSPRC staff about this competition and doing so may result in your bid response being disqualified and rejected.

Only WSPRC responses posted on Washington Electronic Business Solutions (WEBS) are deemed official. All other WSPRC communication whether it be verbal or in writing are deemed unofficial and nonbinding.

Special Communication Instructions: Some sections in this competition contain additional communication instructions. Bidder's failing to communicate as instructed may result in the communication being missed or misunderstood, and/or not considered.

- Prebid Conference (Section 1.4)

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- Question and Answer Period (Section 1.6)
 - Complaint Period (Section 1.7)
 - Submission of Responses (Section 4.1)
 - Procurement Records Disclosure (Section 6.2)
 - Debriefing of Bidders (Section 6.3, 6.3.1)
 - Protests (Section 6.4)

1.6 QUESTION AND ANSWER PERIOD:

- Bidders may ask questions, seek clarifications or changes at any time, however, the WSPRC needs time to formulate a response and post the response on WEBS. Responses must occur well before the bid's due date deadline so that Bidders can digest the information and author a bid response.
- Final day for questions that may receive a formal answer response via WEBS is: See Section 1.8 – Procurement Schedule: **Question Period** or **Prebid Conference**.
- Send Questions to: Contracts@PARKS.WA.GOV.
- Subject line must include the bid's identification number and "Question." See the first page or footer for the bid's identification number.

Example email subject line: **325-022 Question**

- Responses, if any, will be posted on WEBS (State of Washington's bid notification system).
- SPECIAL NOTE: Only responses posted on WEBS are deemed official. All other communication whether it be verbal or in writing are deemed unofficial and nonbinding.

1.7 COMPLAINT PERIOD:

- Bidders should first attempt to address and resolve any concerns during the Question and Answer Period. Should a Complaint be warranted, please see below.
- The Complaints Period is: See Section 1.8 – Procurement Schedule. Complaints received before and after this period will not be considered.
- Send Complaints to: Contracts@PARKS.WA.GOV.
- Subject line must include the bid's identification number and "Complaint." See the first page or footer for the bid's identification number. Bidder's failing to mark the Complaint as instructed may result in the communication being missed or misunderstood as something other than a Complaint, and the Bidder forgo their Complaint.

Example email subject line: **325-022 Complaint**

- Responses, if any, will be posted on WEBS (State of Washington's bid notification system).

- **SPECIAL NOTE:** Only responses posted on WEBS are deemed official. All other communication whether it be verbal or in writing are deemed unofficial and nonbinding.

Bidders submitting complaints shall follow the procedures described in this section. Complaints that do not follow these procedures shall not be considered.

All complaints must be in writing and sent to the Procurement Coordinator before the deadline, to the email address, and using the proper subject line.

The complaint must state the basis for the complaint and a proposed remedy.

Only complaints that fall into the categories below and stipulate an issue of fact shall be considered; however, a proposed solutions are always welcome.:

- The solicitation unnecessarily restricts competition;
- The solicitation evaluation or scoring is unfair or flawed; or
- The solicitation requirements are inadequate or insufficient to prepare a response.

1.8 PROCUREMENT SCHEDULE:

Any stated time is Pacific Time Zone (local time).

Activity	Due Dates	Time
Question Period	10/13/2023-11/09/23 See additional details in Section 1.6 – Question and Answer Period.	NA
Answer Period	11/10/2023-11/15/2023, anticipated but may take longer. All Answer Responses will be posted on WEBS. See Section 1.6 – Question and Answer Period	
Prebid Conference	November 7, 2023 <ul style="list-style-type: none"> • See additional details in Section 1.4 – Prebid Conference 	10:30 PST
Complaint Period	11/16/2023-11/22/23 See additional details in Section 1.7 – Complaint Period. Complaints received before or after the Complaint period will not be considered.	NA
Bidder’s Response – Deadline	12/01/2023 See also: Section 4 - Responses - Preparation and Submission Requirements. See also Section 3.1 CHECKLIST OF REQUIRED MATERIALS	1:00PM
Announcement of Apparent Successful Bidder (ASB)	After the Bid’s due date (deadline to submit bid responses) and following the evaluation, the state will Announce the Apparent Successful Bidder (ASB). See additional details in Section 6.1 – Announcement of Apparent Successful Bidder.	

Debriefing of Bidders	The Bidder wanting a Debrief must request a Debrief within three business days following the day of the Announcement of Apparent Successful Bidder (ASB). See additional details in Section 6.3 – Debriefing of Bidders
Protest	The DEBRIEFED Bidder wanting to submit a protest must submit a Protest within five business days following the day of the Debrief. See additional details in Section 6.4 - Protests

2 SPECIAL TERMS & SOW & SPECIAL INFORMATION

2.1 ADVANCED PAYMENT PROHIBITION

Payment shall be based on goods and services provided. No payment shall be made for non-designated goods or services. Payment will be made only after proper documentation and invoicing has been provided to the Agency. In accordance with Washington's Constitution at Article 8, Section five, while progress payments are allowed, under no circumstances will payment be made prior to the work (or for progress work) being rendered, completed, delivered, and acceptable. This condition includes terms like deposits, security deposits, and the like.

2.2 BUSINESS STRUCTURE & EMPLOYEES (COMPLIANCE WITH LAW)

During bid response evaluation and/or prior to contract execution and/or during the life of the contract, the Washington State Parks and Recreation Commission (WSPRC) may require your firm to provide proof, satisfactory to WSPRC, that your firm is a legally licensed business entity and is compliant with all business and employee related laws and regulations, including but not limited to, taxes, licenses, employee insurance, not debarred, etc. WSPRC reserves the right and may contact any person, business, agency, database system it deems necessary to validate compliance. Further, WSPRC may require your firm to provide information, acceptable to WSPRC, that verifies and validates business structure and/or the employment status for anyone appearing to be working on behalf of this contract. Failure to provide required information in a timely manner may result in your bid response being rejected or your contract terminated. If your firm is found to be out of compliance with business and/or employee related laws or regulations or is otherwise a violator of these law and regulations it may result in your bid response being rejected or your contract terminated. Note: Information is readily available from state government agencies such as the Department of Revenue, Labor and Industries, Secretary of State, and Employment Security Department, however named.

2.3 CAUTION: THE RESULTING CONTRACT AND ITS TERMS AND CONDITIONS

Near the end of the competition document a sample contract is provided to help the Bidder better understand State Parks' typical terms and conditions (usually in the form of a boilerplate). Any resulting contract (even if different in appearance) will include the terms, conditions, and boilerplate. The Bidder should review the sample contract, determine what is its risk and its desired reward and bid a rate(s) accordingly.

On occasion, Bidders that are selected for contract (Apparent Successful Bidders or ASB), try to negotiate away one or more of the State Parks terms and conditions. Bidders are cautioned that negotiation of this type will likely not be entertained. Bidders are cautioned to form a bid response that takes into account all risks and bid accordingly.

2.4 STATEMENT OF WORK: PUMP OUT FACILITY ENHANCMENT ASSESSMENT

2.4.1 Services:

WSPRC is seeking proposals from parties interested in conducting research, and preparation of an updated comprehensive recreational boat sewage needs assessment, responsive to the legislative proviso funding this work, **Senate Bill 5200 - Sec 3053 - Enhancement of Puget Sound Pump Out Facilities, which states**, “state appropriation is provided solely for conducting a needs assessment of recreational marine pump out facilities in Puget Sound with the goal of identifying areas underserved by the current infrastructure and new projects that will help meet the Puget Sound no discharge zone and prevent vessels from discharging sewage directly into Puget Sound.”

Assessment services include but are not limited to:

- Researching federal, state, and local requirements, ordinances, and policies for recreational vessel sewage management.
- Reviewing information about existing pumpout infrastructure availability, condition for accuracy.
- Comparing mobile pumpout programs in Washington to those run in other states.
- Identifying geographic hot-spots or events where existing pumpout infrastructure is inadequate or inefficient (particularly at State Parks).
- Projecting future pumpout needs based on anticipated population growth in Washington.
- Identifying funding needs and opportunities to support pumpout infrastructure and programs.
- Preparing and conducting surveys, interviews, and focus groups to gather diverse stakeholder input on recreational vessel sewage management needs.
- Summarizing findings into a written report for WSPRC review.

The consultant will meet at least once a month with State Parks representatives at the State Parks Headquarters building located in Olympia, Washington or by video conference (if applicable). The subjects of the meetings will include but not limited to the following:

- a. General project orientation and start-up.
- b. Sharing of data required for the project.
- c. Coordinating additional meetings or discussions to obtain information and to provide stakeholder outreach.
- d. Discussions of encountered problems and their solutions.
- e. Ensure that the information being prepared meets expectations of WSPRC.
- f. Review of WSPRC comments on the consultant’s draft reports.

DELIVERABLES:

The consultant will prepare a:

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- Written summary of findings and recommended elements that can be used to support requests for legislative funding of high priority needs.
 - Presentation for WSPRC and stakeholders, to be delivered via webinar.
 - Final draft report for WSPRC incorporating input received from stakeholders.
 - Final report.

REPORTING AND PROJECTED SCHEDULE

WSPRC recognizes factors out of WSPRC, or the Consultants control could potentially impact the schedule below, however, WSPRC would like to show bidders what project schedule WSPRC is anticipating as listed below:

- A list of stakeholders to be interviewed by March 1, 2024
- A list of probable recipients of surveys and draft surveys by April 30, 2024.
- A summary of the literature and studies found with referenced materials by June 1, 2024.
- Draft needs assessment report by October 1, 2024, for stakeholder webinar.
- Final needs assessment report incorporating stakeholder input by November 30, 2024.

2.4.2 Standards of Work:

The Washington State Parks and Recreation Commission has signed our commitment to the Centennial Accord and compliance with Government-to-Government Consultation process as co-stewards of the land including Washington waters with Indigenous Tribal Nations. With this commitment WSPRC remains the primary source of contact via outreach, engagement, and communication with Tribal Nations and will require that:

- Consultant shall coordinate with the State's Tribal Relations Director on all written communication with Indigenous Tribes relating to this assessment.
- Consultant shall invite State Tribal Relations and/or necessary staff to participate in all phone, online, or in-person meetings with Tribal Nations/Representatives.

OUTCOMES

The information gathered during this assessment will be used to develop a plan for adding new facilities, and/or identifying funding sources to support the plan.

2.5 Contract Highlights For Any Resulting Contract

The Washington State Park and Recreation Commission is seeking consultants/contractors who can provide the necessary assessment services for the enhancement of the Puget Sound pump out facilities effort. In an effort to support small business, veteran owned, and diverse businesses, bidder does not have to provide services statewide but only in a specific region. Contracts may be based off a specific region.

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- Travel & Expenses: Initially, the contract will allow for separate Travel & Expenses (subject to the approval of the State Parks Project Representative).

Any request for Travel & Expenses SHALL NOT exceed the rates and amount authorized by the state of Washington. To that end, State Parks shall reference and use the state of Washington, State Accounting and Administrative Manual (SAAM) to calculate any Travel & Expenses. Any request for Travel & Expenses greater than is authorized by state rules SHALL NOT be paid and the Consultant/Contractor SHALL hold the state HARMLESS. SAAM Link: <https://ofm.wa.gov/accounting/saam>.

Exception: Should an exception be necessary to the state's travel rules, it will require a consultation with and the approval of the State Parks Accounts Payables (A/P) team in writing and this writing shall be attached to the task order prior to the task order being signed by both parties. The A/P consultation and approval is incorporated by reference into the task order. Any promises made outside the four corners of the task order is nonbinding, shall not be relied upon, and not honored.

NOTICE: State Parks is moving to an all-encompassing LUMP SUM methodology where Travel & Expenses (if any) are rolled into the LUMP SUM fee identified in the quote. If and when adopted VIA MUTUALLY AGREED NEGOTIATION Travel & Expenses will be assumed to be rolled into the Consultant's/Contractor's blended rate (an up to value).

- Quote Process: Consultants/Contractors must provide a quote in the format required by the State Parks representative but the quote must also include a clear discussion on travel and expenses which will help the State Parks representative understand if the Consultant/Contractor understands the work to the same degree as State Parks. State Parks may ask for quotes from one or more Consultants/Contractors and select the one of his/her choosing for any reason.
- Invoice: Initially, may include references to travel or expenses and supporting travel and expenses documentation, such as, receipts or mileage calculations, which may be required to fulfill the reimbursement request. However, as mentioned earlier, State Parks is moving to an all-encompassing Lump Sum methodology. If and when adopted VIA MUTUALLY AGREED NEGOTIATION Travel & Expenses will be assumed to be rolled into the Consultant's/Contractor's blended rate (an up to value).

3 RESPONSES - REQUIRED CONTENT, FORMAT, AND SCORING:

3.1 CHECKLIST OF REQUIRED SUBMITTALS

The following list in the table in this subsection identifies the content that must be included in each responsible submission (Bidder's bid response). Any response that does not contain all of these items may be rejected as non-responsive. Each item is discussed in more depth in the sections following the Table.

Each submittal should contain responses to all required details. Failure to do so may result in failure to pass administrative screening. Evaluation scoring will be based on the Consultant's abilities to include comprehensive expertise, relevant experience, cost factors, and past performance.

Table explained: The Table below identifies what Submittals the Bidder must provide to WSPRC in the Bidder’s Bid Response and also acts as a Checklist so that the Bidder does not forget to include required material in the Bid Response. *In some cases, the WSPRC has provided a form for this purpose but if no form is provided the Bidder must “self-author” a response to meet this Submittal condition.* The Table also states if the Submittal will be Scored by points or scored as Pass/Fail. The Table also provides a nonexclusive courtesy Reference linking the Submittal to other areas of the document.

Evaluation Criteria / Required Material	Maximum Possible Point Total (UP TO)
Appendix A: Certifications (form provided, must be signed)	Pass/Fail Basis – no points
Appendix B: Bidder Profile	Pass/Fail Basis – no points
Competition Amendments (if any)	If applicable, see amendment for details.
Appendix C: Technical Proposal *Will be scored twice if applying for both Areas of Expertise	60 Points Maximum
Appendix D: Management Proposal	30 Points Maximum
Appendix E: Quote Proposal (Section 3.7 and Appendix E)	10 Points Maximum
Appendix F: References (Section 3.8 and Appendix F)	Pass/Fail Basis – no points
Appendix G: OMWBE Certification (Section 3.9 and Appendix G) if Applicable	Additional 10 points if applicable
TOTAL:	Small/Veteran Owned Business: 110 points Non-Small/Veteran Owned: 100 points

General Evaluation Continuum: State Parks will use the following as general guidance and the specific criteria detailed in the Checklist (Table) and/or in Section 3 subsections in determining scores.

For Each Scored Section General Evaluation Continuum					
Bidder demonstrates renowned experience and/or the least or no risk, and/or ideal fit for what is being sought by State Parks (Max Points)	Bidder demonstrates considerable experience, and/or some minor risk, and/or a close but not ideal fit for what is being sought by State Parks. (Most Points)	Bidder demonstrates solid experience, and/or mild risk, and/or fair fit for what is being sought by State Parks. (Some points)	Bidder demonstrates adequate experience, and/or medium risk, and/or mediocre fit for what is being sought by State Parks. (Less points)	Bidder demonstrates limited experience, and/or high risk, and/or poor fit for what is being sought by State Parks. (Minimum points)	Bidder demonstrates no experience, and/or grave risk, and/or a bad fit for what is being sought by State Parks (no points)

3.2 (APPENDIX A) – CERTIFICATIONS, ASSURANCES, AND WAIVER (Mandatory)

A FORM is provided for this part of your bid response. See (APPENDIX A – CERTIFICATIONS, ASSURANCES, AND WAIVER. (Pass/Fail)

The Certifications must be executed as written in Appendix A. Failure to execute the Appendix in its official form will result in the Bidder’s Proposal being disqualified.

Appendix A – Certifications is evaluated on a pass/fail basis.

Must be signed with wet-ink signature (pen to paper). DON’T type in a signature, write it out by hand.

This Submittal will used for any and all Regions bid; only one is needed.

3.3 (APPENDIX B) – BIDDER PROFILE (MANDATORY)

A FORM is provided for this part of your bid response. See (APPENDIX B – Bidder Profile) (Pass/Fail)

Bidder Profile provides general information concerning the Bidder and/or its corporate entity.

It is important to fully read the Bidder Profile as there may be additional pages that the Bidder may have to self-author and attach depending on the Bidder’s response.

Appendix B - Bidder Profile must be substantively completed and is evaluated on a pass/fail basis.

3.4 COMPETITION AMENDMENTS (IF ANY)

As explained in Section 7.3 – Amendments to the Competition, WSPRC may need to amend this competition. Any competition amendment will be posted on WEBS under this competition number.

Competition Amendments may be simply informational, extend the competition’s bid due date, add/delete/modify language of the competition document or an earlier-in-time competition amendment, it may fully revise and replace the competition document, or may be responses to Questions or Complaints, etc. The competition amendment may need to be signed. It may direct the Bidder to include other documents that are self-authored by the Bidder.

It is important the Bidder follow the instructions stated in the competition amendment, failure to do so may result in bid disqualification and rejection.

Depending on the instructions and directions, the result may be scored or pass/fail.

3.5 TECHNICAL PROPOSAL (APPENDIX C)- Self Authored-Scored
(60 points possible)

Bidder, please include the following in your Technical Proposal:

- Project Approach/Methodology -20 points (maximum)
- Quality of Work Plan-20 points (maximum)
- Project Schedule-10 points (maximum)
- Project Deliverables-10 points (maximum)

3.6 MANAGEMENT PROPOSAL (APPENDIX D)-SELF AUTHORED-SCORED
(30 points possible)

- Project Team Structure
- Internal Controls
- Project Coordination Strategy
- Staff Qualifications/Experience

3.7 COST PROPOSAL (APPENDIX E)-SELF AUTHORED (SCORED)
(10 points possible)

Bidder, please self-author and provide a personnel hourly rate schedule for individuals that will be associated with the resulting contract. The rate schedule should list by skillset, function, and/or title.

Subcontractors: Bidder, if you plan to use subcontracting to augment deficiencies or vacancies in skillset or functions, include the hourly rate schedule for subcontracted personnel.

Rate Schedule Note: In the resulting contract the initial Rate Schedule shall be as bid for at least that same calendar year. Thereafter, the Contractor may request a change to the Rate Schedule once per calendar year. If the new Rate Schedule is not adopted or approved by State Parks, the Contractor shall request a Termination for Convenience following the conclusion of work under the original agreed upon rate schedule *Reminder: Rate Schedules are an up to value. Be mindful that if a Rate Schedule is adopted and approved by State Parks it may none-the-less make your services unattractive or cost prohibitive when compared to other contractors/consultants.*

SCORING CRITERIA:

Using the Bidder's self-authored rate schedule, the document will be evaluated with the maximum score of 10 points possible. There are many reasons a Rate Schedule might not score the maximum points, including but not limited to:

- Lacking detail.
- Hourly rates deemed too far outside the norm.

3.8 REFERENCES (APPENDIX F)

(Pass/Fail)

The Bidder must self-author this submittal; no form is provided.

The Bidder shall self-author a document titled REFERENCES and address the following.

Bidder please provide Five (5) references pertaining to the services described in this competition document.

Bidder, this part of your bid response requires you to submit reference from other parties (do not use WA State Parks and Recreation Commission as a reference).

References should speak to the quality of the Consultant's previous work as well as their ability and capacity to deliver similar projects on time and within budget.

Consultants may also provide Internet websites that contain information regarding past or current projects that are related to this RFX competition.

Bidder if you do not include references or your references do not adhere to the requirements above your bid may be rejected.

3.9 (APPENDIX G) – OMWBE/ VETERAN OWNED BUSINESSES CERTIFICATION

Bidder this part of your bid response is self-authored by you, no form is provided. Bidder if you are a certified OMQBE/Veteran Owned business please adhere to the following:

- **Title this "3.9 OMWBE/Veteran Owned Certification".**

Include proof of certification issued by the Washington State Office of Minority and Women's Business Enterprises or Veteran Affairs, or be self-certified through WEBS at time of competition

Certified veteran-owned and/or Washington small, diverse business.

This part of the bid response is an additional 10 points if you are a certified and/or Veteran Owned Business.

4 RESPONSES - PREPARATION AND SUBMISSION REQUIREMENTS

4.1 SUBMISSION OF RESPONSES

Responses are due on: See Face-page for exact details
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Washington State enacted law allowing for electronic alternatives to pen-to-paper wet-ink signature on hardcopy documents, meaning if WSPRC agrees to alternatives other than wet-ink signature (pen-to-paper) on hardcopy documents, these alternatives may be accepted by WSPRC and are legally binding. See RCW 1.80.

For purposes of this competition document, WSPRC is accepting a PDF scan (or similar representation) of the Bidder's wet-ink signature when and where a signature is required. **For clarity:** Print out the competition document, review it, include any other required document(s), complete where necessary, sign where you need to sign with a pen onto the paper, when you believe your bid response is ready to be submitted to WSPRC, **scan it as a PDF** file, review the PDF file one last time, and then attach the PDF file to your business email and send it to WSPRC. See also, Appendix A – Certification, Assurances, and Waiver, subsection O.

It is WSPRC's expectation that the Bidder's bid response email will contain an attachment with all of the required documents scanned as a PDF, including any required signatures.

Bidders are required to submit the bid response electronically by email/email attachment to the address below.

Send your bid response to: BidBox@parks.wa.gov.

- Subject line should include the bid's identification number, "Bid" and Company name.

Example email subject line: **325-022 Bid ACME**

Example email subject line: **325-022 Bid John Smith Construction**

Example email subject line: **325-022 Bid Microsoft**

CAUTION: Submit your bid response early as a safeguard against any technological slow-down or delays. Bids received after the deadline for any reason, no matter the cause, regardless of responsibility, will be rejected.

VERIFICATION: Bidders are welcome to contact the State Parks Contracts, Grants, and Procurement team (CGP) to see if your bid response was received, however, this process works best if there's enough time between the date and time submitted and the bid's due date deadline. Bidders should give CGP at least a day to notice your verification request and respond. Send verification requests to Contracts@parks.wa.gov and in the subject line use "VERIFICATION" and the competition's number identifier (see face-page for the competition number).

4.2 RESPONSE LAYOUT REQUIREMENTS

The Bidder's bid response should be logically assembled so that the evaluators can easily understand what they reading and relate what they are reading back to the competition document's requirement. Evaluators appreciate landmarks or references using the competition document's section numbers and section titles. One mistake that Bidders make is that they have a previously prepared statement or materials that don't precisely relate to the competition document's individual requirement (it wasn't tailored or designed for the requirement), or that the previously prepared statement (or material) is supposed to relate to two or more requirements of the competition document. That can be confusing and may result in a negative impact to the evaluation of the Bidder's bid response.

NOTE: If evaluators cannot easily identify the statement/material or cannot easily link it to the competition's section reference, requirement, or question the statement/material may be misunderstood, disregarded, or may negatively impact the evaluation of the response.

5 EVALUATION AND AWARD

5.1 DETERMINATION OF RESPONSIVENESS

All Responses received by the stated deadline will first be reviewed by the Procurement Coordinator to ensure that the Responses appear to contain the information required in this competition document. Only Bid Responses that meet the requirements will be forwarded for further substantive review. Any Response that does not appear to contain all of the required information or any Bidder who does not meet the mandatory qualifications

will be rejected as non-responsive and will be removed from further evaluation. However, the Procurement Coordinator has the right to waive minor informalities, and/or seek clarification if confused provided that neither alters the content of the Response.

WSPRC reserves the right to: (1) Waive any informality (WSPRC reserves the right to determine the actual level of Bidders' compliance with the requirements specified in this competition and to waive informalities in a bid). An informality is an immaterial variation from the exact requirements of the competition, having no effect or merely a minor or negligible effect on quality, quantity, or delivery of the supplies or performance of the services being procured.; (2) Reject any or all bids, or portions thereof; (3) Cancel the Competitive Solicitation and may re-solicit bids; and/or (4) Negotiate with the lowest responsive and responsible Bidder(s) (or Bidder with the most points) to determine if such bid can be improved.

5.1.1 Rejected Bids/Bidders & Rejection Notification & Rejection Response

This Rejection Response process is not governed by Washington's Administrative Procedures Act (APA), RCW 34.05, nor does it confer any additional rights above and beyond what the Bidder already enjoys as a taxpayer. The purpose of this process is to allow WSPRC to correct evaluation process errors and problems before a contract is executed.

WSPRC will perform a preliminary evaluation which is largely procedural. See Section 5.4.1 - Preliminary Evaluation (Procedural) and all of this section's subparts.

If WSPRC determines that a bid or Bidder must be rejected under 5.4.1 and/or subparts, WSPRC will send a rejection notification to the email address provided by the Bidder in the Bidder Profile form (Appendix B). WSPRC bears no responsibility for any issue or technological issue preventing actual receipt of the notification to the rejected Bidder.

Two Business-day Response Period: The Bidder may refute the rejection. The rejected Bidder must respond to the rejection within two (2) business-days following the day of rejection notification.

- The Bidder's Rejection Response **must be sent to** Contracts@parks.wa.gov.
- **Subject line must include** the bid's identification number and "Rejection". See the first page or footer for the bid's identification number.

Example email subject line: 325-022 Rejection
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- The Bidder must explain how and why WSPRC erred in rejecting the Bidder's bid under Section 5.4.1 - Preliminary Evaluation (Procedural).

WSPRC will consider the rejected Bidder's response, and if in WSPRC's opinion, it determines error on our part, the bid will be moved forward to further evaluation. If WSPRC determines it did not err, the bid will not be moved forward for evaluation.

The process detailed in this section (Section 5.1.1), does not supersede or displace the DEBRIEF process or PROTEST process. A Bidder may after the Announcement of Apparent Successful Bidder is announced, request a Debrief, and a Debrief is a prerequisite for a Protest. See Section 6.3 – Debriefing of Bidders and Section 6.4 – Protests for expanded details about the process and what WSPRC will recognize as legitimate.

5.2 GENERAL EVALUATION PROVISIONS

The evaluation process is designed to award a contract to the Bidder with the best value based on the selected evaluation criteria.

Evaluations of subjective material will likely be conducted by the customer program requiring the goods/services or an evaluation team. WSPRC has sole discretion over the selection of evaluators and will make such selections based on each potential evaluator's availability, knowledge, skills, and experience with the subject matter. Evaluator(s) will independently grade and score or consensus score the Bidder's material based on their own independent judgment, and in accordance with the format noted herein for each respective requirement. Evaluator(s) will only evaluate the material contained in the Responses and will not incorporate outside material into their determinations. The evaluator(s) has sole discretion over his or her final scores.

Bidders should take every precaution to assure that all answers are clear, complete and directly responsive to each specific requirement.

5.3 EVALUATION OF COMPLETION BY DATE

The Agency reserves the right to require that the Apparent Successful Bidder (ASB) provide within three (3) business days after request, satisfactory evidence of ability to have the services performed and completed by: not used. Failure to provide satisfactory evidence may be grounds for submittal rejection.

5.4 EVALUATION STEPS

5.4.1 Preliminary Evaluation (Procedural)

- a) Did the bid response arrive by the due date (deadline) to the proper location? Pass/Fail.
- b) Did the Bidder, on behalf of the Bidder's Firm, appear to bind the company to the commitment of the competition (manifestation of assent)? Pass/Fail. Acceptable manifestations of assent may include:
 - Is the bid signed by an individual (a person and NOT a group or team)) with a wet-ink signature albeit provided as a PDF scan, photo, or other similar visual copy representation?
- c) Did the Bidder appear to provide and complete the information requested? Pass/Fail.
- d) Does the Bidder appear to accept the WSPRC terms and conditions without reservation? Pass/Fail.
- e) Does the Bidder, under penalty of perjury, certify it is not a Wage violator (see Certification - Wage Theft Prevention)? Pass/Fail.
- f) Does the Bidder, under penalty of perjury, certify it supports worker's rights (see Certification - Supporting Workers' Rights)? Pass/Fail.
- g) If submittals were required, were the submittals provided and do they appear to be complete so that the bid could be compared to other conforming bids? Pass/Fail.
- h) If any bid is rejected at this stage, send a Rejection Letter to the Bidder's email address provided by the Bidder in the Appendix B – Bidder Profile. See also Section 5.1.1 – Rejected Bids/Bidders & Rejection Notification & Rejection Response. Otherwise, advance the bid(s) to Section 5.4.2 – Substantive Evaluation: Phase 1.

5.4.2 Substantive Evaluation: Phase 1

- a) Preferences and penalties: Preferences and penalties that are required by law, rule, or competition document will be applied to bid pricing. A preference reduces the Bidder's

stated price by the amount of the preference and is an advantage to the Bidder. A penalty increases the Bidder's stated price by the amount of the penalty and is a disadvantage to the Bidder. *Preferences and penalties are applied to the pricing for evaluation purposes only but are not applied for purchasing purposes if awarded the contract.*

- Determine Reciprocity under [RCW 39.26.271](#), [WAC 200-300-075](#), [DES Reciprocity Information](#), [DES Reciprocity Map \(list\)](#). Determine the business address from which the bid was submitted. Check the DES Reciprocity Map (list) to determine, for evaluation purpose only, if the bid's pricing must be increased or rejected.
 - Determine Polychlorinated Biphenyls (PCB):
- b) If submittals were required, were the submittals provided and were they materially complete so that the material aspects of the bid response can be compared to other conforming bids? Pass/Fail. If a points methodology is being used instead of a pass/fail methodology, then determine the points.
 - c) Determine the low bid; use subtotal value. If a points methodology is being used instead of low bid methodology, then determine the points.
 - d) References: If not waived by WSPRC, do the references reflect good customer service and good product quality, and no meaningful apprehension from using this Firm in the future? Pass /Fail. If a points methodology is being used instead of a pass/fail methodology, waiver is not allowed, WSPRC must determine the points.
 - e) Responsibility of the Bidder: In determining the responsibility of the Bidder, WSPRC may also consider: [RCW 39.26.160 Bid awards—Considerations—Requirements and criteria to be set forth—Negotiations—Use of enterprise vendor registration and bid notification system](#). If considered then Pass/Fail.
 - f) Upon determining the lowest priced responsive and responsible Bidder (or responsive and responsible Bidder with the most points), perform the Announcement of ASB UNLESS the Substantive Evaluation: PHASE 2 (optional) is used.

5.4.3 Substantive Evaluation: Phase 2 (Optional)

- a) Following PHASE 1 if WSPRC so chooses, the lowest priced responsive and responsible Bidder (or responsive and responsible Bidder with the most points) may be required to appear in some form and/or present additional materials to validate to the WSPRC that the services or items offered meets the WSPRC's needs and meets all other competition terms & conditions. If WSPRC requests materials it deems necessary to validate the services or item offered, the materials must be provided within five (5) business days or face possible elimination. The Bidder WILL NOT be allowed to materially change its bid response and the examination will be limited to the validation of the item and/or services offered. If WSPRC in its sole discretion determines that the Bidder's bid does not meet the WSPRC needs and/or other competition terms & conditions, the Bidder's bid response will be rejected and the next lowest responsive and responsible (or responsive and responsible Bidder with the most points) bid response may be considered. This process may repeat itself until an Apparent Successful Bidder (ASB) is determined or the competition is cancelled.
- b) Upon determining the lowest priced responsive and responsible Bidder (or responsive and responsible Bidder with the most points), perform the Announcement of ASB.

5.5 SELECTION OF APPARENT SUCCESSFUL BIDDER(S)

Note: The Bidder meeting all responsive criteria and having the lowest costs (or, highest final cumulative score) will be selected as the Apparent Successful Bidder(s) (ASB).

WSPRC will notify the Apparent Successful Bidder, and the non-successful Bidders, via email to the address provided in the Bidder Profile (Attachment B) - Primary Contact Person for Questions/Contract Negotiations.

6 ANNOUNCEMENT OF ASB, PUBLIC DISCLOSURE, DEBRIEF, AND PROTESTS

6.1 ANNOUNCEMENT OF APPARENT SUCCESSFUL BIDDER (ASB)

Following the bid Evaluation, WSPRC will announce TO ALL BIDDERS the Apparent Successful Bidder (ASB) by email to the email address provided by the Bidder in the Bidder Profile (Appendix B).

The Announcement of ASB starts a clock and it is the responsibility that the Bidder provide a working email. WSPRC accepts no responsibility for the Bidder's actual receipt of the Announcement of ASB.

The announcement is called the Announcement of Apparent Successful Bidder. Notification that a Firm(s) was selected as the ASB simply means that at this point in time WSPRC believes the ASB was the lowest cost responsive and responsible Bidder (or Bidder with the most points), but designation as the ASB is not a guarantee of a contract and/or WSPRC Purchase Order, or purchase. WSPRC reserves the right to reevaluate the ASB's bid and determine whether the ASB's bid was responsive and responsible and successful as first thought. ASBs are cautioned not to commit funds, resources, and effort prior to receiving an actual executed contract and/or WSPRC Purchase Order. Bidders and ASBs that commit funds, resources, and effort prior to a contract and/or WSPRC Purchase Order do so at its own risk and peril. Further, WSPRC cautions against any premature action prior to an executed contract and if any premature action causes a disruption or dilemma for WSPRC, it could result in no contract being executed.

Following the announcement of the ASB, Bidders may request a Debrief conference. The Bidder will have a short period of time to request the Debrief conference. NOTE: A Debrief conference is a mandatory prerequisite for any Bidder desiring to protest the award.

6.2 PROCUREMENT RECORDS DISCLOSURE

Procurement records for this competition cannot be released or viewed until after the Announcement of Apparent Successful Bidder(s) (ASB); see Section 6.1 – Announcement of Apparent Successful Bidder.

A Bidder may request copies of the competition records, including the solicitation and evaluation documents or may inspect the competition records.

Washington State Parks and Recreation Commission (WSPRC) has a Public Records Officer. If you'd like copies of these records please click on the link(s) below for agency instructions.

WSPRC Public Records Officer at: public.disclosure@parks.wa.gov

- (INFO) <https://www.parks.state.wa.us/1093/Public-records-requests>
- (FORM) <https://www.parks.state.wa.us/DocumentCenter/View/11083/A-374-Public-Record-Request?bidId=>

As you are completing your request, it is helpful that you identify the request so that it is understood by the Public Records Officer and not delayed.

This competition is identified under: **(WSPRC 325-022) Assessment Services Puget Sound Pump Out Facilities Enhancement**

This competition is being conducted through the: **Contracts, Grants, and Procurement section, which is part of the agency Financial Services Office.**

See also: Section 7.13 - PUBLIC DISCLOSURE & WAIVER OF PROPRIETARY INFORMATION

6.3 DEBRIEFING OF BIDDERS

Following the Announcement of Apparent Successful Bidder and upon request by the Bidder, a debriefing conference will be scheduled with an unsuccessful Bidder. THE REQUEST FOR A DEBRIEFING CONFERENCE MUST BE RECEIVED BY THE PROCUREMENT COORDINATOR **WITHIN THREE (3) BUSINESS DAYS** FOLLOWING THE DAY OF THE ANNOUNCEMENT OF APPARENT SUCCESSFUL BIDDER. Thereafter, WSPRC will schedule a Debrief conference to go over the Bidder's bid (not other bids).

6.3.1 How To Request A Debrief Conference

Requests for Debriefs shall be addressed to the Procurement Coordinator in the form of an email to Contracts@Parks.WA.GOV.

The email's subject line must include the competition's number and the word "Debrief". Failure on the part of the Bidder to mark the email communication as instructed may result in the Debrief being overlooked or misunderstood and not considered.

Example email subject line: **325-022 Debrief**

6.3.2 Debrief Meeting, Discussion, And Delay

Discussion will be limited to a critique of the requesting Bidder's response. Comparisons between responses or evaluations of the other responses will not be allowed. Debriefing conferences may be conducted in person or on the telephone and will be scheduled for a maximum of 1/2 hour.

WSPRC intends all debriefings conferences to take place within a few days of the Announcement of Apparent Successful Bidder. The requesting Bidder will not be allowed to delay the process from moving forward and should have a designated representative made available if the Bidder is unavailable. Bidders that are not available for the Debrief conference scheduled by WSPRC forgo its opportunity for debriefing and filing a Protest (see section titled Protests).

6.3.3 Debrief Is A Prerequisite For Protest

A Debriefing Conference is a prerequisite to Protesting the Competition.

6.4 PROTEST

6.4.1 General:

This protest process is not governed by Washington's Administrative Procedures Act (APA), RCW 34.05, nor does it confer any additional rights above and beyond what the Bidder already enjoys as a taxpayer. The purpose of this process is to allow WSPRC to correct evaluation process errors and problems before a contract is executed.

Only a Bidder having avail itself of a Debriefing Conferences may file a protest regarding this competition.

The Bidder must strictly adhere to the protest process as set forth herein, the failure of which may result in a summary determination that the protest is without merit without an opportunity to cure.

6.4.2 Form And Content:

All protests must:

- Be in writing.
- The protest must state and clearly articulate the grounds for the protest (see Section 6.4.3 – Content Limitations and 6.4.5 – Grounds Which May Be Protested) with specific facts and complete statements of the action(s) being protested.
- A description of the relief or corrective action being requested should also be included.
- All protests shall be addressed to the Procurement Coordinator.

6.4.3 Content Limitations:

WSPRC does not currently mandate any page limitation. However, the protest must be clearly articulated, succinct, organized, logical, and professional.

WSPRC will summarily reject protests that:

- fail to state and clearly articulate at least one of the three GROUNDS provided in Section 6.4.5 – Grounds Which May Be Protested;
- contain rants, attacks, and/or disparaging or abusive remarks;
- include multiple attachments or references to material (document dumping, document overload); OR,
- appear to require the reader to weigh through voluminous amounts of material to verify the argument being made or piece together voluminous amounts of material to decipher the argument being made.

6.4.4 Submission Of Protests

- All protests must be submitted within three (3) business days after the day of the Debriefing Conference.
- Bidders must send all protests to: [Contracts](#). See also Subject Line.
- SUBJECT LINE: The email’s subject line must include the competition’s number and the word “Protest”. Failure on the part of the Bidder to mark the email as instructed may result in the Protest being overlooked or misunderstood and not considered.

Example email subject line: 325-022 Protest
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- The name of the protesting Bidder, mailing address and phone number, and the name of the individual responsible for submission of the Protest;

6.4.5 Grounds Which May Be Protested

- Conflict of Interest on the part of WSPRC staff.
- Errors in computing the score.

-
- Non-compliance with procedures described in the procurement document.

Protests will be rejected as without merit if they do not clearly and convincingly meet one of the GROUNDS above and/or seems to address issues such as:

- An evaluator's professional judgment on the quality of a response, or
- WSPRC's assessment of its own and/or other agencies' needs or requirements, or,
- Issues, concerns, objections, or requests for changes that were or could have been addressed during the Question and Answer Period, Complaint Period, or a Bidder rejected under Section 5.1.1 - Rejected Bids/Bidders & Rejection Notification & Rejection Response, failing to timely avail itself of the Rejection Response period.

6.4.6 Manager Assignment And Review

Upon receipt of a protest that meets the requirements described herein, a protest review will be held by WSPRC. WSPRC will assign a Manager who was not involved in the procurement. The Manager is responsible for reviewing and investigating the Bidder's written protest and may meet with agency staff or the agency program that was involved in the competition. The Manager may consider the record and all reasonably available facts and will issue a protest determination in writing within fifteen (15) business days from receipt of the protest. If additional time is needed, the Manager will notify the protesting party of the need for additional time within 15 business days from receipt of the protest.

In the event a protest may affect the interest of another Bidder that submitted a response, WSPRC may reach out to that Bidder, may provide an unedited copy of the protest to that Bidder, and may invite that Bidder to submit its views and any relevant information on the protest to the Manager.

Standard of Review: The onus is on the Bidder to clearly and convincingly demonstrate that WSPRC erred.

6.4.7 Protest Determinations And Findings

The Manager's protest determination may:

- Find the protest lacking in merit and reject the protest;
- Find only technical or harmless errors in WSPRC's acquisition process and determine WSPRC to be in substantial compliance and reject the protest; OR
- Find merit in the protest and provide WSPRC options which may include:
 - Correcting the errors and re-evaluating all responses;
 - Canceling the competition and possibly for a new competition to take place; OR
 - Making other findings and determining other courses of action as appropriate.

If WSPRC rejects the protest, WSPRC will enter into a contract with the Apparent Successful Bidder no sooner than two business days after issuance of the protest determination by email to the protesting party at the email address indicated on the party's bid documents. For the purposes of timing, the date the protest determination is sent to the protesting party shall not count.

6.4.8 Agency Decision is final

The Manager's protest determination constitutes the agency's final decision regarding the protest. If the protesting party disagrees with the protest determination, the Bidder may

seek judicial relief in the Washington Superior Court for Thurston County within 2 business days of the issuance of the protest determination.

7 ADDITIONAL GENERAL PROVISIONS FOR ALL BIDDERS

7.1 ANNOUNCEMENT AND SPECIAL INFORMATION

By responding to this competition document, a Bidder acknowledges they have read and understand the entire competition and accepts all information contained within the competition document without modification.

7.2 CONTRACTING WITH CURRENT OR FORMER STATE EMPLOYEES

Specific restrictions apply to contracting with current or former state employees pursuant to chapter 42.52 of the Revised Code of Washington (RCW). Those restrictions also apply to any Bidder submitting a Response under this competition who has hired a former state employee. Bidders should familiarize themselves with the requirements prior to submitting a Response that includes current or former state employees.

7.3 AMENDMENTS TO THE COMPETITION

WSPRC reserves the right to revise this competition. All changes will be made by written competition amendment. All official competition amendments will be posted in WEBS and will automatically become incorporated as part of this competition. If there are any conflict between competition amendments, or between a competition amendment and the competition, whichever document was issued last in time will be controlling.

Competition amendments will be made in consideration to the overall timeline; WSPRC will determine whether extensions to the timeline are necessary.

The Bidder may only rely on the Competition and/or the Competition Amendments posted on WEBS. Any other communication, verbal or in writing SHALL be nonbinding on WSPRC.

7.4 RESPONSIVENESS OF BIDDER'S RESPONSE

Each Bidder is specifically notified that failure to comply with any part of the solicitation may result in rejection of their Response as non-responsive. Rejected, non-responsive Responses will not be further evaluated, one the bid is found to be non-responsive. WSPRC will not be liable for any errors or omissions in Bidder's Response. Bidders will not be allowed to alter their Response after the Response Submission Deadline.

It is the responsibility of each Bidder to carefully read, understand, and follow all the instructions contained in this competition documents, and in any future amendments. If a Bidder does not fully understand any Response requirement, said Bidder should submit an inquiry to the Procurement Coordinator (see Section 1.6 – Questions And Answer Period). Bidders are hereby notified that failure to comply with any solicitation requirement may result in the Response being rejected as non-responsive. WSPRC reserves the right to waive any administrative, minor irregularity in a Response, but it is not required to do so.

7.5 CLARITY AND CLARIFICATIONS

WSPRC will make the sole determination of clarity and completeness of the Responses. No Response may be altered or amended after the submission deadline; however, WSPRC reserves the right to contact a Bidder for clarification of responsive contents if necessary. NOTE: This clarification process is only used to clarify information that was contained

within the Response; it is not a means of providing or incorporating new information that was otherwise not initially included. Evaluators have no obligation to seek or request a clarification; they may evaluate the response as provided.

7.6 COST OF RESPONSE PREPARATION

WSPRC will not reimburse Bidders for any costs associated with preparing or presenting a Response to this competition.

WSPRC will not be liable for any costs incurred by the Bidder in preparation or presentation of a responsive Response to this competition.

WSPRC will not pay for any costs accrued prior to a mutually executed contract resulting from this competition.

7.7 OWNERSHIP OF RESPONSES

All Responses and materials submitted in response to this competition document become the property of WSPRC. WSPRC has the right to use information or adaptations of information that is presented in a response.

7.8 FINAL SELECTION & NO OBLIGATION

WSPRC reserves the right, at its sole discretion, to reject all responses without penalty and not to issue a contract as a result of this solicitation. WSPRC further reserves the right to cancel or reissue this competition prior to execution of a contract, if it is in the best interest of WSPRC to do so, as determined by WSPRC in its sole discretion.

7.9 INCORPORATION OF RESPONSE IN CONTRACT

The Bidder's response, including all promises, warranties, commitments, and representations made in the successful Response, are binding and shall be incorporated by reference into WSPRC's contract with the Bidder.

7.10 AGREEMENT TO WSPRC'S CONTRACT TERMS AND CONDITIONS

Attached as an Exhibit is a draft document that includes WSPRC's contract terms and conditions. These terms and conditions will be incorporated into the final contract between WSPRC and the Apparent Successful Bidder. Each Bidder's submission of its Response confirms that Bidder's consent to these terms and conditions.

7.11 STATEWIDE VENDOR PAYMENT REGISTRATION

Bidders are urged to be registered in the Statewide Vendor Payment system, prior to submitting a request for payment under this Contract. The Washington State Office of Financial Management (OFM) maintains a central Bidder registration file for Washington State agencies to process Bidder payments.

To obtain registration materials go to the Statewide/Vendor Payee Services website at <https://ofm.wa.gov/it-systems/statewide-vendorpayee-services> . The registration form has two parts. Part 1 is the information required to meet the above registration condition. Part 2 allows WSPRC (and other state agencies) to pay invoices electronically with direct deposit. This is the most efficient method of payment and vendors are encouraged to sign up.

7.12 MINORITY WOMEN OWNED AND VETERAN OWNED BUSINESS

In accordance with the legislative findings and policies set forth in Chapter 39.19 RCW, the State encourages participation in all of its contracts by firms certified by the Office of Minority and Women's Business Enterprises (OMWBE). Participation may be either on a direct basis in response to this solicitation or on a Subcontractor basis. Bidders may go to <https://omwbe.wa.gov/directory-certified-businesses> to obtain information on certified firms.

State Parks strongly encourages the participation of minority and women-owned businesses, Veteran owned businesses and small businesses, as prime Contractors or Subcontractors.

If you are a small business that needs assistance responding to this solicitation, help is available. Please visit OMWBE Small Business Assistance at <https://omwbe.wa.gov/small-business-assistance> to see the services offered. The Washington Procurement Technical Assistance Center (PTAC) is also available with no cost, confidential technical assistance for small businesses doing business with state government.



7.13 PUBLIC DISCLOSURE & WAIVER OF PROPRIETARY INFORMATION

- See Section 6.2 Procurement Records Disclosure.
- See Appendix A – Certification, Assurances, and Waiver, at subsection L - Bidder's Waiver And Release of Information, Public Disclosure is Authorized and Not Restricted.

7.14 CIVIL RIGHTS COMPLIANCE

The Director of the Washington State Parks and Recreation Commission, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. §§ 2000d to 2000d-4) and the Regulations, hereby notifies all Bidders will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of the owner's race, color, national origin, sex, age, disability, income-level, or LEP in consideration for an award. WSPRC will also affirmatively ensure that any contract entered into pursuant to this solicitation will require full incorporation of these rights in relation to all employees, personnel, and agents of the Bidder.

Continue on next page.

8 APPENDICES AND EXHIBITS

All Appendices noted below must be included as part of the Bidder's Response

- Appendix A (Section 8.1): Certifications, Assurances, and Waiver (**complete, sign and return all pages**)
- Appendix B (Section 8.2): Bidder Profile (**complete and return all pages**)
- Appendix C (Section 8.3) Technical Proposal (**Self authored and scored**)
- Appendix D (Section 8.4): Management Proposal (**Self authored and scored**)
- Appendix E (Section 8.5): Cost Proposal (**Self authored and scored**)
- Appendix F (Section 8.6): References (Self Authored Document) mandatory
- Appendix G (Section 8.7): OMWBE Certification if applicable (**return all pages**)

The following Exhibits are solely for consultant's information and do not need to be returned.

- Exhibit A (Section 8.8): Sample Contract & General Contract Terms And Conditions
- Attachment A (Section 1.3): Boat Sewage Management Plan (posted separately on WEBS)
- Attachment B (Section 1.3): Boat Sewage Facilities (posted separately on WEBS)

Continue on next page

8.1 (APPENDIX A) – CERTIFICATIONS, ASSURANCES, AND WAIVER

- a) I/My Firm make the following certifications and assurances as a required element of the proposal (bid response) to which it is attached, understanding that the truthfulness of the facts affirmed here and the continuing compliance with these requirements are conditions precedent to the award or continuation of the related contract(s):
- b) I/we declare that all answers and statements made in the proposal are true and correct.
- c) The prices and/or cost data have been determined independently, without consultation, communication, or agreement with others for the purpose of restricting competition. However, I/we may freely join with other persons or organizations for the purpose of presenting a single proposal.
- d) The attached proposal is a firm offer for a period of 90 days following receipt, and it may be accepted by Washington State Parks and Recreation Commission (WSPRC) without further negotiation (except where obviously required by lack of certainty in key terms) at any time within the 90-day period.
- e) In preparing this proposal, I/My Firm have not been assisted by any current or former employee of the state of Washington whose duties relate (or did relate) to this proposal or prospective contract, and who was assisting in other than his or her official, public capacity.
- f) I/My Firm understand that WSPRC will not reimburse me/my Firm for any costs incurred in the preparation of this proposal. All proposals become the property of WSPRC, and I/My Firm claim no proprietary right to the ideas, writings, items, or samples.
- g) Unless otherwise required by law, the prices and/or cost data that have been submitted have not been knowingly disclosed by the Bidder and will not knowingly be disclosed by him/her prior to opening, directly or indirectly to any other Proposer or to any competitor.
- h) I/My Firm agree that submission of the attached proposal constitutes acceptance of the solicitation contents and the attached sample contract and general terms and conditions (if any), and any other instructions, Terms & Conditions, AND competition amendments to the same. Further:
 - 1. Alterations to WSPRC Documents: I/My Firm understand and agree that I/My Firm shall not and has not altered or deviated from the original competition and any follow-on competition amendments and if my/my Firm's bid response received by WSPRC materially alters or deviates from the competition or competition amendments (if any) then the bid response may be disqualified. Whether the alteration is noticed or not noticed by WSPRC, any resulting contract (including any type of order placement) SHALL continue with the altered portions or deviations being ignored in favor of the WSPRC official language (original competition and any follow-on competition amendments) as posted on the Washington Electronic Business Solutions (WEBS) which acts as the system of record for this competition. The awarded Contractor understands, agrees, and accepts this provision and SHALL hold harmless and save harmless the WSPRC.
 - 2. Unrequested Supplemental Materials in Bidders Bid Response: I/My Firm understands and agrees that I/My Firm shall not and has not supplemented my/my Firm's Bid Response with unrequested materials. Whether the unrequested material is noticed or not noticed by WSPRC, any resulting contract (including any type of order placement) SHALL continue with the unrequested material being ignored in favor of the WSPRC official language. The awarded Contractor understands, agrees, and accepts this provision and SHALL hold harmless and save harmless the WSPRC.
- i) No attempt has been made or will be made by the Bidder to induce any other person or firm to submit or not to submit a proposal for the purpose of restricting competition.

- j) I/My Firm grant WSPRC the right to contact references, systems, sources, and others, who may have pertinent information regarding the Bidder's prior experience and ability to perform the services contemplated in this procurement.
- k) If any staff member(s) who will perform work on this contract has retired from the State of Washington under the provisions of the 2008 Early Retirement Factors legislation, his/her name(s) is noted on a separately attached page.

l) Bidder's Waiver And Release of Information, Public Disclosure is Authorized and Not Restricted:

I/My Firm grants to the State of Washington and the Washington State Parks and Recreation Commission a full and complete release of information of my/my Firm's bid response and other documents or information pertaining to the same and if also awarded the contract then to the contract and any documents or information involving or pertaining to the contract. Markings of "confidential", "proprietary" or similar term are unintentional and SHALL be ignored. Further, these materials or bid response may be publicly disclosed with no advanced notice to the Bidder/Contractor (me/my Firm). The Bidder/awarded Contractor (me/my Firm) understands, agrees, and accepts this provision and SHALL hold harmless and save harmless the State of Washington and WSPRC.

m) Certification - Wage Theft Prevention:

Prior to awarding a contract, agencies are required to determine that a Bidder is a 'responsible Bidder.' See RCW 39.26.160(2) & (4). Pursuant to legislative enactment in 2017, the responsible Bidder criteria include a Bidder/contractor certification that the Bidder/contractor has not willfully violated Washington's wage laws. See Chap. 258, 2017 Laws (enacting SSB 5301).

I/My Firm certifies under penalty of perjury under the laws of the state of Washington the following is true and correct: No Wage Violations. This Firm has NOT been determined by a final and binding citation and notice of assessment issued by the Washington Department of Labor and Industries or through civil judgement entered by a court of limited or general jurisdiction to have willfully violated, as defined in RCW 49.48.082. any provision of RCW chapters 49.45, 49.48., or 49.52 within the three (3) prior years to the date of this competition's date of issue.

n) Certification - Supporting Workers' Rights:

Pursuant to the Washington State Governor's Executive Order 18-03 (dated June 12, 2018), the Washington State Parks and Recreation Commission is seeking to contract with qualified entities and business owners who certify that their employees are not, as a condition of employment, subject to mandatory individual arbitration clauses and class or collective action waivers.

I/My Firm certifies under penalty of perjury under the laws of the state of Washington the following is true and correct: No Mandatory Individual Arbitration Clauses and Class or Collective Action Waivers for Employees. This firm does NOT require its employees, as a condition of employment, to sign or agree to mandatory individual arbitration clauses or class or collective action waivers.

o) ELECTRONIC SUBMISSION OF DOCUMENTS ARE LEGALLY BINDING:

Washington State recently enacted law allowing for electronic alternatives to pen-to-paper wet-ink signature on hardcopy documents, meaning if WSPRC agrees to alternatives other than wet-ink signature (pen-to-paper) on hardcopy documents, these alternatives may be accepted by WSPRC and are legally binding. See RCW 1.80.

For purposes of this competition document WSPRC is accepting a PDF scan (or similar representation) of the Bidder's wet-ink signature in the signature space below. **For clarity:**

(APPENDIX A) – CERTIFICATIONS AND ASSURANCES AND WAIVER (return this page)

Print out the competition document(s), review it, include any other required document, complete where necessary, sign where you need to sign with a pen onto the paper, when you believe your bid response is ready to be submitted to WSPRC, **scan it as a PDF file, review it one last time, and then** attach the file to your business email and send it to WSPRC. For expanded details see Section 4.1 – Submission of Responses.

I/My Firm certifies under penalty of perjury under the laws of the state of Washington that submission of my/my Firm's bid response and accompanying copy of my signature is legally binding on me/my firm, and that the WSPRC may rely upon its authenticity.

I, acting as my Firm's authorized representative declare on behalf of me/my firm under penalty of perjury under the laws of the State of Washington forgoing Certification and Assurances and Waiver is true and correct.	
Bidder, record the competition's identifying number: <i>(see footer or face page)</i>	325-022 ASSESSMENT SERVICES FOR PUGET SOUND PUMPOUT FACILITIES ENHANCEMENT
Bidder's Company Name	
Bidder's Printed Name	
Bidder's Wet Signature (use blue ink)	
Place of Signature (City & State)	
Date	

8.2 (APPENDIX B) – BIDDER PROFILE

Bidder must provide all requested information in the space provided next to each numbered section below.

Many of the questions require information if you answer “yes”. Please provide your response in the space provided unless otherwise directed to submit on a separate page (note: the spaces provided can expand to allow for more text to be typed in if necessary). If you are directed to provide answers on a separate page, please identify the question and corresponding number that you are responding to, and attach that document to this Appendix B.

COMPANY INFORMATION:

(a)	Firm Legal Name*	
	Street Address**	
	Mailing Address	
	City, State, ZIP	

***Legal Name:** Many companies use a “Doing Business As” name or a nickname in their daily business. However, the State requires the legal name of your company as it is legally registered in the State of Washington or the state in which your company was registered. This should include the type of entity – Inc., LLC, LP, etc.

** **RECIPROCITY:** For purposes of [RCW 39.26.271](#) (Reciprocity) the Bidder’s physical address will be used. Bidder MUST provide a physical address for his place of business. A post office box IS NOT a physical address.

(b)	DBA (if any)		
	Telephone Number(s)		
	Area Code:	Number:	Extension:
	Area Code:	Number:	Extension:

(c)	A list identifying which parties of the organization have the authority to sign contracts/ amendments on behalf of the Bidder’s entity.

(d)	Names, addresses, e-mail addresses and telephone numbers of the sole proprietor, partners, or principle officers as appropriate to the organization	
	Name & Title:	
	Address:	
	Email Address:	
	Telephone Number	
	Area Code:	Number:

(e)	Primary Contact Person for Questions/Contract Negotiations, including address if different than above	
	Name & Title:	
	Address:	
	Email Address***:	
	Telephone Number for Contact Person	
	Area Code:	Number:

*** **Email Address:** The email address provided by the Bidder in subsection (e) will be used for officially contacting the Bidder for purposes of the competition. If the email address is left blank, then the email address provided in subsection (d) will be used.

(APPENDIX B) – BIDDER PROFILE (return this page)

(i)	WA State UBI	
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(j)	Statewide Vendor Number (SWV)	
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Bidder is urged to be registered with the Washington State Office of Financial Management as a statewide vendor. **If no current SWV number**, affirm that your organization will obtain a SWV number within ten (10) days of executing contract. YES NO

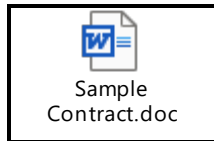
(k)	Federal Tax Identification Number	
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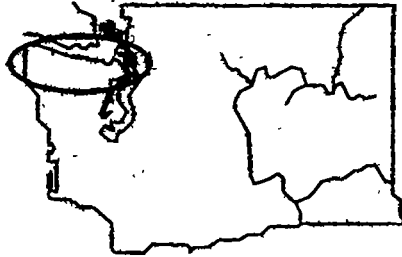
8.8 (EXHIBIT A) – Sample Contract & General Contract Terms And Conditions

A sample contract with general terms and conditions is provided as an embedded file below in this section and/or will be separately posted on WEBS with a file name of “Sample Contract” and the file name may or may not also include the competition’s number as part of the file name.

The sample contract is a close representation but not a perfect representation of what the Apparent Successful Bidder (ASB) will be expected to sign. The actual agreement will have to include elements of the ASB’s bid response, any negotiated conditions, the statement of work, performance periods, contractor information, compensation, and any updated to comply with law, regulation, or policy. Should the ASB refuse to sign the WSPRC drafted contract the ASB will be disqualified.

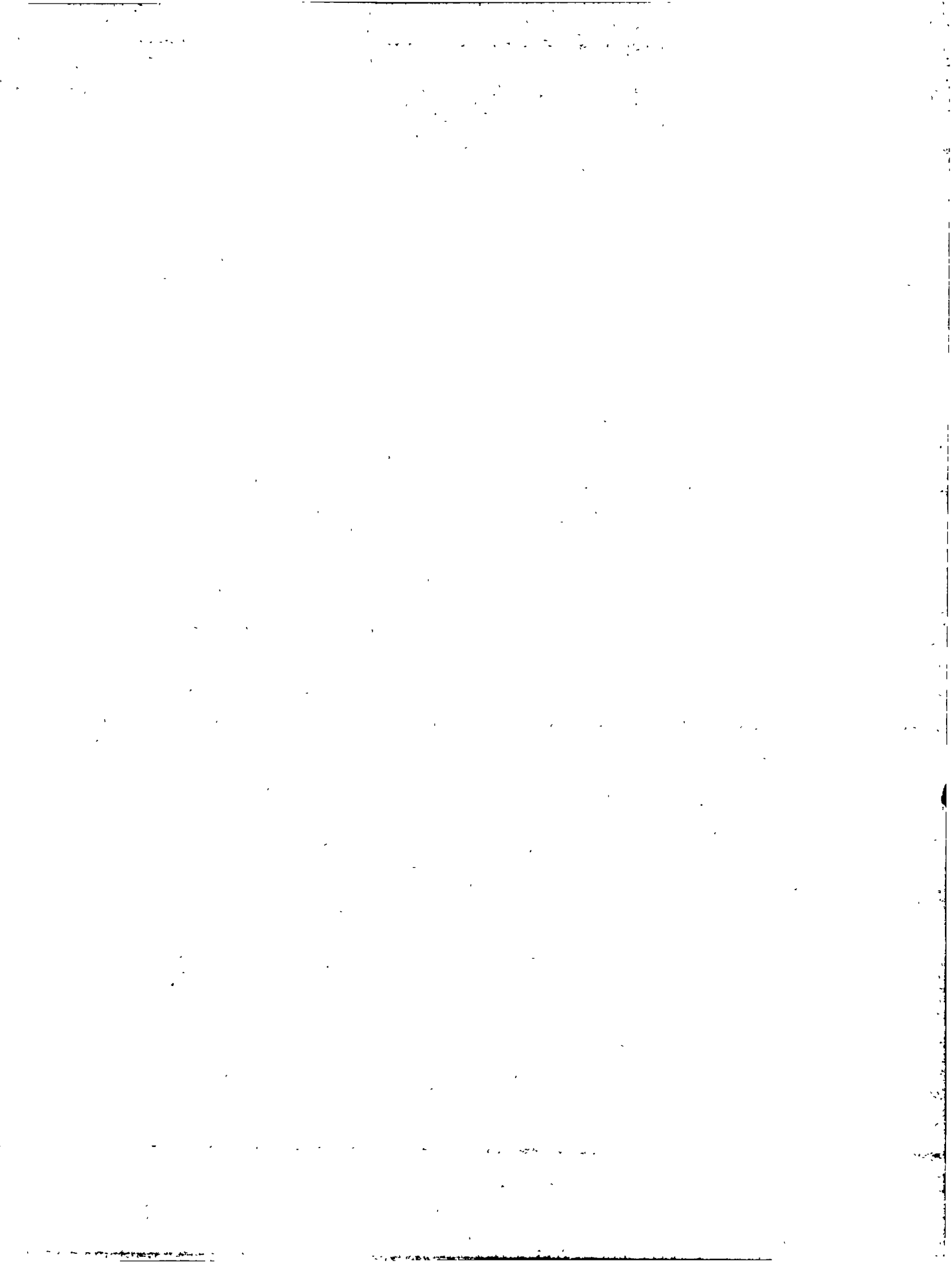
EMBEDDED MS WORD FILE IMMEDIATELY BELOW:





Region: North Puget Sound

Blaine Harbor
Cap Sante Boat Haven
Deception Pass State Park
John Wayne Marina
La Conner Marina
Marine Servicer
Mystery Bay State Park
Oak Harbor Marina
Point Roberts Marina
Port Angeles Marina
Port Ludlow Marina
Port of Everett Boat Ramp
Port of Everett Marina
Port Townsend Boat Haven
Semiahmoo Marina
Skyline Marina
Squalicum Harbor





Blaine Harbor

P.O. Box 1245
Blaine, WA 98230
206-332-8037

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 400
FACILITY OWNER: Port of Bellingham

BODY OF WATER: Blaine Harbor

LONGITUDE: 122D 45.32'W

LATITUDE: 48D 59.38'N

COUNTY: Whatcom

CONTACT PERSON: Alan Birdsall
TITLE: Harbormaster

PUMPOUT

TYPE: stationary
LOCATION: guest dock
FEE: none
VISIBILITY: poor

MANUFACTURER: Kcco (Pump-A-Head)
HOURS: 24hrs/seasonal
ADJACENT DUMPSTATION: yes (Kcco Kleen-A-Pottee)
ACCESSIBILITY: poor

SEWAGE DISPOSAL

city sewer system

COMMENTS

400 slips (25% under 26', 50% 26-40', 25% over 40') includes 4 live-aboards

pumpout closed in winter

pumpout dock used as commerical fishing dock overflow area, sometimes pumpout not accessible



Cap Sante Boat Haven

P.O. Box 297
Anacortes, WA 98221

206-299-0998

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 1150
FACILITY OWNER: Port of Anacortes

BODY OF WATER: Fidalgo Bay

LONGITUDE: 122D 36 4'W

LATITUDE: 48D 30.85'N

COUNTY: Skagit

CONTACT PERSON: Dale Fowler
TITLE: Harbormaster

PUMPOUT #1

TYPE: stationary
LOCATION: guest dock
FEE: none
VISIBILITY: poor

MANUFACTURER: custom rebuild (Cap Sante)
HOURS: 24hrs/year-round*
ADJACENT DUMPSTATION: no
ACCESSIBILITY: poor

PUMPOUT #2

TYPE: portable (self service)
LOCATION: shoreside between E&F docks
FEE: none
VISIBILITY: good

MANUFACTURER: VIM (Van Ives Manufacturing)
HOURS: 24hrs/year-round*
ADJACENT DUMPSTATION: yes (custom built-Cap Sante)
ACCESSIBILITY: good

SEWAGE DISPOSAL

city sewer system

COMMENTS

1150 slips (10% under 26', 50% 26-40', 40% over 40')

*may close pumpout during freezing conditions

original stationary installed in 1984, rebuilt in 1990; original portable installed in 1991



Deception Pass State Park

5175 N. State Hwy. 20
Oak Harbor, WA 98277

206-675-2417

TYPE OF FACILITY: recreational dock
NUMBER OF SLIPS: 1,500 linear feet
FACILITY OWNER: Washington State Parks

BODY OF WATER: Cornet Bay

LONGITUDE: unknown

LATITUDE: unknown

COUNTY: Island

CONTACT PERSON: David Wells
TITLE: C&M Specialist I

PUMPOUT

TYPE: stationary
LOCATION: floating dock
FEE: none
VISIBILITY: fair

MANUFACTURER: Edson (Hand Pump)
HOURS: 24 hrs/year-round
ADJACENT DUMPSTATION: yes (Keco Kleen-A-Pottee)
ACCESSIBILITY: good

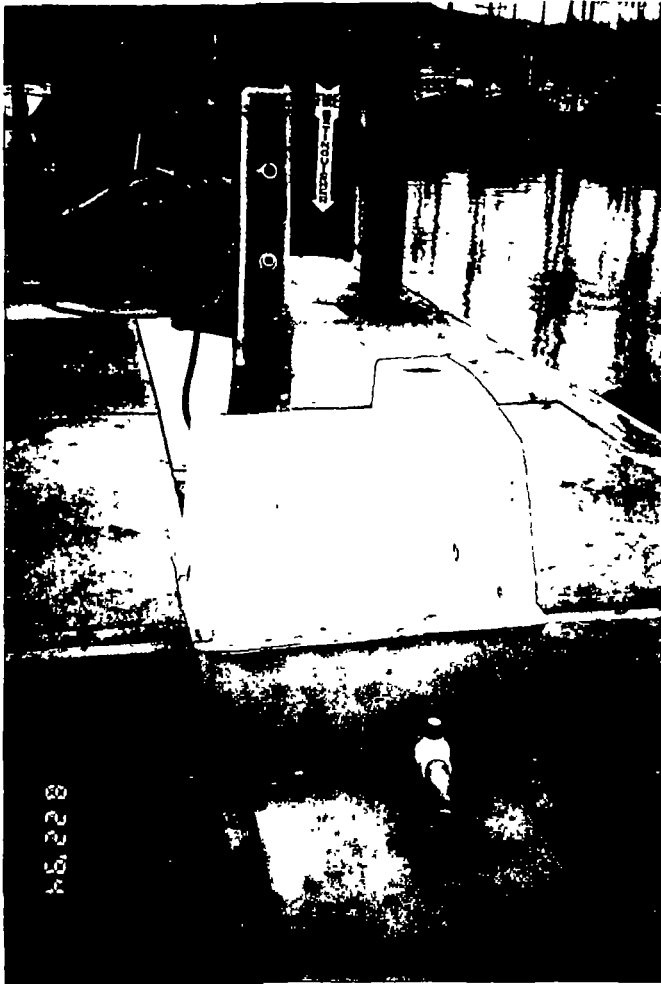
SEWAGE DISPOSAL

holding tank (1,000 gallons), private vendor disposes of sewage

COMMENTS

holding tank is periodically pumped to a truck, sewage is transferred to Coupeville County tanks and then moved off-island to Bellingham or Burlington treatment facility

floating dock is currently moored to old navy dock which is now a maintenance dock owned by Washington State Parks
Washington State Parks manufactured to floating dock



John Wayne Marina

2577 West Sequim Bay Road
Sequim, WA 98382

206-683-9898

CONTACT PERSON: Jan Hardin
TITLE: Harbormaster

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 300
FACILITY OWNER: Port of Port Angeles

BODY OF WATER: Sequim Bay, Strait of Juan de Fuca

LONGITUDE: 123D 2.4'W
LATITUDE: 48D 3.8'N
COUNTY: Clallam

PUMPOUT

TYPE: stationary
LOCATION: fuel dock
FEE: none
VISIBILITY: good

MANUFACTURER: SeaLand Technology, Inc.
HOURS: 24hrs/year-round
ADJACENT DUMPSTATION: no
ACCESSIBILITY: good

SEWAGE DISPOSAL

marina has their own septic system

COMMENTS

dumpstation located at shoreside restrooms
300 slips (20% under 26', 50% 26-40', 30% over 40') includes 30 live-aboards
pumpout installed in 1984



La Conner Marina

P.O. Box 456
 La Conner, WA 98257
 206-466-3118

TYPE OF FACILITY: marina
 NUMBER OF SLIPS: 575+
 FACILITY OWNER: Port of Skagit County
 BODY OF WATER: Swinomish Channel

LONGITUDE: 122D 29.8'W
 LATITUDE: 48D 23.7'N
 COUNTY: Skagit

CONTACT PERSON: Eric Edlund
 TITLE: Marina Manager

PUMPOUT

TYPE: stationary
 LOCATION: fuel dock
 FEE: none
 VISIBILITY: good

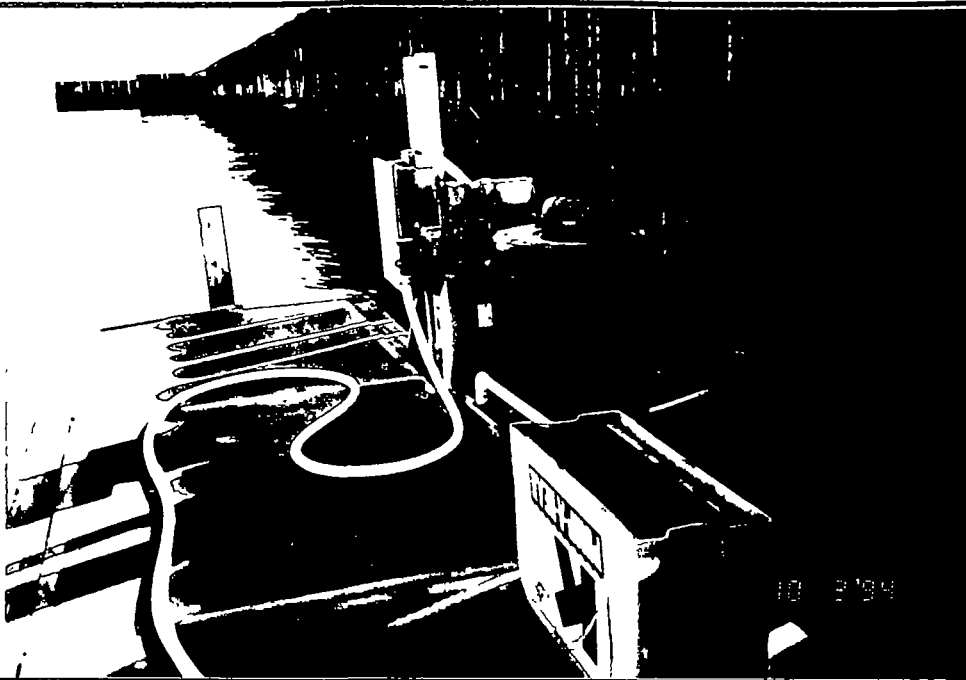
MANUFACTURER: unknown
 HOURS: 24hrs/year-round
 ADJACENT DUMPSTATION: no
 ACCESSIBILITY: good

SEWAGE DISPOSAL

Town of La Conner waste treatment facility

COMMENTS

according to owner pumpout needs to be replaced, does not work well at low tide
 575 slips (75% 26-40'; 25% over 40') includes 29 live-aboards; also have 300 dry storage units
 pumpout installed in 1982



Marine Servicenter

2417 T Avenue
Anacortes, WA 98221

206-293-8200

TYPE OF FACILITY: marine fuel dock
NUMBER OF SLIPS: none
FACILITY OWNER: Marine Servicenter

BODY OF WATER: Fidalgo Bay

CONTACT PERSON: Frances English
TITLE: Office Manager

LONGITUDE: 122D 36'W
LATITUDE: 48D 30.8'N
COUNTY: Skagit

PUMPOUT

TYPE: stationary
LOCATION: fuel dock
FEE: none
VISIBILITY: good

MANUFACTURER: Keco (Pump-A-Head)
HOURS: 24hrs/seasonal
ADJACENT DUMPSTATION: no
ACCESSIBILITY: good

SEWAGE DISPOSAL

city sewer system

COMMENTS

Marine Servicenter operates fuel dock, travel lift, and pumpout adjacent to Anacortes Marina
pumpout closed in winter



Mystery Bay State Park

10541 Flagler Road
Nordland, WA 98358

206-385-3701

CONTACT PERSON: Al Giersch
TITLE: Ranger

TYPE OF FACILITY: recreational dock
NUMBER OF SLIPS: linear footage only
FACILITY OWNER: Washington State Parks

BODY OF WATER: Kilsut Harbor

LONGITUDE: 122D 41 62'W
LATITUDE: 48D 3.8'N
COUNTY: Jefferson

PUMPOUT

TYPE: stationary
LOCATION: separate dock
FEE: none
VISIBILITY: good

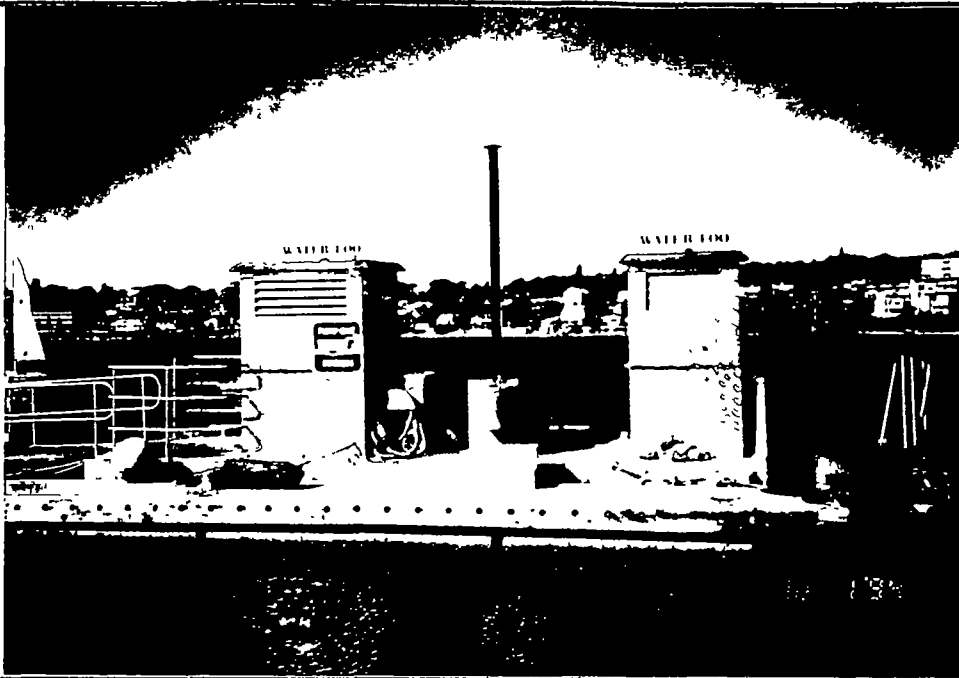
MANUFACTURER: Keco (Pump-A-Head)
HOURS: 24hrs/year-round
ADJACENT DUMPSTATION: no
ACCESSIBILITY: good

SEWAGE DISPOSAL

holding tank, private vendor pumps to truck and disposes of sewage

COMMENTS

dumpstation at shoreside restrooms



Oak Harbor Marina

3075 300th Avenue W
Oak Harbor, WA 98277

206-679-2628

TYPE OF FACILITY: marina
 NUMBER OF SLIPS: 420
 FACILITY OWNER: City of Oak Harbor
 BODY OF WATER: Oak Harbor, Saratoga Pasage
 LONGITUDE: 122D 38.2'W/122D 38'W
 LATITUDE: 48D 17.1'N/48D 17.12'N
 COUNTY: Island

CONTACT PERSON: David Williams
 TITLE: Harbormaster

PUMPOUT #1

TYPE: stationary	MANUFACTURER: Keco (Pump-A-Head)
LOCATION: fuel dock	HOURS: 24hrs/year-round
FEE: none	ADJACENT DUMPSTATION: no
VISIBILITY: good	ACCESSIBILITY: good

PUMPOUT #2

TYPE: barge	MANUFACTURER: Impero Construction
LOCATION: separate unit	HOURS: 24hrs/year-round
FEE: none	ADJACENT DUMPSTATION: yes (Keco Kleen-A-Pottee)
VISIBILITY: good	ACCESSIBILITY: good

SEWAGE DISPOSAL

sewer pipeline and holding tank pumped to truck

COMMENTS

barge includes two restrooms, one is wheelchair accessible; barge has holding tank which is pumped out once a week during peak season by truck on shore
 fuel dock pumpout was installed in 1982; has sewer line to waste treatment facility



Point Roberts Marina

713 Simundson Drive
Point Roberts, WA 98281

206-945-2255

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 1000
FACILITY OWNER: P R. Marina Ltd Partnership

BODY OF WATER: Strait of Georgia

LONGITUDE: 123D 03.6'W

LATITUDE: 48D 5.3'N

COUNTY: Whatcom

CONTACT PERSON: Bruce Gustafson
TITLE: Harbormaster

PUMPOUT

TYPE: stationary
LOCATION: fuel dock
FEE: none
VISIBILITY: good

MANUFACTURER: Keco (Pump-A-Head)
HOURS: 24hrs/year-round*
ADJACENT DUMPSTATION: no
ACCESSIBILITY: good

SEWAGE DISPOSAL

marina has own septic tank/field system

COMMENTS

1000 slips (65% less than 30'; 35% over 40')
pumpout installed in 1978

*may close pumpout in extreme weather conditions



Port Angeles Marina

832 Boat Haven Drive
Port Angeles, WA 98362

206-457-4504

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 510
FACILITY OWNER: Port of Port Angeles

BODY OF WATER: Strait of Juan de Fuca

LONGITUDE: 123D 27 2'W

LATITUDE: 48D 7.49'N

COUNTY: Clallam

CONTACT PERSON: Chuck Ferris
TITLE: Harbormaster

PUMPOUT

TYPE: stationary
LOCATION: fuel dock
FEE: none
VISIBILITY: fair

MANUFACTURER: Keco (Pump-A-Head)
HOURS: 24hrs/year-round
ADJACENT DUMPSTATION: no
ACCESSIBILITY: good

SEWAGE DISPOSAL

city sewer system

COMMENTS

510 slips (25% under 26'; 40% 26-40'; 35% over 40') includes 25 live-aboards



Port Ludlow Marina

421 Marine View Drive
Port Ludlow, WA 98365

206-437-0513

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 300
FACILITY OWNER: Port Ludlow Marina
BODY OF WATER: Port Ludlow, Admiralty Inlet

LONGITUDE: 122D 41 1'W
LATITUDE: 47D 55.3'N
COUNTY: Jefferson

CONTACT PERSON: Carol Franke
TITLE: Marina Manager

PUMPOUT

TYPE: stationary
LOCATION: fuel dock
FEE: none
VISIBILITY: good

MANUFACTURER: unknown
HOURS: marina hours
ADJACENT DUMPSTATION: no
ACCESSIBILITY: good

SEWAGE DISPOSAL

city sewer system

COMMENTS

need operator assistance to turn on pumpout unit
pumpout was installed in 1973
300 slips (18% under 26'; 60% 26-40'; 22% over 40') includes 6 live-aboards
dumpstation located on shore



Port of Everett Boat Ramp

1720 West Marine View Drive
Everett, WA 98201

206-259-6001

TYPE OF FACILITY: boat ramp
NUMBER OF SLIPS: 630 linear feet
FACILITY OWNER: Port of Everett
BODY OF WATER: Port Gardner, Possession Sound

LONGITUDE: unknown
LATITUDE: unknown
COUNTY: Snohomish

CONTACT PERSON: Dean Shaughnessy
TITLE: Marina Operations Mngr.

PUMPOUT

TYPE: stationary
LOCATION: guest dock
FEE: none
VISIBILITY: good

MANUFACTURER: Keco (Pump-A-Head)
HOURS: 24hrs/year-round
ADJACENT DUMPSTATION: no
ACCESSIBILITY: good

SEWAGE DISPOSAL

city sewer system

COMMENTS

large 13 lane boat ramp facility
pumpout installed in 1993



Port of Everett Marina

1720 West Marine View Drive
Everett, WA 98201

206-259-6001

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 2100
FACILITY OWNER: Port of Everett

BODY OF WATER: Port Gardner, Possession Sound

LONGITUDE: 122D 13.5'W

LATITUDE: 47D 59.81'N

COUNTY: Snohomish

CONTACT PERSON: Constance Bennett
TITLE: Marina Director

PUMPOUT

TYPE: stationary
LOCATION: fuel dock
FEE: none
VISIBILITY: good

MANUFACTURER: Keco (Pump-A-Head)
HOURS: 24hrs/year-round
ADJACENT DUMPSTATION: no
ACCESSIBILITY: good

SEWAGE DISPOSAL

city sewer system

COMMENTS

dumpstation at shoreside restrooms
2100 slips (340 under 26'; 1392 26-40'; 368 over 40') includes 210 live-aboards
pumpout installed in early 1980s and replaced in 1993
marina is also served by pumpout service based in marina



Port Townsend Boat Haven

2601 Washington St.
Port Townsend, WA 98368

206-385-2355

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 475
FACILITY OWNER: Port of Port Townsend
BODY OF WATER: Port Townsend - Admiralty Inlet

LONGITUDE: 122D 46.4'W

LATITUDE: 48D 6.4'N

COUNTY: Jefferson

CONTACT PERSON: Ken Radon
TITLE: Operations Manager

PUMPOUT

TYPE: stationary
LOCATION: fuel dock
FH: none
VISIBILITY: good

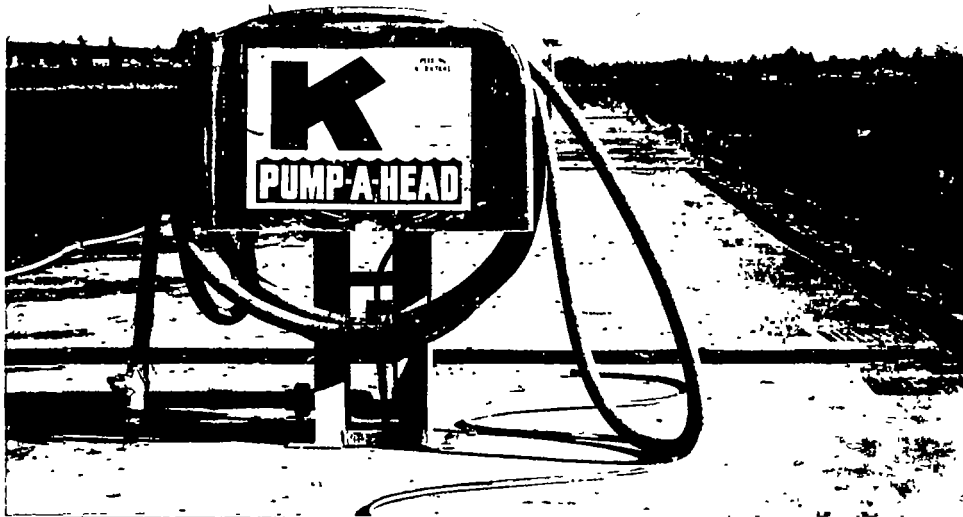
MANUFACTURER: Sani-Station
HOURS: 24hrs/year-round
ADJACENT DUMPSTATION: no
ACCESSIBILITY: good

SEWAGE DISPOSAL

city sewer system

COMMENTS

pumpout installed in 1990
dumpstation at RV dump - 1 block
475 slips (20% under 26', 60% 26-40', 20% over 40') includes 94 live-aboards



Semiahmoo Marina

9540 Semiahmoo Parkway
Blaine, WA 98230

206-371-5700

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 298
FACILITY OWNER: Semiahmoo

BODY OF WATER: Drayton Harbor, Semiahmoo Bay

LONGITUDE: 122D 46 31'W

LATITUDE: 48D 59.3'N

COUNTY: Whatcom

CONTACT PERSON: Dale Jensen
TITLE: Operations Manager

PUMPOUT #1

TYPE: stationary
LOCATION: fuel dock/breakwater
FEE: none
VISIBILITY: good

MANUFACTURER: Keco (Pump-A-Head)
HOURS: 24hrs/year-round
ADJACENT DUMPSTATION: no
ACCESSIBILITY: good

PUMPOUT #2

TYPE: portable (self service)
LOCATION: base of main ramp
FEE: none
VISIBILITY: good

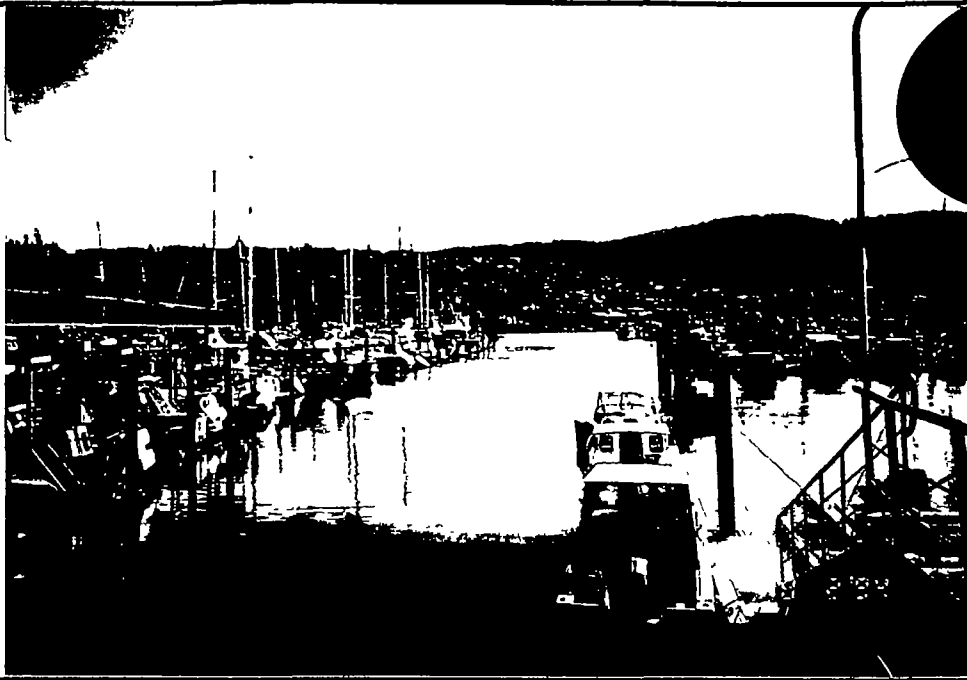
MANUFACTURER: VIM (Van Ives Manufacturing)
HOURS: 24 hrs.
ADJACENT DUMPSTATION: no
ACCESSIBILITY: good

SEWAGE DISPOSAL

city sewer system

COMMENTS

298 slips (25% under 26', 25% 26-40', 50% over 40') includes 20 live-aboards
stationary pumpout installed in 1981



Skyline Marina

2011 Skyline Way
Anacortes, WA 98221

206-293-5134

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 700+
FACILITY OWNER: Skyline Marina

BODY OF WATER: Flounder Bay - Fidalgo Island

LONGITUDE: 122D 40.81'W

LATITUDE: 48D 29.52'N

COUNTY: Skagit

CONTACT PERSON: Alex Britton
TITLE: General Manager

PUMPOUT

TYPE: stationary
LOCATION: fuel dock
FEE: \$5.00
VISIBILITY: good

MANUFACTURER: custom
HOURS: fuel dock hours
ADJACENT DUMPSTATION: no
ACCESSIBILITY: good

SEWAGE DISPOSAL

city sewer system

COMMENTS

pumpout operated by marina personnel; pumpout installed in 1985
700+ slips (150 under 26'; 425 26-40'; 125 over 40') includes 10-30 live-aboards



Squalicum Harbor

P.O. Box 1737
Bellingham, WA 98227

206-676-2542

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 1777
FACILITY OWNER: Port of Bellingham

BODY OF WATER: Bellingham Bay

LONGITUDE: 122D 30.3'W

LATITUDE: 48D 45.2'N

COUNTY: Whatcom

CONTACT PERSON: John Sibold
TITLE: Harbormaster

PUMPOUT #1

TYPE: stationary-unit #1
LOCATION: commercial dock
FEE: none
VISIBILITY: good

MANUFACTURER: Keco (Pump-A-Head)
HOURS: 24hrs/year-round
ADJACENT DUMPSTATION: yes (Keco Kleen-A-Pottee)
ACCESSIBILITY: good

PUMPOUT #2

TYPE: stationary-unit #2
LOCATION: guest dock
FEE: none
VISIBILITY: good

MANUFACTURER: Keco (Pump-A-Head)
HOURS: 24hrs/year-round
ADJACENT DUMPSTATION: yes (Keco Kleen-A-Pottee)
ACCESSIBILITY: good

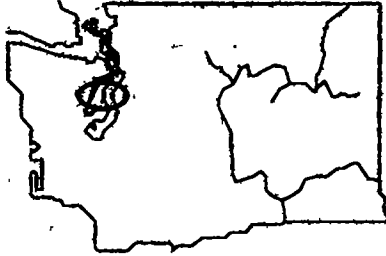
SEWAGE DISPOSAL

city sewer system

COMMENTS

pumpouts were installed in 1987

1777 slips (25% under 26'; 50% 26-40'; 25% over 40') includes 60 live-aboards



Region: Central Puget Sound

Bainbridge Island City Dock

Ballard Mill Marina

Berg's Marina

Blake Island State Park

Bremerton Marina

Carillon Point Marina

Chandler's Cove

Eagle Harbor Marina

Elliott Bay Marina

Fishermen's Terminal

Harbor Island Marina

Harbour Village Marina

HC Henry Pier

Marina Mart Moorings

Parkshore Marina

Pleasant Harbor Marina

Port of Brownsville

Port of Edmonds

Port of Kingston

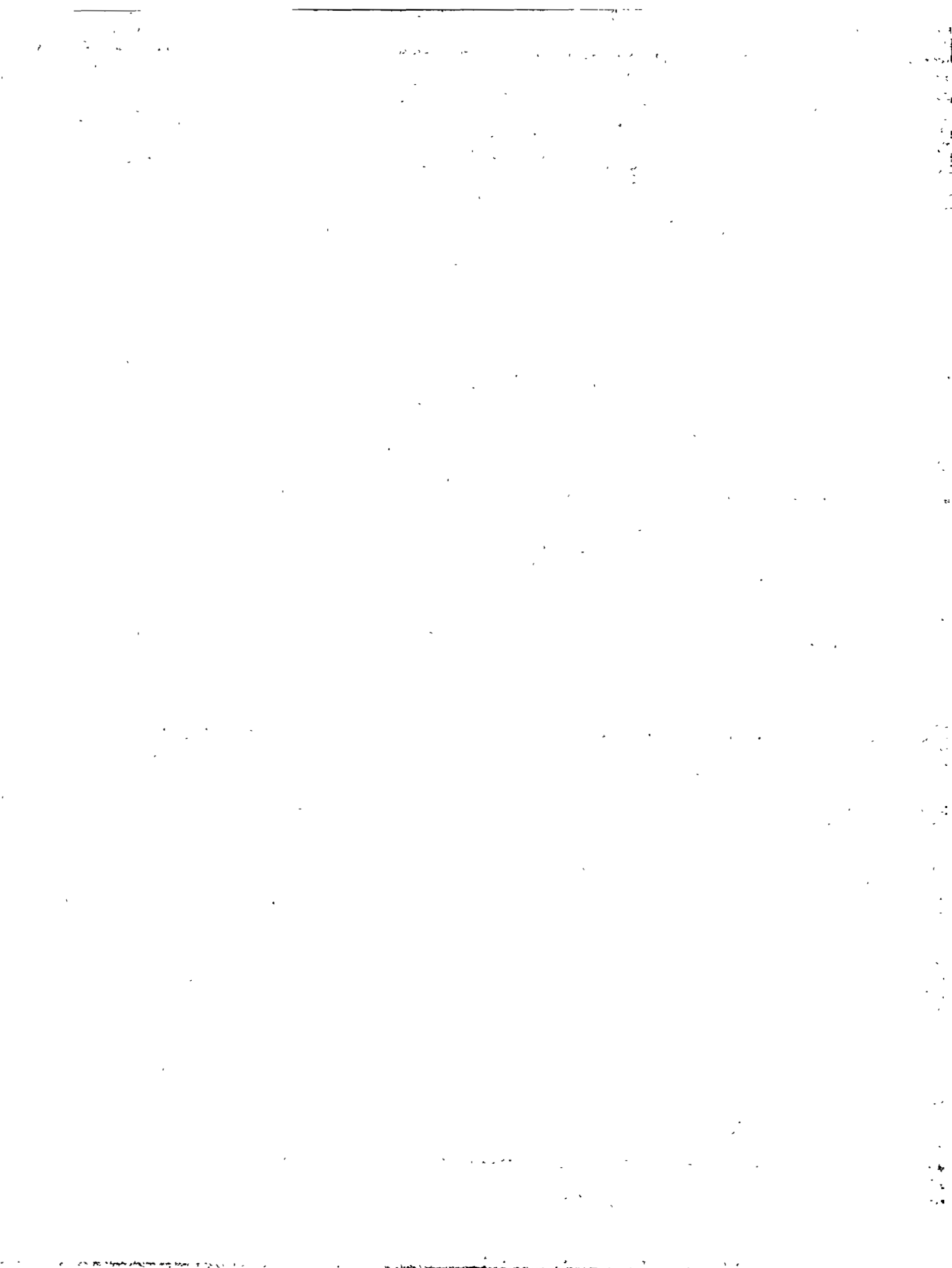
Port of Poulsbo

Port Orchard Marina

Port Washington Marina

Shilshole Bay Marina

South Lake Union Moorage





Bainbridge Island City Dock

625 Winslow Way East
Bainbridge Island, WA 98110

206-842-1212

TYPE OF FACILITY: recreational dock
NUMBER OF SLIPS: linear footage only
FACILITY OWNER: City of Bainbridge Island
BODY OF WATER: Eagle Harbor, Puget Sound

LONGITUDE: 122D 08'W
LATITUDE: 47D 08.8'N
COUNTY: Kitsap

CONTACT PERSON: Kim Christian
TITLE: Lead of Facilities

PUMPOUT

TYPE: stationary
LOCATION: guest dock
FEE: none
VISIBILITY: good

MANUFACTURER: Keco (Pump-A-Head)
HOURS: summer only
ADJACENT DUMPSTATION: yes (Keco Kleen-A-Pottee)
ACCESSIBILITY: good

SEWAGE DISPOSAL

Bainbridge Island sewer system

COMMENTS

guest moorage only; moorage limited to 8 hours



Ballard Mill Marina

4733 Shilshole Avenue NW
Seattle, WA 98107

206-789-4777

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 135
FACILITY OWNER: Ballard Mill Marina

BODY OF WATER: Ship Canal

LONGITUDE: 122D 23.3'W

LATITUDE: 47D 40'N

COUNTY: King

CONTACT PERSON: Jonathan Ives
TITLE: Marina Manager

PUMPOUT #1

TYPE: stationary
LOCATION: guest dock
FEE: none
VISIBILITY: poor

MANUFACTURER: custom made (Baldor motor)
HOURS: 24hrs/year-round
ADJACENT DUMPSTATION: no
ACCESSIBILITY: good

PUMPOUT #2

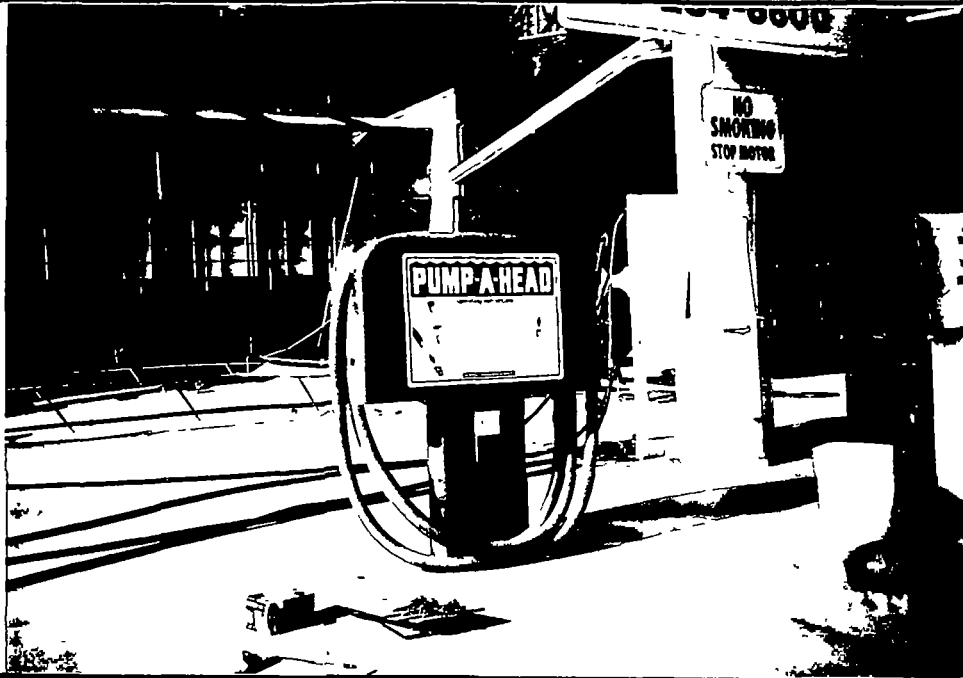
TYPE: portable (self service)
LOCATION: in shed near marina
FEE: none
VISIBILITY: poor

MANUFACTURER: VIM (Van Ives Manufacturing)
HOURS: 24hrs/year-round
ADJACENT DUMPSTATION: no
ACCESSIBILITY: good

SEWAGE DISPOSAL

city sewer system

COMMENTS



Berg's Marina

2730 Westlake N
Seattle, WA 98109

206-285-2250

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 125
FACILITY OWNER: Berg's Marina

BODY OF WATER: Lake Union

LONGITUDE: 122D 20 7'W

LATITUDE: 47D 38.75'N

COUNTY: King

CONTACT PERSON: Scott A Thompson
TITLE: Vice President

PUMPOUT

TYPE: stationary
LOCATION: fuel dock
FEE: \$5.00
VISIBILITY: good

MANUFACTURER: Kcco (Pump-A-Head)
HOURS: 24hrs/year-round
ADJACENT DUMPSTATION: no
ACCESSIBILITY: good

SEWAGE DISPOSAL

city sewer system

COMMENTS

pumpout installed in 1994
125 slips (7 slips under 26'; 60 slips 26-40', and 58 slips over 40')



Blake Island State Park

P.O. Box 277
 Manchester, WA 98353
 206-731-0770

TYPE OF FACILITY: marina
 NUMBER OF SLIPS: 1700' of moorage
 FACILITY OWNER: Washington State Parks

BODY OF WATER: Puget Sound

LONGITUDE: 122D 29.2'W

LATITUDE: 47D 32.3'N

COUNTY: Kitsap

CONTACT PERSON: Karen Patrick
 TITLE: Park Manager

PUMPOUT

TYPE: stationary
 LOCATION: separate floating dock
 FEE: none
 VISIBILITY: good

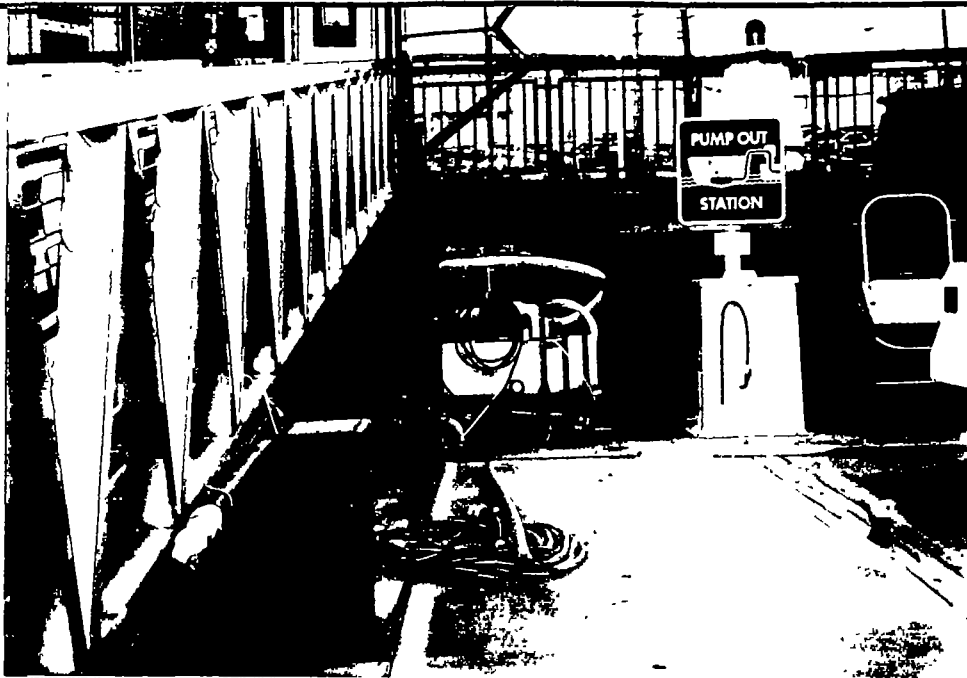
MANUFACTURER: Keco (Pump-A-Head)
 HOURS: seasonal
 ADJACENT DUMPSTATION: yes (Keco Kleen-A-Pottee)
 ACCESSIBILITY: good

SEWAGE DISPOSAL

sewer line to Blake Island's sewage treatment lagoon

COMMENTS

pumpout installed in 1989
 marina served 22,000 boats in 1994



Bremerton Marina

100 Washington Beach
Bremerton, WA

206-373-1035

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 45
FACILITY OWNER: Port of Bremerton

BODY OF WATER: Sinclair Inlet, Puget Sound

LONGITUDE: 122D 37.4'W

LATITUDE: 47D 33.75'N

COUNTY: Kitsap

CONTACT PERSON: Brian Sauer
TITLE: Port Maintenance II

PUMPOUT

TYPE: portable (self service)
LOCATION: guest moorage dock
FEE: none
VISIBILITY: good

MANUFACTURER: Keco (Pump-A-Head)
HOURS: marina office hours
ADJACENT DUMPSTATION: yes (Keco Kleen-A-Pottee)
ACCESSIBILITY: good

SEWAGE DISPOSAL

city sewer system

COMMENTS

need office assistance to unlock portable pumpout unit
marina has 45 slips 26-40' and 600' side tie



Carillon Point Marina

3240 Carillon Point
Kirkland, WA 98033

206-822-1700

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 196
FACILITY OWNER: Carillon Point Marina

BODY OF WATER: Lake Washington

LONGITUDE: 122D 12.5'W

LATITUDE: 47D 39.4'N

COUNTY: King

CONTACT PERSON: Shelley Taylor
TITLE: Marina Manager

PUMPOUT

TYPE: stationary
LOCATION: fuel dock
FEE: none
VISIBILITY: fair

MANUFACTURER: Sami-Station
HOURS: 24hrs/April-Oct
ADJACENT DUMPSTATION: no
ACCESSIBILITY: good

SEWAGE DISPOSAL

city sewer system

COMMENTS

196 slips (20% under 26'; 30% 26-40'; and 50% over 40')
pumpout installed in 1989



Chandler's Cove

901 Fairview Avenue North
Seattle, WA 98109

206-628-0838

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 18
FACILITY OWNER: Chandler's Cove

BODY OF WATER: Lake Union

LONGITUDE: 122D 19.8'W

LATITUDE: 47D 37.8'N

COUNTY: King

CONTACT PERSON: Cheryl Haase
TITLE: Marina Manager

PUMPOUT

TYPE: stationary
LOCATION: moorage area
FEE: \$.25/2 min.
VISIBILITY: poor

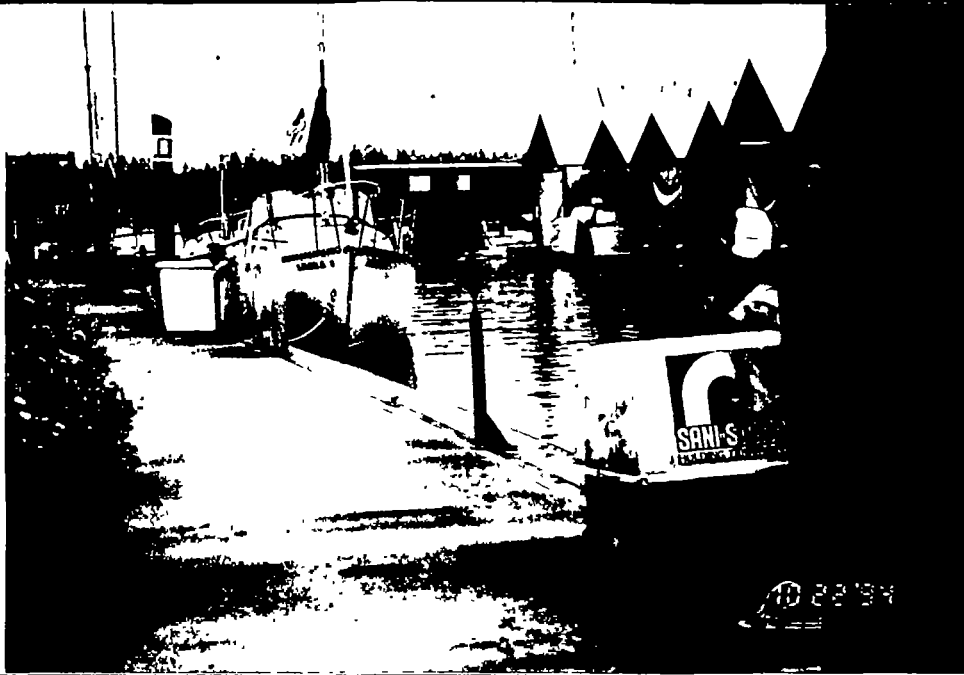
MANUFACTURER: unknown
HOURS: 24hrs/year-round
ADJACENT DUMPSTATION: no
ACCESSIBILITY: good

SEWAGE DISPOSAL

city sewer system

COMMENTS

18 slips (10% 26-40'; 90% over 40') plus 450' of temporary moorage; includes 7 live-aboards
pumpout installed in 1988



Eagle Harbor Marina

5834 Ward Avenue NE
Bainbridge Island, WA 98110
206-842-4003

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 107
FACILITY OWNER: Eagle Harbor Marina
BODY OF WATER: Eagle Harbor, Puget Sound
LONGITUDE: 122D 30.28'W
LATITUDE: 47D 37.02'N
COUNTY: Kitsap

CONTACT PERSON: Dan Hornick
TITLE: General Manager

PUMPOUT #1

TYPE: stationary
LOCATION: within permanent moorage
FEE: \$10 public/free for tenants
VISIBILITY: poor

MANUFACTURER: Sani-Station
HOURS: 24 hours
ADJACENT DUMPSTATION: no
ACCESSIBILITY: far

PUMPOUT #2

TYPE: portable(self service)
LOCATION: at foot of ramp
FEE: \$10 public/free for tenants
VISIBILITY: unknown

MANUFACTURER: VIM (Van Ives Manufacturing)
HOURS: 24 hours
ADJACENT DUMPSTATION: no
ACCESSIBILITY: unknown

SEWAGE DISPOSAL

holding tank that is pumped to truck/barge

COMMENTS

107 slips - all over 30'
stationary pumpout installed in 1981



Elliott Bay Marina

2601 W. Marina Place
Seattle, WA 98199

206-285-4817

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 1200
FACILITY OWNER: Elliott Bay Marina
BODY OF WATER: Elliott Bay, Puget Sound
LONGITUDE: 122D 11.6'W
LATITUDE: 47D 37.72'N
COUNTY: King

CONTACT PERSON: Martin Harder
TITLE: General Manager

PUMPOUT

TYPE: stationary
LOCATION: fuel dock
FEE: \$3.00
VISIBILITY: good

MANUFACTURER: Keco (Pump-A-Head)
HOURS: 24hrs/year-round
ADJACENT DUMPSTATION: yes (Keco Kleen-A-Pottee)
ACCESSIBILITY: good

SEWAGE DISPOSAL

city sewer system

COMMENTS

1200 slips (58% 26-40'; 42% over 40') includes 40 live-aboards
stationary pumpout installed in 1991
marina is also served by a local pumpout service



Fishermen's Terminal

3919 18th Ave. W.
Seattle, WA 98119

206-728-3395

TYPE OF FACILITY: commercial fishing marina

NUMBER OF SLIPS: no recreational slips

FACILITY OWNER: Port of Seattle

BODY OF WATER: Ship Canal

LONGITUDE: unknown

LATITUDE: unknown

COUNTY: King

CONTACT PERSON: Greg Money
TITLE: Manager of Commercial Fishing Ops.

PUMPOUT

TYPE: stationary
LOCATION: at end of Pier 3
FEE: \$.25/2 min.
VISIBILITY: fair

MANUFACTURER: Keco (Pump-A-Head)
HOURS: 24 hrs/year-round
ADJACENT DUMPSTATION: no
ACCESSIBILITY: good

SEWAGE DISPOSAL

city sewer system

COMMENTS

pumpout is not operational; Port plans to replace but date, type, and model have not been determined although pumpout is open to the public, the moorage is restricted to commercial fishing vessels



Harbor Island Marina

1001 S.W. Klickitat Way
Seattle, WA 98134

206-467-9400

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 100
FACILITY OWNER: Harbor Island Marina

BODY OF WATER: Duwamish Waterway

LONGITUDE: 122D 21'W

LATITUDE: 47D 34'N

COUNTY: King

CONTACT PERSON: Doug Starup
TITLE: Marina Manager

PUMPOUT

TYPE: stationary
LOCATION: fuel dock
FEE: \$2 per pumpout
VISIBILITY: poor

MANUFACTURER: Buildor
HOURS: 24hrs/year-round
ADJACENT DUMPSTATION: no
ACCESSIBILITY: good

SEWAGE DISPOSAL

city sewer system

COMMENTS

100 slips (80% 26-40'; 20% over 40') includes 13 live-aboards
pumpout installed around 1986



Harbour Village Marina

6155 NE 175th St.
Seattle, WA 98155

206-485-7557

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 135
FACILITY OWNER: Harbour Village Marina

BODY OF WATER: Lake Washington

CONTACT PERSON: Caroline D. Gray
TITLE: Manager

LONGITUDE: 122D 16'W
LATITUDE: 47D 45.33'N
COUNTY: King

PUMPOUT

TYPE: stationary
LOCATION: guest dock
FEE: none
VISIBILITY: good

MANUFACTURER: unknown
HOURS: Mon-Sat 8-3 p.m./year round
ADJACENT DUMPSTATION: no
ACCESSIBILITY: good

SEWAGE DISPOSAL

upland septic system

COMMENTS

pumpout not functional - unit disassembled
stationary pumpout installed in 1981; marina is also served by a local pumpout service



HC Henry Pier
 809 Fairview Place North
 Seattle, WA 98109
 206-624-6534

TYPE OF FACILITY: marina
 NUMBER OF SLIPS: 62
 FACILITY OWNER: HC Henry Pier
 BODY OF WATER: Lake Union

CONTACT PERSON: Geraldine Elkus
 TITLE: Dock Manager

LONGITUDE: 122D 20.1'W
 LATITUDE: 47D 37.75'N
 COUNTY: King

PUMPOUT

TYPE: stationary
 LOCATION: reserved dock
 FEE: none
 VISIBILITY: fair

MANUFACTURER: Marland (Sam-Station)
 HOURS: 24hrs-but not lighted
 ADJACENT DUMPSTATION: no
 ACCESSIBILITY: good

SEWAGE DISPOSAL

city sewer system

COMMENTS

62 slips all over 40'; includes 12 live-aboards
 pumpout dock is reserved for boats using pumpout and guests at restaurant
 pumpout was installed in 1983



Marina Mart Moorings

1505 Westlake Ave. North, Suite 105
Seattle, WA 98109

206-281-8260

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 201
FACILITY OWNER: Fisher Properties, Inc.

BODY OF WATER: Lake Union

LONGITUDE: 122D 20.4'W

LATITUDE: 47D 38.2'N

COUNTY: King

CONTACT PERSON: Vicki Read
TITLE: Marina Manager

PUMPOUT

TYPE: stationary
LOCATION: separate dock
FEE: none
VISIBILITY: poor

MANUFACTURER: Marland
HOURS: 24hrs/year-round
ADJACENT DUMPSTATION: no
ACCESSIBILITY: good

SEWAGE DISPOSAL

city sewer system

COMMENTS

201 slips, includes 14 live-aboards



Parkshore Marina

9050 Seward Park Ave. South
Seattle, WA 98118

206-725-3330

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 183
FACILITY OWNER: Parkshore Marina
BODY OF WATER: Lake Washington

LONGITUDE: 122DW
LATITUDE: 47D 31'N
COUNTY: King

CONTACT PERSON: Dean Kelley
TITLE: Marina Manager

PUMPOUT

TYPE: stationary
LOCATION: foot of marina along shoreline
FEE: none
VISIBILITY: poor

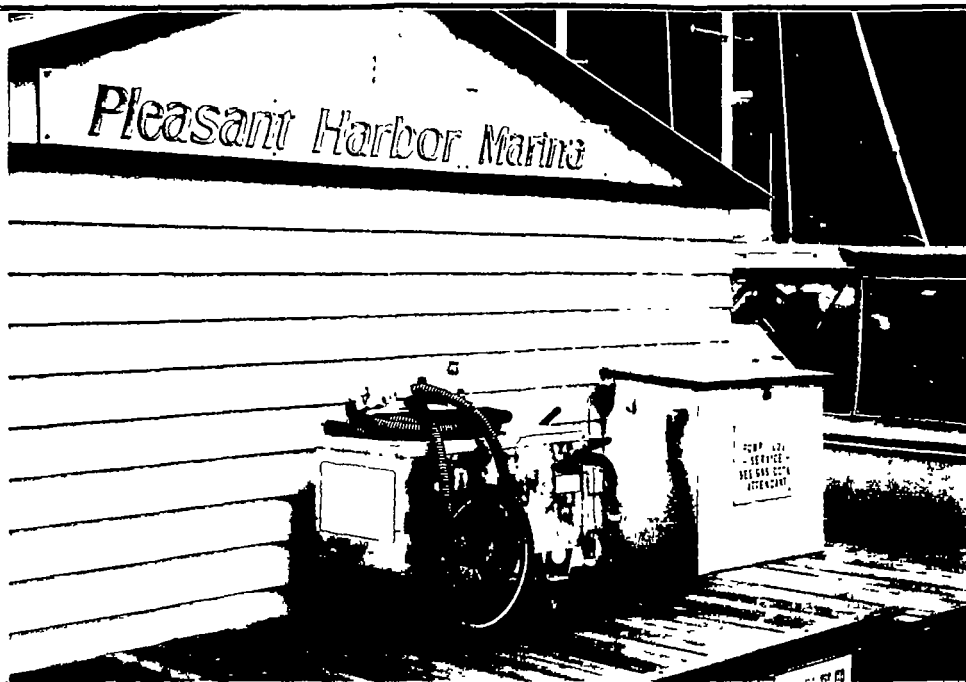
MANUFACTURER: Sani-Station
HOURS: 24hrs/year round
ADJACENT DUMPSTATION: no
ACCESSIBILITY: poor

SEWAGE DISPOSAL

city sewer system

COMMENTS

183 slips (1% under 26'; 88% 26-40'; 11% over 40') includes 24 live-aboards
pumpout inoperative; owner expects to replace in Fall, 1995



Pleasant Harbor Marina

308913 Hwy 101
Brinnon, WA 98320

206-796-4611

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 165
FACILITY OWNER: Pleasant Harbor Marina

BODY OF WATER: Pleasant Harbor, Hood Canal

LONGITUDE: 122D 55.5'W

LATITUDE: 47D 39.7'N

COUNTY: Jefferson

CONTACT PERSON: Charles Finnila
TITLE: President

PUMPOUT

TYPE: portable (self service)
LOCATION: fuel dock
FEE: none
VISIBILITY: good

MANUFACTURER: VIM (Van Ives Manufacturing)
HOURS: fuel dock hours
ADJACENT DUMPSTATION: yes (custom - toilet type)
ACCESSIBILITY: good

SEWAGE DISPOSAL

upland septic system

COMMENTS



Port of Brownsville

9790 Ogle Road NE
Bremerton, WA 98311

206-692-5498

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 234
FACILITY OWNER: Port of Brownsville
BODY OF WATER: Burke Bay, Port Orchard

LONGITUDE: 122D 36.8'W
LATITUDE: 47D 39.16'N
COUNTY: Kitsap

CONTACT PERSON: Bill Bailey
TITLE: Port Manager

PUMPOUT #1

TYPE: stationary
LOCATION: guest dock
FEE: none
VISIBILITY: fair

MANUFACTURER: Keco (Pump-A-Head)
HOURS: 24hrs/year-round
ADJACENT DUMPSTATION: yes (Keco Kleen-A-Pottee)
ACCESSIBILITY: good

PUMPOUT #2

TYPE: portable (self service)
LOCATION: permanent moorage
FEE: none
VISIBILITY: fair

MANUFACTURER: Keco (Pump-A-Head)
HOURS: marina office hours
ADJACENT DUMPSTATION: no
ACCESSIBILITY: good

SEWAGE DISPOSAL

city sewer system

COMMENTS

234 slips (25% under 26', 50% 26-40', 25% over 40') includes 30 live-aboards
pumpouts were installed in 1989
to use portable pumpout need dock access and office assistance to unlock unit
port has established marina as a no discharge area



Port of Edmonds

336 Admiral Way
Edmonds, WA 98020

206-774-0549

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 800+
FACILITY OWNER: Port of Edmonds

BODY OF WATER: Puget Sound

LONGITUDE: 122D 23.5'W

LATITUDE: 47D 48.5'N

COUNTY: Snohomish

CONTACT PERSON: GERALYN SANDER
TITLE: Administrative Services Manager.

PUMPOUT

TYPE: stationary
LOCATION: fuel dock
FEE: none
VISIBILITY: fair

MANUFACTURER: Keco (Pump-A-Head)
HOURS: 24hrs/year-round
ADJACENT DUMPSTATION: no
ACCESSIBILITY: fair

SEWAGE DISPOSAL

city sewer system

COMMENTS

pumpout installed in 1991
800 water slips (29% under 26'; 66% 26-40'; 5% over 40'), 200 dry slips, and 1100 lineal feet of guest moorage; includes 4 live-aboards



Port of Kingston

25864 Washington Blvd. NE
Kingston, WA 98346

206-297-3545

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 306
FACILITY OWNER: Port of Kingston
BODY OF WATER: Appletree Cove, Puget Sound

LONGITUDE: 122D 29 8'W

LATITUDE: 47D 47.8'N

COUNTY: Kitsap

CONTACT PERSON: Gail Buchanan
TITLE: Harbormaster

PUMPOUT

TYPE: stationary
LOCATION: fuel dock
FEE: none
VISIBILITY: good

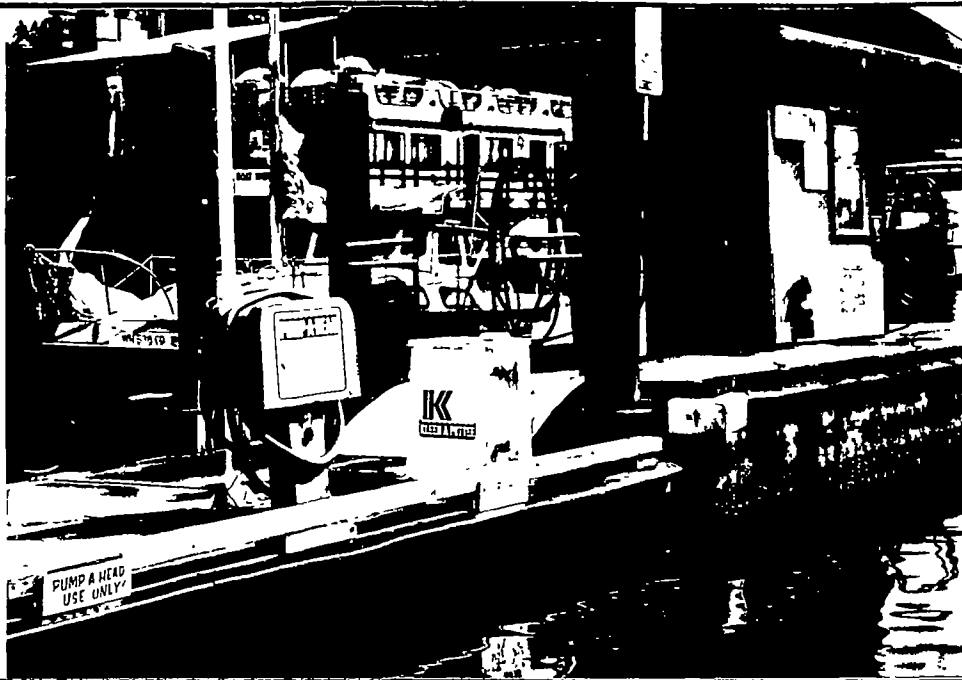
MANUFACTURER: Keco (Pump-A-Head)
HOURS: 24hrs/year-round
ADJACENT DUMPSTATION: no
ACCESSIBILITY: good

SEWAGE DISPOSAL

city sewer system

COMMENTS

dumpstation located adjacent to shoreline restrooms
pumpout installed in 1991
306 slips (25% under 26', 60% 26-40', 15% over 40') includes 14 live-aboards



Port of Poulsbo

P.O. Box 732
Poulsbo, WA 98370

206-779-3505

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 350
FACILITY OWNER: Port of Poulsbo

BODY OF WATER: Liberty Bay

LONGITUDE: 122 38.82'W

LATITUDE: 47D 44.02'N

COUNTY: Kitsap

CONTACT PERSON: Gary Proutt
TITLE: Port Manager

PUMPOUT

TYPE: stationary
LOCATION: fuel dock
FEE: none
VISIBILITY: good

MANUFACTURER: Keco (Pump-A-Head)
HOURS: 24hrs/year round
ADJACENT DUMPSTATION: yes (Keco Kleen-A-Pottec)
ACCESSIBILITY: good

SEWAGE DISPOSAL

city sewer system

COMMENTS

pumpout was installed about 1990
approx. 350 slips (220 permanent and 130 guest slips) includes 12 live-aboards



Port Orchard Marina

8850 SW State Hwy. 160
Port Orchard, WA 98366

206-876-5535

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 410+
FACILITY OWNER: Port of Bremerton

BODY OF WATER: Sinclair Inlet

LONGITUDE: 122D 38.28'W

LATITUDE: 47D 32.58'N

COUNTY: Kitsap

CONTACT PERSON: Gene Baker
TITLE: Marine Facilities Mgr.

PUMPOUT

TYPE: stationary
LOCATION: fuel dock
FFF: none
VISIBILITY: good

MANUFACTURER: Keco(Pump-A-Head)
HOURS: 24hrs/year-round
ADJACENT DUMPSTATION: yes (Keco Kleen-A-Pottee)
ACCESSIBILITY: good

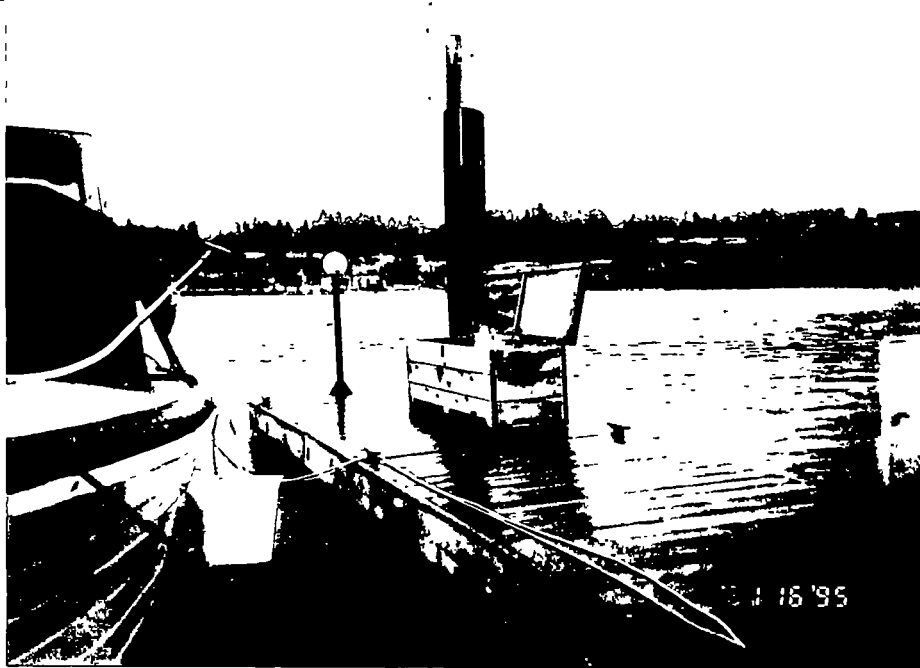
SEWAGE DISPOSAL

city sewer system

COMMENTS

pumpout installed in 1991

410 slips + 1500' inside side tie (7% under 26'; 88% 26-40'; 4% over 40') includes 16 live-aboards



Port Washington Marina

1805 Thompson Drive
Bremerton, WA 98310

206-479-3037

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 81
FACILITY OWNER: Port Washington Marina

BODY OF WATER: Washington Narrows

LONGITUDE: 122D 33.8'W

LATITUDE: 47D 34.84'N

COUNTY: Kitsap

CONTACT PERSON: Ron and Loretta Darkow
TITLE: Harbormasters

PUMPOUT

TYPE: stationary
LOCATION: end of permanent moorage dock
FEE: none
VISIBILITY: poor

MANUFACTURER: custom (Baldor motor)
HOURS: 24hrs/year-round
ADJACENT DUMPSTATION: no
ACCESSIBILITY: good*

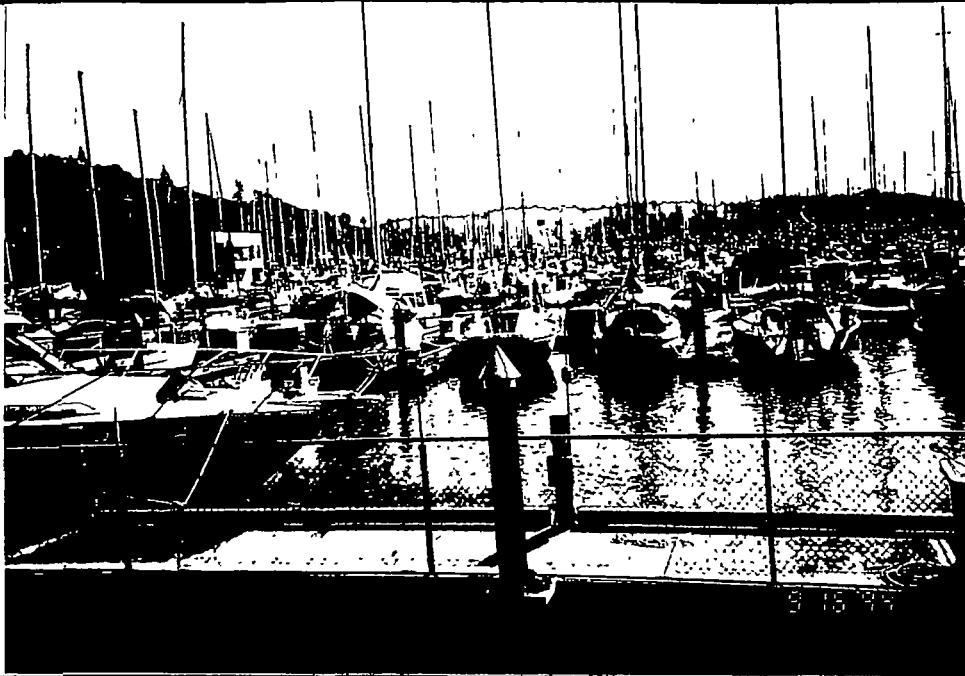
SEWAGE DISPOSAL

city sewer system

COMMENTS

81 slips (7% under 26', 93% over 40') includes 36 live-aboards

*pumpout space also used as guest moorage space so pumpout is not always accessible



Shilshole Bay Marina

P.O. Box 1209
Seattle, WA 98111

206-728-3006

TYPE OF FACILITY: Marina
NUMBER OF SLIPS: 1500
FACILITY OWNER: Port of Seattle

BODY OF WATER: Shilshole Bay, Puget Sound

LONGITUDE: 121D 24.5'W

LATITUDE: 47D 40.9'N

COUNTY: King

CONTACT PERSON: Darlene Robertson
TITLE: Acting Manager

PUMPOUT #1

TYPE: stationary-unit #1
LOCATION: fuel dock/guest dock
FEE: none
VISIBILITY: good

MANUFACTURER: Keco (Pump-A-Head)
HOURS: office hrs/year-round*
ADJACENT DUMPSTATION: yes
ACCESSIBILITY: good

PUMPOUT #2

TYPE: stationary-unit #2
LOCATION: guest moorage
FEE: none
VISIBILITY: good

MANUFACTURER: Keco (Pump-A-Head)
HOURS: 24hrs/year-round*
ADJACENT DUMPSTATION: yes (Keco Kleen-A-Pottee)
ACCESSIBILITY: good

SEWAGE DISPOSAL

city sewer system

COMMENTS

*both pumpout units require a key; guest moorage key will unlock unit #2
pumpouts installed in 1982 and 1994

1500 slips (85% 26-40'; 14% over 40') includes 256 five-aboards



South Lake Union Moorage

1111-1107 Fairview Avenue N
Seattle, WA 98109

206-682-0159

TYPE OF FACILITY: marina/boat sales
NUMBER OF SLIPS: 52
FACILITY OWNER: S. Lake Union Limited Part.

BODY OF WATER: Lake Union

LONGITUDE: unknown

LATITUDE: unknown

COUNTY: King

CONTACT PERSON: Eric Piltz
TITLE: Manager

PUMPOUT

TYPE: stationary
LOCATION: floating dock off main dock
FEE: none
VISIBILITY: fair

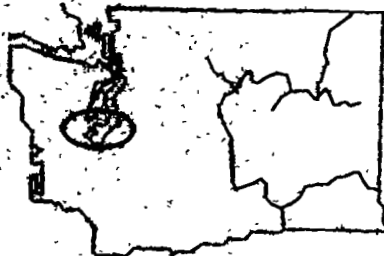
MANUFACTURER: Keco (Pump-A-Head)
HOURS: 24 hrs/year-round
ADJACENT DUMPSTATION: no
ACCESSIBILITY: poor

SEWAGE DISPOSAL

city sewer system

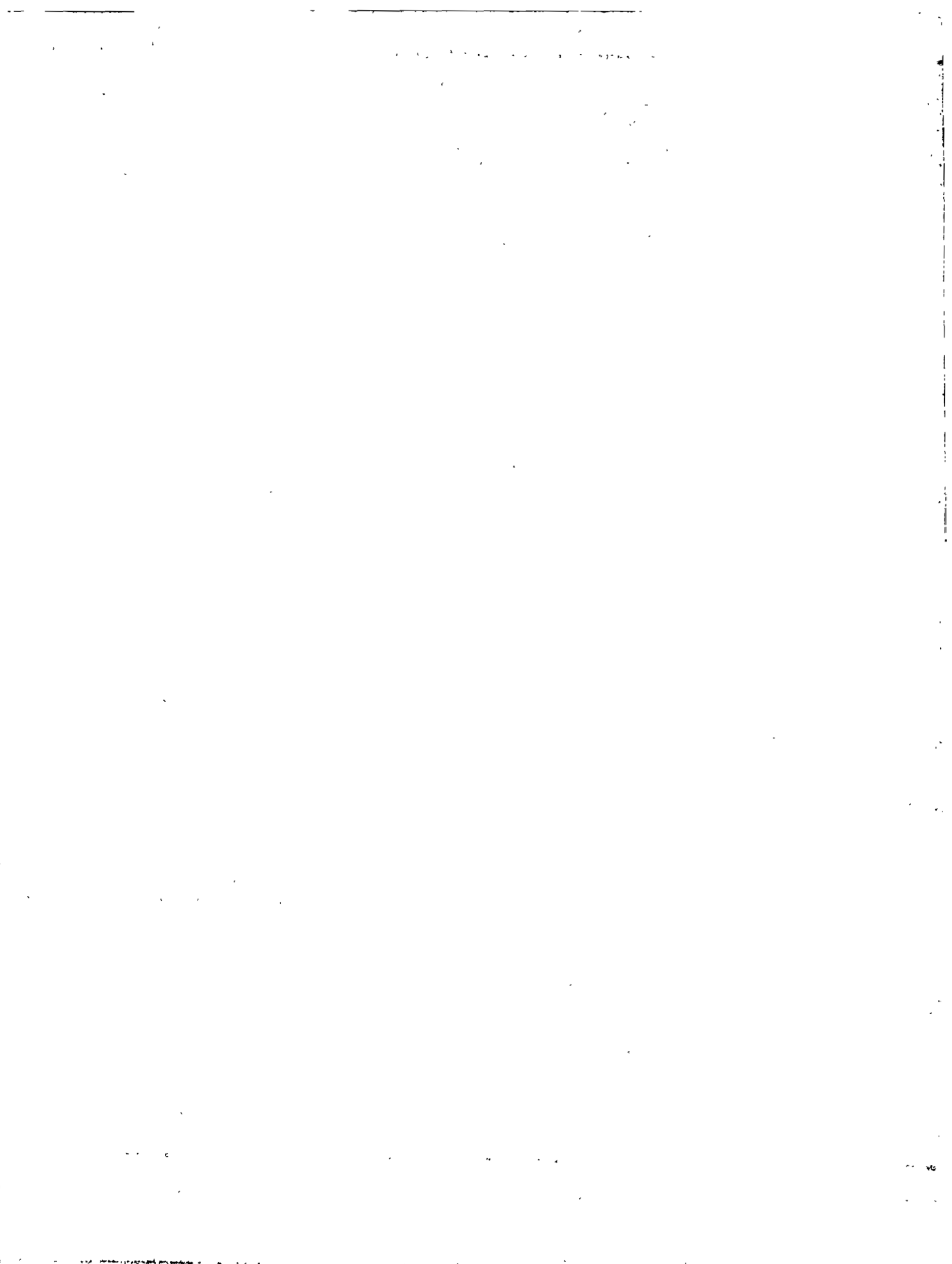
COMMENTS

52 slips (70% 26-40'; 30% over 40')
pumpout installed in 1986



Region: South Puget Sound

Alderbrook Inn
Arabella's Landing Marina
City of Des Moines Marina
Dockton County Park
East Bay Marina
Jarrell Cove State Park
Jarrell's Cove Marina
Percival Landing
Point Defiance Boat Ramp
Totem Marina
Twanoh State Park
Westbay Marina





Alderbrook Inn

E. 7101 Hwy 106
Union, WA 98592

206-898-2200

TYPE OF FACILITY: marina
NUMBER OF SLIPS: linear footage only
FACILITY OWNER: Alderbrook Inn

BODY OF WATER: Hood Canal

LONGITUDE: 123D 3.58'W

LATITUDE: 47D 30.59'N

COUNTY: Mason

CONTACT PERSON: Tim Houghton
TITLE: Maintenance Supervisor

PUMPOUT

TYPE: stationary
LOCATION: guest dock
FEE: none
VISIBILITY: good

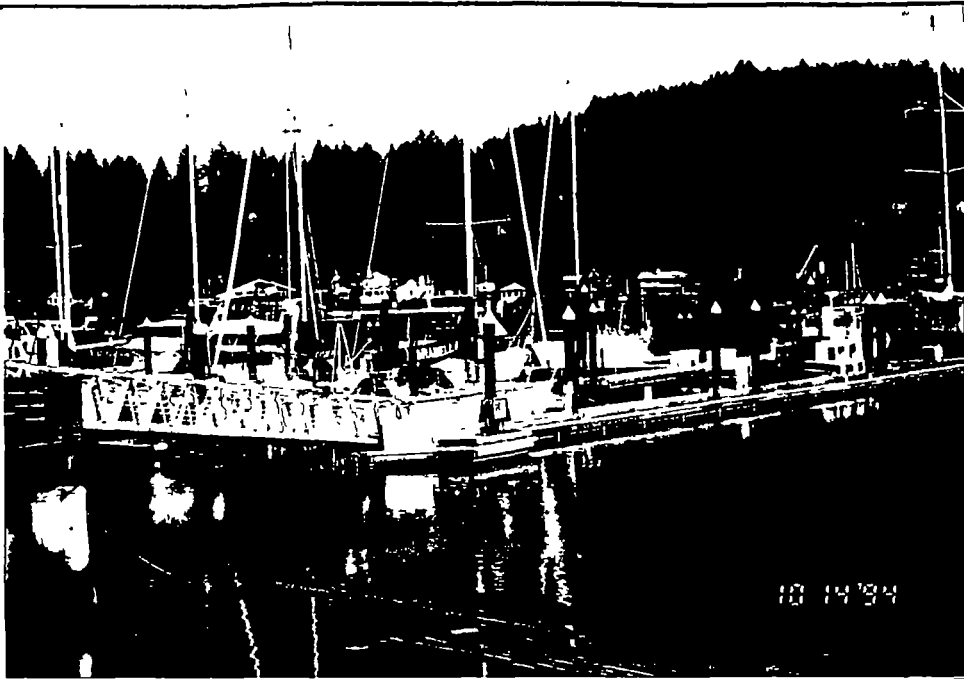
MANUFACTURER: Keco (Pump-A-Head)
HOURS: 24hrs/year-round
ADJACENT DUMPSTATION: yes (Keco Kleen-A-Pottee)
ACCESSIBILITY: good

SEWAGE DISPOSAL

Alderbrook Inn has own treatment facility

COMMENTS

1200' dock for permanent and guest moorage



Arabella's Landing Marina

3323 Harborview Drive
Gig Harbor, WA 98332

206-851-1793

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 60+
FACILITY OWNER: Arabella's Landing Marina

BODY OF WATER: Gig Harbor, Dalco Passage

LONGITUDE: unknown
LATITUDE: unknown
COUNTY: Pierce

CONTACT PERSON: Ned Brown-Stearns
TITLE: Manager

PUMPOUT

TYPE: stationary
LOCATION: guest dock
FEE: \$1.00
VISIBILITY: fair

MANUFACTURER: Keco (Pump-A-Head)
HOURS: 24hrs/year-round
ADJACENT DUMPSTATION: no
ACCESSIBILITY: good

SEWAGE DISPOSAL

city sewer system

COMMENTS

60 slips (25% 26-40'; 75% over 40') + 500' dock space; includes 7 live-aboards
pumpout installed in 1993



City of Des Moines Marina

22307 Dock Avenue South
Des Moines, WA 98198

206-824-5700

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 780
FACILITY OWNER: City of Des Moines

BODY OF WATER: Puget Sound

LONGITUDE: 122D 19.8'W

LATITUDE: 47D 24'N

COUNTY: King

CONTACT PERSON: Joe Dusenbury
TITLE: Harbormaster

PUMPOUT

TYPE: stationary
LOCATION: fuel dock
FEE: none
VISIBILITY: good

MANUFACTURER: Keco (Pump-A-Head)
HOURS: marina hours
ADJACENT DUMPSTATION: no
ACCESSIBILITY: fair

SEWAGE DISPOSAL

city sewer system

COMMENTS

780 slips (30% under 26'; 60% 26-40'; 10% over 40')
switch for pump in dock office, must have operator assistance
dump station located adjacent to shoreside restrooms
pumpout installed in 1980



Dockton County Park

2500 Dock Street
Dockton, WA 98070

206-463-2947

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 44
FACILITY OWNER: King County
BODY OF WATER: Quartermaster Harbor
LONGITUDE: 122D 27.7'W
LATITUDE: 47D 22.4'N
COUNTY: King

CONTACT PERSON: Niki Bush
TITLE: Park Manager

PUMPOUT

TYPE: stationary
LOCATION: guest dock
FEE: none
VISIBILITY: good
MANUFACTURER: Marland Environmental Systems
HOURS: 24hrs/seasonal
ADJACENT DUMPSTATION: no
ACCESSIBILITY: fair

SEWAGE DISPOSAL

unknown

COMMENTS

there is a boat ramp adjacent to the facility



East Bay Marina

1022 Marina Drive NE
Olympia, WA 98502

206-786-1400

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 538
FACILITY OWNER: Port of Olympia

BODY OF WATER: Budd Inlet

LONGITUDE: 122D 53.93'W

LATITUDE: 47D 03.5'N

COUNTY: Thurston

CONTACT PERSON: Cheryl Cushaw
TITLE: Customer Representative

PUMPOUT

TYPE: stationary
LOCATION: guest dock
FEE: none
VISIBILITY: good

MANUFACTURER: Keco (Pump-A-Head)
HOURS: 24hrs/year-round
ADJACENT DUMPSTATION: yes (Keco Kleen-A-Pottee)
ACCESSIBILITY: good

SEWAGE DISPOSAL

city sewer system

COMMENTS



Jarrell Cove State Park

E. 391 Wingert Road
Shelton, WA 98584

206-426-9226

TYPE OF FACILITY: guest moorage
NUMBER OF SLIPS: linear footage only
FACILITY OWNER: Washington State Parks

BODY OF WATER: Pickering Passage, Case Inlet

LONGITUDE: 122D 53.11'W

LATITUDE: 47D 17'N

COUNTY: Mason

CONTACT PERSON: Tom Snyder
TITLE: Park Manager

PUMPOUT

TYPE: stationary
LOCATION: guest dock
FEE: none
VISIBILITY: good

MANUFACTURER: Keco (Pump-A-Head)
HOURS: 24hrs/year-round
ADJACENT DUMPSTATION: yes (Keco Kleen-A-Pottee)
ACCESSIBILITY: good

SEWAGE DISPOSAL

holding tank that is pumped to truck/barge; disposal by private vendor

COMMENTS

pumpout installed around 1990



Jarrell's Cove Marina

E. 220 Wilson Road
Shelton, WA 98584

206-426-8823

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 37
FACILITY OWNER: Jarrell's Cove Marina

BODY OF WATER: Jarrell's Cove

LONGITUDE: 122D 53.28'W

LATITUDE: 47D 17'N

COUNTY: Mason

CONTACT PERSON: Lorna Hink
TITLE: Owner

PUMPOUT

TYPE: stationary
LOCATION: fuel dock
FEE: none
VISIBILITY: good

MANUFACTURER: Keco (Pump-A-Head)
HOURS: 24hrs/year-round
ADJACENT DUMPSTATION: yes (Keco Kleen-A-Pottec)
ACCESSIBILITY: good

SEWAGE DISPOSAL

holding tank that is pumped to truck; disposal by private vendor

COMMENTS

pumpout installed around 1990
a local company pumps out holding tank and disposes of sewage



Percival Landing

222 N. Olympia
Olympia, WA 98501

206-753-8379

CONTACT PERSON: Terry Meyer
TITLE: Park Services Manager

TYPE OF FACILITY: marina & recreational dock
NUMBER OF SLIPS: accommodates 50-70 boats
FACILITY OWNER: City of Olympia

BODY OF WATER: Budd Inlet

LONGITUDE: 122D 54.12'W

LATITUDE: 47D 2.94'N

COUNTY: Thurston

PUMPOUT

TYPE: stationary
LOCATION: guest dock
FEE: none
VISIBILITY: good

MANUFACTURER: Keco (Pump-A-Head)
HOURS: 24hrs/year-round
ADJACENT DUMPSTATION: yes (Keco Kleen-A-Pottee)
ACCESSIBILITY: good

SEWAGE DISPOSAL

city sewer

COMMENTS



Point Defiance Boat Ramp

5912 N. Waterfront
Tacoma, WA 98407

206-591-5325

TYPE OF FACILITY: transient docks & launch facility

NUMBER OF SLIPS: linear footage only

FACILITY OWNER: City of Tacoma

BODY OF WATER: Point Defiance

LONGITUDE: 122D 30 8'W

LATITUDE: 47D 18.35'N

COUNTY: Pierce

CONTACT PERSON: Skip Larsen
TITLE: Manager

PUMPOUT

TYPE: stationary
LOCATION: end of transient dock
FHE: none
VISIBILITY: good

MANUFACTURER: Keco (Pump-A-Head)
HOURS: 24hrs/year-round
ADJACENT DUMPSTATION: yes (Keco Kleen-A-Pottee)
ACCESSIBILITY: good

SEWAGE DISPOSAL

city sewer system

COMMENTS

city also owns nearby Point Defiance Boat House which has 350 dry storage units and boat lift



Totem Marina

821 Dock Street
Tacoma, WA 98402

206-272-4404

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 400
FACILITY OWNER: Totem Marina Association

BODY OF WATER: Thea Foss Waterway

LONGITUDE: 122D 26.1W

LATITUDE: 47D 15 3'N

COUNTY: Pierce

CONTACT PERSON: Eva Palka
TITLE: Manager

PUMPOUT

TYPE: stationary
LOCATION: fuel dock
FEE: yes (see comments)
VISIBILITY: poor

MANUFACTURER: Keco (Pump-A-Head)
HOURS: varied/year-round
ADJACENT DUMPSTATION: no
ACCESSIBILITY: fair

SEWAGE DISPOSAL

city sewer system

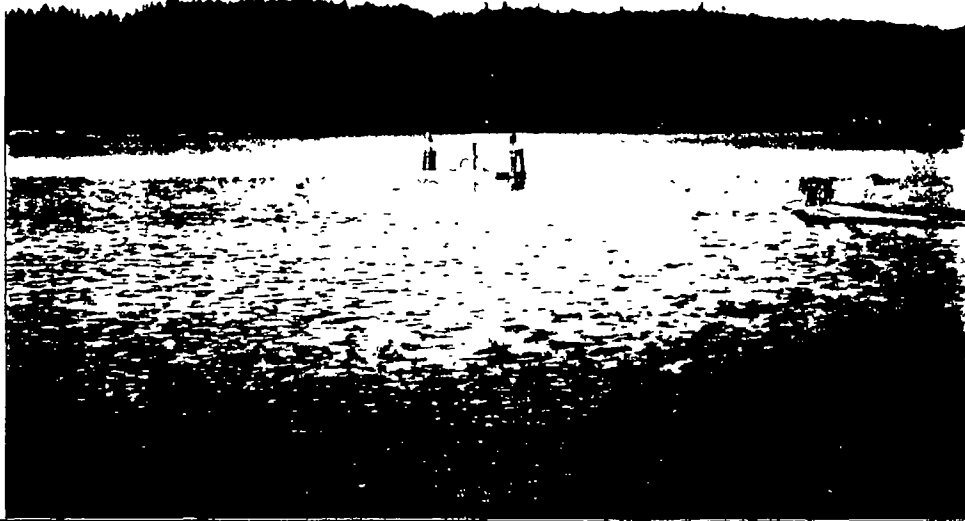
COMMENTS

400 slips including approximately 50 live-aboards; Totem Marina has the largest concentration of live-aboards in the Tacoma area
pumpout installed in 1992

pumpout is not self-service, need operator assistance

pumpout fee: under 24' \$5; 24-40' \$10, +40' \$25

SaniTug pumpout service also services marina



Twanoh State Park

E. 12190 Hwy 106
Union, WA 98592

206-275-2222

TYPE OF FACILITY: marina
NUMBER OF SLIPS: linear dock & mooring buoys
FACILITY OWNER: Washington State Parks

BODY OF WATER: Hood Canal

LONGITUDE: unknown
LATITUDE: unknown
COUNTY: Mason

CONTACT PERSON: Larry Otto
TITLE: Park Ranger

PUMPOUT

TYPE: stationary
LOCATION: floating dock
FEE: none
VISIBILITY: good

MANUFACTURER: Edson (2 hand pumps)
HOURS: 24hrs/year-round
ADJACENT DUMPSTATION: yes
ACCESSIBILITY: good

SEWAGE DISPOSAL

holding tank pumped to truck; disposal by private vendor

COMMENTS

floating dock located 400' from shore
dock equipped with two hand-pump pumpouts and a dump station
shoreside restrooms
pumpout installed in 1991



Westbay Marina

2100 West Bay Drive
Olympia, WA 98502

206-943-2080

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 472
FACILITY OWNER: Westbay Marine Services
BODY OF WATER: Budd Inlet, Puget Sound

LONGITUDE: unknown
LATITUDE: unknown
COUNTY: Thurston

CONTACT PERSON: Neil Falkenberg
TITLE: General Manager

PUMPOUT

TYPE: portable
LOCATION: dock under construction
FEE: none
VISIBILITY: dock under construction

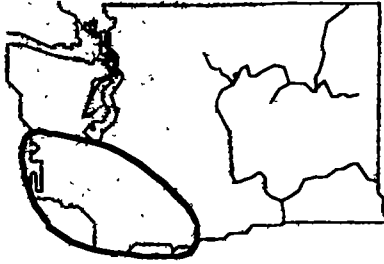
MANUFACTURER: VIM (Van Ives Manufacturing)
HOURS: 24hrs/year-round
ADJACENT DUMPSTATION: no
ACCESSIBILITY: dock under construction

SEWAGE DISPOSAL

city sewer system

COMMENTS

unit will be housed on fuel dock which is currently under construction
472 slips including 50 live-aboards
unit was installed in 1990



Region: Southwest Washington

Elochoman Slough Marina

Port of Camas/Washougal Marina

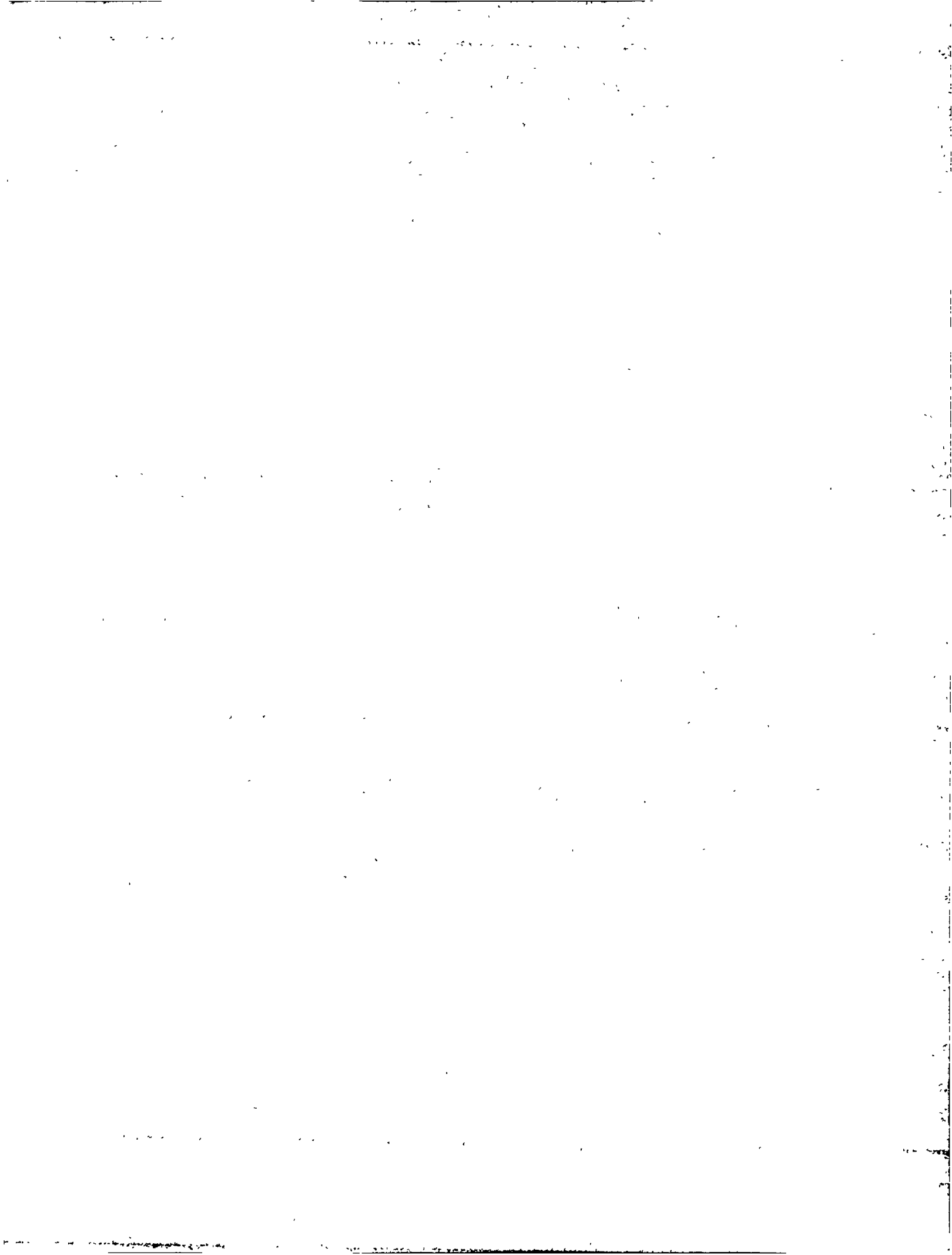
Port of Ilwaco

Port of Kalama Marina

Port of Peninsula

Steamboat Landing Marina

Westport Marina





Elochoman Slough Marina

P.O. Box 651
Cathlamet, WA 98612

206-795-3501

TYPE OF FACILITY: marina

NUMBER OF SLIPS: 300

FACILITY OWNER: Port of Wahkiakum

BODY OF WATER: Cathlamet Channel, Columbia River

LONGITUDE: 123D 23.26'W

LATITUDE: 46D 12.32'N

COUNTY: Wahkiakum

CONTACT PERSON: Jim Mast

TITLE: Port Manager

PUMPOUT

TYPE: stationary

LOCATION: permanent moorage

FEE: \$.50

VISIBILITY: good

MANUFACTURER: Keco (Pump-A-Head)

HOURS: 24hrs/seasonal

ADJACENT DUMPSTATION: yes (Keco Kleen-A-Pottee)

ACCESSIBILITY: good

SEWAGE DISPOSAL

sewer pipeline to waste treatment facility

COMMENTS

pumpout installed in 1993

pumpout closed in winter



Port of Camas/Washougal Marina

24 A Street
Washougal, WA 98671
206-835-2196

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 375
FACILITY OWNER: Port of Camas/Washougal
BODY OF WATER: Columbia River, Mile 121

CONTACT PERSON: Sheldon Tyler
TITLE: Port Manager

LONGITUDE: 122D 22.86'W
LATITUDE: 48D 34.66'N
COUNTY: Clark

PUMPOUT

TYPE: stationary
LOCATION: fuel dock
FEE: none
VISIBILITY: good

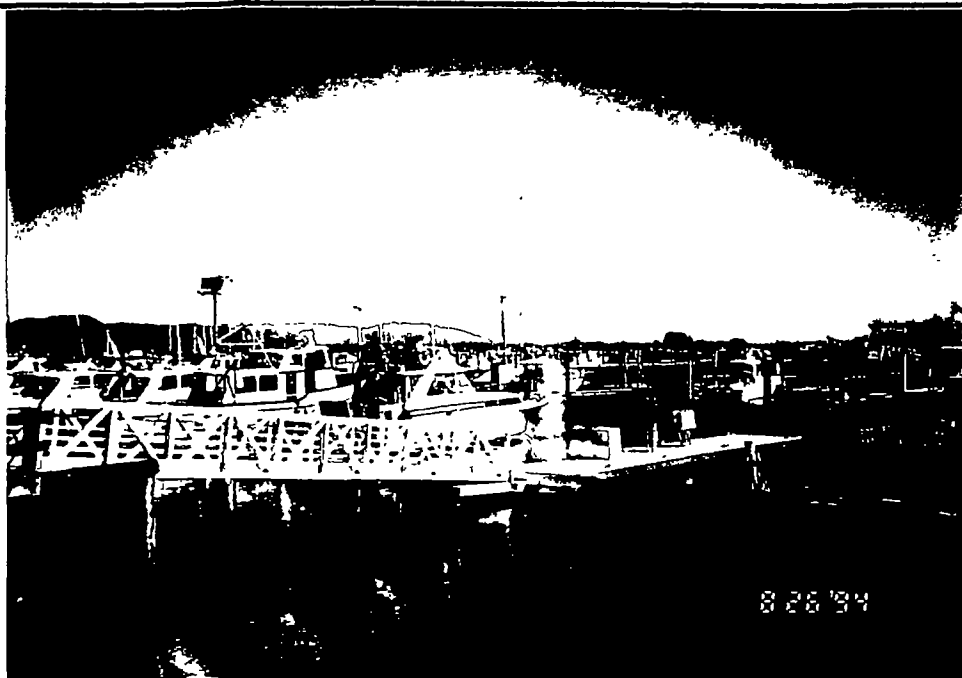
MANUFACTURER: Keco (Pump-A-Head)
HOURS: 24hrs/seasonal
ADJACENT DUMPSTATION: no
ACCESSIBILITY: good

SEWAGE DISPOSAL

sewer pipeline to waste treatment facility

COMMENTS

375 slips (50% under 26'; 49% 26-40'; 1% over 40')
pumpout installed prior to 1985
dumpstation on shore
floating restroom in marina



Port of Ilwaco

P.O. Box 307
Ilwaco, WA 98624

206-642-3143

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 1000
FACILITY OWNER: Port of Ilwaco

BODY OF WATER: Baker Bay, Pacific Ocean

LONGITUDE: 124D 2.5'W

LATITUDE: 46D 18.2'N

COUNTY: Pacific

CONTACT PERSON: Betty Clemens
TITLE: Manager

PUMPOUT

TYPE: stationary
LOCATION: guest dock
FEE: none
VISIBILITY: good

MANUFACTURER: Keco (Pump-A-Head)
HOURS: 24hrs/year-round
ADJACENT DUMPSTATION: yes (Keco Kleen-A-Pottee)
ACCESSIBILITY: good

SEWAGE DISPOSAL

city sewer system

COMMENTS

pumpout installed in 1991



Port of Kalama Marina

P.O. Box 70
Kalama, WA 98625

206-673-2325

TYPE OF FACILITY: Marina
NUMBER OF SLIPS: 255
FACILITY OWNER: Port of Kalama

BODY OF WATER: Columbia River

LONGITUDE: 122D 50.95'W

LATITUDE: 46D 18.2'N

COUNTY: Cowlitz

CONTACT PERSON: Jack Wicker
TITLE: Operations Manager

PUMPOUT

TYPE: stationary
LOCATION: main walkway dock
FEE: \$1.00
VISIBILITY: poor

MANUFACTURER: Keco (Pump-A-Head)
HOURS: 24hrs/seasonal
ADJACENT DUMPSTATION: no
ACCESSIBILITY: fair

SEWAGE DISPOSAL

city sewer system

COMMENTS

marina is owned and operated by the Port of Kalama; the pumpout is owned and operated by the City of Kalama
pumpout closed in winter
pumpout was installed around 1978



Port of Peninsula

3119 275th Street
Ocean Park, WA 98640

206-665-4547

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 100
FACILITY OWNER: Port of Peninsula

BODY OF WATER: Pacific Ocean

LONGITUDE: 124D 8'W

LATITUDE: 46D 27'N

COUNTY: Grays Harbor

CONTACT PERSON: Charles Richardson
TITLE: Manager

PUMPOUT

TYPE: stationary
LOCATION: permanent moorage
FEE: none
VISIBILITY: good

MANUFACTURER: Keco (Pump-A-Head)
HOURS: 24hrs/year-round
ADJACENT DUMPSTATION: yes (Keco Kiccn-A-Pottee)
ACCESSIBILITY: good

SEWAGE DISPOSAL

holding tank that is pumped to truck/barge

COMMENTS

pumpout area is fenced to allow for public access to unit but not docks
100 slips (20 under 26'; 75 26-40'; 5 over 40')
pumpout installed in 1991



Steamboat Landing Marina

3710 S.E. 139th Avenue
Vancouver, WA 98684

206-254-1000

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 148
FACILITY OWNER: Steamboat Landing Marina

BODY OF WATER: Columbia River

LONGITUDE: 122D 31.69'W

LATITUDE: 45D 3.64'N

COUNTY: Clark

CONTACT PERSON: Al Koons
TITLE: Dock Master

PUMPOUT

TYPE: stationary
LOCATION: floating dock
FEE: none
VISIBILITY: good

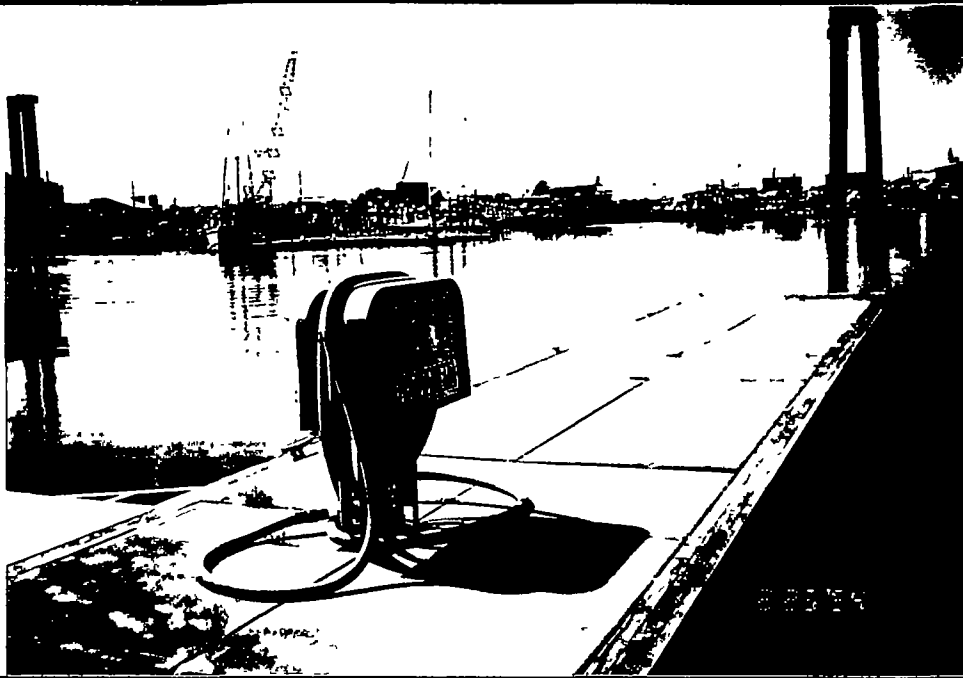
MANUFACTURER: Keco (Pump-A-Head)
HOURS: 24hrs/year-round
ADJACENT DUMPSTATION: yes (Keco Kleen-A-Pottee)
ACCESSIBILITY: good

SEWAGE DISPOSAL

sewer pipeline to waste treatment facility

COMMENTS

148 slips (58 under 26'; 68 26-40'; 20 over 40') includes 5 live-aboards
pumpout was installed in 1993



Westport Marina

P.O. Box 1601
Westport, WA 98595
206-268-9665

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 680
FACILITY OWNER: Port of Grays Harbor
BODY OF WATER: Grays Harbor

LONGITUDE: 124D 6.5'W
LATITUDE: 46D 54.4'N
COUNTY: Grays Harbor

CONTACT PERSON: Larry Ivy
TITLE: Marina Manager

PUMPOUT

TYPE: stationary
LOCATION: permanent moorage
FEE: none
VISIBILITY: good

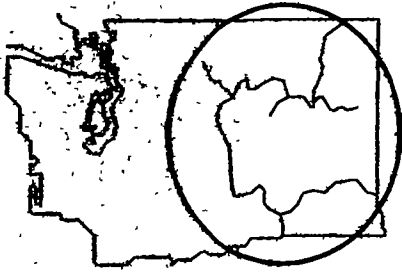
MANUFACTURER: Keco (Pump-A-Head)
HOURS: 24hrs/year-round
ADJACENT DUMPSTATION: no
ACCESSIBILITY: fair

SEWAGE DISPOSAL

city sewer system

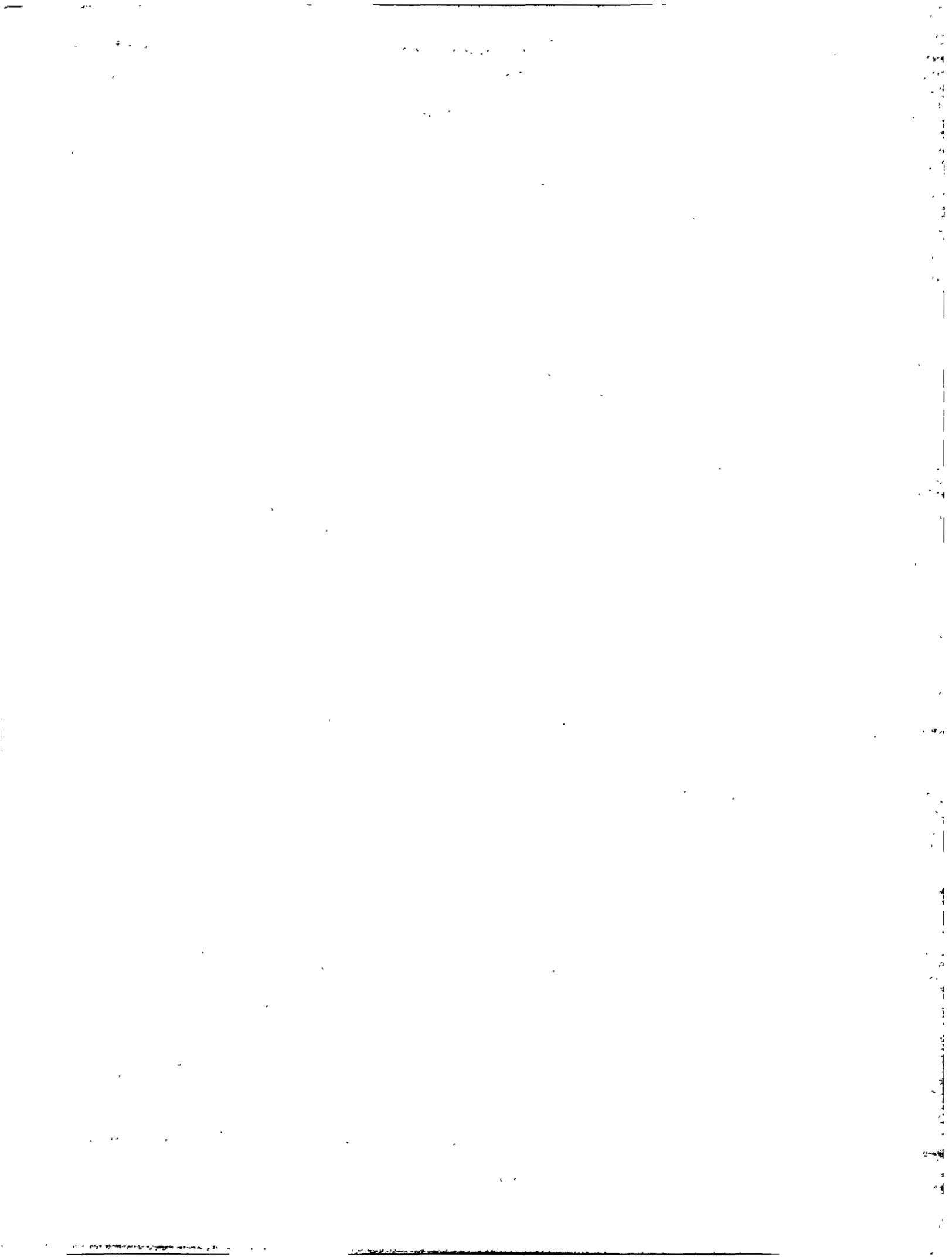
COMMENTS

680 slips; including 5 live-boards
pumpout installed prior to 1990



Region: Central/Eastern Washington

Boyer Park and Marina
Central Ferry State Park
Charbonneau Park
Chief Timothy State Park
Columbia Point Marina
Fort Spokane
Kettle Falls
Lakeshore Marina
Keller Ferry Marina
Kettle Falls Marina
Metz Marina
Old Mill Park
Red Wolf Marina
Seven Bays Resort/Marina
Spring Canyon
Stehekin Landing
Ten-Mile





Boyer Park and Marina

Rt. 3 Box 69
Colfax, WA 99111

509-397-3208

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 140
FACILITY OWNER: Port of Whitman

BODY OF WATER: Snake River

LONGITUDE: 117D 26.5'W

LATITUDE: 46D 41.5'N

COUNTY: Whitman

CONTACT PERSON: Vickie Simpson
TITLE: Leasee

PUMPOUT

TYPE: stationary
LOCATION: fuel dock
FEE: none
VISIBILITY: good

MANUFACTURER: Keco (Pump-A-Head)
HOURS: 24hrs/year-round
ADJACENT DUMPSTATION: yes (Keco Kleen-A-Pottee)
ACCESSIBILITY: good

SEWAGE DISPOSAL

upland septic system

COMMENTS

marina mostly serves small boats
marina owned by Port of Whitman and U.S. Army Corps of Engineers



Central Ferry State Park

Hwy 127, Snake River Bridge
Pomeroy, WA 99347

509-549-3551

TYPE OF FACILITY: boat ramp & recreational dock

NUMBER OF SLIPS: 71

FACILITY OWNER: Washington State Parks

BODY OF WATER: Snake River

LONGITUDE: 117D 53'W

LATITUDE: 46D 28.2'N

COUNTY: Garfield

CONTACT PERSON: Bill Byrne
TITLE: Palouse Area Manager

PUMPOUT

TYPE: stationary
LOCATION: pumpout dock
FEE: none
VISIBILITY: fair

MANUFACTURER: Sani-Station
HOURS: 24hrs/seasonal
ADJACENT DUMPSTATION: no
ACCESSIBILITY: good

SEWAGE DISPOSAL

city sewer system

COMMENTS

pumpout installed in late 1970s, rarely works properly
dump station (Gruebler) located at head of dock on shore
facility primarily serves small boats



Charbonneau Park

R.R. 6, Box 693
Pasco, WA 99301

509-547-7781

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 50
FACILITY OWNER: U.S. Army Corps of Engineers

BODY OF WATER: Lake Sacajawea, Snake River

LONGITUDE: unknown
LATITUDE: unknown
COUNTY: Franklin

CONTACT PERSON: Dave Hays
TITLE: Park Ranger

PUMPOUT

TYPE: stationary
LOCATION: separate dock
FEE: none
VISIBILITY: good

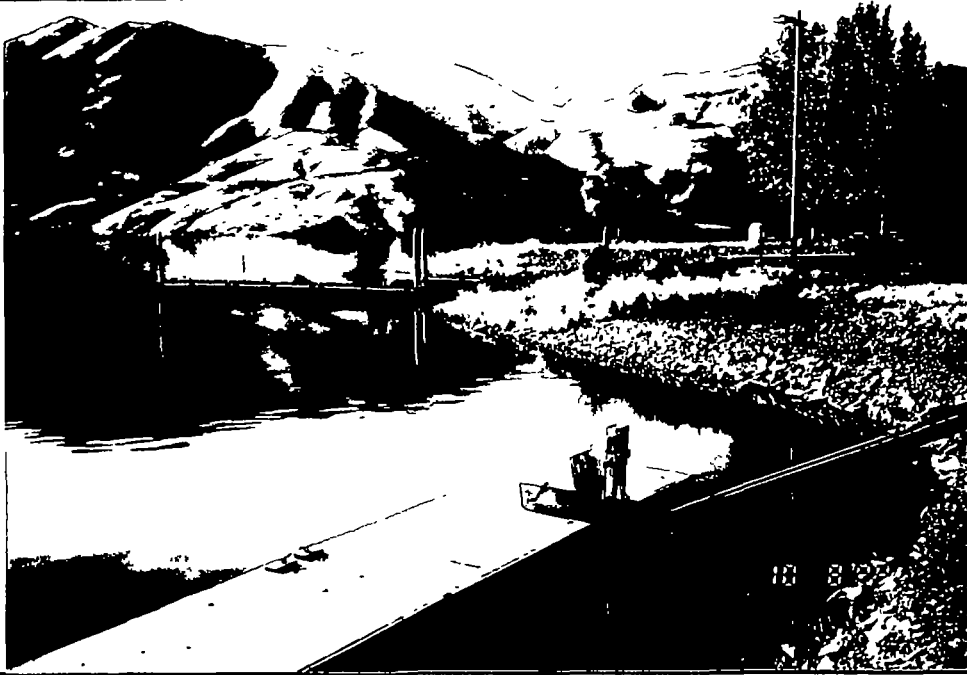
MANUFACTURER: Keco (Pump-A-Head)
HOURS: 24hrs/summer only
ADJACENT DUMPSTATION: no
ACCESSIBILITY: good

SEWAGE DISPOSAL

septic system with drain field

COMMENTS

50 slips (all 20' finger piers but can accommodate boats up to 40') + 10 mooring buoys
dumpstation (Gruendler) located on shore next to dock
although the marina is operated by a private concessionaire, the pumpout is operated by the Corps of Engineers



Chief Timothy State Park

13766 Highway 12
Clarkston, WA 99403

509-758-0999

TYPE OF FACILITY: boat ramp & recreational dock

NUMBER OF SLIPS: linear footage only

FACILITY OWNER: Washington State Parks

BODY OF WATER: Lower Granite Lake, Snake River

LONGITUDE: unknown

LATITUDE: unknown

COUNTY: Asotin

CONTACT PERSON: Gary Long
TITLE: Area Manager

PUMPOUT

TYPE: stationary
LOCATION: floating dock
FEE: none
VISIBILITY: fair

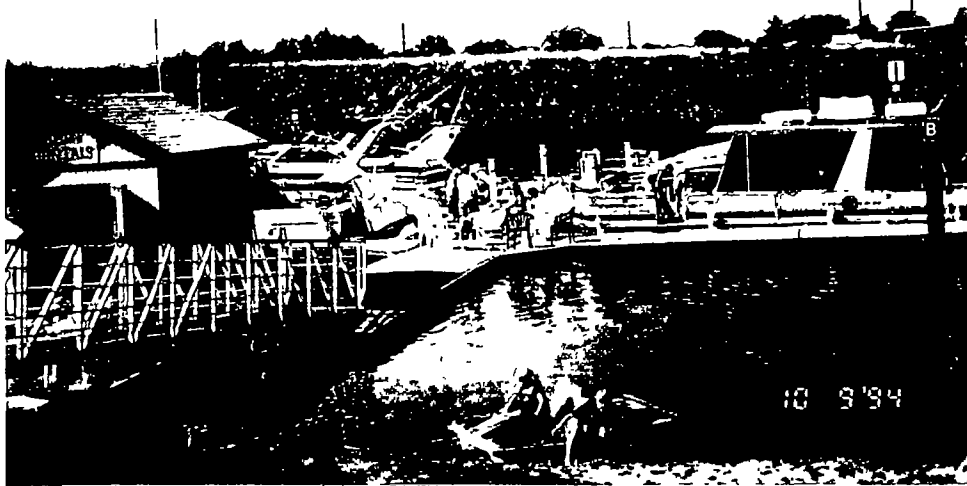
MANUFACTURER: Sant-Station
HOURS: 24hrs/seasonal
ADJACENT DUMPSTATION: no
ACCESSIBILITY: good

SEWAGE DISPOSAL

unknown

COMMENTS

no overnight moorage



Columbia Point Marina

P.O. Box 190
Richland, WA 99352
509-943-9161

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 30
FACILITY OWNER: City of Richland
BODY OF WATER: Columbia River

CONTACT PERSON: George Kuklinski
TITLE: Facilities Supervisor

LONGITUDE: unknown
LATITUDE: unknown
COUNTY: Benton

PUMPOUT

TYPE: stationary
LOCATION: guest dock B
FEE: none
VISIBILITY: good

MANUFACTURER: Keco (Pump-A-Head)
HOURS: 24hrs/summer only
ADJACENT DUMPSTATION: yes (Keco Kleen-A-Pottee)
ACCESSIBILITY: good

SEWAGE DISPOSAL

holding tank that is pumped to truck - disposed of by private vendor

COMMENTS

pumpout installed around 1990
pumpout is closed in the winter



Fort Spokane

Coulee Dam Natl. Recreation Area, Box 37
Coulee Dam, WA 99116

509-633-9441

TYPE OF FACILITY: floating pumpout station
NUMBER OF SLIPS: none
FACILITY OWNER: National Park Service
BODY OF WATER: Franklin D. Roosevelt Lake
LONGITUDE: unknown
LATITUDE: unknown
COUNTY: Lincoln

CONTACT PERSON: Ray Dashiell
TITLE: Foreman II, Maintenance

PUMPOUT

TYPE: manual unit on floating dock
LOCATION: floating dock
FEE: none
VISIBILITY: good

MANUFACTURER: custom
HOURS: 24 hrs/year-round
ADJACENT DUMPSTATION: no-restrooms on dock
ACCESSIBILITY: good

SEWAGE DISPOSAL

upland septic system

COMMENTS

Fort Spokane pumpout located at junction of Spokane River and Roosevelt Lake
floating dock contains manual pumpout and two restrooms
sewage is pumped into trailer on boat and transferred to RV dump station which is part of an upland septic system
pumpout installed in 1978



Keller Ferry Marina

300 Mead, P.O. Box 5
Coulee Dam, WA 99116

509-647-5755

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 63
FACILITY OWNER: NPS/Roosevelt Rec. Enterprises
BODY OF WATER: Franklin D. Roosevelt Lake

CONTACT PERSON: Richard Schraner
TITLE: Marina Manager

LONGITUDE: unknown
LATITUDE: unknown
COUNTY: Lincoln

PUMPOUT

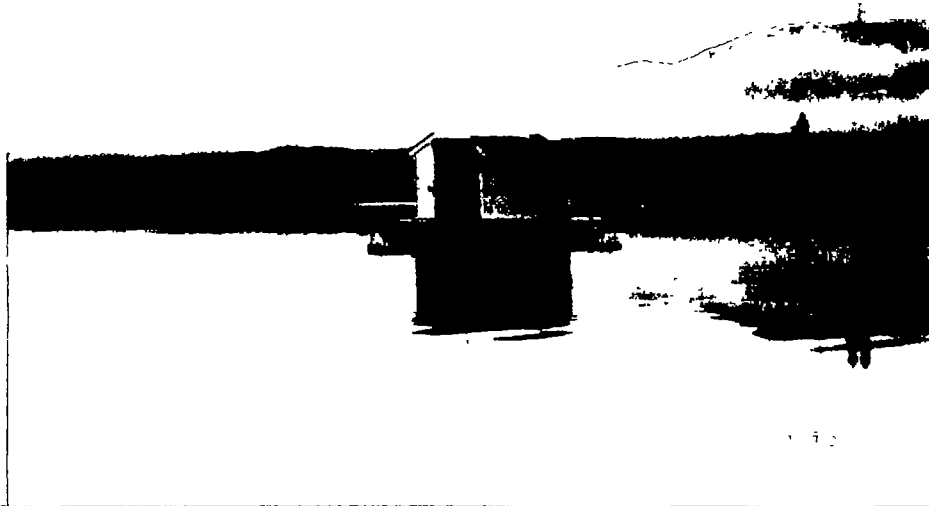
TYPE:	stationary	MANUFACTURER:	custom (trash pump)
LOCATION:	on docks	HOURS:	year-round/office hours
FEE:	none	ADJACENT DUMPSTATION:	no
VISIBILITY:	poor	ACCESSIBILITY:	far

SEWAGE DISPOSAL

septic system

COMMENTS

63 slips (all over 40')
pumpout is operated by marina personnel
during 1994 the pumpout was not working, operator plans to reinstall in spring, 1995
sewage holding tank is pumped to truck and disposed of through a septic system



Kettle Falls

Coulee Dam Natl. Recreation Area, Box 37
Coulee Dam, WA 99116

509-633-9441

TYPE OF FACILITY: floating pumpout station

NUMBER OF SLIPS: none

FACILITY OWNER: National Park Service

BODY OF WATER: Franklin D. Roosevelt Lake

LONGITUDE: unknown

LATITUDE: unknown

COUNTY: Stevens

CONTACT PERSON: Ray Dashiell
TITLE: Foreman II, Maintenance

PUMPOUT

TYPE: manual unit on floating dock
LOCATION: floating dock
FEE: none
VISIBILITY: good

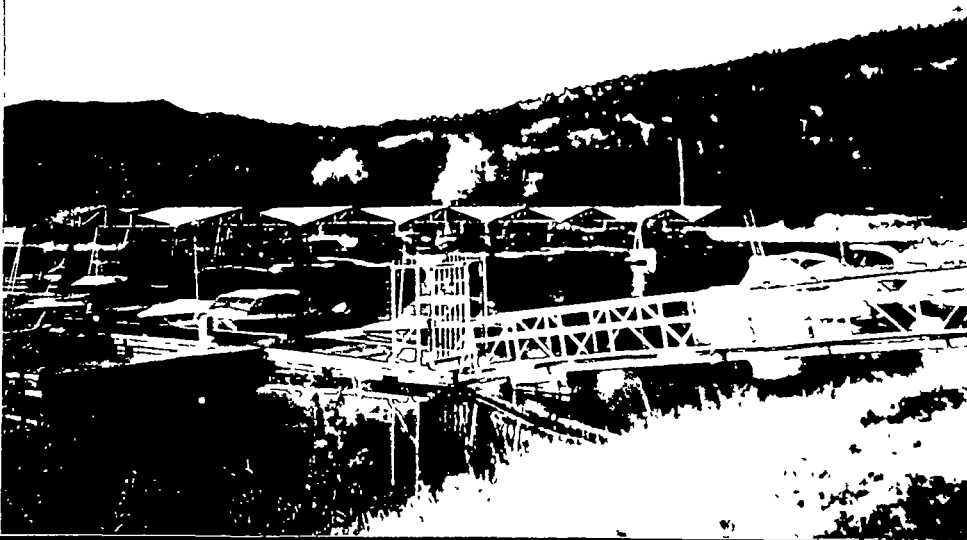
MANUFACTURER: custom
HOURS: 24hrs/year-round
ADJACENT DUMPSTATION: no-restrooms on dock
ACCESSIBILITY: good

SEWAGE DISPOSAL

upland septic system

COMMENTS

Kettle Falls pumpout is located near the Kettle Falls Campground
floating dock has manual pumpout and two restrooms
sewage is pumped to trailer on boat and transferred to RV dump station which is part of an upland septic system
pumpout installed in 1978



Kettle Falls Marina

P.O. Box 340 W. 4105 Williams
Kettle Falls, WA 99141

509-736-6121

TYPE OF FACILITY: marina

NUMBER OF SLIPS: 80

FACILITY OWNER: NPS/Kettle Falls Marina

BODY OF WATER: Franklin D. Roosevelt Lake

LONGITUDE: 118D 6'W

LATITUDE: 48D 37'N

COUNTY: Stevens

CONTACT PERSON: Ed Wimberly

TITLE: Owner

PUMPOUT

TYPE: stationary

LOCATION: on houseboat docks

FEE: none

VISIBILITY: poor

MANUFACTURER: custom (Multi-Quip)

HOURS: marina hours

ADJACENT DUMPSTATION: no

ACCESSIBILITY: fair

SEWAGE DISPOSAL

holding tank that is trucked to city's waste treatment facility

COMMENTS

80 slip marina + houseboats

pumpout primarily used for houseboats but recreational boaters encouraged to use

pumpout is a gas-powered trash pump with a handpull start



Lakeshore Marina

P.O. Box 1669
Chelan, WA 98816

509-682-5031

CONTACT PERSON: Greg Moser
TITLE: Parks Director

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 35
FACILITY OWNER: City of Chelan

BODY OF WATER: Lake Chelan

LONGITUDE: 120D 1.8'W
LATITUDE: 47D 48'N
COUNTY: Chelan

PUMPOUT

TYPE: stationary
LOCATION: end of boat ramp dock
FEE: none
VISIBILITY: good

MANUFACTURER: Masport (vacuum pump)
HOURS: 24hrs/April-Sept.*
ADJACENT DUMPSTATION: yes (Keco Kleen-A-Pottie)
ACCESSIBILITY: good

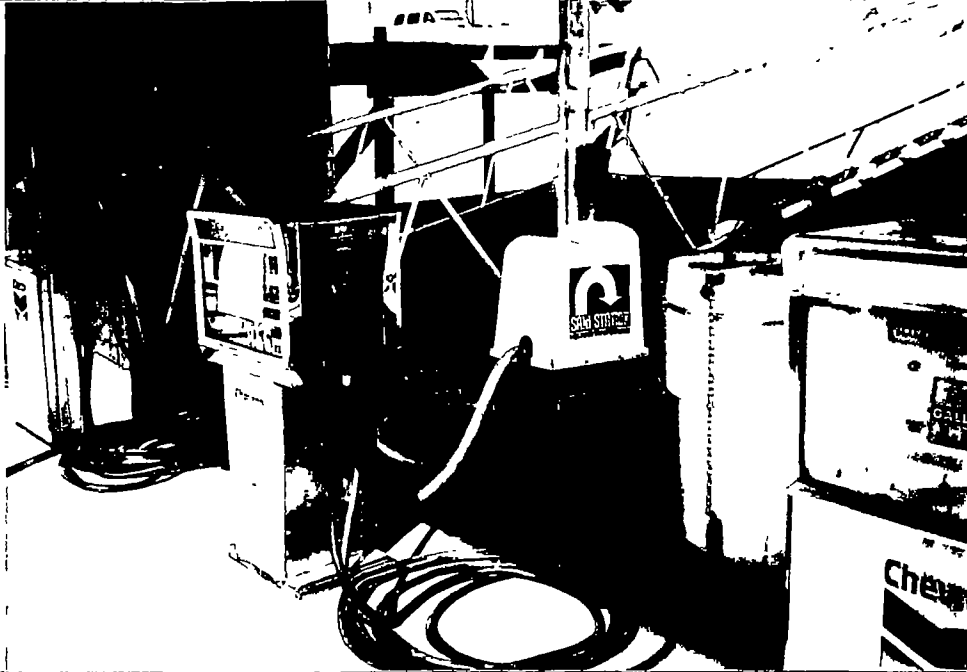
SEWAGE DISPOSAL

City of Chelan sewer system

COMMENTS

pumpout requires boater to turn shoreside switch for 4-minute operation
pumpout installed in 1993

*pumpout available in off-season by appointment



Metz Marina

206 Clover Island
Kennewick, WA 99336

509-582-8709

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 150
FACILITY OWNER: Metz Marina Inc.

BODY OF WATER: Columbia River

LONGITUDE: 119D 07 7'W

LATITUDE: 46D 13.3'N

COUNTY: Benton

CONTACT PERSON: Kay Metz
TITLE: Owner

PUMPOUT

TYPE: stationary
LOCATION: fuel dock
FEE: \$5.00
VISIBILITY: good

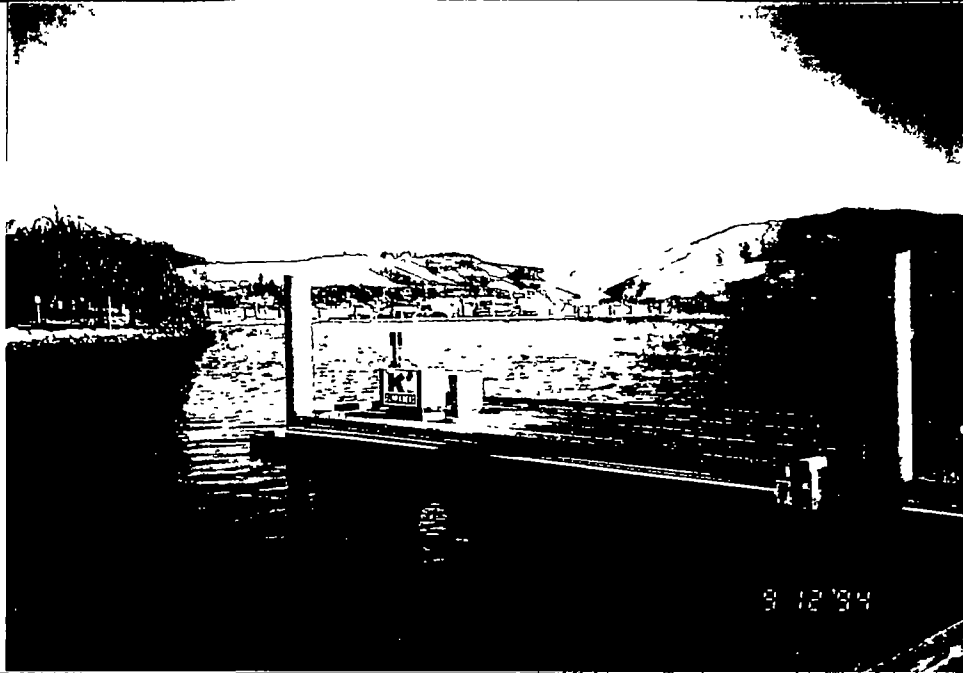
MANUFACTURER: Sant-Station
HOURS: 24 hrs/seasonal
ADJACENT DUMPSTATION: no
ACCESSIBILITY: good

SEWAGE DISPOSAL

city sewer system

COMMENTS

pumpout was installed more than 10 years ago
pumpout closed in winter



Old Mill Park

Box 368
Manson, WA 98831

509-687-3829

TYPE OF FACILITY: boat ramp & recreational dock

NUMBER OF SLIPS: unknown

FACILITY OWNER: Manson Parks and Recreation

BODY OF WATER: Lake Chelan

LONGITUDE: 120D 9.7'W

LATITUDE: 47D 52.7'N

COUNTY: Chelan

CONTACT PERSON: Lanny Ambruster
TITLE: Parks and Recreation Director

PUMPOUT

TYPE: stationary
LOCATION: recreational dock
FH: none
VISIBILITY: fair

MANUFACTURER: Keco (Pump-A-Head)
HOURS: daylight/seasonal
ADJACENT DUMPSTATION: no
ACCESSIBILITY: good

SEWAGE DISPOSAL

sewer pipeline to waste treatment facility

COMMENTS

dump station is located adjacent to shoreside restrooms
although sign on pumpout says 'for keys and information...', keys are not required



Red Wolf Marina

1550 Port Drive
Clarkston, WA 99403

509-758-6963

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 114
FACILITY OWNER: Red Wolf Marina
BODY OF WATER: Lower Granite Pool, Snake River

LONGITUDE: 117D 2.5'W
LATITUDE: 46D 24'N
COUNTY: Asotin

CONTACT PERSON: Bob Gilchrist
TITLE: President and General Manager

PUMPOUT

TYPE:	stationary	MANUFACTURER:	Keco (Pump-A-Head)
LOCATION:	separate dock	HOURS:	24 hours
FEE:	none	ADJACENT DUMPSTATION:	yes (Keco Kleen-A-Pottee)
VISIBILITY:	poor	ACCESSIBILITY:	good

SEWAGE DISPOSAL

sewer pipeline to waste treatment facility

COMMENTS

pumpout was installed in 1991
114 slips (93.7% under 26'; 6% 26-40'; .3% over 40')



Seven Bays Resort/Marina

300 Mead, P.O. Box 5
Coulee Dam, WA 99116

509-725-1676

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 130
FACILITY OWNER: NPS/Roosevelt Rec. Enterprises

BODY OF WATER: Franklin D. Roosevelt Lake

CONTACT PERSON: Brenda Harding
TITLE: Marina Manager

LONGITUDE: 118D 58'W
LATITUDE: 47D 52.2'N
COUNTY: Lincoln

PUMPOUT

TYPE: stationary
LOCATION: dock
FH: none
VISIBILITY: fair

MANUFACTURER: Keco (Pump-A-Head)
HOURS: 8am-9pm/seasonal
ADJACENT DUMPSTATION: no
ACCESSIBILITY: good

SEWAGE DISPOSAL

upland drain field (on-site)

COMMENTS

130 slips (majority 20'-30')
pumpout is self service for regular marina customers, first-time users are given assistance



Spring Canyon

Coulee Dam Natl. Recreation Area, Box 37
Coulee Dam, WA 99116

509-633-9441

TYPE OF FACILITY: floating pumpout station

NUMBER OF SLIPS: unknown

FACILITY OWNER: National Park Service

BODY OF WATER: Franklin D. Roosevelt Lake

LONGITUDE: unknown

LATITUDE: unknown

COUNTY: Lincoln

CONTACT PERSON: Ray Dashiell
TITLE: Foreman II, Maintenance

PUMPOUT

TYPE: manual unit on floating dock
LOCATION: floating dock
FEE: none
VISIBILITY: good

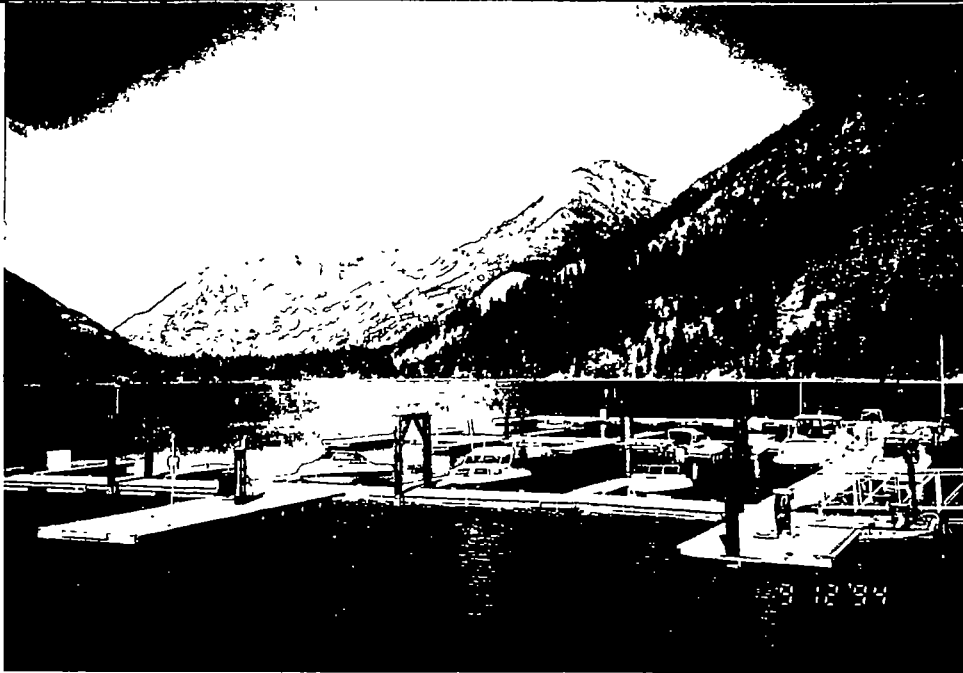
MANUFACTURER: custom
HOURS: 24hrs/year-round
ADJACENT DUMPSTATION: no-restrooms on dock
ACCESSIBILITY: good

SEWAGE DISPOSAL

upland septic system

COMMENTS

Spring Canyon pumpout is located approximately 1 mile east of Spring Canyon campground
floating dock contains manual pumpout and two restrooms
sewage is pumped to trailer on boat and transferred to RV dump station which is part of an upland septic system
pumpout installed in 1978



Stehekin Landing

North Cascades National Park
Stehekin, WA 98852

509-682-2549

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 36
FACILITY OWNER: National Park Service

BODY OF WATER: Lake Chelan

LONGITUDE: 122D 39.7'W

LATITUDE: 48D 19'N

COUNTY: Chelan

CONTACT PERSON: Phil Campbell
TITLE: Stehekin District Manager

PUMPOUT

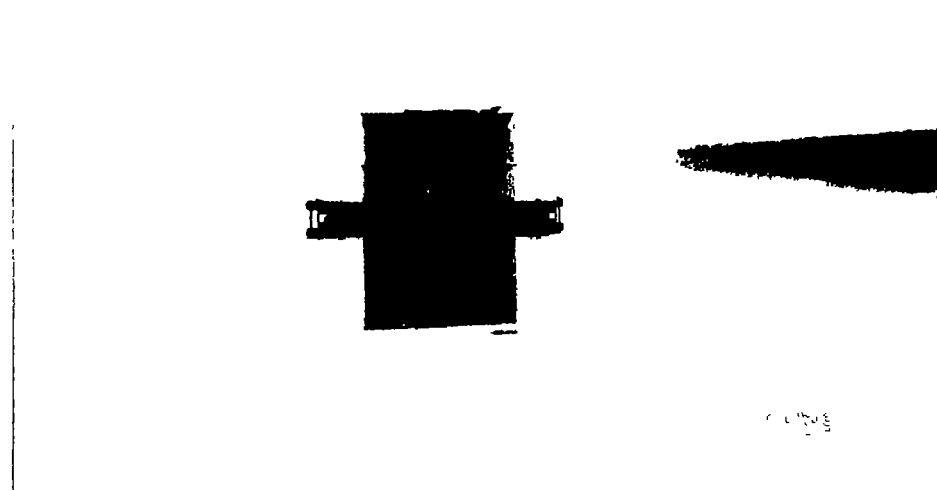
TYPE: stationary
LOCATION: guest dock
FEE: none
VISIBILITY: good

MANUFACTURER: SeaLand (SanitService)
HOURS: 24 hrs/May-mid October
ADJACENT DUMPSTATION: yes (SeaLand SanitService)
ACCESSIBILITY: good

SEWAGE DISPOSAL

sewer line to waste treatment plant in Stehekin

COMMENTS



Ten Mile

Coulee Dam Natl. Recreation Area, Box 37
Coulee Dam, WA 99116
509-633-9441

TYPE OF FACILITY: floating pumpout station
NUMBER OF SLIPS: none
FACILITY OWNER: National Park Service
BODY OF WATER: Franklin D. Roosevelt Lake
LONGITUDE: unknown
LATITUDE: unknown
COUNTY: Lincoln

CONTACT PERSON: Ray Dashiell
TITLE: Foreman II, Maintenance

PUMPOUT

TYPE: manual unit on floating dock
LOCATION: floating dock
FEE: none
VISIBILITY: good

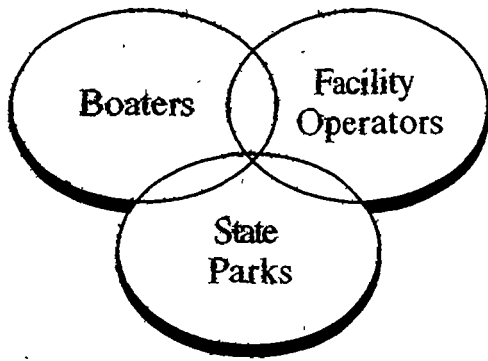
MANUFACTURER: custom
HOURS: 24 hrs/year-round
ADJACENT DUMPSTATION: no-restrooms on dock
ACCESSIBILITY: good

SEWAGE DISPOSAL

upland septic system

COMMENTS

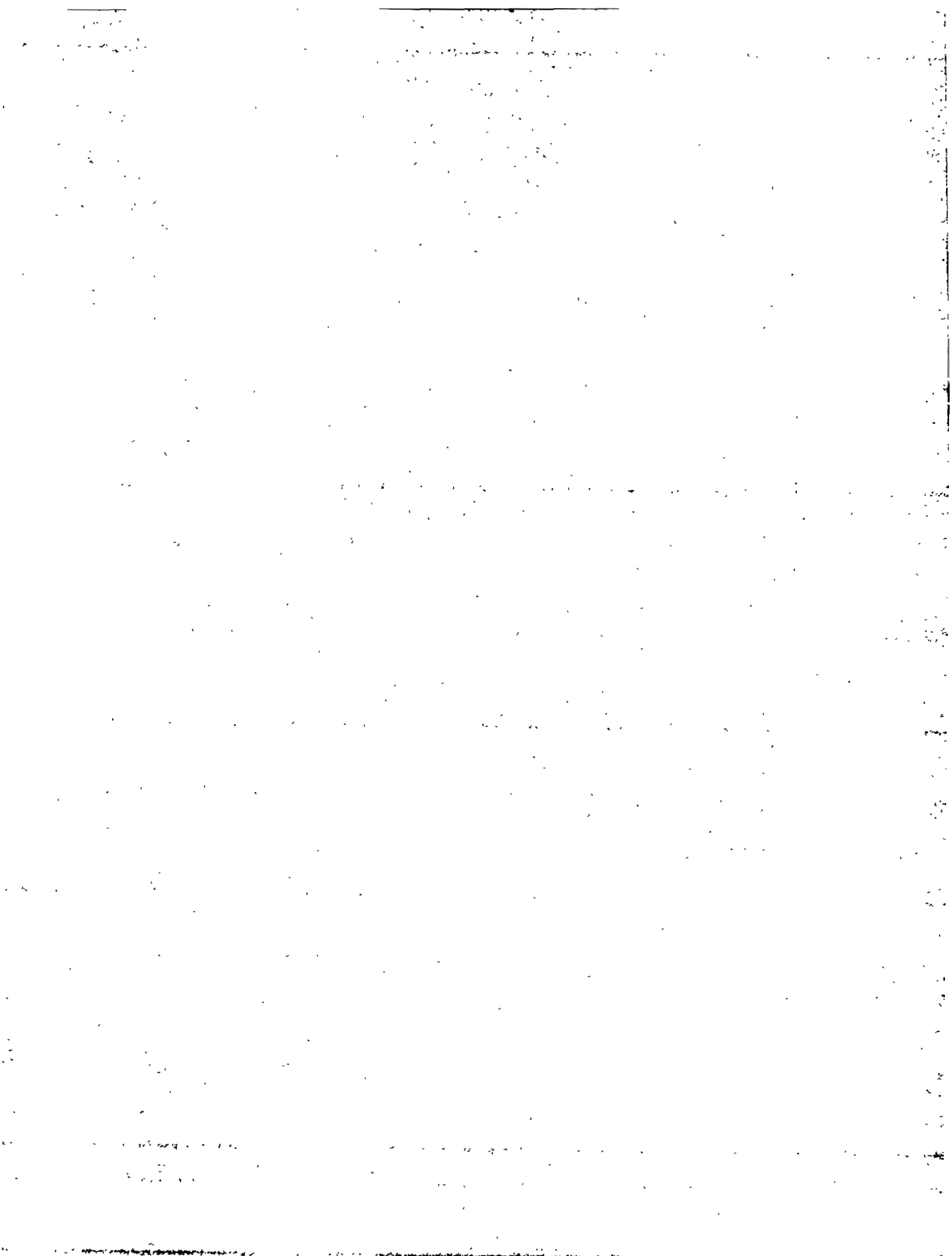
Ten Mile pumpout is located approximately ten miles east of Grand Coulee floating dock contains manual pumpout and two restrooms sewage is pumped to trailer on boat and transferred to RV dump station which is part of an upland septic system pumpout installed in 1978



Appendix B - Boater Survey

To involve boaters in the planning process, an informal boater survey was conducted between August and October 1994. The survey involved 210 boaters from throughout Washington State. This section contains the survey instrument and an analysis of the boater responses.

Although the survey provides important information to consider and use for directional purposes, specific findings should not be considered statistically representative of the general population of boaters in Washington State.



Dear Boater.

Washington State Parks is currently developing a comprehensive plan to guide the repair, renovation, and installation of boat sewage pumpout facilities/services throughout the State of Washington.

As a boater, you are an important source of information. Please help us by taking a few minutes to answer the questions below.

Thank you.

1. What length is your boat? less than 26' 26'-40' more than 40'

2. Which type of boat do you have? power sail

3. In what bodies of water are you most likely to take your boat?

4. What type of sanitation device do you have on your boat?

porta potty holding tank no toilet facility

5. In general, which do you do more often? use pumpouts discharge into water

6. Where and when are you most likely to use a pumpout facility/service?

7. When you use a pumpout, what type are you most likely to use?

stationary portable (self service) pumpout service

Other _____

8. Please evaluate the need for each of the following pumpout improvements.

	High Need	Moderate Need	Low Need	No Need
• more pumpouts	_____	_____	_____	_____
• easier access to the pumpout station	_____	_____	_____	_____
• more convenient hours of operation	_____	_____	_____	_____
• lower cost (e.g. reduced or no user fees)	_____	_____	_____	_____
• better designed pumpout facilities or holding tanks that would make it easier to pump out	_____	_____	_____	_____
• shorter waiting lines at pumpouts	_____	_____	_____	_____
• pumpouts in good working condition when I need to use them	_____	_____	_____	_____
• availability of a portable pumpout that I could bring to my boat	_____	_____	_____	_____
• availability of a pumpout service that comes to my boat and does it for me	_____	_____	_____	_____
• other _____	_____	_____	_____	_____

9. Please use the space below to tell us about existing pumpout facilities/services that need improvements.

Location: _____

What is needed? _____

Location: _____

What is needed? _____

10. Please use the space below to tell us about places that don't have a pumpout that need one.

Location: _____

Location: _____

11. How often do you think boaters, in general, discharge heads and/or holding tanks into marinas?

_____ rarely _____ sometimes _____ regularly _____ often

12. How often do you think most boaters with holding tanks use pumpouts?

_____ rarely _____ sometimes _____ regularly _____ often

13. Do you think that boaters are more likely to use pumpouts now than they were five years ago?

_____ yes _____ no _____ don't know

Can you think of any reasons for this? _____

14. Do you think more boater education is needed to encourage boaters to use pumpouts?

_____ yes _____ no _____ don't know

15. During recent boating trips, how much of the following types of pollution did you observe?

wood or lumber debris . . . _____ a lot _____ some _____ a little _____ none

plastic or Styrofoam _____ a lot _____ some _____ a little _____ none

litter or garbage _____ a lot _____ some _____ a little _____ none

oily film on water _____ a lot _____ some _____ a little _____ none

fishing debris _____ a lot _____ some _____ a little _____ none

sewage. _____ a lot _____ some _____ a little _____ none

16. Please place a checkmark by each of the activities listed below that you think is a pollution threat to the waters you boat in.

_____ littering _____ bilge pumping _____ sewage discharge

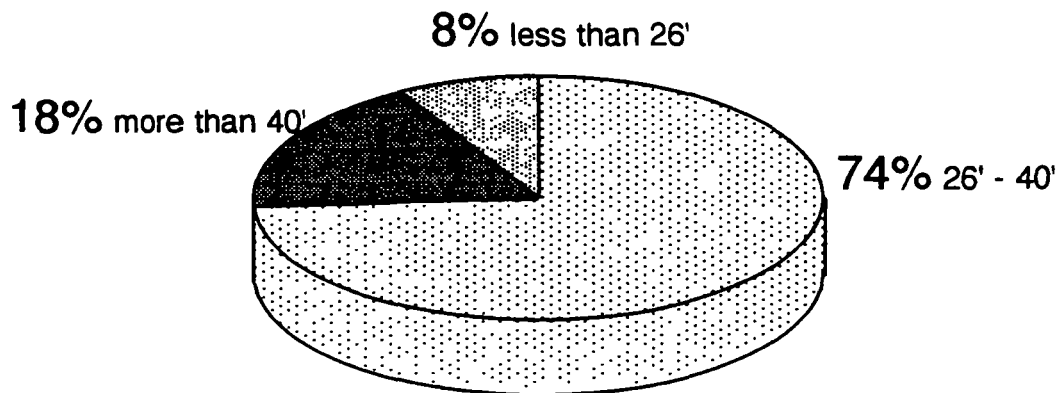
_____ gas and oil spills _____ boat maintenance _____ hull washdowns

THANK YOU!

QUESTION #1: What length is your boat?

ANALYSIS

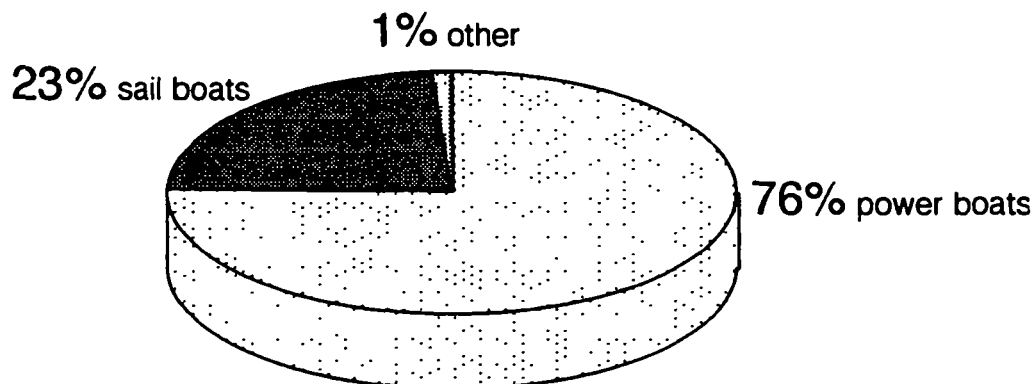
Most of the respondents (74 percent) owned mid-size boats ranging in length from 26-40'. Approximately 8 percent of the respondents owned boats less than 26' and 18 percent owned boats larger than 40'.



QUESTION #2: Which type of boat do you have?

ANALYSIS

Approximately three-quarters of the respondents owned power boats and one-quarter owned sailboats.



QUESTION #3: In what bodies of water are you most likely to take your boat?

ANALYSIS

The most frequent answers to this open-ended question were Puget Sound, San Juan Islands, Gulf Islands, Columbia River, and south Puget Sound. Over half (58 percent) of the respondents listed *Puget Sound* as a body of water they were most likely to take their boat.

The table below lists the bodies of water listed in response to this question. *Frequency* indicates the number of times respondents mentioned the same answer.

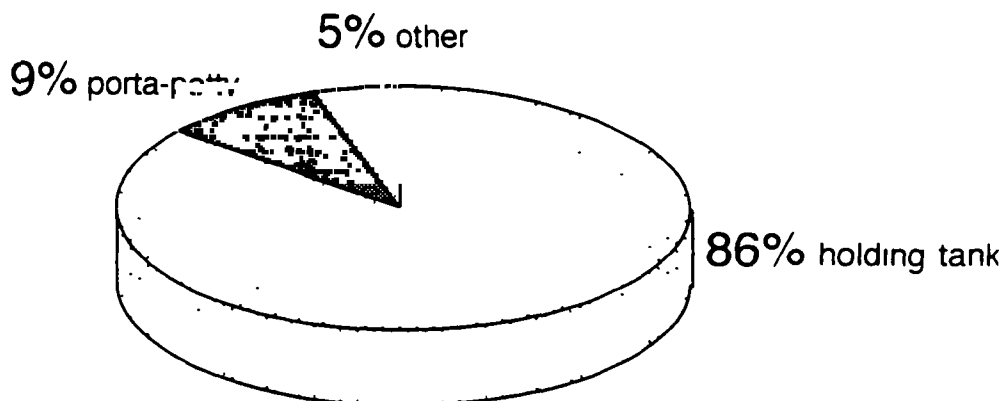
<u>BODIES OF WATER</u>	<u>FREQUENCY</u>	<u>BODIES OF WATER</u>	<u>FREQUENCY</u>
Puget Sound	117	Lake Washington	11
San Juan Islands	87	Hood Canal	11
Gulf Islands	28	Straits of Juan de Fuca	8
south Puget Sound	21	Pacific Ocean	8
Columbia River	20	north Puget Sound	7
Canada	15		

Other bodies of water mentioned more than once included Desolation Sound (4), Willamette (4), Snake River (3), Port Orchard (3), middle Puget Sound (3), Port Townsend (2), Lake Chelan (2), inland passage (2), and Port Ludlow (2).

QUESTION #4: What type of sanitation device do you have on your boat?

ANALYSIS

The majority of respondents had holding tanks on their boats. The second most common sanitation device was a porta-potty type.



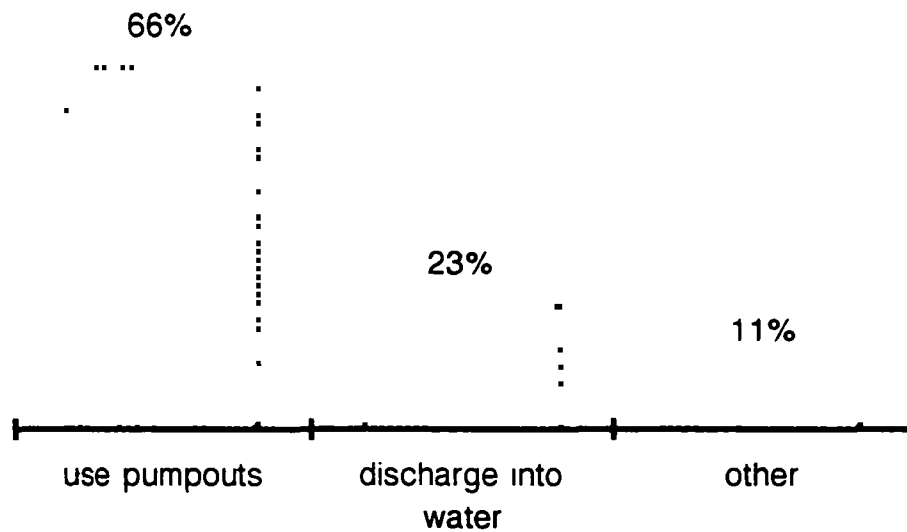
Other responses included Lectra-San (3 responses), Mansfield TDX waste treatment system (3 responses), no toilet facility (1 response), both porta-potty and holding tank (1 response), holding tank and treatment MSD (1 response), and electrolytic chlorinator (1 response).

QUESTION #5: In general, which do you do more often?

ANALYSIS

A substantial majority of respondents use pumpouts more often than discharging into the water. However, almost one quarter of the respondents discharge into the water more often than using pumpouts. Although this was a forced answer question with two possible answers, approximately 11 percent of the respondents answered otherwise. "Other" answers included "both" (11 responses), electrolytic treatment of waste (9 responses), and legal treatment system (1 response).

In general, which do you do more often?



QUESTION #6: Where and when are you most likely to use a pumpout facility/service?

ANALYSIS

The responses to this question seem to emphasize both time and place opportunity over a specific marina or routine schedule. *Wherever and whenever pumpouts are available* was a frequent type of response to this question.

The most frequent types of answers to the "where" part of this question were *marinas, where they can come to my boat, and wherever there is one*. The most frequent types of answers to the "when" part of this question were *every two or three days, during extended trips, whenever one is available*.

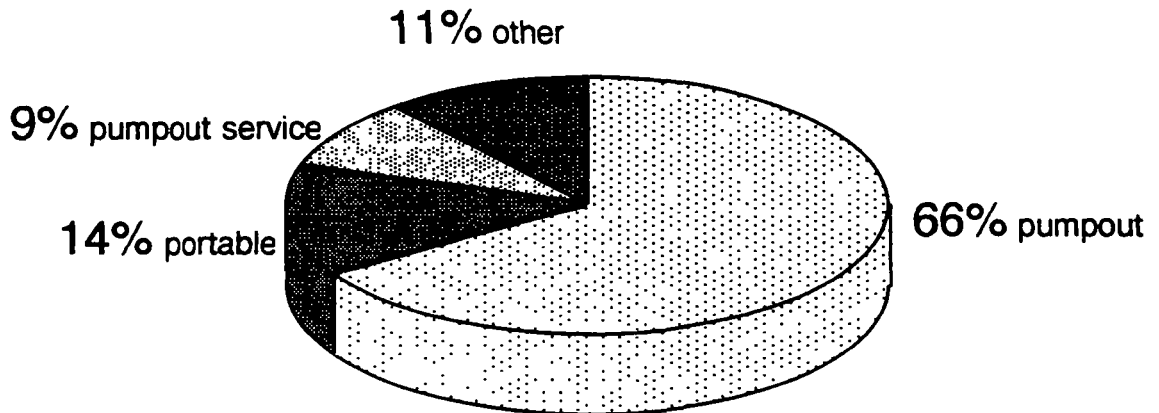
The table below lists responses and their associated frequency. Only responses which were mentioned more than once have been included.

<u>RESPONSE</u>	<u>FREQUENCY</u>	<u>RESPONSE</u>	<u>FREQUENCY</u>
mannas	35	as often as possible	4
where they can come to my boat	21	Elliott Bay	4
wherever there is one	19	home manna	3
San Juans	15	Sucia Island	3
every two or three days	11	Port Orchard Manna	3
during extended trips	9	those that are convenient	3
whenever available	8	Port of Brownsville	3
Cap Sante	8	East Bay Marina	2
Everett	8	where needed	2
Stuart Island	7	Blake Island	2
Friday Harbor	7	Alderbrook	2
State Parks	5	every two weeks	2
Bellingham	4		

QUESTION #7: When you use a pumpout, what type are you most likely to use?

ANALYSIS

Almost two-thirds of the respondents were most likely to use a stationary pumpout when they used pumpouts. Portable pumpouts and pumpout services were second and third respectively.



*Other responses were primarily a combination of stationary and portable pumpouts or porta-potty and pumpouts.

QUESTION #8: Please evaluate the need for each of the following pumpout improvements.

ANALYSIS

Given a list of possible pumpout improvements, *more pumpouts, pumpouts in good working condition, and easier access* were the needs most emphasized. These needs were followed by an average moderate need for *lower cost, more convenient hours of operation, and better designed facilities to make it easier to pumpout*. The three least emphasized needs were for *shorter waiting lines, availability of portable pumpouts, and availability of pumpout services*.

<u>RANK</u>	<u>IMPROVEMENT</u>	<u>AVERAGE RATING OF NEED</u>
1	more pumpouts	high
2	pumpouts in good working condition when I need to use them	moderate-high
3	easier access to pumpout station	moderate
4	lower cost (e g. reduced or no user fees)	moderate
5	more convenient hours of operation	moderate
6	better designed pumpout facilities or holding tanks that would make it easier to pump out	moderate
7	shorter waiting lines at pumpouts	moderate
8	availability of a portable pumpout that I could bring to my boat	moderate-low
9	availability of a pumpout service that comes to my boat and does it for me	low

An "other" category was included in which respondents could write in answers. Responses are included below:

- greater services and knowledge of locations
- pumper should mascerate while pumping so as not to plug continuously as in Anacortes F dock
- pumpout that does not stink up the moorage as the one on the breakwater does (Friday Harbor)
- available water to wash down deck after pumping
- some require locating (portable) and are not available to non-marina user
- it has to be possible to use
- hotline to report malfunctioning units which could threaten fish/wildlife; city is unresponsive when there is a problem
- fine the manager if not fixed within five days
- I think if we make it easy for boaters to pump their heads, they'll be more likely to do so
- San Juan Islands need more self-service stations
- more pumpouts are needed; no charge or less than \$3
- all permanent pumpout locations should have easy access - Brownsville and Poulsbo don't; dock should have protection (Brownsville has fire hose) so boater doesn't have to use fenders. Port Townsend doesn't
- checking live-aboards so they will pumpout
- I pump out most of the time at Brownsville which has a stationary pumpout, a portable pumpout, and a potty dump station which all work
- keep government out of boating
- all marne facilities should be required to operate a pumpout free of charge
- (pumpout service) is a good idea except it would probably conflict with low cost and might conflict with other activities
- dump stations are too far to carry

QUESTION #9: Please use the space below to tell us about existing pumpout facilities/services that need improvements.

ANALYSIS

In a general analysis of all responses, the three most frequently identified improvement needs were, in order, repair/better maintenance of existing pumpouts (20 responses), better access/location of existing pumpouts (14 responses), and need for more pumpouts (13 responses). The second group of needed improvements were for improvements to solar-powered pumpouts (5 responses) and increased availability such as year-round, longer hours, or unlocked more often (5 responses). Other types of improvements mentioned more than once were better instructions (2), less congested facilities (2), and better indication of where pumpout is located in marina (2).

LOCATION: General

- NEED:**
- pumpout facilities need to be on every gas dock
 - the pumpout stations I've been around all seem to be good facilities
 - all solar-powered self-service stations need improvements
 - simpler operating instructions
 - I'm impressed with what the state tries to do - I use Stuart Island and Blake Island
 - most places that have pumpouts need to be further from fuel docks to help with congestion but so that it doesn't require a lot of boat maneuvering to go from the fuel dock to the pumpout
 - less congested facilities

LOCATION: Friday Harbor (San Juan Island)

- NEED:**
- AC - solar power is slow on cloudy days
 - more pumpout stations
 - solar powered pumpout does not have enough suction to pumpout tank
 - where is it? (2)
 - repair portable pumpout
 - more services (units)
 - end of breakwater smells bad all the time
 - more dock space
 - larger solar panel or larger holding tank
 - poor instructions
 - increased available stations
 - solar powered on barge doesn't work - no suction

LOCATION: Roche Harbor Resort (San Juan Island)

- NEED**
- floating pumpout(s)

LOCATION: Eagle Harbor (Bainbridge Island)

- NEED:**
- better access

LOCATION: Gig Harbor

- NEED.**
- better access

LOCATION: Port Orchard (Fuel Dock)

- NEED:**
- better dock location

LOCATION: Poulsbo

- NEED:**
- in high winds access is dangerous
 - better education of boaters on pumpouts

LOCATION: **Charbonneau (Columbia River - southeast Washington)**

- NEED: • keep from using dock
• needs low tide access

LOCATION: **Sucia Island (San Juan Islands)**

- NEED: • no services at all the last time we were there

LOCATION: **Kirkland - Lake Washington**

- NEED: • does not work all the time

LOCATION: **Canadian Gulf Islands**

- NEED: • many more pumpout facilities

LOCATION: **Stuart Island - Reid Harbor (San Juan Islands)**

- NEED: • routine maintenance

LOCATION: **Cap Sante Marina (Anacortes)**

- NEED: • better pumper that does not get plugged and stop pumping
• pumpout barge for access

LOCATION: **Everett Marina**

- NEED: • year round
• open year round

LOCATION: **Chandler's Cove (Lake Union)**

- NEED: • non accessible, non operational

LOCATION: **Fishermen's Terminal**

- NEED: • non accessible, non operational

LOCATION: **H.C. Henry Pier (Lake Union)**

- NEED: • non accessible

LOCATION: **Blake Island**

- NEED: • not open all year
• doesn't work (2)
• boats moored on both sides

LOCATION: **Parkshore Marina (Seattle - Lake Washington)**

- NEED: • relocate to end of dock

LOCATION: **Carillon Point (Kirkland - Lake Washington)**

- NEED: • pump loses prime

LOCATION: Shilshole Bay Marina (Seattle)

- NEED:**
- more or second pump, marina too big for one pumpout, people will not wait in line
 - pumpout is not functional
 - A-OK
 - more availability
 - open without need of key
 - better placement in marina
 - portable pumpout
 - pumpout is not effective - poor suction
 - only one pumpout for too many boats

LOCATION: Cathlamet (Columbia River - southwest Washington)

- NEED:**
- better location
 - longer hours

LOCATION: Arabella's Landing (Gig Harbor)

- NEED:**
- accessibility

LOCATION: Des Moines

- NEED:**
- pumpout does not work all the time
 - repair pumpout hose - problem with suction
 - better maintenance

LOCATION: Mystery Bay State Park - Nordland (near Fort Flagler)

- NEED:**
- new switch for off and on

LOCATION: Elliott Bay Marina (Seattle)

- NEED:**
- doesn't work
 - should be free

LOCATION: Duwamish

- NEED:**
- old pump maintenance - need new unit

LOCATION: Dockton (Vashon Island)

- NEED:**
- should be unlocked more often
 - doesn't work

LOCATION: Port Townsend

- NEED:**
- not working

LOCATION: Jarrell's Cove (south Puget Sound)

- NEED:**
- not working

LOCATION: Point Defiance (south Puget Sound)

- NEED:**
- an extra one or two

QUESTION #10: Please use the space below to tell us about places that don't have a pumpout that need one.

ANALYSIS

The three most frequent responses to this question were *Sucia Island (San Juans)*, the *San Juan Islands*, and *all State Parks*.

Listing of specific sites needing a pumpout facility/service

- | | |
|---|--|
| <ul style="list-style-type: none"> • Stuart (2) • Sucia (17) • Lake Washington • Rosano (Orcas Island) • Roche Harbor (San Juan Island) (4) • south Pender Island (Canada) • Westview (Canada) • Port Hardy (Canada) • Queen Charlotte (Canada) • Eagle Harbor (Bainbridge Island) • Port of Silverdale (2) • Cap Sante (Anacortes) • Spencer Spit (Lopez Island) • Garrison Bay (San Juan Island) (2) • Lopez (Fisherman's Bay) • Pleasant Harbor (Hood Canal) • Deer Harbor (Orcas Island) • Patos Island • Jones Island • Newport Marina (Lake Washington) • Aqua Marina Fuel Dock (Lake Washington) • Port Hudson (Port Townsend) (2) • Jensich Park (Gig Harbor) • Penrose State Park (Carr Inlet - south Puget Sound) • Dagmar's (Everett) | <ul style="list-style-type: none"> • Shulshole Bay Marina • Snake River above Ice Harbor Dam • Richland Yacht Club • Beacon Rock State Park (Columbia River) • Fish Hook Park (Snake River) • halfway between Stehekin and Chelan on Lake Chelan • Quartermaster (Vashon) • R F Kennedy Park (south Puget Sound) • Dockton County Park (Vashon) (6) • Gig Harbor (gas dock) • Longbranch - marina/area (Filucy Bay - south Puget Sound) (2) • Stuart Island - Reid Harbor (needs another) • Hoodsport (Hood Canal) • Potlatch (Hood Canal) • Lake Washington - Coulon Beach Park or Luther Burbank Park • Shelton City Dock • State Park by Anacortes Ferry Terminal • Gulf Islands • Rooster Rick (vandalism problem) • South Park Marina (2 miles up Duwamish) • Jarrell's Cove • Tye Marina (Commencement Bay - Tacoma) (2) |
|---|--|

General comments about sites needing pumpout facilities/services

- | | |
|--|---|
| <ul style="list-style-type: none"> • pumpout facilities need to be on every gas dock • all marinas and piers (2) • more docks and pump facilities on the Columbia and Snake Rivers • Tacoma other than Point Defiance • private marinas - most refueling stops, etc • not your problem but Lake Union and Lake Washington need easy access to pumpouts • Puget Sound needs more pumpouts • heavily used parks • all marinas and popular anchorages need facilities • (facilities need) accessibility, ease of use, and free or operated with a few coins • San Juan and north | <ul style="list-style-type: none"> • don't go to many state parks since institution of fees for facilities we already financed • all medium to large state parks which have none should have one • most Tacoma marinas (need pumpouts) • Tacoma by Crows Nest, etc • the problem is the non-functioning pumps • state parks (3) • all around San Juan Island (2) • most San Juan Island marinas • more needed on Lake Washington • more in San Juans (6) • Port Townsend parks • state marine parks (3) • no easy access (if any exist) in San Juans |
|--|---|

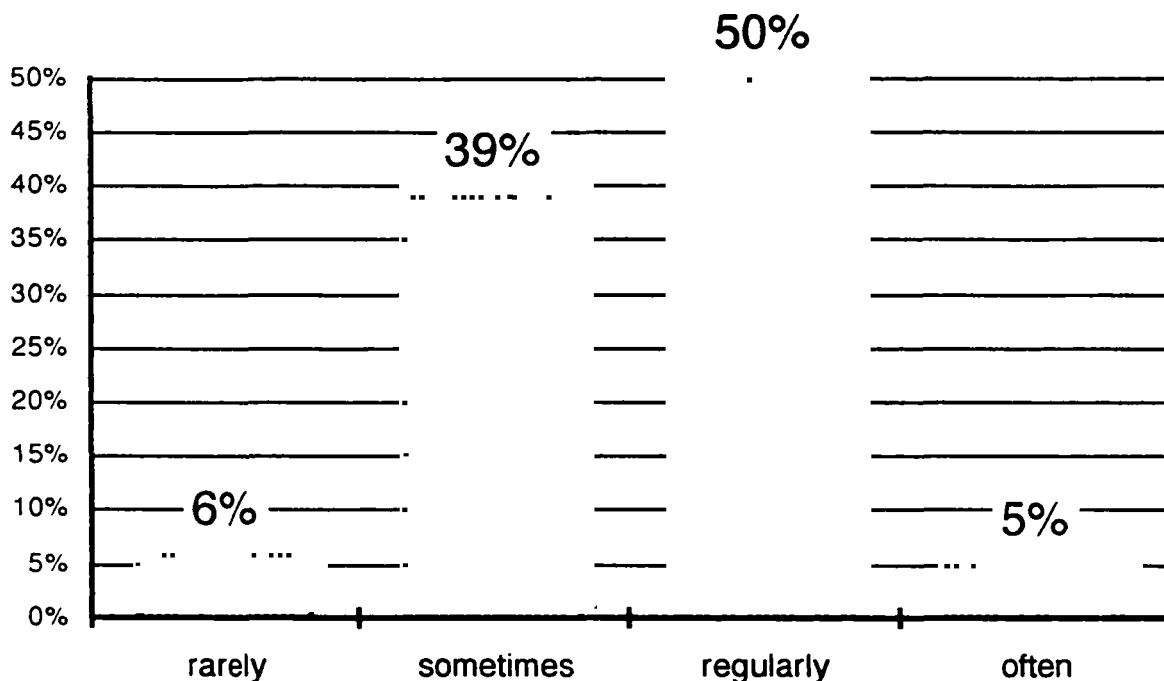
QUESTION #11: How often do you think boaters, in general, discharge heads and/or holding tanks into marinas?

RESPONSES DELETED FROM THIS REPORT.

QUESTION #12: How often do you think most boaters with holding tanks use pumpouts?

ANALYSIS

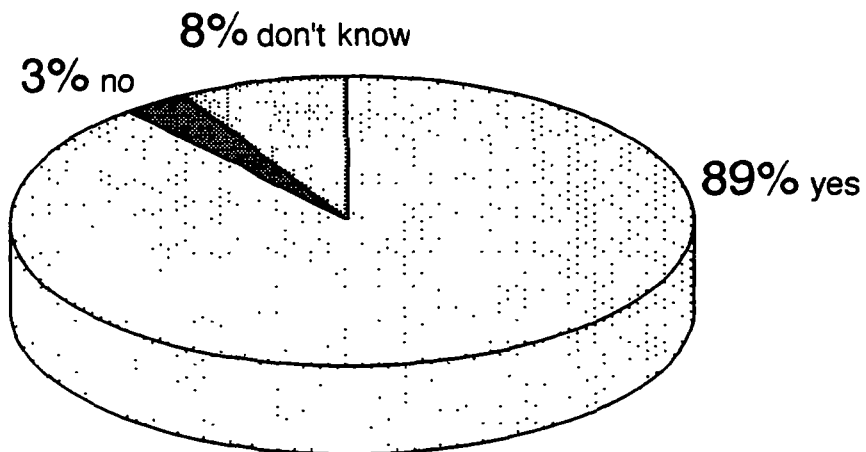
Almost 50 percent of the respondents felt that most boaters with holding tanks use pumpouts *regularly*. Another 39 percent of the respondents felt that boaters use pumpouts *sometimes*. At either end of the choice scale were those respondents that felt boaters use pumpouts *rarely* (6 percent) and those that felt boaters use pumpouts *often* (5 percent).



QUESTION #13: Do you think that boaters are more likely to use pumpouts now than they were five years ago?

ANALYSIS

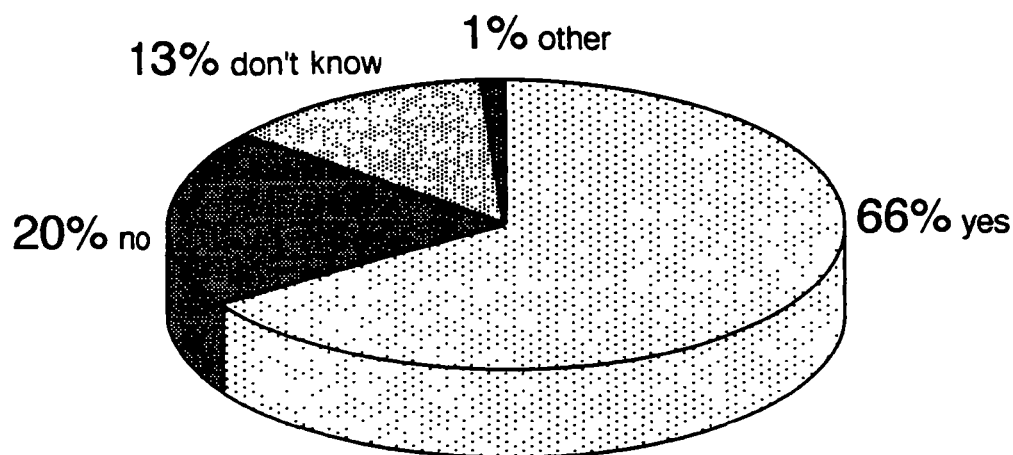
A significant majority (89 percent) of the respondents felt that boaters are more likely to use pumpouts now than they were five years ago.



QUESTION #14: Do you think more boater education is needed to encourage boaters to use pumpouts?

ANALYSIS

Almost two-thirds of the respondents (66 percent) felt that more boater education is needed to encourage boaters to use pumpouts. Approximately 20 percent answered *no* to more education and 13 percent responded that they *don't know*.



QUESTION #15: During recent boating trips, how much of the following types of pollution did you observe?

ANALYSIS

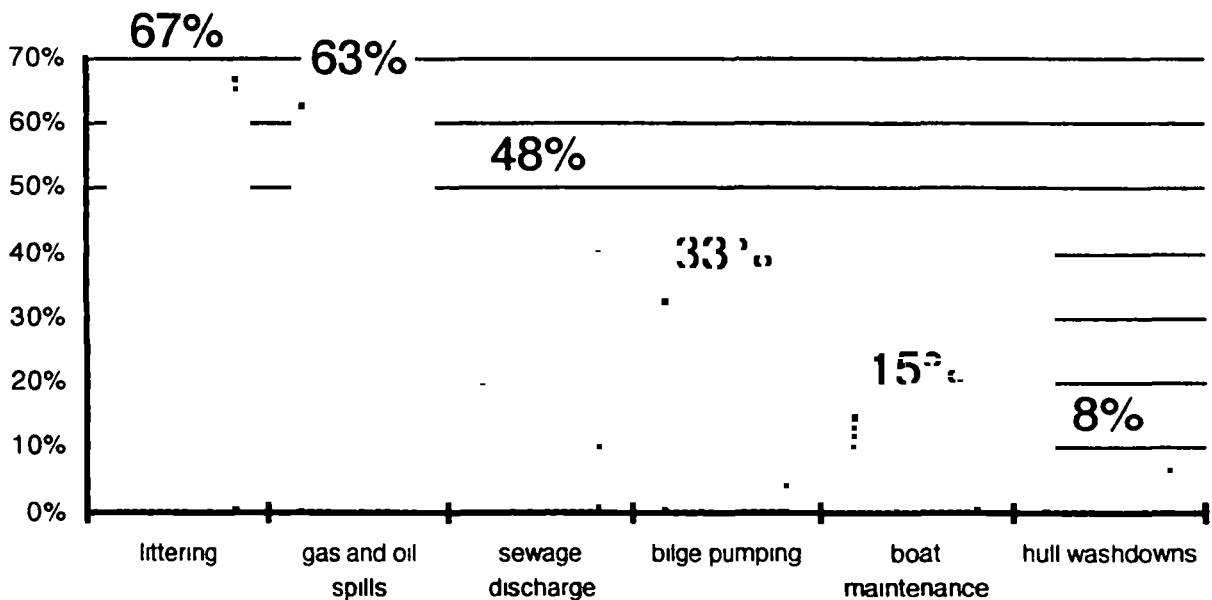
On average, none of the types of pollution suggested in this question were observed *a lot*. Wood and plastic were the most likely to be observed with the average amount as *some*. Next most likely to be observed were oily film, litter, and fishing debris with an average amount of *a little* observed. The least likely to be observed was sewage with an average amount of *none* observed.

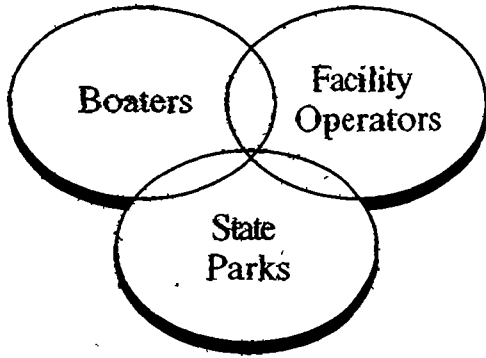
RANK	TYPE OF POLLUTION	AVERAGE RATING
1	wood or lumber debris	some
2	plastic or Styrofoam	some
3	oily film on water	a little
4	litter or garbage	a little
5	fishing debris	a little
6	sewage	none

QUESTION #16: Please place a check by each of the activities listed below that you think is a pollution threat to the waters you boat in.

ANALYSIS

Littering ranked as the number one pollution threat to waters that respondents use. Two thirds (67 percent) of the respondents identified littering as a threat. Gas and oil spills ranked second with 63 percent of the respondents identifying it as a threat. Sewage discharge ranked third with 48 percent identifying it as a threat. Bilge pumping, boat maintenance, and hull washdowns ranked fourth through sixth respectively with identification as a threat ranging from 33 percent down to 8 percent.

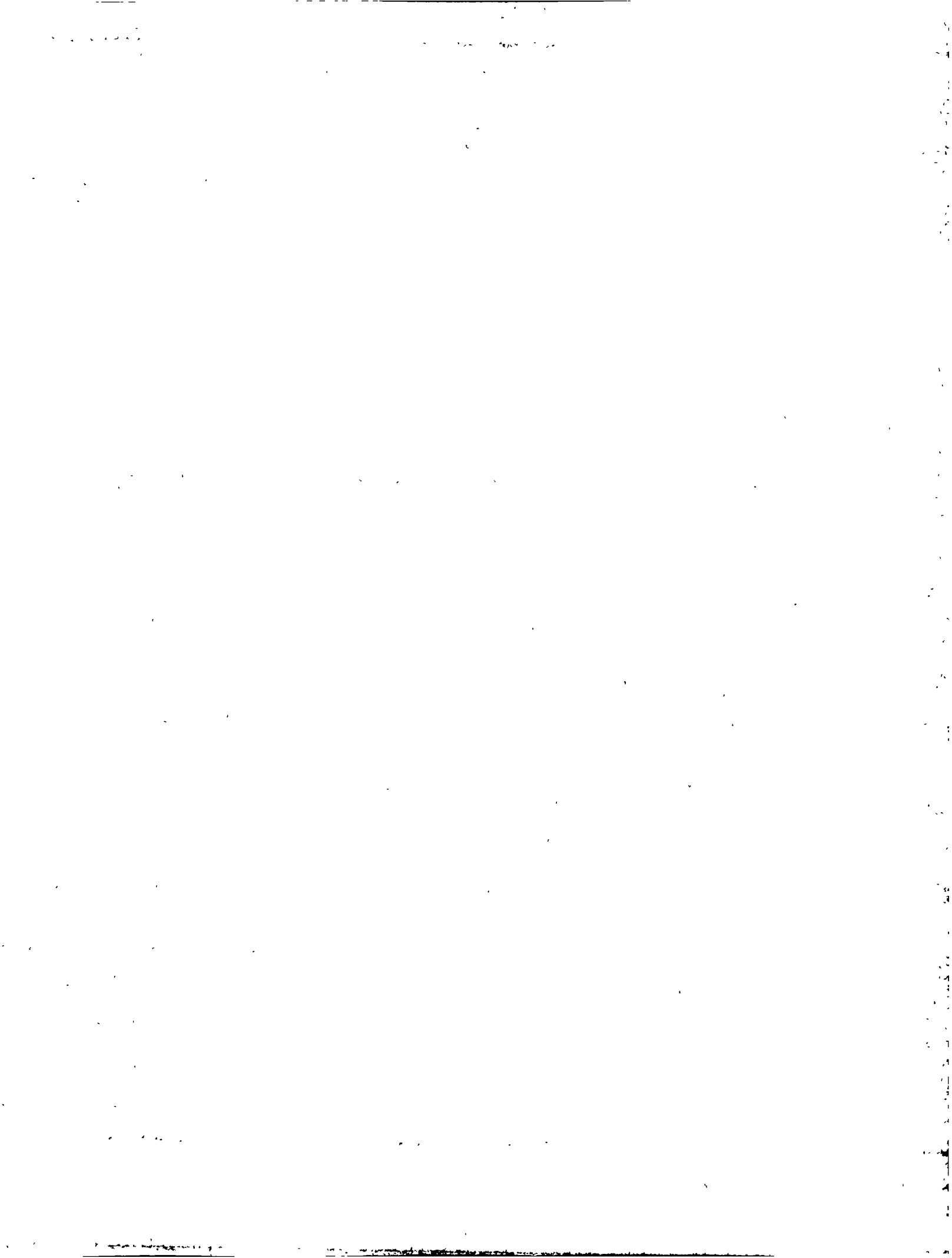




Appendix C - Facility Operator Survey

An informal boat sewage management survey involving 48 facility operators from throughout Washington State was conducted between August and October 1994. The goal of the survey was to gather information from facility operators about the current state of boat sewage management in Washington State. Operators were asked to share details about the services they offer, information about the problems they encounter in offering pumpout services, their perspectives on boater practices, and their ideas for improving boat sewage management. This section contains the survey instrument and an analysis of the facility operator responses.

Although the survey provides important information to consider and use for directional purposes, specific findings should not be considered statistically representative of the general population of boating facility operators in Washington State.



Dear Boating Facility Operator,

Washington State Parks is currently developing a comprehensive plan to guide the renovation and installation of boat sewage pumpout facilities/services throughout the State of Washington.

As a boating facility operator, you are an important source of information. We need your help in the planning process. Please take a few minutes to answer the questions that follow. Then, place your completed questionnaire in the pre-addressed, stamped envelope and drop it in the mail. Your assistance will be publicly acknowledged in the Washington State Comprehensive Boat Waste Management Plan.

If you have any questions about this survey or the planning process, please call Irene Cheyne at Cheyne and Associates 1-800-244-5510.

Thank you for your assistance.

1. Name of facility: _____
 2. Location of facility: _____
 3. What is the longitude/latitude of your facility?
_____ longitude _____ latitude _____ don't know
 4. Telephone number: _____
 5. Your name: _____ Title: _____
 6. How many slips (including guest slips) are there at your facility? _____
 7. Of the total slips, approximately what percentage are...
_____ less than 26'? _____ 26'-40'? _____ +40'?
 8. What is the average occupancy rate? _____
 9. How many slips are occupied by live-aboards? _____
 10. What is the average stay of guest boats? _____
 11. What type of pumpout facility/service do you have?
stationary _____ portable (self service) _____ pumpout service _____
other _____
 12. Do you have a dump station? yes _____ no _____
-

-
-
13. What year was the pumpout installed? _____
14. How would you characterize current use of the pumpout facility/service?
____ underused ____ just about right ____ overused
15. At your facility which months are your busiest? _____
16. How many boats would you estimate use the pumpout during a single week?
_____ during the busiest time _____ during the slowest time
17. Has the use of the pumpout increased, decreased, or stayed about the same over the last few years?
____ increased ____ stayed about the same ____ decreased
If use has changed, what do you think are the reasons for this change? _____

18. Is there a fee charged for using the pumpout? ____ yes ____ no ____ don't know
If no, do you plan on charging a fee in the next two years? ____ yes ____ no
19. How would you rate the general condition of the pumpout/dump station at your facility?
____ good ____ fair ____ poor ____ don't know
20. Approximately how many times was the pumpout out of order in the last month? _____
21. Approximately how many times was the pumpout out of order in the last year? _____
22. When the pumpout is out of order, who does the repairs? _____
23. On average, how long is the pumpout out of order before it is repaired? _____
24. What types of maintenance problems are the most frequent with the pumpout at your facility?

25. How is the pumpout waste disposed of?
____ sewer pipeline that goes to waste treatment facility
____ holding tank that is pumped to truck/barge
____ upland septic system
____ other _____
-

26. Are there any problems with disposal of the pumpout waste?

___ yes ___ no ___ don't know

27. Are there any plans to change your existing pumpout facility/service?

___ yes ___ no ___ don't know

If yes, what are the plans? _____

28. As a boat facility operator, what do you dislike about pumpouts?

29. How could the pumpout facility/service at your facility be improved? Please place a checkmark by any of the following improvements that are needed at your facility.

- additional pumpouts and/or other types of pumpouts _____
- easier boat access to the pumpout station _____
- more convenient hours of operation _____
- lower cost (e.g. reduced or no user fees) _____
- better designed pumpout so that it is easier for boaters to use _____
- more boater understanding of how to use pumpout _____
- better signage identifying pumpout facility/service _____
- equipment that doesn't break down as often _____
- other _____

30. How often do you think that heads and/or holding tanks are discharged into your marina?

___ rarely ___ sometimes ___ regularly ___ often

31. How often do you think most boaters with holding tanks use pumpouts?

___ rarely ___ sometimes ___ regularly ___ often

32. Do you think that boaters are more likely to use pumpouts now than they were five years ago?

yes no don't know

33. Are there other places in the area that boats congregate? yes no

If yes, where are those places? _____

34. Please use the space below for any additional comments that you would like to share.

THANK YOU!

Note: Questions 1-5 asked facility operators for information such as facility name, address, and phone number. This information is included in other parts of this report. Thus, the analysis of the survey responses begins with question #6.

QUESTION #6: How many slips (including guest slips) are there at your facility?

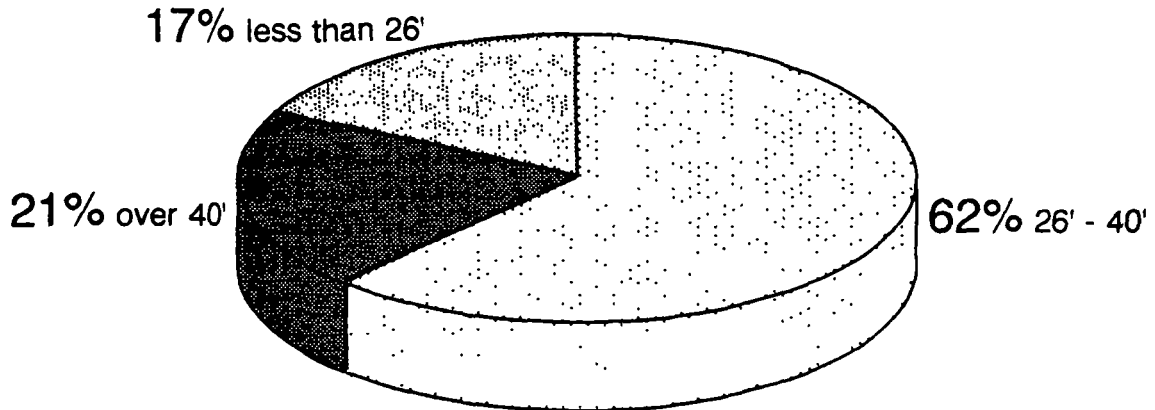
ANALYSIS

32 of the marina operators responded to this question. Moorage slips among those 32 facilities totaled 11,807. Among the individual marinas, the number of slips ranged from 18 to 2100.

QUESTION #7: Of the total slips, approximately what percentage are less than 26', 26'-40', and +40'?

ANALYSIS

Of the 11,807 slips reported, the majority (62 percent) were 26-40'. The remaining were +40' (21 percent) and less than 26' (17 percent).



QUESTION #8: What is the average occupancy rate?

ANALYSIS

The average occupancy rate reported by facility operators was approximately 85 percent. Among the individual marinas, occupancy rates ranged from a low of 20 percent to a high of 100 percent. Eleven marinas reported a 100 percent occupancy rate.

QUESTION #9: How many slips are occupied by live-aboards?

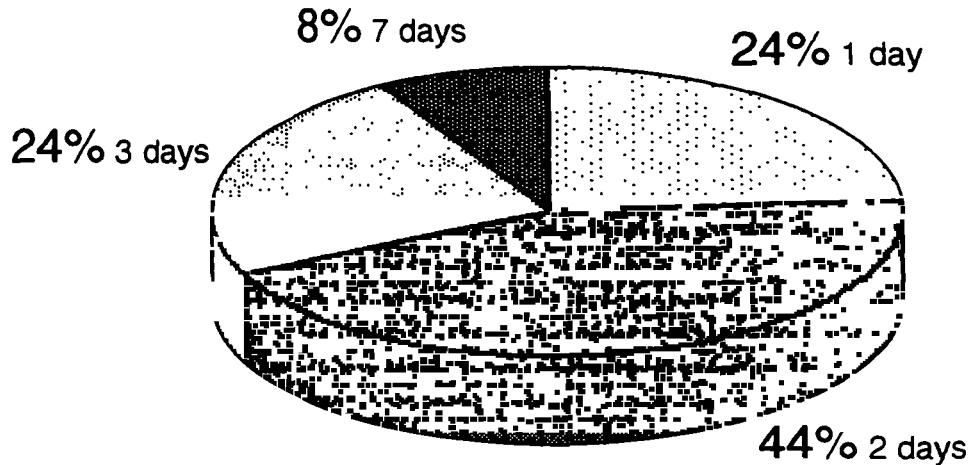
ANALYSIS

Among the 48 respondents, 27 indicated that their facilities included moorage for live-aboards. The number of live-aboard slips in marinas ranged from 1 to 256 slips. Using all moorages accommodating live-aboards, the average number of slips is approximately 31 per marina. However, two facilities - Everett and Shilshole - account for more than one-half of the total live-aboard slips reported. Among the remaining marinas, the number of live-aboard slips ranged from 1 to 75 with an average of approximately 16 slips per marina.

QUESTION #10: What is the average stay of guest boats?

ANALYSIS

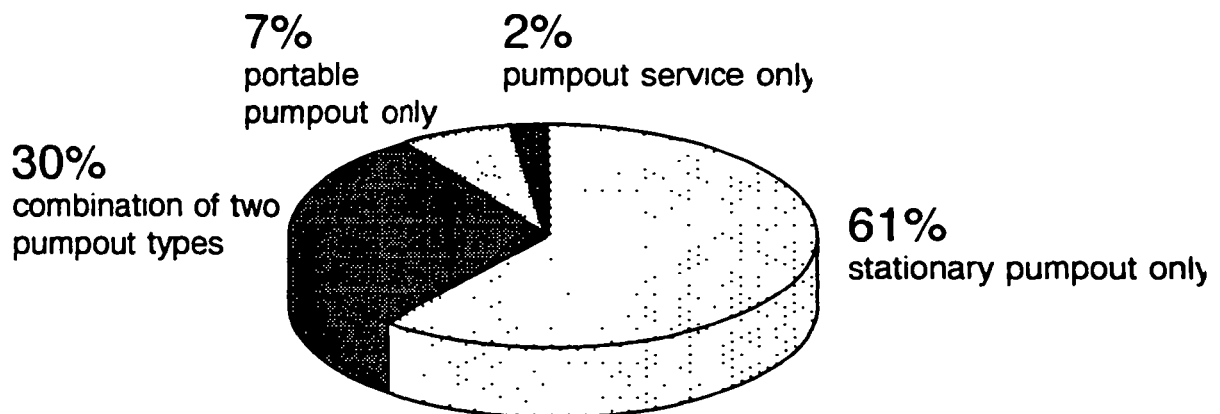
Facility operators reported an average stay of guest boats ranging from one to seven days. The average stay among all responses was 2.37 days.



QUESTION #11: What type of pumpout facility/service do you have?

ANALYSIS

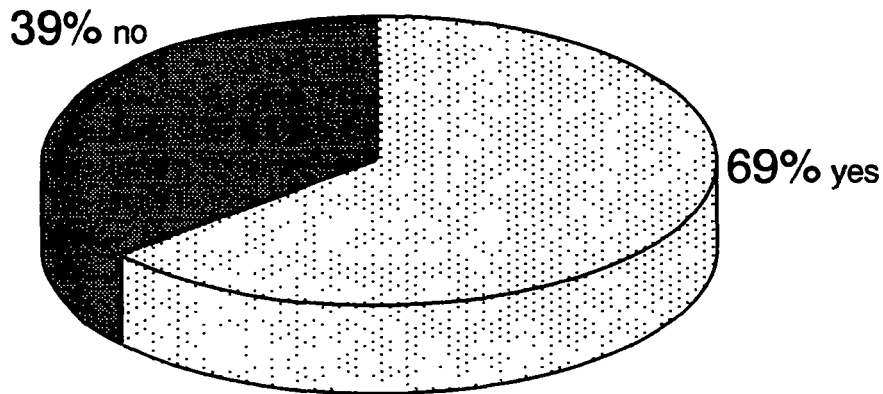
A majority of respondents (61 percent) reported having stationary pumpouts with no other type of pumpout facility/service. The second largest response group was the marinas with a combination of two types of pumpouts (30 percent). The combinations at these marinas were most likely to be a stationary and a portable or a stationary and a pumpout service. Only three marinas had a portable with no other type of facility/service. Only one marina had just a pumpout service.



QUESTION #12: Do you have a dump station?

ANALYSIS

Of the 44 facility operators responding, the majority (61 percent) had dump stations at their facilities.

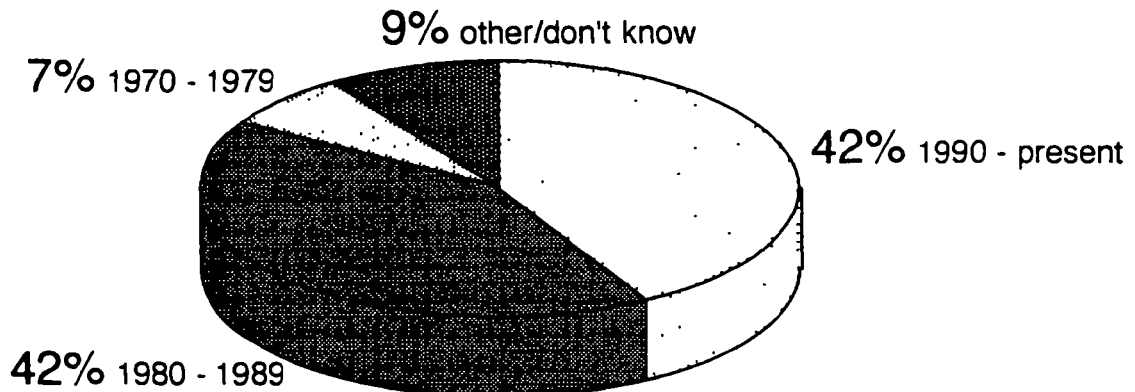


QUESTION #13: What year was the pumpout installed?

ANALYSIS

Facility operators reported installation of pumpouts as long ago as 1973 and as recent as 1994. Among the 43 respondents to this question, the average year of installation was 1987.

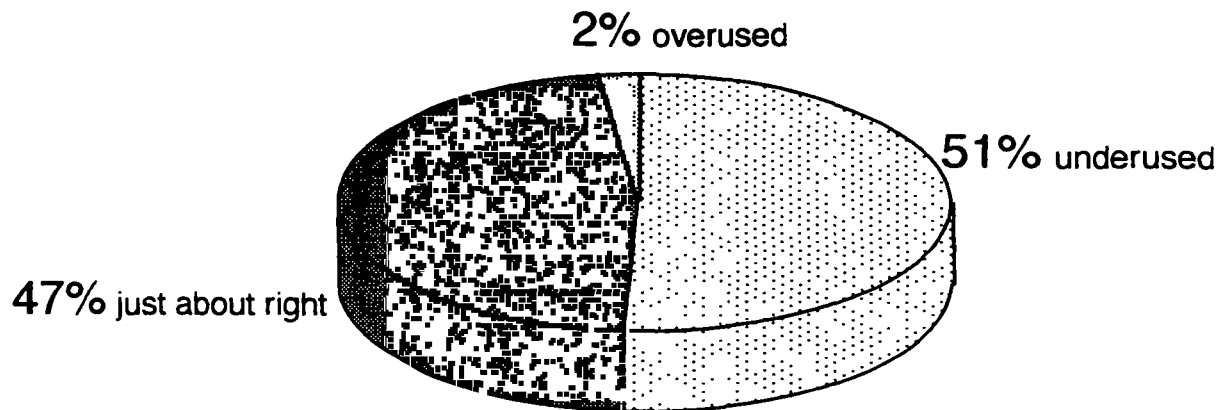
Although the majority of pumpouts were installed in the past five years, over one-fourth of the respondents reported that their pumpouts were installed ten or more years ago.



QUESTION #14: How would you characterize current use of the pumpout facility/service?

ANALYSIS

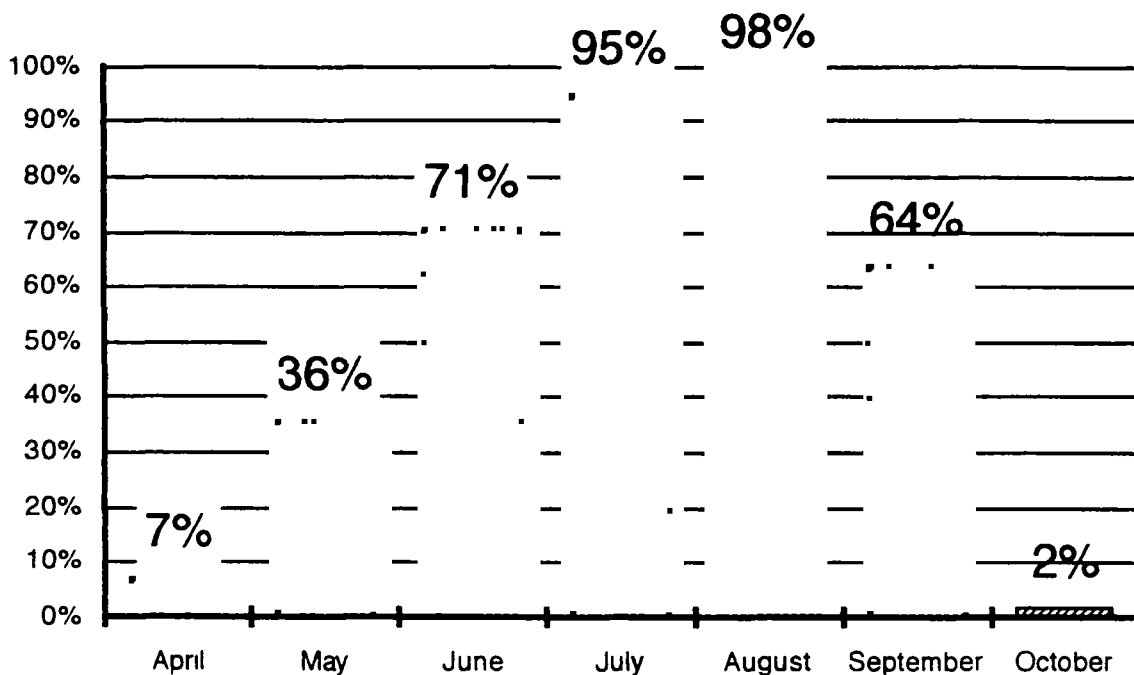
Slightly over half of the respondents characterized their pumpout facility/service as *underused*. Another 47 percent felt the use of their pumpout facility/service was *just about right*. Only 2 percent of the respondents characterized their pumpout facility/service as *overused*.



QUESTION #15: At your facility which months are the busiest?

ANALYSIS

On average the busiest month for the facilities responding was August.. The three busiest months were reported as June, July, and August. The figure below illustrates the percentage of facility operators indicating that a given month was their busiest time or a portion of their busiest time.

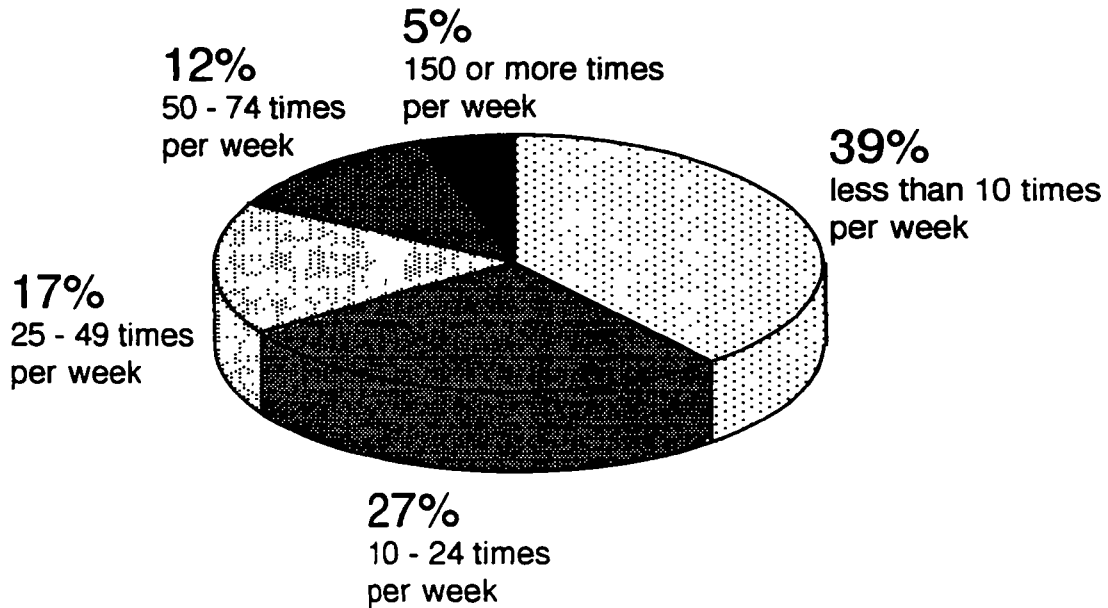


QUESTION #16: How many boats would you estimate use the pumpout during a single week - during the busiest time? during the slowest time?

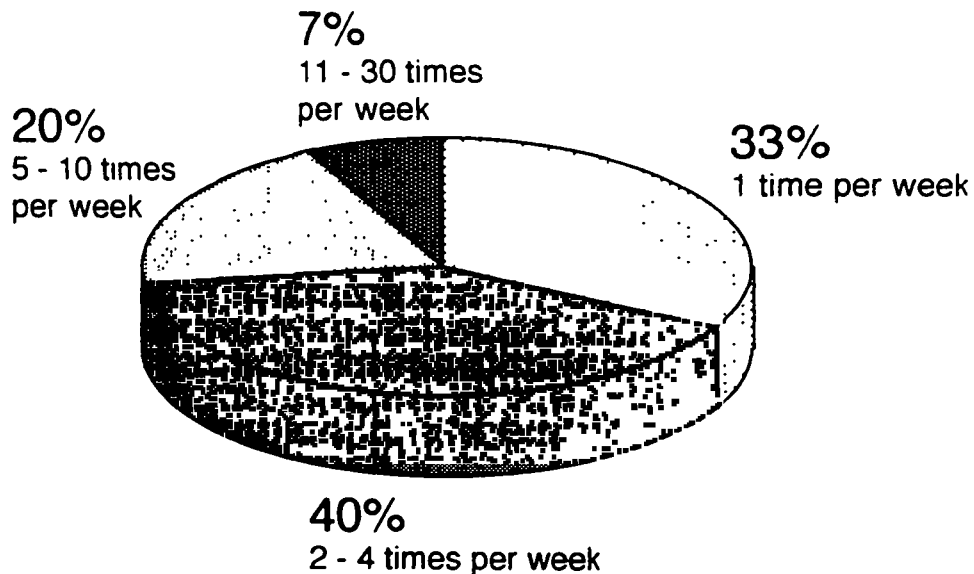
ANALYSIS

During the busiest time, facility operators on average estimate that pumpout facilities are used 26 times per week. During the slowest time use drops to an average of 4.5 times per week.

Frequency of use of pumpouts during busiest time



Frequency of use of pumpout during slowest time

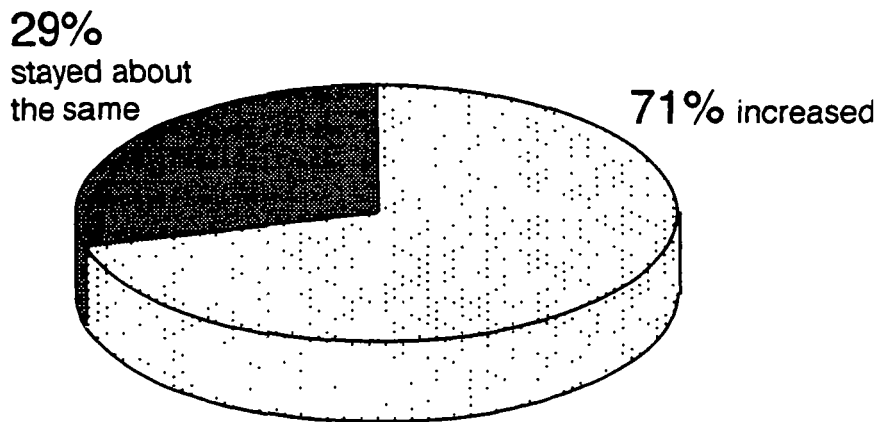


QUESTION #17: Has the use of the pumpout increased, decreased, or stayed about the same over the last few years? If use has changed, what do you think are the reasons for this change?

ANALYSIS

A significant majority of facility operators, 71 percent, reported that the use of their pumpout has increased over the last few years. The remaining 29 percent felt the use had stayed about the same. None of the facility operators felt that use had decreased.

Among the reasons given for a change in the use of pumpouts, the two most frequently cited were increased boater awareness and education (20 responses) and awareness of availability of a pumpout at a given location (11 responses).



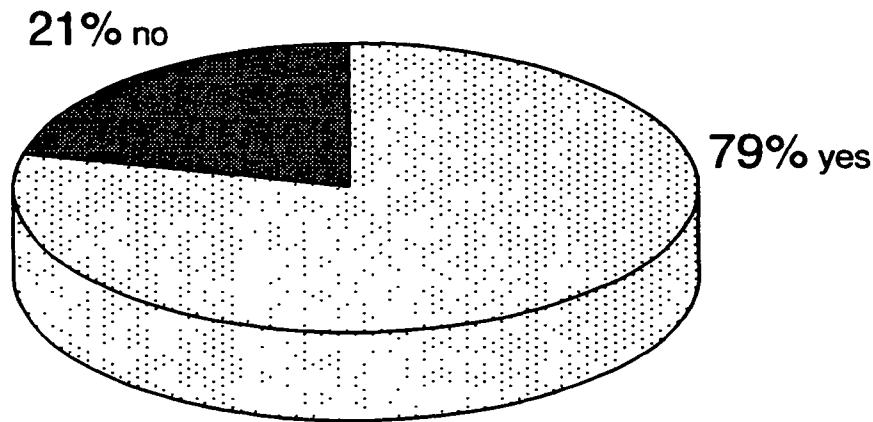
Reasons for change in use of pumpouts over last few years

- | | |
|---|--|
| <ul style="list-style-type: none"> • easy access and free • more sport boats • as the public becomes aware that it is here and no charge, they come back • boaters becoming aware of availability • more holding tanks installed (2) • public better educated • pumpout advertised • people more conscous of pollution • increased availability due to installation of pumpout barge • educauon of boaters to make them aware of the problem and solution • conscientousness • more environmental awareness (2) • environmental concerns of the boating public • new laws • availability (2) | <ul style="list-style-type: none"> • only two stations on Lake Washington • education (5) • availability of a portable pumpout • knowledge • word of mouth • knowing it works at low tide • increased accessibility • we're a new marina - more boats each year • more awareness (6) • more boaters are learning of our marina, its location, and that we have a pumpout • more awareness of pollution via media • more boaters coming to the area • more people know it exists • got it working again • more aware of "Don't dump it. Pump it." • more reliable equipment • our own efforts to promote use |
|---|--|

QUESTION #18: Is there a fee charged for using the pumpout? If no, do you plan on charging a fee in the next two years?

ANALYSIS

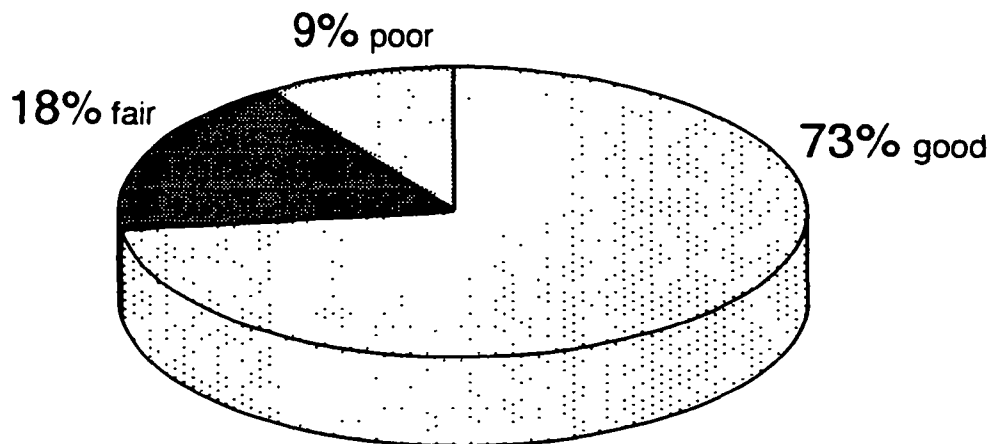
A significant majority of marina operators, 79 percent, reported that there was no fee charged for use of the pumpout at their facility. Additionally, almost all of these respondents (94 percent) did not plan to begin charging a fee within the next two years.



QUESTION #19: How would you rate the general condition of the pumpout/dump station at your facility?

ANALYSIS

A significant majority of respondents, 73 percent, rated the general condition of their pumpout/dump station as good. Approximately 18 percent rated it as fair and 9 percent rated it as poor.



QUESTION #20: Approximately how many times was the pumpout out of order in the last month?

ANALYSIS

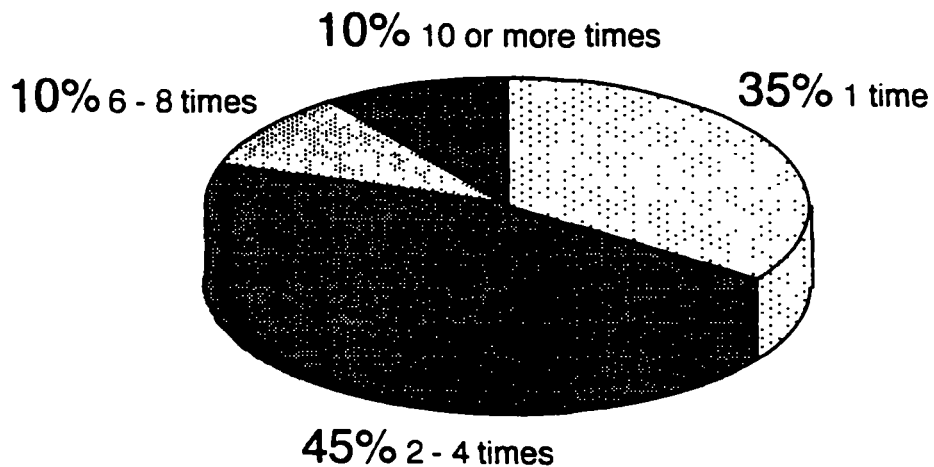
Eight facility operators reported that their pumpout had been out-of-order at least once during the past month. According to these operators, the pumpouts were out of order from one to five times during the month with the average being 1.8 times.

<u>NUMBER OF TIMES OUT OF ORDER</u>	<u>NUMBER OF MARINAS REPORTING</u>
1 time	5
2 times	4
5 times	1

QUESTION #21: Approximately how many times was the pumpout out-of-order in the last year?

ANALYSIS

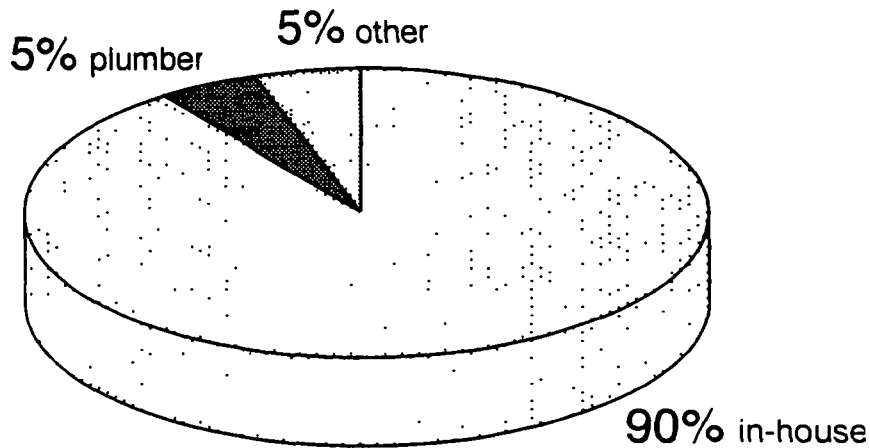
In response to this question, 29 facility operators reported their pumpouts had been out-of-order during the past year. Pumpouts were reported out-of-order from one to twenty times. On average, pumpouts were out-of-order 3.7 times during the past year.



QUESTION #22: When the pumpout is out-of-order, who does the repairs?

ANALYSIS

Of the 40 facility operators that responded to this question, 90 percent stated that the repairs were done in-house. Another 5 percent reported using a plumber to do the repairs.



QUESTION #23: On average, how long is the pumpout out-of-order before it is repaired?

ANALYSIS

On average, pumpouts were reported to be out-of-order 2.29 days before they were repaired.

<u>NUMBER OF DAYS OUT OF ORDER</u>	<u>NUMBER OF MARINAS REPORTING</u>	<u>PERCENT OF MARINAS</u>
1 day	10	29%
2 days	15	44%
3 days	6	18%
4 days	1	3%
8 days	2	6%

QUESTION #24: What types of maintenance problems are the most frequent with the pumpout at your facility?

ANALYSIS

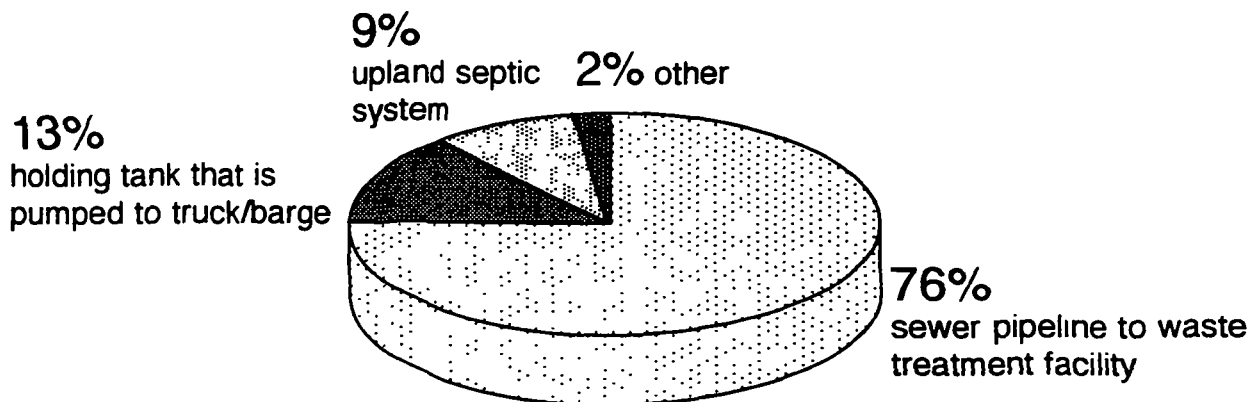
The most commonly cited maintenance problem reported by respondents was that the pumpout was plugged or clogged (9 responses). The next most frequently cited problems were broken or leaking hoses, poor suction, and broken or missing nozzles (5 responses each). The third most common type of problems were pump, flapper valve, and diaphragm failures/breakdowns (3 responses each). The last problem cited by more than one facility operator was the need to shut down or prevent freezing in the winter.

-
- | | |
|---|--|
| <ul style="list-style-type: none">• junk in the line• must shut down and drain - winter months• broken or leaking water lines• poor suction/loss of suction (3)• plumbing problems• air locks in-take and pump• pump failure/breakdown (2)• full holding tank awaiting our pumpout service• people using "Kleenex" and other debris in heads• plugged up if people do not flush it after use• users tend to cut off end of nozzle• failure to flush the system• clogged line to mainland sewer• defective flapper valve• torn rubber nozzle• rubber diaphragm• plugged up/clogged (4)• people take adaptor or drop it in the water• once a year replace diaphragm• change oil - normal maintenance• corrosion• stationary check valves | <ul style="list-style-type: none">• electric motor switches• diaphragms and flapper valves going out• pump and hose failure• theft of hose fitting• exhaust hose wear• freezing in winter• PVC line• doesn't pump• loses prime• hose connection breaks• no common problem• discharge valve• loose bolts• plugged hose and diaphragm• rocks sucked into impellers• broken or split rubber nozzle• vandalism• screw cap broke off two months ago, that is all• flapper valves wear out• suction hose leaks• improper material dumped into dump station |
|---|--|
-

QUESTION #25: How is the pumpout waste disposed of?

ANALYSIS

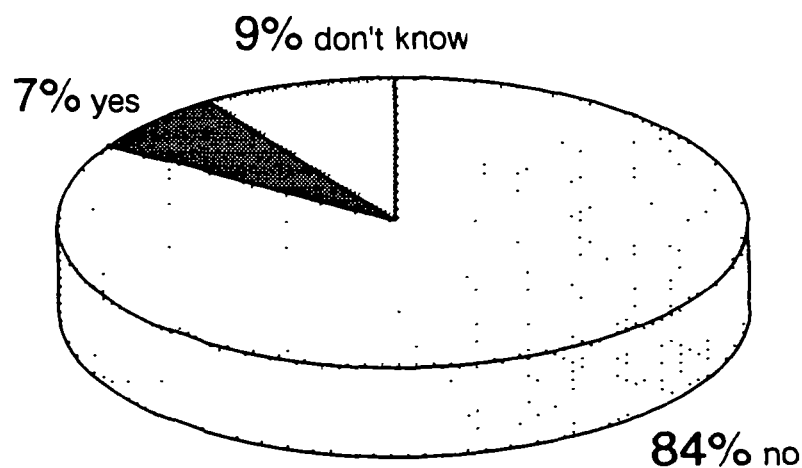
Most respondents, 76 percent, reported disposing of pumpout waste via sewer pipeline that goes to a waste treatment facility. Less than one-fourth of the facility operators reported that waste was disposed of through a holding tank that is pumped to a truck/barge, upland septic system, or other.



QUESTION #26: Are there any problems with disposal of the pumpout waste?

ANALYSIS

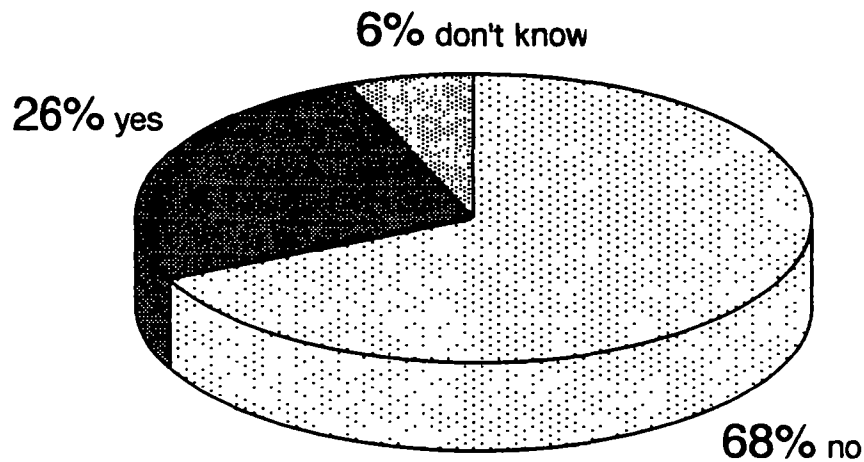
The majority of respondents, 84 percent, did not feel there were any problems associated with disposal of pumpout waste. Three of the 44 respondents answered *yes* to this question. Four respondents answered *don't know*.



QUESTION #27: Are there any plans to change your existing pumpout facility/service?

ANALYSIS

Most of the facility operators did not plan to change their existing pumpout facility/service (68 percent). Among the 26 percent reporting that they did plan to change, the two most common plans were to replace existing unit (6 responses) and to add a new type of system or an additional system (5 responses).



Specific plans to change pumpout facility/service

- | | |
|---|--|
| <ul style="list-style-type: none">• need to replace the unit on fuel dock• would like a newer self priming pumpout that boater could operate without help• replace existing unit, add new unit, add a pumpout skiff• if we receive state sewer pumpout grant - we plan to install a lift station from dock to land manhole• installing Waubashene pumpout system, this unit will be a constant vacuum system that will be on main docks• replace existing pumpout station with newer one | <ul style="list-style-type: none">• we are looking into and accepting bids to upgrade the system in 1995• may add a second one• don't have the plans or design yet• replace existing inoperative station with new pumpout and dump station• would like to add additional portable units at each ramp• one new vacuum system in 1995 |
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QUESTION #28: As a boat facility operator, what do you dislike about pumpouts?

ANALYSIS

The most common complaint about pumpouts was related to the maintenance/servicing requirements (9 responses). The second most common complaint was the odor (6 responses). The third most common type of complaint was related to either pumpout and/or boat design problems (5 responses).

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| <ul style="list-style-type: none">• hose-to-boat fittings• dirty - a lot of boats have poor systems and leak and will not pump• odor and noise of mooring rings• nothing/no problems (5)• our "sani-station" - poor design, rarely works properly• lack of user know-how• I resent having to be an agent for the state• the odor, they leak, not our favorite activity• servicing them• inconvenience to boaters• boats with overfilled holding tanks = clogged vents• maintenance requirements• too many fueling - get in the way, it takes too much time to tie them up• the way it is set up needs an attendant to help pumpout, would be helpful to have pumpout boater could operate without help• normally when fuel dock is the busiest• maintenance problems• reliability (2)• nothing except smell when making repairs• maintenance problems | <ul style="list-style-type: none">• boats staying too long at pumpout dock• too time consuming• after errors in installation/engineering were worked out we have had very few problems• the "standardized" fittings allow leaking during holding tank emptying• that all boat owners don't use them• I have no problems with pumpouts• cost of maintenance (2)• the fact that most pumpouts don't usually work and are very user unfriendly• people• high maintenance, assistance time• their smell, we get more complaints about smell and ours is one of the best• no one wants to park their boat next to it because of the smell• prone to malfunction, messy, costly to repair, parts not readily available• people don't take the time to use it• portables are hard for boaters to take up and down the gangways• odor |
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-

QUESTION #29: How could the pumpout facility/service at your facility be improved?
Please place a checkmark by any of the following improvements that are needed at your facility.

ANALYSIS

The three most frequently identified improvements needed were, in order, more boater understanding of how to use pumpout (16 responses), better designed pumpout so that it is easier for boaters to use (15 responses), and equipment that doesn't break down as often (11 responses). The second groups of frequently cited needed improvements were additional pumpouts and/or other types of pumpouts (10 responses), easier boat access to the pumpout station (9 responses), and better signage identifying pumpout facility/service (9 responses). More convenient hours of operation and lower cost were least likely to be identified as needed improvements.

<u>TYPE OF IMPROVEMENT</u>	<u>NUMBER OF RESPONDENTS SELECTING IMPROVEMENT</u>
additional pumpouts and/or other types of pumpouts	10
easier boat access to the pumpout station	9
more convenient hours of operation	2
lower cost (e.g. reduced or no user fees)	3
better designed pumpout so that it is easier for boaters to use	15
more boater understanding of how to use pumpout	16
better signage identifying pumpout facility/service	9
equipment that doesn't break down as often	11

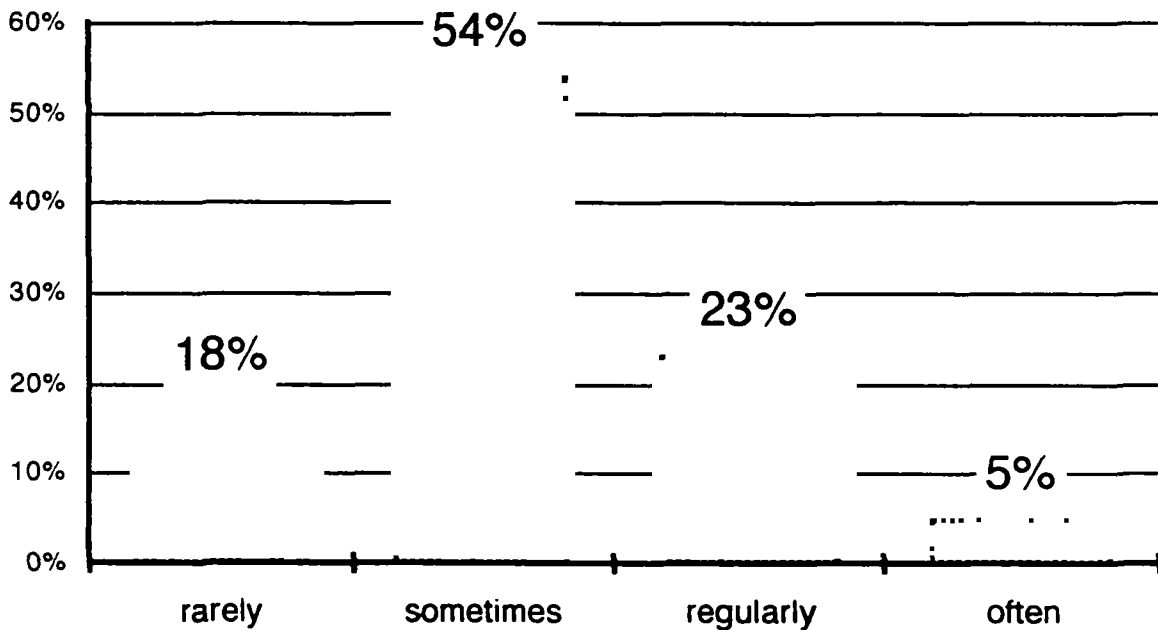
QUESTION #30: How often do you think that heads and/or holding tanks are discharged into your marina?

RESPONSES DELETED FROM THIS REPORT.

QUESTION #31: How often do you think most boaters with holding tanks use pumpouts?

ANALYSIS

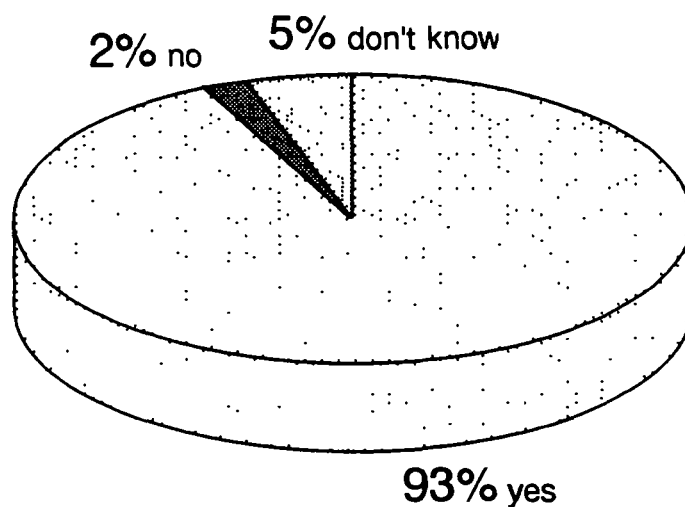
Over one-half of the facility operators felt that boaters with holding tanks use pumpouts *sometimes* (54 percent). Another 23 percent felt that boaters use pumpouts *regularly*. At either end of the choice scale were those respondents that felt boaters use pumpouts *rarely* (18 percent) and those that felt boaters use pumpouts *often* (5 percent).



QUESTION #32: Do you think that boaters are more likely to use pumpouts now than they were five years ago?

ANALYSIS

Almost all of the facility operators, 93 percent, felt that boaters are more likely to use pumpouts now than they were five years ago.



QUESTION #33: Are there other places in the area that boats congregate? If yes, where are those places?

ANALYSIS

The areas identified as places where boats congregate were quite diverse. The text of the responses is included below.

-
- | | |
|--|---|
| <ul style="list-style-type: none">• Beacon Rock State Park (2)• Government Island• Tokeland - Bay Center (2)• Sand Island• St Helens Area• Oregon Side• fuel dock• boat launch• Hells Gate Marina• Chief Timothy State Park• Sucia Island• Orcas Island Yacht Club• County dock at West Sound (San Juan Islands)• Starr Farish's Moorage (San Juan Islands)• Cap Sante Boat Haven• Anchor Cove Marina• Fidalgo Marina• Fidalgo Boat Yard• Skyline Marina• Dagmar's Landing• summer - city pier floats in Port Angeles. the floats are pulled in winter, contact is Scott Broden at P&R• Port Hudson (Port Townsend)• anchor in front of town (Port Townsend) and in front of Hadlock | <ul style="list-style-type: none">• San Juan Islands• too numerous to mention as we are on Lake Union, Seattle• we have buoys around the island and campsites at the south and west end of the island where boats congregate (Blake Island)• Bremerton Yacht Club• there are six marinas and two yacht club outstations here (Eagle Harbor)• Kingston• all of Lake Union• Port Washington Marina• yacht clubs and private marinas• Silverdale Public Floats (city-owned, I think)• back bay - small cove that boats anchor in (Port Ludlow)• a mile north of us (Parkshore Marina) in Andrew's Bay• Seward Park in Lake Washington• anchorage in Pleasant Harbor• city dock called Jersick Park (south Puget Sound)• Murphy's Landing (south Puget Sound)• Peninsula Yacht Basin (south Puget Sound)• Meydenbaur Yacht Club dock - across the bay from Port Ludlow• seven other marinas in the area (Olympia) |
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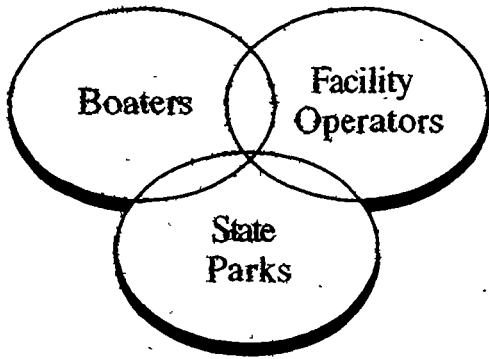
QUESTION #34: Please use the space below for any additional comments that you would like to share.

ANALYSIS

Fifteen respondents included additional comments. The text of these comments is included below.

RESPONSES

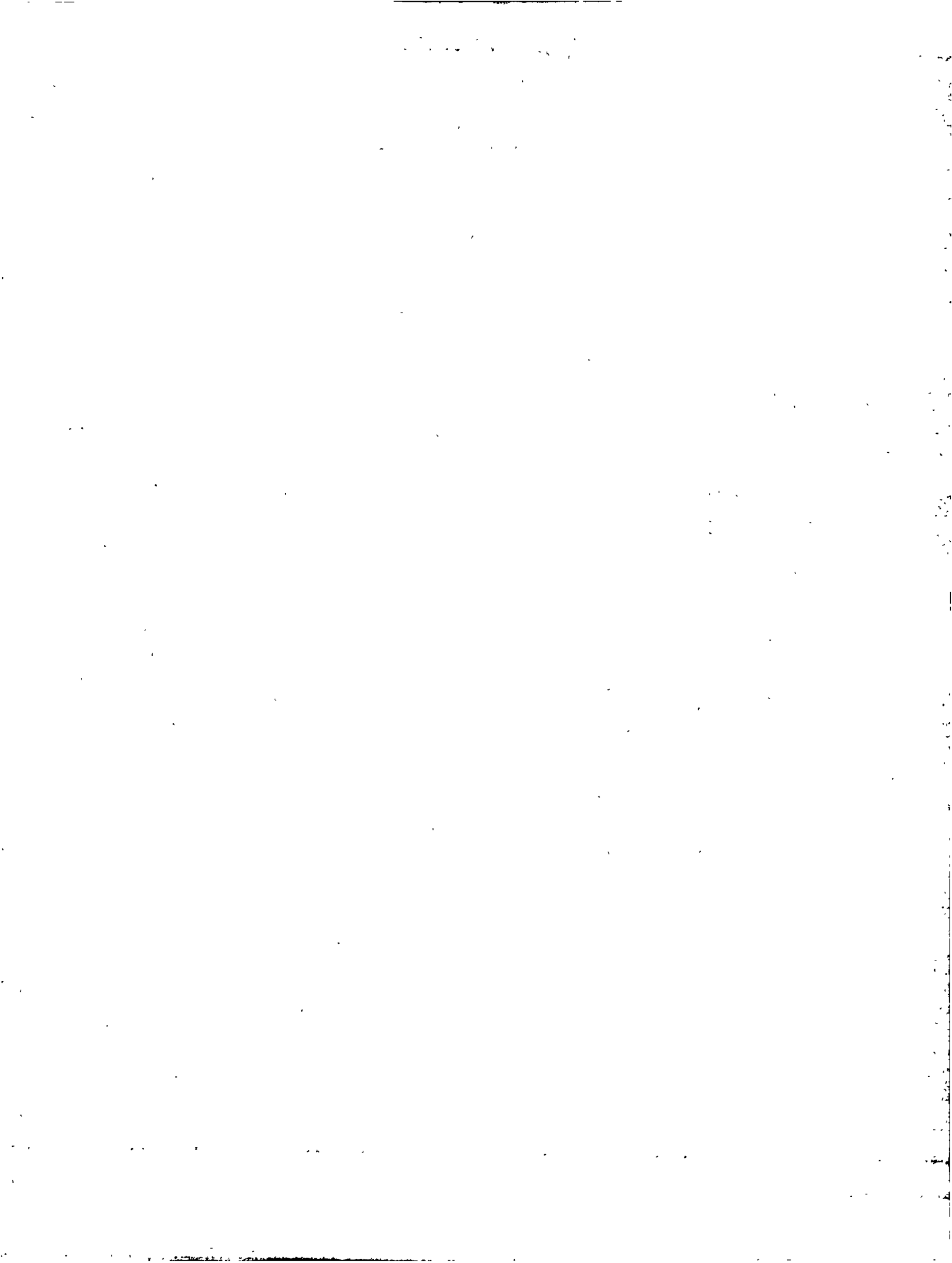
- Canada doesn't have many pumpout stations and aren't required to use them, need better education on the need to use proper sewage disposal
- continued emphasis on boater education
- the survey will be more useful next year when we replace our inoperative unit with new
- there are not enough pumpouts; no money to maintain pumpouts; rubber diaphragm is degraded by any petroleum products
- continued emphasis on boater education
- more pumpouts are great, but we must look at the big picture - runoff from city storm drain is a much larger problem
- we seem to have quite a number of live-aboards which have never used the pumpout station
- the Port of Brownsville installed pumpouts early '89 and the use continues to go up' the port also has in its lease that there is no discharge of sewage from any vessel toilet facilities permitted within the marine, no matter what type of MSD
- poor seal for pumping out with certain tank installations - we have a special adaptor that helps; we do not appreciate being visited on Sunday when we are closed; increased public education regarding sanitation and recycling; proper operation of heads and pumpouts
- our new pumpout system should be installed by 3/20/95 (Skyline Marina - Fidalgo Island)
- we applied for a grant from Washington State Parks and Recreation, it was denied for 1994 but we will continue to seek funds for a pumpout facility
- we asked for forms to apply for a grant to update our pumpout, time was so short, could not gather needed information to fill forms out and return them by deadline, hopefully, we can apply next year since we know what is needed now
- please send information on available funding for pumpout station
- mandatory in-tank dye could detect direct disposal into the river
- every owner of a boat with a holding tank system should be instructed on operation and how to use pumpout equipment; most reported malfunctions are operator error not the pumpout itself
- pumpout barge works well for us, but only because both marina and sewage treatment plant/pumper truck are city-owned (barge was funded in part by a state parks grant)



Appendix D - Think Tank

A boat sewage management *Think Tank* involving 19 representatives from boating related agencies and organizations in Washington State was held during the planning process. The *Think Tank* focused on identifying issues to be addressed over the next five years in terms of boat sewage management in Washington State.

The minutes of the *Think Tank* session are included in this appendix.



WASHINGTON STATE BOAT WASTE MANAGEMENT THINK TANK

Friday, October 21, 1994 • Tyee Motel (Olympia) • 9:00-11:00 a.m.

MINUTES

I. WELCOME AND INTRODUCTIONS

The meeting facilitator, Michael Cheyne, welcomed everyone. The list of individuals in attendance is included below.

- Jeffrey Briggs, writer
- David Caster, park ranger 5 - Washington State Parks
- Randy Cummings, board member - Oregon Marine Board
- Terry Doran, northwest regional manager - Washington State Parks
- Bob Duffy, ecologist in watershed management section of water quality program - Dept. of Ecology
- Jim Eychaner, Interagency Committee for Outdoor Recreation
- Jim French, boating programs manager - Washington State Parks
- Mark Gjurask, lobbyist - Recreation Boating Association of Washington
- Marla Kleiven, manager of recreational boating operations - Port of Seattle
- Paul McTaggart, 1994 president - Recreation Boating Association of Washington
- Dave Obern, facilities section manager - Oregon Marine Board
- Mike Ramsey, environmental specialist 4 - Washington State Parks
- Tim Ransom, research program lead - Puget Sound Water Quality Authority
- Herb Stevenson, 1995 president - Recreation Boating Association of Washington
- Doug Strong, parks and recreation coordinator - Washington State Parks
- Derry Suther, public health advisor 3 - Washington State Parks
- Sue Texeira, program assistant - Washington Sea Grant/Kitsap County Cooperative Extension
- Ellen Wolfhagen, nonpoint policy analyst - Department of Ecology
- Steve Wright, civil engineer 4 - Washington State Parks

II. SETTING A VISION FOR THE FUTURE

- a. What should the year 2000 goals be in terms of boat waste management in Washington State?
 - CLEANER WATER - many comments on this as the overall vision
 - more protection of those waters
 - closer cooperation with Oregon and British Columbia
 - greater enhancement and direction in education of boaters to accomplish the goal
 - existing facilities maintained - make sure there are adequate dollars to maintain facilities
 - private sector should take a leadership role, partnership, input
 - building and maintenance of personal awareness and concern regarding boater impact to the environment, education is a key
 - consistency in what laws, ordinances apply to whom
 - convenience
 - more diversified means of waste disposal
 - operation and maintenance system
 - consideration of future - with more smaller boats it means there is more opportunity for other types of waste management - people will use shoreside facilities even if they have facility on board

- need to address whether to consider the needs of commercial vessels
- building relationship with other groups - regulators and regulatees
- Leadership was a key issue, specific points made in the discussion included...
 - concern that if there is a leader identified we become inflexible, perhaps just work toward meeting the needs instead
 - attempt a program that meets the needs of the community
 - perhaps we should look at what other states are doing
 - need a catalyst such as Puget Sound Water Quality Authority is for Puget Sound
 - who in the State should provide leadership - people want a leader
 - its important to identify leaders and other parties involved
 - right now, people are saying State Parks should take the lead

b. What major actions need to be taken over the next five years to realize that vision?

- need to form a marine advisory board
- perhaps marine advisory board should be private
- need to address the questions of how will it be funded? who will be represented on it?
- likelihood of legislated board - "I think chances are good"
- develop a marine advisory board - include as an action item in the plan - this would identify the leader (which seems to be key) or have "identify a leader" as an action item
- an advisory committee is possible but a Washington Marine Board that consolidates various agency programs would be very difficult
- the goals of the marine board would be 1) identify a way to maintain and operate facilities and 2) convince the legislature that boating issues are a priority and should be funded
- a Marine Board is not realistic; it would need stable funding to work
- Washington State Parks should take the lead
- need more public relations with legislature about the use of boating revenues
- designation of no discharge zones or establish discharge zones - establish no discharge zones n harbors, etc. and discharge zones in main waterways
- establish no discharge areas in response to local needs
- according to the federal definition of no discharge - it means there is no discharge of treated or untreated sewage, however, there must be sufficient ways to deal with the waste
- providing for operations and maintenance
- constructing sufficient facilities
- integrate lifetime recreation into current educational system - "in our country you learn about outdoor recreation from beer commercials"
- Oregon is headed toward no discharge in all sole-state waters within 5 years, it is petitioning EPA
- within 5 years there should be funds for all boater waste management programs including shoreside restrooms
- need to sell plan to users

III. PREPARING FOR THE FUTURE

- a. What are the major environmental concerns related to Washington waters? How will environmental concerns in five years differ?
- tremendous impact on small enclosed bays - fecal material, chemicals, shellfish impacts, and in limited areas sedimentation
 - jet skis and other small watercraft conflicts
 - Lowry and NOAA - working on a marine sanctuary in San Juan Islands

-
- get waste management issue solved so that we can get working on recreational boater petroleum products management
 - improve image of boaters to community
 - main concern - water quality statewide is continuing to deteriorate despite the efforts that have been made to prevent and control problems
 - point sources such as factories, sewage treatment - some progress has been made
 - nonpoint sources are the biggest problem in the state, nation, and world
 - boaters are not a main source of nonpoint pollution but boating does have an impact - boaters need to do their share
 - habitat being lost due to development
 - shoreline continuing to be developed
 - education of boaters of whole picture of nonpoint sources because boaters will be the "best fighters" in the whole issue since they have a big investment in high quality waters
 - boaters attitudes are changing but do have to give boaters options to deal with the problem
- b. What types of technological improvements in boats and/or pumpouts will occur over the next five years that will impact boat waste management?
- mobile pumpouts such as barges and services are wonderful
 - floating pumpout at Stuart Island - have to carry waste to San Juan Island - is it possible to have barges be secondary waste treatment centers?
 - solar toilets - toilets have highest use during warmest parts of the year, perhaps use solar power to reduce volume
 - Lectra-San - has been approached about use on floating restroom
 - composting toilets - there are lots of problems related to use in floating restrooms; for example, water temperature inhibits composting action
 - standard deck hull fittings - this is being addressed through Clean Water Act
 - standard holding tanks - since size varies they may be filled too soon - this needs to be addressed
 - still using large quantity of water to transport small quantity of waste - but if use less water it may create a problem with treatment plants
 - maintenance of pumpout equipment is essential - they all work but have to be maintained
 - fitting is so important
 - perhaps demonstrate model pumpout unit at boat shows
 - retrofitting boats - lots of it going on by do-it-yourselfers which may make waste disposal a problem
 - need to address the launch vs. destination question - for example, Stuart pumpout is too expensive and it's too hard to find out about problems; if you have pumpouts at remote locations there must be operations and maintenance funding
- c. What types of legal developments will impact boat waste management?
- Clean Water Act amendments
 - perception of boaters that legal actions will continue
 - Coastal Nonpoint Program will probably be duplicated
 - Threatened/Endangered Species Act
 - shellfish closures
 - marine sanctuary program
 - impacts from Initiative 601
 - potential establishment of no-discharge zones
 - local boat waste management plans

-
-
- need to address whether issue should be handled at state or local level
 - development of TMDL = total maximum daily loads - limits pollution from both point and nonpoint sources
 - some impact from what happens in Oregon and British Columbia
 - DOE is completing an inventory and assessment plan - will be available mid winter
- d. How will participation in recreational boating differ in five years from what it is today?
- personal watercraft - can't use porta-potty, need floating restrooms
 - midsize boats - largest segment 16-26' - have porta-potties; over 26' only 3 percent of boats nationwide
 - all recreation is increasing, user conflicts will increase

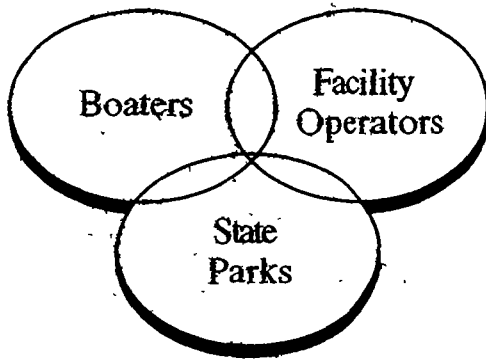
IV. STRENGTHENING PARTNERSHIPS

- a. What would an effective partnership among state agencies, marina operators, equipment manufacturers, and boaters look like?
- state buys unit (such as a barge) and gives it to the private sector
 - operations and maintenance
 - fees can be charged for use of pumpout and used for operations and maintenance but it doesn't work - fees are a disincentive
 - need maintenance and operation funds for dedicated staffing
 - manufacturer guarantees operation of pumpout at predetermined performance standards for a given period of time or have a maintenance contract with manufacturers
 - lease arrangements with manufacturer - the problem is it doesn't address need for daily maintenance
 - education of boaters, marina operators
 - environmental assessment fee to boaters
 - Oregon
 - unified design standards for pumpouts
 - Marine Board funds O&M - that way they assure performance
 - best inducement for use is free-of-charge
 - pumpouts are free of charge because Oregon provided O&M fees
 - provide education of operators in operations and maintenance
 - continue funding through Clean Vessel Act
 - contrasting points of view were shared regarding the fee for service idea
- b. What might the State do to encourage effective partnerships?
- start with a vision
 - encourage a sense of ownership
 - coordinate and be the catalyst for continuing interaction
 - encourage a commitment from agencies to stay involved
 - continue interaction with boaters
 - vision needs to include perspective of all nonpoint pollution sources
 - state role in fostering coalitions between different non-point sectors

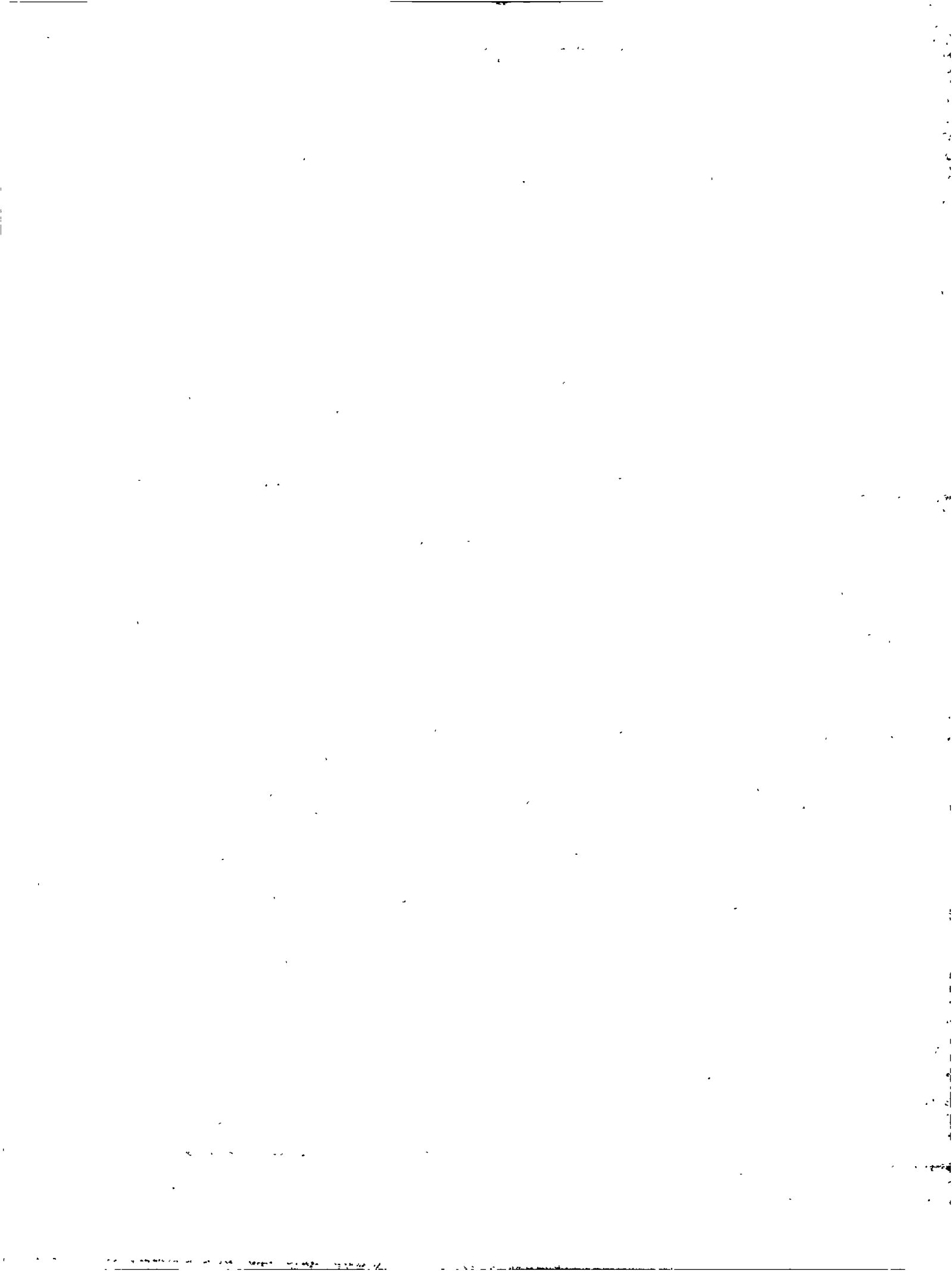
V. CLOSING REMARKS

Key issues identified were:

- need for continuation of discussion on boat waste management
- expand education - boater, marina operator
- deal with the maintenance and operation issue



Appendix E - References



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United States Department of the Interior

FISH AND WILDLIFE SERVICE

911 NE 11th Avenue
Portland, Oregon 97232-4181

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WASHINGTON
CWA
COMP PLAN

In Reply Refer To:
FWS/AFA

May 25, 1995

Cleve Pinnix, Director
Washington State Parks
7150 Clean Water Lane
Olympia, Washington 98504

Dear Mr. Pinnix:

Thank you for providing us a copy of your "Comprehensive Boat Sewage Management Plan for Washington State." Your plan has been reviewed and is approved. Congratulations.

Your plan is complete and it satisfies the minimum planning standards in the technical guidelines for the Clean Vessel Act. The prose is clear and concise. Largely because of the surveys and inventories the plan is credible. Most importantly, it appears this plan will help you add significantly to the 80 existing public pumpout facilities in the coastal and inland waters of Washington.

We look forward to working with you and your staff in the implementation of your plan.

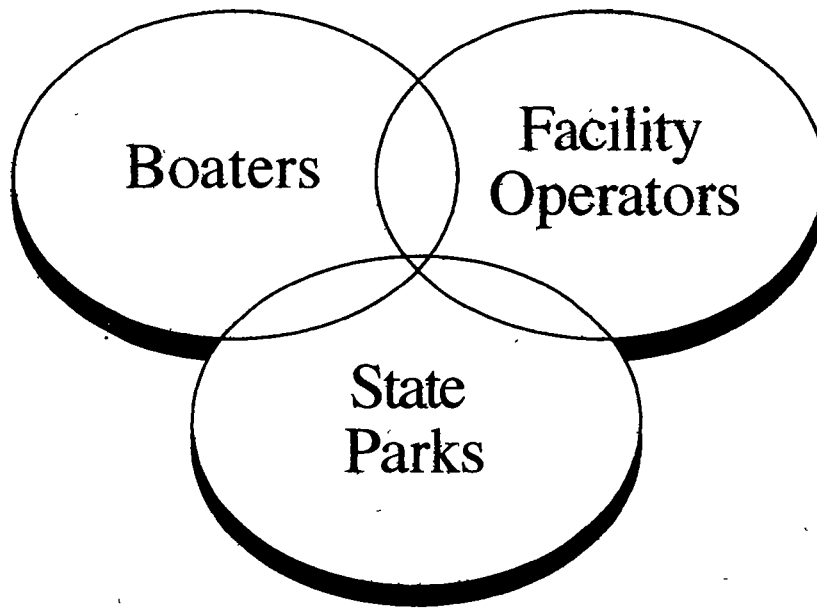
Sincerely,

Donald V. Friberg
Assistant Regional Director,
Federal Aid

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WASHINGTON
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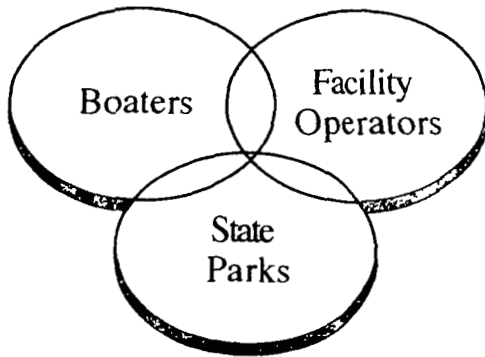
A Partnership for Cleaner Waters in Washington State

Washington State Parks and Recreation Commission

Comprehensive Boat Sewage Management Plan for Washington State

February, 1995

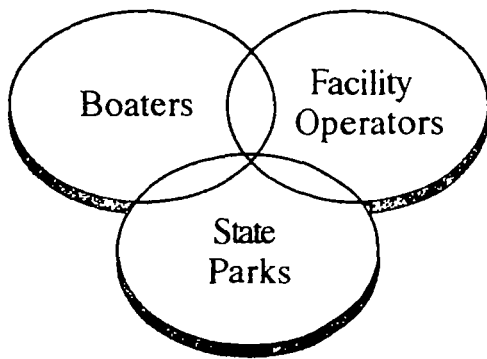
Cheyne and Associates, Inc.
Seattle, Washington



A Partnership for Cleaner Waters in Washington State

Given the importance of boating in Washington State, it is the premise of this plan that a successful boat sewage management program must be an aggressive program of pumpout installation and maintenance and an enthusiastic program of boater education and awareness.

Boaters value clean waters. Facility operators value clean waters. State government values clean waters. We're all headed in the same direction. The goal of this plan is to provide direction to State Parks in establishing a comprehensive boat sewage management program in Washington State. This program will focus primarily on establishing a network of publicly accessible pumpout and dump station facilities throughout the State and a boater education program to encourage their use. This boat sewage management program will strengthen the partnership of boaters, boating facility operators, and Washington State Parks working together for cleaner waters in Washington State.



Scope of the Plan

According to the United States Congress,

Sewage discharged by recreational vessels, because of an inadequate number of pumpout stations, is a substantial contributor to localized degradation of water quality in the United States. (USFW, 1992)

In response to this concern, the Clean Vessel Act was passed in 1992. The purpose of this act is to provide funds to States for the construction, renovation, operation, and maintenance of pumpout stations and dump stations.

This plan is Washington State Parks' response to the Clean Vessel Act. It acknowledges the importance of cleaner waters in Washington State, recognizes the potential contribution of boaters toward cleaner waters, and identifies the actions necessary to promote clean water stewardship.

The ultimate goal of this plan is cleaner waters in Washington State. In developing strategies to accomplish this goal, the planning process included

- visiting all of the 80 existing pumpout facilities to gather information about the strengths and weaknesses of the current supply of pumpouts and dump stations
- visiting 96 facilities without pumpouts to evaluate the need for pumpout system placement
- surveying 201 boaters from 35 marinas to gather information about boater practices, preferences, and ideas
- interviewing 48 facility operators to gather information about types of pumpout systems they are using or would like to use, perspectives on boater practices, problems with sewage disposal, and plans for the future
- analyzing data from the 1994 applicants for Clean Vessel Act funding to gain insight into the similarities and differences in pumpout system needs
- interviewing several state officials and one official from the British Columbia regarding the management of boat sewage in their jurisdictions
- attending the International Marine Trades Exhibit and Convention in Chicago to gather information from manufacturers about technological developments in boat sewage management
- conducting a thorough search and review of existing reports and documents on boat sewage management
- interviewing six manufacturers and three pumpout services regarding boat sewage management equipment and services
- interviewing a number of facility operators and sewer district representatives regarding acceptance/nonacceptance of boat sewage in municipal wastewater treatment facilities
- sponsoring a Think Tank involving 19 representatives from state and local government and the boating community to discuss the future of boat waste management in Washington State

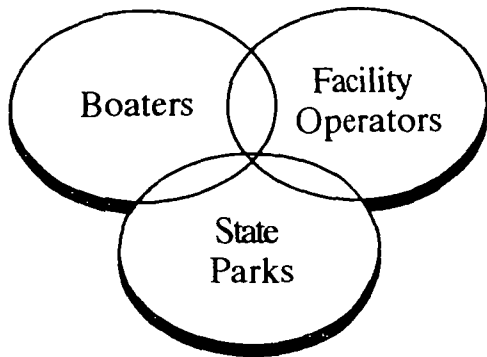
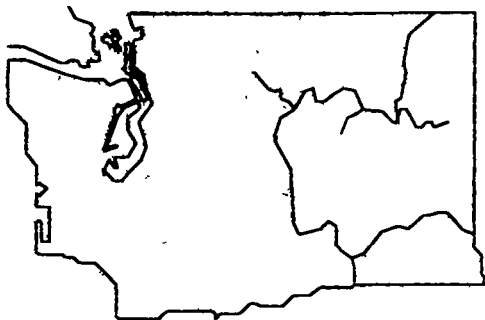


Table of Contents

Boating in Washington State	Page 9
The Current State of Boat Sewage Management in Washington State	Page 13
Public Input	
Boaters...what do they say?	Page 27
Facility Operators....what do they say?	Page 33
Government Agencies....what do they say?	Page 39
Boat Sewage Management Technology	
The Path to Cleaner Waters	Page 45
Onboard Sewage Alternatives	Page 47
Pumpout Alternatives	Page 49
Pumpout Alternatives - The Washington Experience	Page 53
Sewage Treatment Alternatives	Page 55
The Five Year Plan	Page 59
Appendix A: Portfolio of Existing Pumpout Facilities	Page 103
Appendix B: Boater Survey	Page 107
Appendix C: Facility Operator Survey	Page 125
Appendix D: Washington State Boat Waste Management Think Tank Minutes	Page 151
Appendix E: References	Page 157

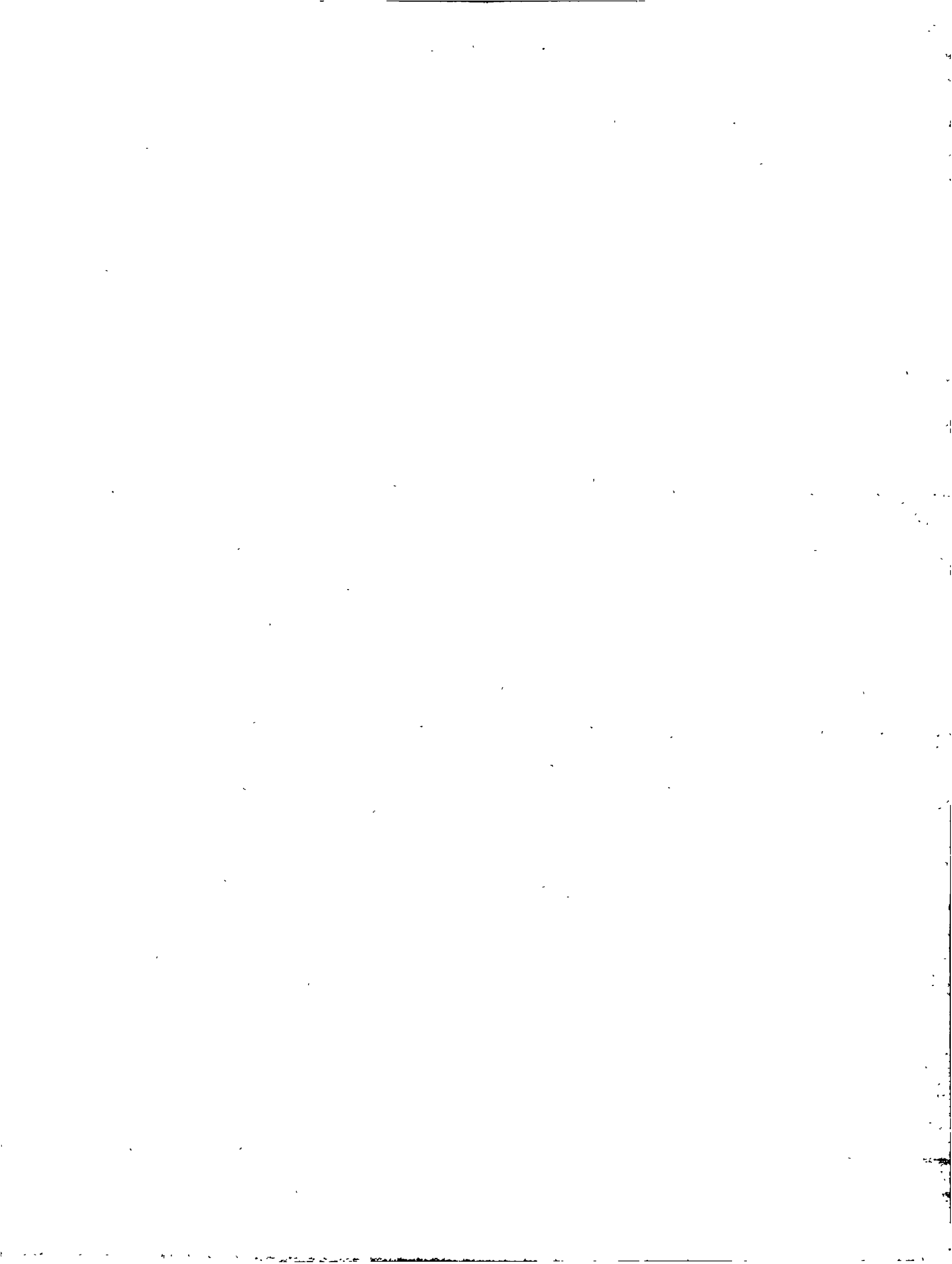


Boating in Washington State

Washington State is a paradise for water-related outdoor recreation. With eight thousand lakes, fifty thousand miles of streams, and three thousand miles of shoreline, Washington residents have always enjoyed excellent access to the Pacific Ocean, Puget Sound, and the state's lake and rivers. The importance of water-related recreation in Washington can be seen in the large number of registered pleasure boats and boating facilities such as boat launches and marinas.

Washington Wildlife and Recreation Coalition, 1989

Washington is known for the rich diversity of its waters. From the pristine San Juan Islands to the powerful Columbia River, one finds boating and boating facilities throughout the state. This section of the plan focuses on the importance of boating in Washington State.



According to a 1992 survey conducted by Washington Sea Grant Marine Advisory Services, about one household in every five in Washington State owns at least one boat. The total number of boats in operation in 1992 was estimated at 664,930. (Amjoun, 1992)

According to State of Washington Department of Licensing records, as of October 1994 there were 234,991 registered vessels in Washington state. In the 1993 Washington State Boating Fatalities report published by State Parks, an estimated 369,725 recreational vessels, including 234,725 registered vessels, were reported. Differences in estimating fleet size may be attributed to varying methods of information gathering designed to serve different purposes.

For planning purposes, the number of recreational boats in Washington State are assumed to be as follows.

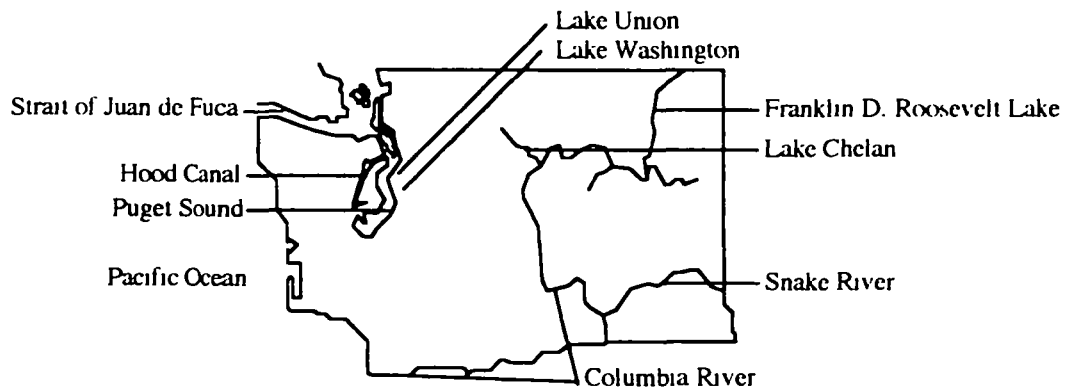
Number of recreational boats in Washington State

SIZE	NUMBER
under 16'	399,821
16-25'	213,796
26-40'	45,650
40+'	5,663
TOTAL ALL BOATS	664,930

Note: the numbers used in the table above are derived from an analysis of information from Washington Sea Grant's report *Boat Ownership in Washington State-Household Survey Results* by Ben Amjoun, University of Washington, September 1992 and the State of Washington Department of Licensing registered vessel record for October, 1994.

It should be noted that boats less than 16' include a wide range of boats such as canoes, kayaks, rafts, row boats, and small power craft. Although it is generally accepted that these boats rarely have either an installed or portable toilet, the boat users are still in need of easily accessible toilet facilities near water resources.

Most of the larger recreational boats, cruise the waters of Puget Sound. According to *Sound Watch: an Environmental Guide for Boaters*, 50,000 boats are permanently moored in the Puget Sound region. This region extends from Olympia in the south all the way to the U.S, Canada border in the north and includes Hood Canal. Of course, many other bodies of water in Washington command boater attention. Major ones include the Pacific Ocean, Lake Washington, Lake Union, Franklin D. Roosevelt Lake, Lake Chelan, Columbia River, Snake River, and the Strait of Juan de Fuca.



Whether it's river, lake, or ocean, water is the boater's medium:

- Approximately 21 percent of all individuals who participate in sailing in the United States live in the Pacific Region (Washington, Oregon, and California).
- Of the estimated 252,000 sailing participants residing in the Pacific Region, 32 percent sail frequently (10+ days per year). An additional 40 percent sail occasionally (3-9 days per year).
- Approximately 13 percent of all individuals who participate in power boating in the United States live in the Pacific Region.
- Of the estimated 2,770,000 power boating participants, approximately 30 percent participate frequently (20+ days per year). An additional 38 percent participate occasionally (5-19 days).
- In Washington State in 1993, an estimated 404,000 individuals participated in power boating. Over 29 percent participated frequently (20+ days per year) and 43 percent participated occasionally (5-19 days per year). No comparable figures are available for sailing.

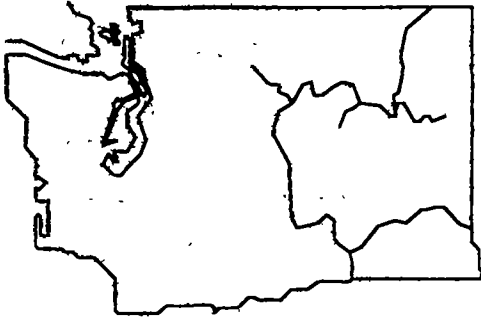
Source: adapted from the National Sporting Goods Association's reports *Sports Participation in 1993 - Series I, Series II, and State-by-State*.

Washington is known for the rich diversity of its waters. From the pristine San Juan Islands to the powerful Columbia River, one finds boating and boating facilities throughout the state. According to the Northwest Marine Trade Association, the boating industry contributes about \$3 billion annually to Washington State's economy. (IAC, 1994) Washington Sea Grant estimates that in 1989 there were 349 marinas in Washington State with at least one marina in each of Washington's 39 counties. The table below identifies the number of marinas in each of Washington's counties.

Number of marinas in each county as of 1989 (Washington Sea Grant, 1991)

COUNTY	NUMBER OF MARINAS	COUNTY	NUMBER OF MARINAS
San Juan	29	Klickitat	2
Skagit	18	Benton	5
Whatcom	16	Chelan	10
Snohomish	13	Stevens	7
Jefferson	12	Lincoln	3
Clallam	16	Grant	6
Island	6	Whitman	1
Kitsap	26	Spokane	4
King	84	Asotin	2
Mason	14	Franklin	2
Pierce	29	Columbia	1
Thurston	11	Garfield	1
Wahkiakum	1	Walla Walla	1
Skamania	1	Okanogan	3
Pacific	8	Ferry	1
Cowlitz	2	Pend Oreille	1
Grays Harbor	5	Douglas	1
Clark	5	Unknown	2

In a 1994 survey of public lands managers conducted by the Interagency Committee for Outdoor Recreation, 38 percent of the respondents felt that participation in power boating in Washington State would increase over the next five years, 32 percent felt that sailing would increase, and 46 percent felt that canoeing and kayaking would increase.



Boat Sewage Management

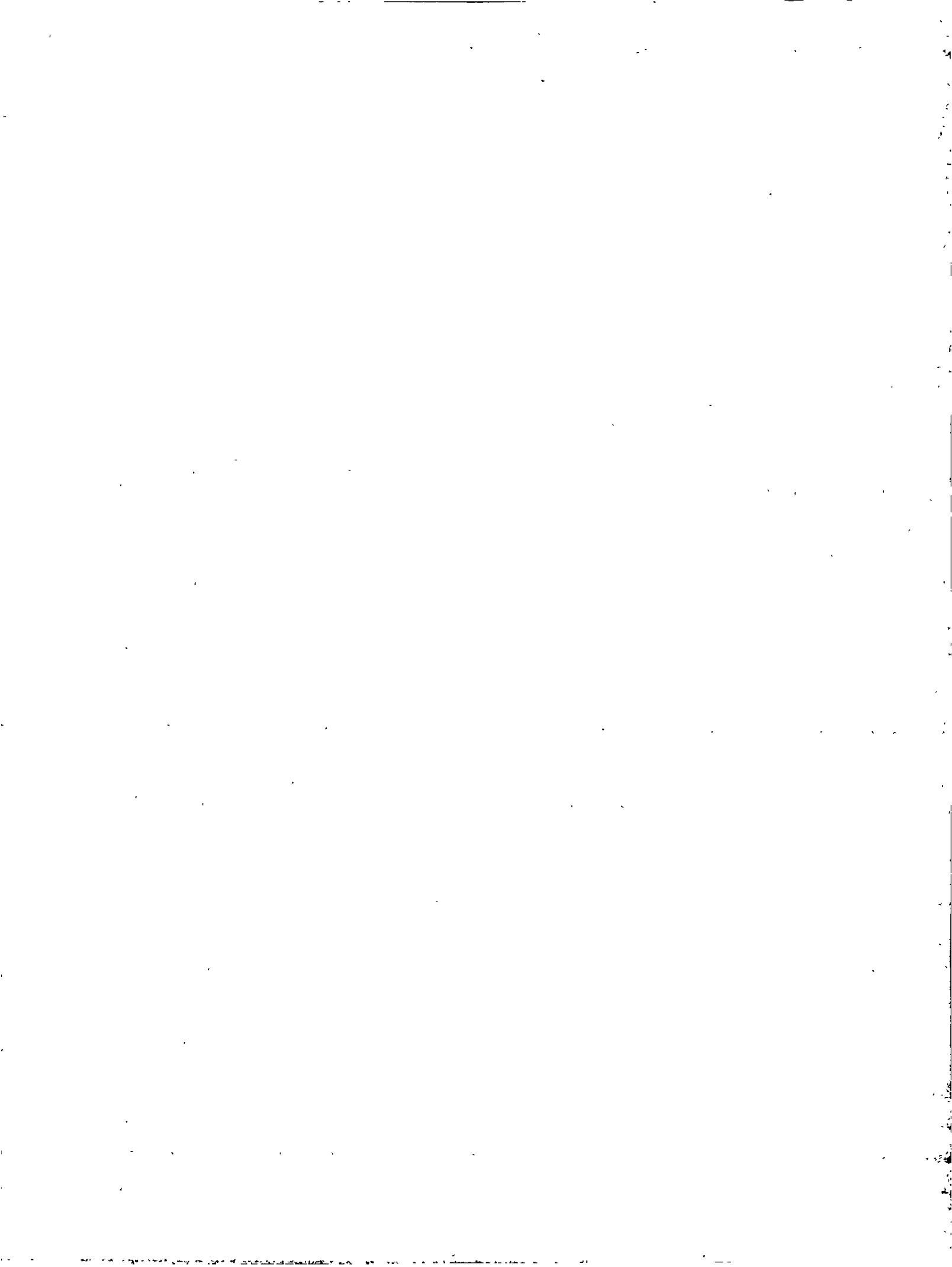
Where are we now?

Perhaps the need for pumpouts and dumpstations is no where more pronounced than in the San Juan Islands. Among this collection of 170 beautiful islands located in the northwestern portion of Washington State are eleven marine state parks accessible only by boat, one state park offering both land and water access, twenty islands and tidelands which are owned by the State but undeveloped, and 84 rocks and islands which are set aside as part of the San Juan Island National Wildlife Refuge. In this boater "wonderland" are only three pumpout sites - Port of Friday Harbor, Stuart Island, and West Sound Marina. And in site visits to all the marine parks and several of the marinas only two dump stations were found.

Findings from site visits conducted as a part of the 1995 Comprehensive Boat Sewage Management Plan

This section of the plan is focused on providing a clear and comprehensive picture of the current state of boat sewage management in Washington State. It begins by addressing the classic *who, what, where, when and how* questions. It then goes on to provide information about the working condition of existing pumpouts, their accessibility and visibility, fees charged, dumpstation availability, and sewage disposal methods.

The information in this section is supplemented with Appendix A which includes a pictorial portfolio of the 80 existing pumpout facilities and detailed information about the 1995 pumpout installation/improvement grant projects of Washington State Parks.



The provision of pumpouts is a dynamic process. Frequently, new facilities are added and existing facilities changed. Thus, existing inventories are constantly evolving. But, a clear understanding of what exists today is a requirement for understanding what may be needed in the future.

The first step taken to understand the current state of boat sewage management was to confirm the existence of previously identified facilities with pumpouts that are open to the general boating public. To do this, two publications - *The Washington State Boater's Guide* produced by Washington State Parks and *Sound Watch, An Environmental Guide for Boaters* published by 48° North were used to develop an initial list of existing facilities. Site visits were made to all of these locations to confirm the information.

The second step was to identify any existing public pumpouts that were not previously identified. To do this, site visits were made to numerous marine facilities - boat ramps, parks, marinas, docks, etc. in an effort to "discover" previously unidentified pumpouts. The table below summarizes the findings from these visits.

Updated data on number of public pumpout facilities in Washington State based on the *Washington State Boater's Guide*, 1992

Previously identified facilities	+	New and/or previously unidentified facilities	-	Facilities previously identified but no pumpout located upon site visit	=	1994 Update
71	+	19	-	10	=	80

The facilities previously identified in the *Washington State Boater's Guide* (1992) as having pumpouts but deleted from the 1994 listing are included in the table below.

Facilities deleted from the *Washington State Boater's Guide*, 1992

PREVIOUSLY IDENTIFIED FACILITY	LOCATION
Anacortes Marina	Anacortes
Bridgeport Marina	Bridgeport
Captain Coup Park	Coupeville - Whidbey Island
Crescent Bar Resort	Quincy
Harbour Marina*	Bainbridge
Island Marina	Lopez Island
Mel Bay/Chelan PUD	Lake Chelan
Murphy's Landing Marina*	Gig Harbor
Olsen's Resort	Seki
Winslow Wharf Marina*	Winslow

*facilities with pumpouts but the pumpouts are not open to the general public

Two facilities included in the *Washington State Boater's Guide*, 1992 use a different name and the pumpout identified at one site is actually located at the site next door. These changes are identified in the table below.

Miscellaneous changes to the *Washington State Boater's Guide*, 1992

OLD FACILITY NAME	NEW FACILITY NAME
Boat Haven	Port Townsend Boat Haven
Manson Parks and Recreation Department	Old Mill Park
Point Defiance Marina	Point Defiance Boat Ramp

The facilities that are new and/or previously not listed in the *Washington State Boater's Guide*, 1992 but were added to the 1994 listing are included in the table below.

New and/or previously unlisted facilities added to the *Washington State Boater's Guide*, 1992

<u>NEW FACILITY</u>	<u>LOCATION</u>
Arabella's Landing Marina	Gig Harbor
Bainbridge Island City Dock	Bainbridge Island
Berg's Marina	Seattle
Charbonneau Park	Lake Sacajawea (Snake River)
Chief Timothy State Park	Lower Granite Lake (Snake River)
Deception Pass State Park	Cornet Bay
Elochoman Slough Marina	Cathlamet
Fishermen's Terminal	Ship Canal (Seattle)
Fort Spokane	Franklin D. Roosevelt Lake
Keller Ferry Marina	Franklin D. Roosevelt Lake
Kettle Falls	Grand Coulee Natl. Rec. Area
Marine Servicenter	Anacortes
Port of Everett Boat Ramp	Everett
South Lake Union Moorage	Lake Union
Spring Canyon	Franklin D. Roosevelt Lake
Ten Mile	Franklin D. Roosevelt Lake
Twanoh State Park	Union
Westbay Marina	Olympia
West Sound Marina	Orcas Island

With this information in hand, a complete listing of the facilities which have pumpouts open to the general public was developed. This listing, in alphabetical order, is included in the table on the next page. Details about each facility are included in Appendix A.

As stated earlier, establishing pumpouts is a dynamic process with new pumpout facilities being added all the time. In the fall 1994, Washington State Parks approved grants to assist with the 1995 replacement and/or new installation of pumpouts at fourteen facilities. Eight of these facilities have not offered pumpout services to the general public before. These eight new facilities are listed in the table below. Details about these facilities as well as other 1995 Washington State Parks pumpout grantees are included in Appendix A.

Facilities installing first-time pumpouts in 1995

<u>FACILITY</u>	<u>LOCATION</u>	<u>REGIONAL LOCATION</u>
Crow's Nest Marina	Tacoma	south Puget Sound
Island Marine Center	Lopez Island	San Juan Islands
Johnny's Dock Marina	Tacoma	south Puget Sound
Langley Small Boat Harbor	Whidbey Island	north Puget Sound
Modutech Marine, Inc.	Tacoma	south Puget Sound
Pick's Cove Marina	Tacoma	south Puget Sound
Shelton Yacht Harbor	Shelton	south Puget Sound
Tyce Marina	Tacoma	south Puget Sound

Complete listing of existing public pumpout facilities in Washington State

FACILITY	LOCATION	REGIONAL LOCATION
Alderbrook Inn	Hood Canal	south Puget Sound
Arabella's Landing Marina	Gig Harbor	south Puget Sound
Bainbridge Island City Dock	Bainbridge Island	central Puget Sound
Ballard Mill Marina	Ballard	central Puget Sound
Berg's Marina	Lake Union	central Puget Sound
Blaine Harbor	Blaine Harbor	north Puget Sound
Blake Island State Park	Blake Island	central Puget Sound
Boyer Park and Marina	Colfax (Snake River)	central/eastern Wash.
Bremerton Marina	Bremerton	central Puget Sound
Cap Sante Boat Haven	Anacortes	north Puget Sound
Carillon Point Marina	Lake Washington	central Puget Sound
Central Ferry State Park	Pomeroy (Snake River)	central/eastern Wash
Chandler's Cove	Lake Union	central Puget Sound
Charbonneau Park	Lake Sacajawea (Snake River)	central/eastern Wash
Chief Timothy State Park	Lower Granite Lake (Snake River)	central/eastern Wash
City of Des Moines Marina	Des Moines	south Puget Sound
Columbia Point Marina	Richland (Columbia River)	central/eastern Wash
Deception Pass State Park	Cornet Bay	north Puget Sound
Dockton County Park	Quartermaster Harbor	south Puget Sound
Eagle Harbor Marina	Bainbridge Island	central Puget Sound
East Bay Marina	Olympia	south Puget Sound
Elliott Bay Marina	Seattle	central Puget Sound
Elochoman Slough Marina	Cathlamet (Columbia River)	southwest Wash
Fisherman's Terminal	Ship Canal (Seattle)	central Puget Sound
Fort Spokane	Franklin D Roosevelt Lake	central/eastern Wash
Harbor Island Marina	Seattle	central Puget Sound
Harbour Village Marina	Lake Washington	central Puget Sound
H C Henry Pier	Lake Union	central Puget Sound
Jarrell Cove State Park	Shelton	south Puget Sound
Jarrell's Cove Marina	Shelton	south Puget Sound
John Wayne Marina	Strait of Juan de Fuca	north Puget Sound
Keller Ferry Marina	Franklin D Roosevelt Lake	central/eastern Wash
Kettle Falls	Franklin D Roosevelt Lake	central/eastern Wash
Kettle Falls Marina	Franklin D Roosevelt Lake	central/eastern Wash
La Conner Marina	Swinomish Slough	north Puget Sound
Lakeshore Marina	Lake Chelan	central/eastern Wash.
Marina Mart Moorings	Lake Union	central Puget Sound
Marine Servicenter	Anacortes	north Puget Sound
Metz Marina	Kennewick (Columbia River)	central/eastern Wash
Mystery Bay State Park	Nordland (Kilistut Harbor)	north Puget Sound
Oak Harbor Marina	Whidbey Island	north Puget Sound
Old Mill Park	Lake Chelan	central/eastern Wash
Parkshore Marina	Lake Washington	

The next step taken to understand the current state of boat sewage management was to evaluate existing pumpouts in terms of a number of important variables. These variables included number of pumpouts, location, types, ownership, working condition, accessibility and visibility, fees, dumpstation availability, and sewage disposal methods.

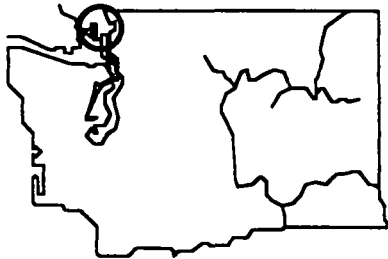
Number of Pumpout Units

Currently in Washington State there are 80 facilities with public pumpouts. Some of these facilities have more than one pumpout unit. Of the 80, 71 have one pumpout, 8 have two pumpouts, and 1 has three pumpouts. Thus, the total pumpout units available for public use is 90.

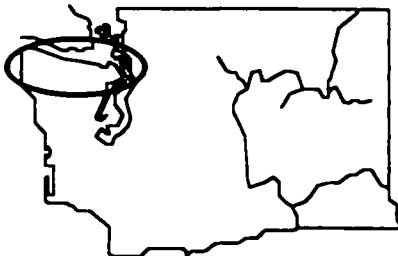
Location of Pumpout Facilities

For planning purposes, the State of Washington has been divided into six regions. These regions and the number of facilities with public pumpouts are identified in the figure below.

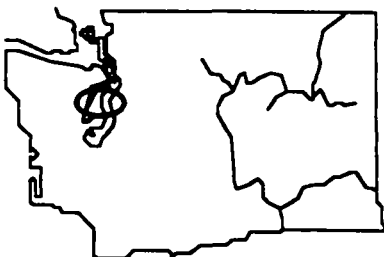
Identification of plan's regions and associated number of pumpout facilities within each region



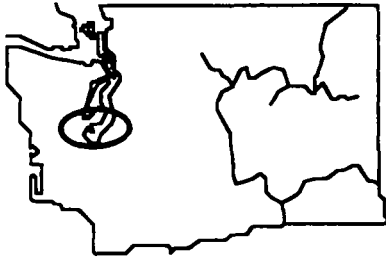
Region: San Juan Islands
 Includes: all of the San Juan Islands within San Juan County
 Number of sites with public pumpouts: 3



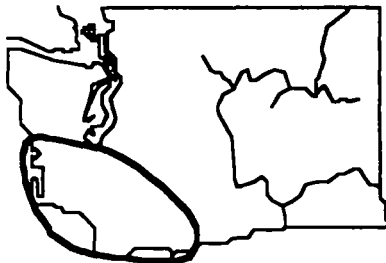
Region: north Puget Sound
 Includes: Puget Sound from Point Roberts in the north to Everett in the south, Strait of Juan de Fuca, north Pacific coast, north Hood Canal
 Number of sites with public pumpouts: 17



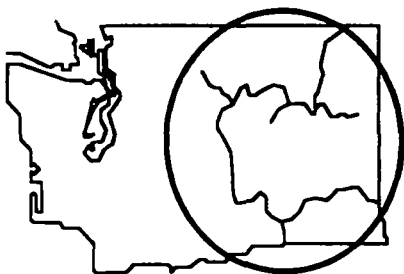
Region: central Puget Sound
 Includes: Puget Sound from Edmonds in the north to West Seattle in the south, central Hood Canal, Lake Washington, Lake Union, Ship Canal
 Number of sites with public pumpouts: 24



Region: south Puget Sound
Includes: Puget Sound from Des Moines in the north to Olympia in the south, south end of Hood Canal
Number of sites with public pumpouts: 12



Region: southwest Washington
Includes: Pacific coast from Ocean Shores to Ilwaco, Columbia River from the Pacific Ocean east to Goldendale
Number of sites with public pumpouts: 7



Region: central and eastern Washington
Includes: Columbia River (east of Goldendale), Snake River, Lake Chelan, Franklin D. Roosevelt Lake
Number of sites with public pumpouts: 17

Ownership

The public sector is the largest owner of publicly accessible pumpouts in Washington State. Public owners include six different government agencies ranging from local cities to the National Park Service. The private sector is also a significant provider of public pumpout facilities, owning and operating approximately 36 percent of the total facilities available. The table below outlines the ownership patterns of pumpout facilities in Washington State.

Ownership of the 80 pumpout facilities in Washington State

<u>OWNER</u>	<u>NO OF FACILITIES</u>	<u>PERCENT OF TOTAL FACILITIES</u>
privately owned	29	36 percent
Ports	26	33 percent
Washington State Parks	8	10 percent
Cities	7	9 percent
National Park Service	5	6 percent
NPS agreements with private operators	3	4 percent
County	1	1 percent
U.S. Army Corps of Engineers	1	1 percent

Types of Pumpout Units

As established earlier, there are 80 facilities in Washington State which have pumpouts available for public use. Among these 80 facilities are a total of 90 pumpout units. The table below identifies the types of units available.

<u>TYPE OF PUMPOUTS</u>	<u>NO. OF UNITS</u>
stationary units on fixed or floating docks	78
portable units capable of being wheeled to/from moored vessels	9
barges with stationary units	3

The nine portable units are located at the following facilities:

Ballard Mill Marina	Port of Brownsville
Bremerton Marina	Port of Friday Harbor
Cap Sante Boat Haven	Semiahmoo Marina
Eagle Harbor Marina	Westbay Marina
Pleasant Harbor Marina	

The three barges are located at Oak Harbor Marina, Port of Friday Harbor, and Stuart Island. The barge at Stuart Island has a manually-powered pumpout. The barge is owned and operated by Washington State Parks. Washington State Parks also owns an additional barge which was constructed at the same time as the Stuart Island barge. The second barge is in storage and currently not available for public use. However, this plan includes as a recommendation to install the barge at Sucia Island. The barge at Oak Harbor Marina features two pumpouts and two restrooms, one of the restrooms is wheelchair accessible. The barge at the Port of Friday Harbor has two pumpouts both of which are solar-powered.

Of the 90 existing pumpouts, seven are stationary units that are manually-powered. Five of these seven are affixed to floating docks which are moored to pilings out in open water, one is affixed to a floating dock which is moored to an existing dock, and one is affixed to a barge. All of the manually-powered pumpouts are owned by Washington State Parks and the National Park Service.

Working Condition of Existing Pumpouts

In the fall 1994, site visits were made to all of the existing pumpout facilities. During each site visit a "bucket test" of the pumpout was conducted if possible. The bucket test consisted of priming the pump (if necessary) and then using the pumpout to empty four gallons of water from a bucket. After first being primed, the length of time it took the pumpout to empty the bucket was measured. According to the results of the test, each pumpout was classified as follows:

<u>No. of seconds required to empty 4 gallon bucket</u>	<u>Classification</u>
1 - 15 seconds	good working condition
16-30 seconds	passed the test but with difficulty
over 30 seconds or inoperable	not working

"Bucket tests" were conducted on approximately two-thirds of the 90 existing pumpouts. Results are summarized below:

Total "bucket tests" performed: 61

Classifications of pumpouts: 33 were in *good working condition* (54%)
10 *passed the test but with difficulty* (16%)
18 were *not working* (30%)

Among the 33 units in *good working condition*, the fastest pumpout took four seconds to empty the bucket with ten seconds as the average for this group. Among the 10 units that *passed the test but with difficulty*, the range was 17-27 seconds with an average of 21 seconds. Among the 18 units *not working*, 6 emptied the bucket within 35 - 42 seconds and 12 were inoperable.

In 1993 the State of Washington Department of Health conducted a Marine Pumpout Survey in which 26 pumpouts were tested. The Department of Health reported that 70 percent of the pumpouts selected for the survey were found to be working properly at the time of the inspection.

Accessibility

A second objective of the site visits to existing pumpout facilities was to evaluate pumpouts in terms of accessibility.

Factors used in evaluating accessibility were:

- dock/barge can accommodate at least a 36' vessel
- pumpout area is not used for overnight or extended moorage
- there is an adequate turning basin to accommodate at least a 36' vessel
- pumpout area is clear of debris, equipment, etc. which might hinder pumpout usage
- pumpout hoses reach boats moored to pumpout station
- water at pumpout station is deep enough to accommodate large vessels
- unit is available for use 24 hours, 7 days a week (except for winter closures)

The accessibility of a pumpout was generally considered "good" if it satisfied at least five of the six criteria and partially satisfied the remaining criterion, "fair" if it satisfied four of the six criteria and partially satisfied the remaining criteria, and "poor" if it satisfied less than four of the criteria or did not at least partially satisfy all of the criteria. A summary of accessibility ratings is included in the table below.

Accessibility ratings for the 90 existing pumpout units in Washington State

<u>RATING</u>	<u>NO OF UNITS</u>	<u>PERCENT OF UNITS</u>
good	72	80 percent
fair	11	12 percent
poor	4	4 percent
unknown	3	3 percent

The most frequent accessibility problem related to closures. Of the 90 pumpouts, 14 are open only during marina office hours. This sometimes means daylong closures on Sundays, a popular boating day.

Visibility

A third objective of the site visits to existing pumpout facilities was to evaluate pumpouts in terms of visibility.

Factors used in evaluating visibility were:

- the pumpout unit is clearly marked as a pumpout
- there is additional pumpout identification such as a sign post, dock markings, etc.
- the pumpout is located in an identifiable place such as the fuel dock, entrance to the marina, end of transient dock, etc.
- the pumpout is located in an area with adequate night lighting

The visibility of a pumpout was generally considered "good" if it met at least three of the four criteria above, "fair" if it met two of the four criteria, and "poor" if it met only one or none of the criteria above. A summary of visibility ratings is included in the table below.

Visibility ratings for the 90 existing pumpout units in Washington State

<u>RATING</u>	<u>NO. OF UNITS</u>	<u>PERCENT OF UNITS</u>
good	56	62 percent
fair	15	17 percent
poor	16	18 percent
unknown	3	3 percent

As the tables above indicate, the accessibility of existing pumpouts is better than the visibility of the pumpouts. In many cases signage was limited to the manufacturer's identification on the pumpout unit. In some cases, pumpouts were stored in unmarked boxes with no identifiable markings or signage at all.

Fees for Pumpout Use

Of the 80 pumpout facilities, 65 of them offer free use of their pumpout(s), 13 charge from \$.25/2 minutes to \$25 per pumpout, and one has both free pumpouts and a quarter-operated pumpout.

Of the 14 pumpout units that charge for use, only three of them are publicly owned - the Port of Friday Harbor (.25/2 minutes), Fishermen's Terminal (.25/2 minutes), and the Port of Kalama (\$1.00).

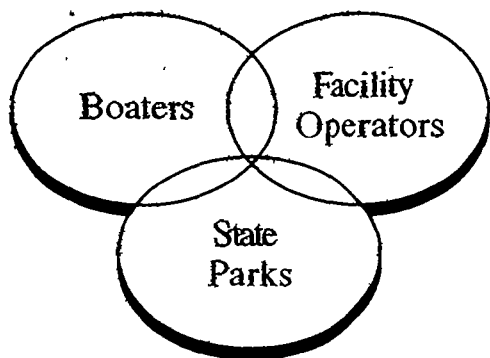
As part of a Washington State Parks program that was instituted in 1988/89, eighteen pumpouts sites were established. A stipulation of funding through that program was that the pumpout be free-of-charge to users. According to State Parks, all of these free-use facilities still exist today. Additionally, there is no charge for any of the seven pumpouts on Franklin D. Roosevelt Lake. The National Park Service which operates the Grand Coulee National Recreation Area which includes the entire Franklin D. Roosevelt Lake, does not charge for its pumpouts and does not allow private operators on the lake to charge for pumpout use.

Availability of Dumpstations

Of the 90 existing pumpout units, 35 have adjacent dumpstations and 4 have adjacent toilets which may be used as dumpstation substitutes. The remaining 51 pumpout units do not have adjacent dumpstations.

Sewage Disposal

Of the 80 pumpout facilities, 51 dispose of the sewage through the community's sewer system, 11 have their own septic system, 10 have holding tanks from which the sewage is pumped to trucks or barges and hauled away (primarily by private vendors), 2 have their own sewage treatment systems, and 1 uses the city sewer line for one pumpout and has the sewage from the other pumped to a truck and hauled away. It is not known how 5 of the 80 facilities dispose of their sewage.



Public Input

During the planning process a high priority was placed on involving boaters, facility operators, and government representatives in suggesting how to improve boat sewage management in Washington State. As part of the planning process, a boater survey, facility operator survey, interviews, and a Think Tank were used to gather ideas. This section of the report focuses on presenting the highlights of this public involvement. It is presented in three parts, as outlined below.

Boater Survey

The boater survey was an informal survey of 201 boaters from throughout Washington State. The questions focused on sewage management practices, attitudes, and recommendations.

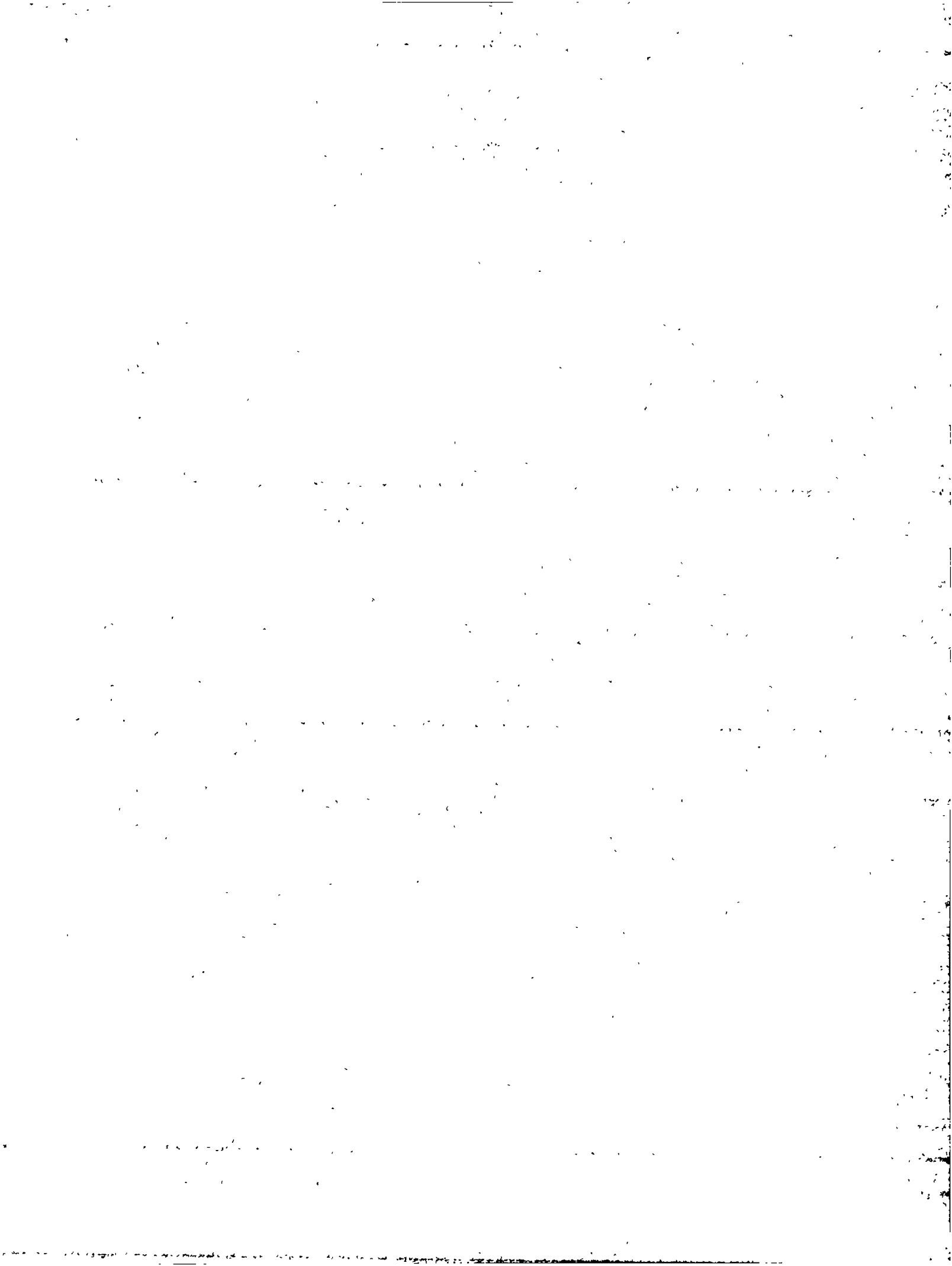
Boating Facility Operator Survey

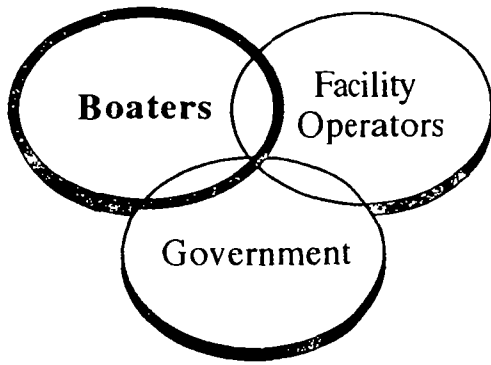
The operator survey involved 48 boating facility operators from throughout Washington State. Survey questions explored boat sewage management facilities/services in terms of their availability, accessibility, problems, use patterns, and improvement needs.

Agency Interviews and Involvement

During the planning process, interviews were conducted with several agency representatives to gain insight into how other states approach boat sewage management. The agencies involved in the interviews were the Oregon State Marine Board, Idaho Department of Parks and Recreation, Pennsylvania Fish and Boat Commission, Vancouver (British Columbia) Health Department, Maryland Department of Natural Resources, and Massachusetts Department of Fisheries, Wildlife, and Environmental Enforcement.

Additionally, a boat waste management *Think Tank* involving 19 representatives from boating related agencies and organizations in Washington State was held during the planning process. The *Think Tank* focused on identifying issues to be addressed over the next five years in terms of boat sewage management in Washington State.





Boaters...

What do they have to say?

An informal boat sewage management survey involving 201 boaters from throughout Washington State was conducted between August and October 1994. The goals of the survey were to gather information from boaters about their practices and preferences and get their ideas on improving boat sewage management. In total, boaters in 35 different locations throughout the state participated in the survey.

The following pages include highlights of the survey responses. The survey instrument and detailed analysis of the responses are included in Appendix B.

INTRODUCTION

An informal boat sewage management survey involving 201 boaters from throughout Washington State was conducted between August and October 1994. In total, boaters in 35 different locations throughout the state participated in the survey.

The survey involved the completion of a written questionnaire. Boaters were asked to participate in the survey process through face-to-face contact with an interviewer. If the boater consented, he/she was given a questionnaire to complete. The interviewer returned to pick up the completed questionnaire in approximately ten minutes. Most of the questionnaires were self administered with the exception of a few cases in which an interviewer read the questions aloud and recorded the boaters' responses.

The questionnaire contained 16 questions. The questions were primarily focused on boat sewage management practices, attitudes, and recommendations. In addition, two questions related to marine pollution observations and threats. These two questions replicated two of the questions asked in the 1988 Boater Survey conducted by Washington State Parks and Washington Public Ports Association.

The survey instrument, data collected, and analysis of the data follow this introduction. The listing below identifies each of the 35 facilities and number of questionnaires collected at each facility.

Places where boaters were surveyed and number of questionnaires completed

Port of Friday Harbor	35	Alderbrook	4
Sucia Island	11	Jarrell Cove State Park	4
Doe Island	1	Jarrell's Cove Marina	6
Deer Harbor	6	Pleasant Harbor	8
Marina Mart	1	Port Ludlow	11
Port of Edmonds	1	Poulsbo	22
Parkshore	1	Ilwaco	1
Harbor Island	1	Westport	1
Point Hudson	1	Beacon Rock State Park	3
Carillon Point	2	Port of Camas/Washougal	3
Des Moines	6	Elochoman Marina(Cathlamet)	3
Shilshole Bay Marina	11	Olympia-East Bay Marina	1
Port of Kalama	2	Unknown	2
Steamboat Landing	2	Blake Island	25
H.C. Henry Pier	1	Charbonneau State Park	2
Elliot Bay	8	Red Wolf - Clarkston	1
Oak Harbor	1	Columbia Point - Richland	3
Port Orchard	10		

HIGHLIGHTS

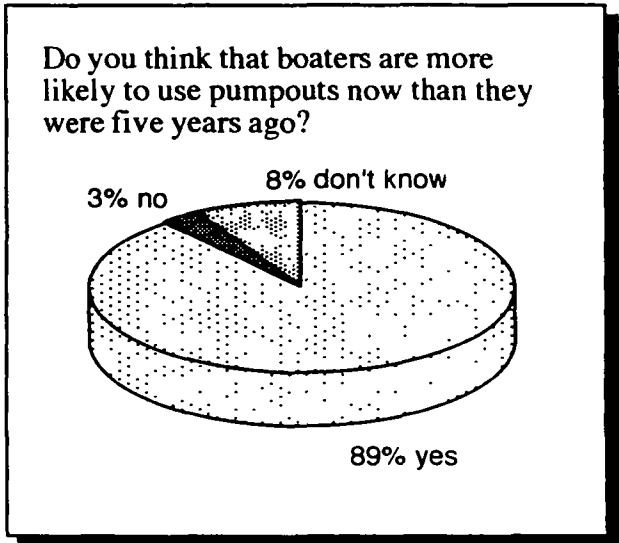
These highlights are selected from the boater survey conducted as part of the planning process. They provide boater perspectives on boat sewage management practices, needed pumpout improvements, boater education, and pollution.

Although the boater survey provides important information to consider and use for directional purposes, specific findings should not be considered statistically representative of the general population of boaters in Washington State.

The survey instrument and an analysis of the responses to the questions are included in Appendix B.

BOAT SEWAGE MANAGEMENT PRACTICES

- Sixty-six percent of the boaters interviewed use pumpouts more often than discharging into the water, twenty-three percent discharge into the water more often than using pumpouts.
- Fifty percent of those interviewed felt that boaters with holding tanks use pumpouts regularly, thirty-nine percent felt they use them sometimes.
- Eighty-nine percent of those interviewed felt that boaters are more likely to use pumpouts now than five years ago.



PUMPOUT IMPROVEMENTS NEEDED

- There is a high need for more pumpouts and a moderate-high need to improve the working conditions of pumpouts.
- The need for repair/better maintenance was the most frequently identified improvement needed for existing pumpouts.
- The need for better access/location of existing pumpouts was frequently identified.

Rank order and average rating of need for pumpout improvements

<u>RANK</u>	<u>IMPROVEMENT</u>	<u>AVERAGE RATING OF NEED</u>
1	more pumpouts	high
2	pumpouts in good working condition when I need to use them	moderate-high
3	easier access to pumpout station	moderate
4	lower cost (e.g. reduced or no user fees)	moderate
5	more convenient hours of operation	moderate
6	better designed pumpout facilities or holding tanks that would make it easier to pump out	moderate
7	shorter waiting lines at pumpouts	moderate
8	availability of a portable pumpout that I could bring to my boat	moderate-low
9	availability of a pumpout service that comes to my boat and does it for me	low

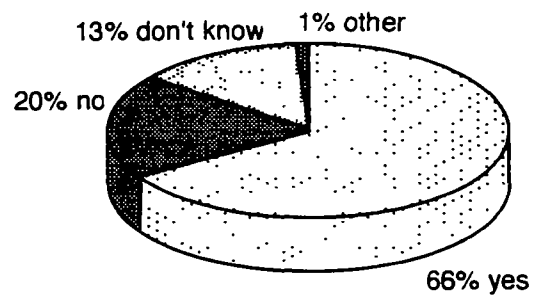
NEED FOR BOATER EDUCATION

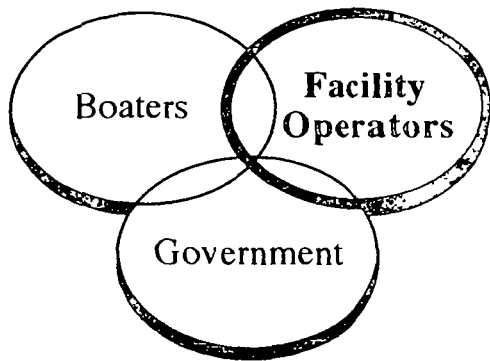
- A majority (66 percent) felt that more boater education is needed to encourage boaters to use pumpouts.

POLLUTION PERSPECTIVES

- Forty-eight percent of those interviewed felt that sewage discharge was a threat to the waters they boat in.

Do you think more boater education is needed to encourage boaters to use pumpouts?





Facility Operators...

What do they have to say?

An informal boat sewage management survey involving 48 boating facility operators from throughout Washington State was conducted between August and October 1994. The goal of the survey was to gather information from facility operators about the current state of boat sewage management in Washington State. Operators were asked to share details about the services they offer, information about the problems they encounter in offering pumpout services, their perspectives on boater practices, and their ideas for improving boat sewage management.

The following pages include highlights of the survey responses. The survey instrument and detailed analysis of the responses are included in Appendix C.

INTRODUCTION

An informal boat sewage management survey involving 48 boating facility operators from throughout Washington State was conducted between August and October 1994. During site visitations, marina operators were given a written questionnaire and a return-addressed, stamped envelope and asked to complete and return the questionnaire.

The questionnaire contained 34 questions. The questions explored boat sewage management facilities/services in terms of their availability, accessibility, problems, use patterns, and improvement needs.

In total, 48 operator questionnaires were completed and returned. These returns came from the San Juan Islands (2), north Puget Sound (12), central Puget Sound (20), south Puget Sound (4), southwest Washington (7), and central and eastern Washington (3). The following is a listing of facilities participating in the operator survey. Of the 48 facilities responding, 44 had pumpouts and 4 did not (indicated with an *).

West Sound Marina	Orcas Island	H.C Henry Pier	Seattle (Lake Union)
West Beach Resort	Orcas Island	Port of Kingston	Kingston
Port of Everett	Everett	Murphy's Landing Marina	Gig Harbor
Fidalgo Marina	Anacortes	Parkshore Marina	Seattle (Lake Washington)
Manne Service Center	Anacortes	Pleasant Harbor Marina	Brinnon
Skyline Marina	Anacortes	Port Orchard Marina	Port Orchard
Squalicum Harbor - Port of Bellingham	Bellingham	Shulshole Bay Marina	Seattle
John Wayne Marina	Port Angeles	Harbour Village Marina	Seattle (Lake Washington)
Port Angeles Marina	Port Angeles	South Lake Union - Limited Partnership	Seattle (Lake Union)
Port Townsend Boat Haven	Port Townsend	Arabella's Landing Marina	Gig Harbor
Port Hudson*	Port Townsend	East Bay Marina	Olympia
Seabeck Marina*	Seabeck	Jarrell Cove State Park	Shelton
Port Ludlow Marina	Port Ludlow	City of Des Moines Marina	Des Moines
Oak Harbor Marina	Oak Harbor, Whidbey Island	Port of Camas/Washougal - Marina	Washougal
Bergs Marina	Seattle (Lake Union)	Elochoman Marina - Wahkiakum Co Port District	Cathlamet
Blake Island State Park	Blake Island	Port of Ilwaco	Ilwaco
Bremerton Marina	Bremerton	Port of Peninsula	Ocean Park
Port of Brownsville	Bremerton	Steamboat Landing Marina	Vancouver
Carillon Point	Kirkland (Lake Washington)	Boyer Park and Marina	Colfax
Chandler's Cove	Seattle (Lake Union)	Red Wolf Marina	Clarkston
Eagle Harbor Marina	Bainbridge Island	Beacon Rock State Park*	Skamania
Port of Edmonds	Edmonds	Tokeland Marina*	Tokeland (Pacific County)
Elliott Bay Marina	Seattle	Central Ferry State Park	Pomeroy
Harbor Island Marina	Seattle (Duwamish River)	Semahmoo Marina	Blaine

HIGHLIGHTS

These highlights are selected from the facility operator survey conducted as part of the planning process. They provide operator perspectives on pumpout facilities, use, fees, condition, maintenance and operation, and boat sewage management practices.

Although the operator survey provides important information to consider and use for directional purposes, specific findings should not be considered statistically representative of the general population of facility operators in Washington State.

The survey instrument and an analysis of the responses to the questions are included in Appendix C.

PUMPOUT FACILITIES

- Most facility operators did not plan to change their existing pumpout facilities/services. Among those that were planning a change, the two most common plans were to replace the existing unit and to add a new type of system or an additional pumpout. No operators planned to eliminate their pumpout.

PUMPOUT USE

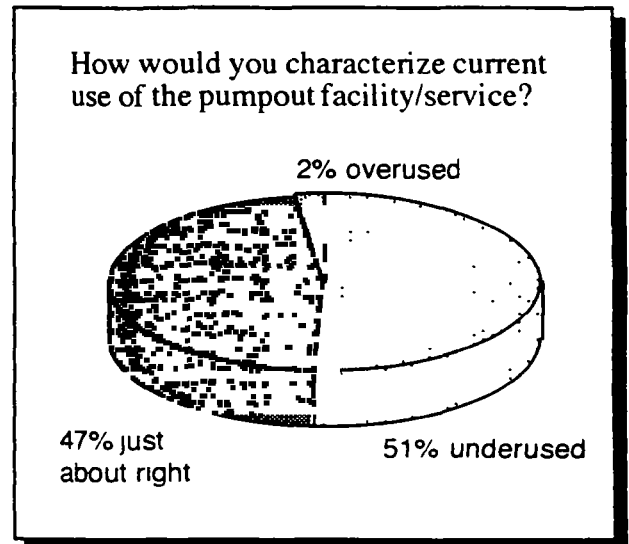
- Fifty-one percent of the operators felt their pumpouts were *underused*. Only two percent felt their pumpouts were *overused*.
- Seventy-one percent of the operators reported that the use of their pumpout has increased over the last few years. The remaining felt the use had stayed about the same. There were no reports that use had decreased.
- Reasons given for increased use of pumpouts were increased boater awareness and education and awareness of availability of a pumpout at a given location.

FEES FOR PUMPOUT

- Most facilities (79%) do not charge for the use of their pumpout and almost all of these facilities did not plan to institute a fee in the next two years.

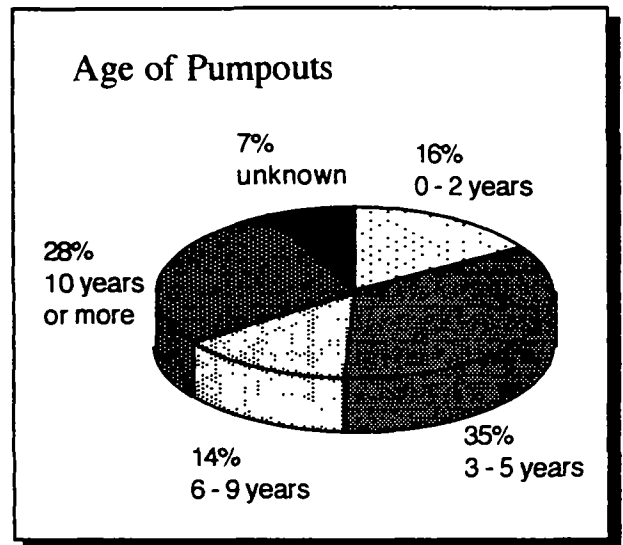
SEWAGE TREATMENT

- The most common method of disposing of waste was via sewer pipeline (76 percent).
- Only four of the operators reported problems with disposal of pumpout waste. Two of these operators indicated that the problem was associated with the high cost of trucking the sewage to a waste treatment site.



CONDITION OF PUMPOUT

- Although the majority of pumpouts were installed during the past five years, over one-fourth were installed ten or more years ago.
- Seventy-three percent of the operators rated the general condition of their pumpout/dump station as good.
- The most common maintenance problems reported were plugged/clogged, broken or leaking hoses, poor suction, and broken or missing nozzles.
- Sixty percent of the operators reported that their pumpout was out-of-order at least once during the past year. Of these, the average number of times the pumpout was out of order was 3.7 times.
- The average number of days a pumpout is out-of-order before it is repaired is 2.29 days.

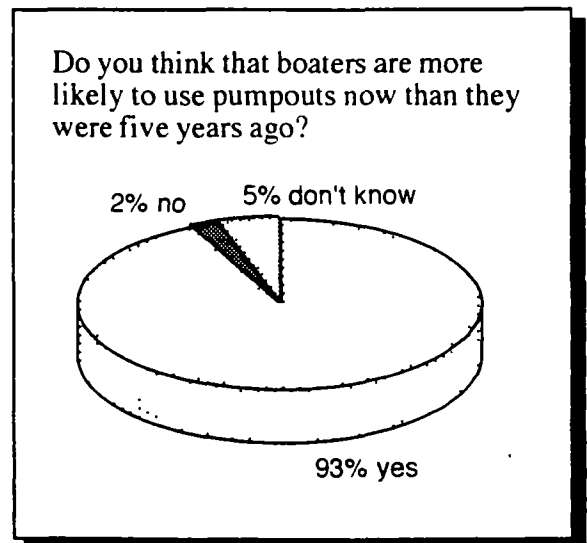


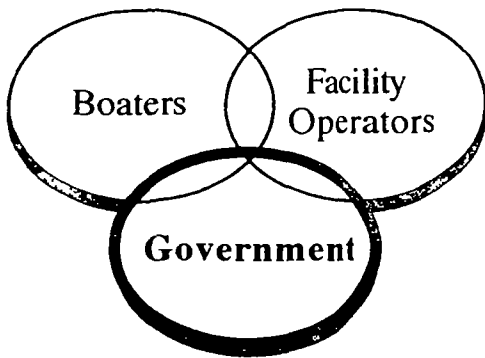
PUMPOUT MAINTENANCE AND OPERATION

- The most commonly needed improvements to pumpout facilities were more boater understanding of how to use pumpouts, better designed pumpouts so that they are easier for boaters to use, and equipment that doesn't break down as often.
- The most common "dislikes" that operators expressed about pumpouts were maintenance/servicing requirements, odor, and pumpout and/or boat design problems.

BOATER SEWAGE MANAGEMENT PRACTICES

- Almost all of the facility operators (93 percent) felt that boaters are more likely to use pumpouts now than five years ago.
- When asked, "How often do you think most boaters with holding tanks use pumpouts?" fifty-four percent chose the response *sometimes*, 23 percent chose *regularly*, 18 percent chose *rarely*, and 5 percent chose *often*.





Government Agencies...

What do they have to say?

During the planning process, interviews were conducted with agency representatives from the Oregon State Marine Board, Idaho Department of Parks and Recreation, Pennsylvania Fish and Boat Commission, Vancouver (British Columbia) Health Department, Maryland Department of Natural Resources, and Massachusetts Department of Fisheries, Wildlife, and Environmental Enforcement. The goal of these interviews was to gain insight into the approaches other states use for boat sewage management and ideas that might be relevant to Washington State's program. This section of the report presents highlights of the information provided by these agency representatives.

Additionally, a boat waste management *Think Tank* involving 19 representatives from boating related agencies and organizations in Washington State was held during the planning process. The *Think Tank* focused on identifying issues to be addressed over the next five years in terms of boat sewage management in Washington State. Minutes of the *Think Tank* are included in Appendix D.

During the planning process, interviews were conducted with the following agency representatives:

OREGON STATE MARINE BOARD

435 Commercial Street N.E.
Salem, Oregon 97310
Contact Person: David Obern
Title: Manager, Boating Facilities Program
Phone: (503) 373-1405

PENNSYLVANIA FISH AND BOAT COMMISSION

Bureau of Boating
P.O. Box 67000
Harrisburg, PA 17106-2000
Contact Person: John Simmons
Title: Director
Phone: (717) 657-4538

**MASSACHUSETTS DEPARTMENT OF FISHERIES,
WILDLIFE AND ENVIRONMENTAL LAW ENFORCEMENT**

100 Cambridge
Room 1901
Boston, Massachusetts 02202
Contact Person: Robert Austin
Title: Assistant Commissioner
Phone: (617) 727-1614 Ext. 355
Contact Person: Buell Hollister
Title: Division of Marine Fisheries
Phone: (617) 727-3193 Ext. 334

VANCOUVER HEALTH DEPARTMENT

1770 West 7th Avenue
Vancouver, BC V6J 4Y6
Contact Person: Bill McIntyre
Title: Environmental Health Division
Phone: (604) 736-2866

IDAHO DEPARTMENT OF PARKS AND RECREATION

Statehouse Mail
Boise, Idaho 83720-8000
Contact Person: Mark Brandt
Title: Supervisor, Boating Programs
Phone: (208) 334-4199

MARYLAND DEPARTMENT OF NATURAL RESOURCES

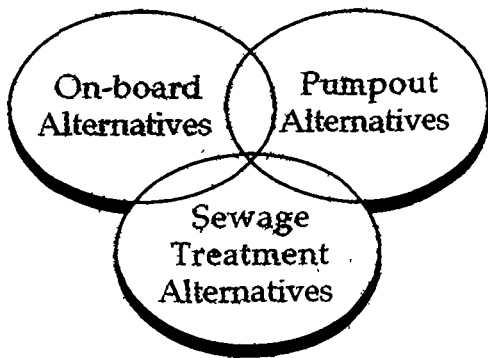
Boating Administration
580 Taylor Avenue, E-4
Annapolis, Maryland 21401
Contact Person: B. Bess Crandall
Title: Director, Planning and Policy Program
Phone: (410) 974-2939

The following highlights underscore the similarities and differences among boat sewage management programs across the country.

- The Oregon Marine Board's 1994 Clean Vessel Act funds were used to conduct a survey, develop a plan, build 15 pumpouts and 18 dump stations, build 4 floating dump stations, conduct an education program, and provide maintenance and operation monies for 20 pumpouts, 12 dump stations, and 4 floating dump stations.
- The State of Idaho received a 1994 Clean Vessel Act grant of \$41,500. These funds were used to build one pumpout station and one dump station and implement an education program.
- The State of Massachusetts has an extensive and well developed boat sewage management program. In 1994, the State received a Clean Vessel Act grant of \$1,557,975. Coupled with the State's contribution, the budget for their boat sewage management program topped \$1.9 million. The 1994 funds were used to conduct a survey, develop a plan, build/renovate 30 pumpouts, construct 19 floating dump stations, acquire 42 pumpout skiffs, provide maintenance and operations grants, and conduct an education program. Outstanding features of the Massachusetts program include providing maintenance and operation funding, encouraging operators to provide pumpout services free-of-charge, and offering boaters incentives to use pumpouts regularly. These incentives include \$5 gift certificates and lottery tickets (for a special boater lottery) given to boaters when they use a pumpout.

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- The State of Pennsylvania received \$99,324 in 1994 Clean Vessel Act grant monies. These funds were used to conduct a survey, develop a plan, build two pumpouts, provide maintenance and operation funding, and conduct an education program.
 - The State of Maryland has an extensive and well developed boat sewage management program. In 1994, the state received a Clean Vessel Act grant of \$1,463,289. This money was used to conduct a survey, develop a plan, build 30 pumpouts, provide maintenance and operations support for 115 pumpouts, provide technical assistance to 26 treatment plants, upgrade 5 treatment plants, and implement a boater education program. Grants provided by Maryland include 100 percent funding with no required match. Also, up to \$900 per year is available for pumpout maintenance and operation provided the operator submits reports on pumpout use, gallons pumped, and days out of order.

The State of Maryland has legislated boat sewage requirements affecting both boaters and facility operators. Boaters are required to have their boats equipped with a marine sanitation device or risk a \$2,000 fine. Marina operators must have a pumpout installed by July 1995 if they berth vessels over 22' and have 200+ slips, by July 1996 if they berth vessels over 22' and have 100+ slips, and by July 1997 if they berth vessels over 22' and have 50+ slips.



Technology

This section of the plan presents an overview of the technology involved in each step along the path to cleaner waters. The three steps are:

STEP 1: ONBOARD ALTERNATIVES

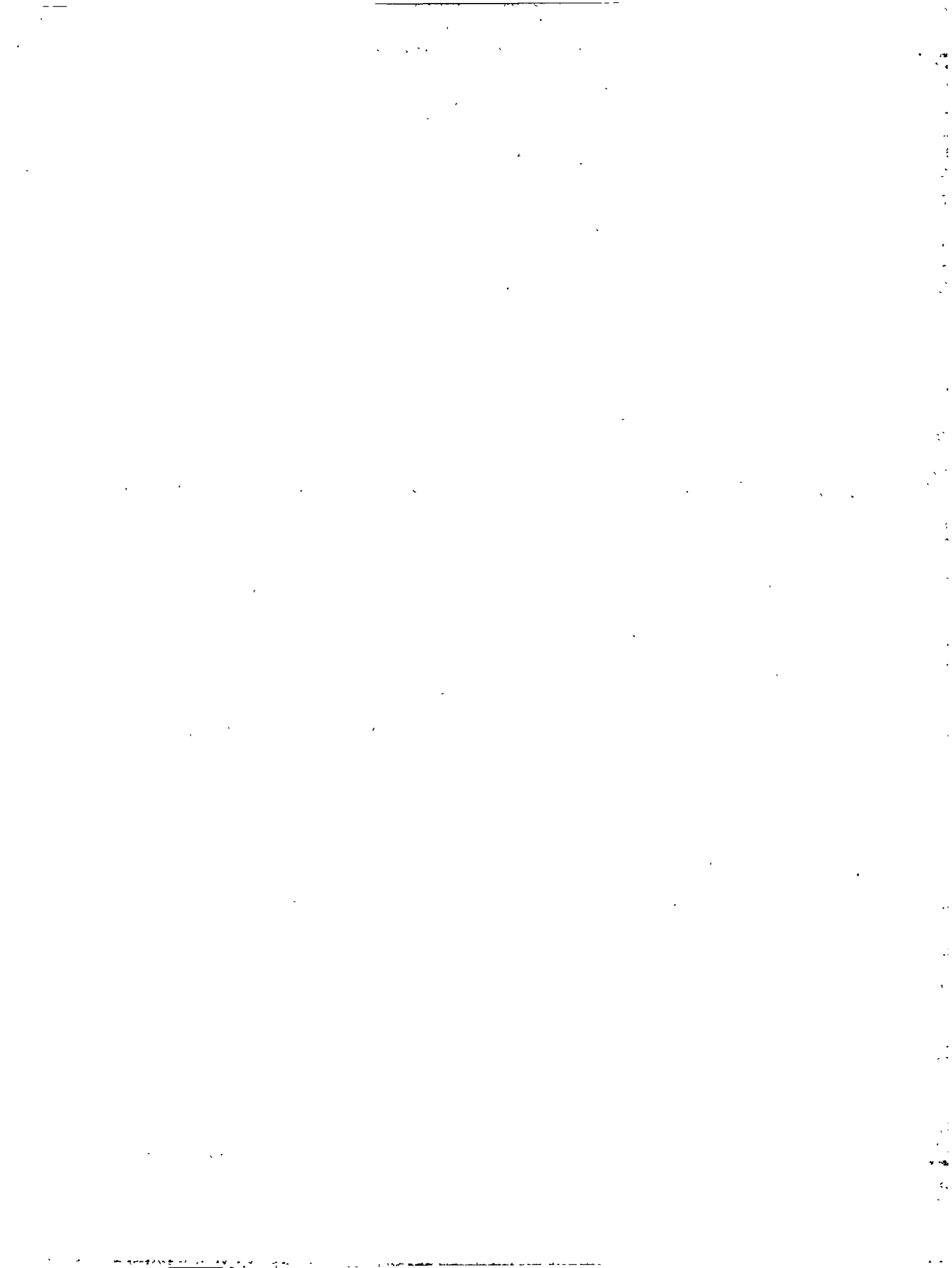
Boater options for disposal of boat sewage.

STEP 2: PUMPOUT ALTERNATIVES

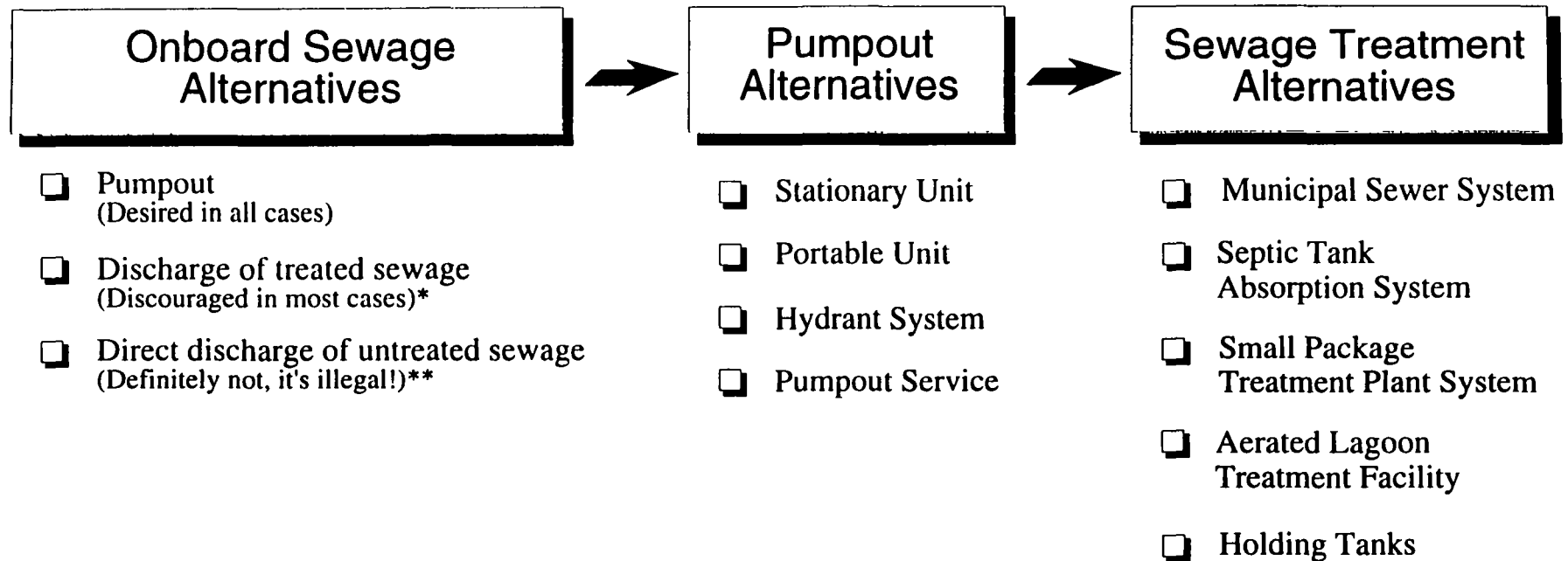
Types of pumpout systems available to facility operators.

STEP 3: SEWAGE TREATMENT ALTERNATIVES

Methods for disposal of sewage from pumpout systems.

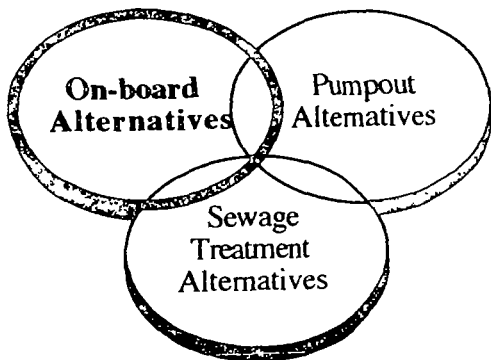


The Path to Cleaner Waters in Washington State



* The environmental effects of chemically treated waste are still being explored. New technology may lead to more effective onboard treatment.

** Direct discharge of untreated waste is illegal within three miles of shore. It is also illegal anywhere on the American side of the Strait of Juan deFuca, in Admiralty Inlet, or in Puget Sound even if more than three miles from shore. (Source: Sound Watch, An Environmental Guide for Boaters)



Onboard Sewage Alternatives

The discharge of untreated or inadequately treated sewage into U.S. waters is prohibited for all vessels. Noncompliance can result in civil penalties of up to \$2,000. (USCG, 1993) Not only is it the law, but proper management of boat sewage is an integral part of clean water stewardship. To be law abiding and environmentally sensitive citizens, boaters need a clear understanding of how to properly dispose of boat sewage.

Onboard sewage alternatives, the components of the first step in the path to cleaner waters, are the boater's options for the initial disposal of boat sewage. These alternatives are influenced by both the equipment onboard the boat and the boater's practices in terms of how the equipment is used.

In terms of onboard equipment, the 1972 Federal Water Pollution Control Act, also referred to as the Clean Water Act, requires that all boat vessels with an installed toilet be equipped with a Marine Sanitation Device (MSD).

MSDs are divided into three distinct categories as defined by the United States Coast Guard (USCG). The USCG is responsible for approval of all MSDs and enforcement that they are used. MSD types as defined by the USCG are:

TYPE I MSDs - Devices that treat the sewage with disinfectant chemical, or other means prior to discharge directly into the waterbody. The discharge must meet the specified fecal coliform standard of not greater than 1,000 per 100 ml and not show any visible floating solids. This device usually consists of a macerator or shredder and a small holding vessel to permit application of disinfectant chemical. No waste by-product is retained for onshore disposal by this type of device.

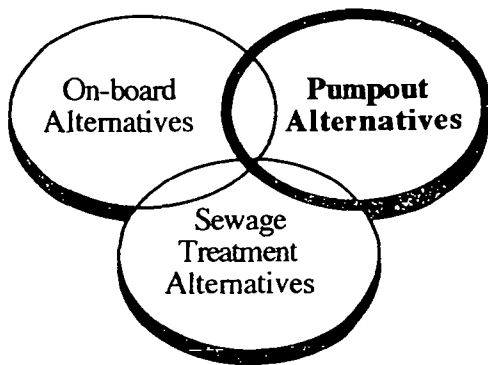
TYPE II MSDs - Devices that treat the sewage to a greater degree than TYPE I MSDs. The discharge from this type of MSD must have a suspended solids concentration less than 150 mg/l and fecal coliform count less than 200 per 100 ml. This type of device usually consists of a macerator, chemical or biological reactor chamber and infection prior to discharge. This device will retain sludge solids that will require ultimate onshore disposal. Because of their larger size, complexity, power consumption, weight, maintenance requirements, and capital expense, Type II MSDs are not usually considered a viable alternative for boats under 65' in length. (USEPA, 1981)

TYPE III MSDs - Devices that hold or store the sewage generated on board for future disposal on land. Often times chemical additives for disinfection and odor control are added to the holding tanks.

Boats greater than 65 feet in length must use either a Type II or Type III MSD.

Boats without installed toilets should consider using porta-potties. Although porta-potties or removable toilets are not classified by the USCG as an installed toilet and therefore are not subject to the MSD regulations, they nonetheless contribute to cleaner waters.

Another option for boaters is to use floating or shoreside restrooms. Often boaters prefer using restrooms when they are available. Although most marinas, marine parks, boat launches, etc. offer shoreside restrooms, there are also five floating restrooms in the state. Four of these floating restrooms are owned and operated by the National Park Service and are located on Franklin D. Roosevelt Lake. The fifth is on a barge owned and operated by Oak Harbor Marina. The barge at Oak Harbor actually has two restrooms on it, one of which is wheelchair accessible. All five of the floating units also include boat pumpouts.



Pumpout Alternatives - Types of Pumpout Systems

Although boat sewage management is a relatively new frontier, there is already significant diversity in pumpout alternatives. Among these alternatives are four basic types of pumpout systems - stationary, portable, hydrant, and pumpout service. Each type of system has its advantages and disadvantages. Since every boating facility is unique, there is no one solution that will work in all cases. Costs for equipment and installation can vary greatly, depending on the type of pumpout desired, the need for sewage lift stations to accommodate widely fluctuating tides or lake levels, sewage disposal considerations, and other factors.

STATIONARY PUMPOUTS

As the name implies, stationary pumpout units are secured to a dock or bulkhead. In order to use the pumpout boats moor alongside the unit. Typically these pumpout units are located at the end of a berthing or on a fueling pier which allows for easier access for all types of vessels. When stationary pumpouts are located on fuel docks, boater convenience is enhanced by the opportunity to both pumpout and fuel up at the same location. A disadvantage of this location is that it may cause congestion and during busy fueling times may discourage boaters who only need to use the pumpout. Stationary units may be electrically powered, solar powered, or manually powered. Of the pumpout systems in Washington State, 90 percent are considered stationary.

Advantages of stationary units are convenience, efficiency, and speed of use. The principal disadvantage is that the unit restricts pumpout service to a single area of the marina, which may cause congestion.

Although most stationary units are positioned on berthing, fuel, or recreational docks, some units are placed separately on barges or floating docks. These types of pumpouts are discussed below.

PUMPOUT BARGES

A pumpout barge is a floating unit similar to a floating dock but capable of being towed. Generally barges are fitted with a stationary pumpout unit and a dump station. The barge may also include one or two restrooms (called floating restrooms), sinks, and water. Barges may be designed for use without power (manual pump) and/or with shore power, battery, and/or solar panels. Barges have built in holding tanks which are emptied periodically by towing the unit to another location to be pumped out, stretching a septic truck hose from the shore across the water to the unit, or pumping the unit from its moored location to another vessel such as a pumpout skiff.

FLOATING DOCKS

A floating dock unit is similar to a pumpout barge but is usually stationary and not designed for frequent towing. Like barges, floating docks are usually fitted with a stationary pumpout unit and a dump station. Floating docks may be designed for use without power (manual pump) and/or with shore power. No floating dock units in Washington use battery or solar power. Floating docks have built in holding tanks which are emptied periodically by stretching a septic truck hose from the shore across the water to the unit, pumping the unit from its moored location to another vessel such as a pumpout skiff, or sewage lines which run from the floating dock to a disposal system.

PORTABLE PUMPOUTS

The second most frequent type of pumpout system is the mobile unit. These units are attached to a wheeled cart and may be moved about the marina. Because of its mobility, portable units allow slipside pumpout from an individual vessel. Portable pumpout units are generally of two types. The most common is an all-in-one complete pumpout (pump, hose, and storage tank on a wheeled cart). The second type has the pump and hose on a cart but no storage tank. In the second type, the hose connects into an installed hydrant system (sewer pipe system) on the docks. When the portable does have a storage tank, the unit is wheeled to a transfer station at which the sewage is gravity drained or pumped from the storage tank into the marina's sewage system.

The principal advantage of the portable unit is its portability - the pumpout comes to the boat rather than the boat to the pumpout station. This may be a convenience for boaters as well as save valuable dock space for facility operators. Disadvantages may include the unit becoming heavy and cumbersome when full of sewage, the potential for a greater time requirement to complete the pumpout operation, and the storage capacity on the unit itself.

In 1990, the New Moon Project sponsored by the Northwest Yacht Brokers and funded by the Puget Sound Water Quality Authority was undertaken. One of the Project's many admirable objectives was to field test a portable pumpout system for recreational boats. To accomplish this objective, a portable pumpout all-in-one unit was designed and constructed. The unit was manufactured by Van Ives Manufacturing, thus many of the units bear the designation VIM. Some units are identified simply as "Honeywagon." For this project seven units were manufactured and placed at participating marinas. After the project, two additional units were manufactured and placed as well. Although the units were "experimental" in both design and use, they have proved themselves in both categories. As the table below illustrates, all of the original units are still in operation today.

Status of portable pumpouts from the New Moon Project

<u>MARINA</u>	<u>ORIGINAL PLACEMENT</u>	<u>1994 OPERATING STATUS</u>
Ballard Mill Marina	yes	still in use
Fremont Boat Company*	yes	still in use
Westbay Marina	yes	still in use
Eagle Harbor Marina	yes	still in use
Pleasant Harbor Marina	yes	still in use
Cap Sante Marina	yes	still in use
Port of Friday Harbor	yes	still in use
Winslow Wharf Marina*	yes	still in use
Semiahmoo	yes	still in use

*Fremont Boat Company and Winslow Wharf are private marinas with no public access to the pumpouts.

Of the 90 existing pumpouts in Washington, ten percent are mobile pumpout units. Most of these units are from the 1990 New Moon Project. Even though VIM (the manufacturer of the New Moon Project's Honeywagon) no longer manufactures these portable units, there are several companies manufacturing similar type units. All of the existing mobile pumpout units in Washington marinas are the all-in-one variety since no marinas to-date have been plumbed for a hydrant system. However, Semiahmoo Marina received approval for a Washington State Parks' grant to install a portable system to be used with hydrants. The system is to be installed in 1995.

HYDRANT SYSTEMS

A hydrant system is a continuous wastewater collection system provided at each slip. In general, there are two types of hydrant systems - vacuum system and low pressure pipe system. In the vacuum system, a centrally located vacuum pump draws the waste from the boat through a dock piping system to the vacuum tank(s). Once a vacuum tank is full, the air flow is reversed and the waste is pushed from the tank to the the shoreside disposal facility (ie municipal sewer system). In the low pressure pipe system, wastes from the boat flow into a grinder pump (on board or as part of the pumpout unit). The waste is then conveyed in controllable doses through a low pressure pipe system to the shoreside disposal facility (ie municipal sewer system).

A hydrant system, which provides sewage collection anytime and in multiple locations, has the advantage of combining the convenience and efficiency of stationary units with the versatility offered by portables. A disadvantage is the initial cost for equipment and installation.

Skyline Marina in Anacortes and Semiahmoo Marina in Blaine both received grants from Washington State Parks for the 1995 installation of hydrant systems using vacuum pumps. These hydrant systems will be the first of their kind in Washington State.

PUMPOUT SERVICES

In addition to pumpout facilities located in marinas and recreational docks, pumpout services are available in some locations. A pumpout service usually consists of a vessel with a pump and holding tank aboard. The vessel is mobile and moves from boat to boat. Usually boats are scheduled for regular pumpouts but often services will provide a pumpout on an "on-call" basis. Although most pumpout services pump boats at their permanent moorages, services occasionally circulate at special events such as Opening Day of Boating Season and SeaFair offering to pumpout boats temporarily moored at these events. Generally the cost of a pumpout service is around \$15 per pumpout.

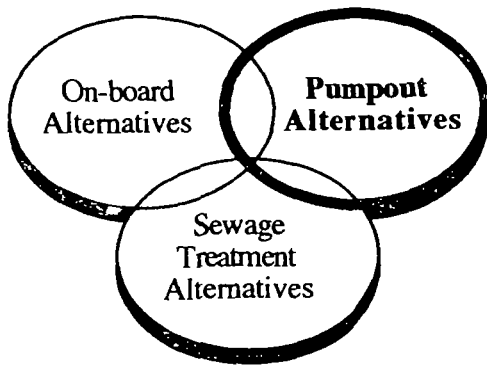
During the course of preparing this report, five pumpout service companies were identified. All of these companies operate in the Puget Sound Region. Additionally, the Port of Port Townsend received a grant from Washington State Parks for the 1995 construction of a pumpout skiff to provide pumpout services in the Port Townsend area.

Pumpout systems, regardless of the type, require a pump. Currently there are five basic types of pumps used in pumpout systems. The table on the next page provides a brief description of each.

In addition to pumpout stations, there are facilities to receive sewage from portable toilets. A dump station consists of a receiving receptacle for sewage from portable toilets and includes associated equipment and storage tank or sewer line connection. Dump stations should be located adjacent to pumpout stations as well as areas where smaller boats congregate such as recreational docks and boat ramps.

Types of pumps used in pumpout systems

PUMP TYPE	HOW IT WORKS
Diaphragm (Reciprocating)	Mechanical or hand operated pump creates suction by mechanically lifting a diaphragm up and pushing it down in a pump body. The diaphragm works in conjunction with two to four check valves. As the diaphragm lifts, the low pressure area under it causes sewage to be drawn into the pump body through the inlet check valve; when it is pushed down the pressure under the diaphragm closes the inlet check valve and forces sewage out of the outlet check valve.
Progressive Cavity	Pump consists of a stainless steel rotor or screw surrounded by a tight-fitting rubber sleeve. As the rotor turns, the sewage is progressively moved to the discharge line.
Vacuum	This pump does not directly contact sewage, but draws air out of a tank which creates the necessary low pressure area (vacuum) to cause the sewage to flow into the tank. When the accumulator tank is full, pressurized air enters the tank and the pressure pushes the sewage out to a sewer or holding tank. This pump allows pumping over longer distances.
Peristaltic Pump	Pump has a set of rollers which rotate around circular bend in 2" hose. As rollers move, they force liquid and solids to push toward the outlet.
Centrifugal Pump	Pump works when sewage in its impeller is spun to the outside of the impeller by centrifugal force, which creates a low pressure area at the impeller as it pumps. Most centrifugal pumps require priming. This pump is usually used for sewage lift station situations and must be used in conjunction with another type of pumpout system.



Pumpout Alternatives - The Washington Experience

In 1994, 16 facilities applied for funding through Washington State Parks under the Clean Vessel Program funding provided by U.S. Fish and Wildlife. This analysis of the project proposals provides further insight into pumpout alternatives.

The total project amount for the 16 projects was \$618,136. Of this, \$463,597 was requested from the State through the grant program and \$154,539 was offered as local matches to the State grants.

Of the 16 applicants, 14 were funded. The total commitment of funds was \$310,694 for projects plus \$39,306 as contingency funds.

Since little detailed information exists on the cost of installing a pumpout system, an analysis was made of the cost estimates of the 16 applicants. Findings of this analysis are included below.

- The variety of equipment and manufacturer choices represented among the applications illustrates the diversity in needs and preferences among facility operators. Equipment included stationary pumpouts, portable pumpouts, hydrant systems, floating docks with pumpouts, barges with pumpouts, and a pumpout skiff. Manufacturers included KECO, Edson, SeaLand, Waubaushene, Skallerud Marine, and SaniSailor.
- On average, applicant budgets (not including hydrant systems) are reflected in the following breakdowns:

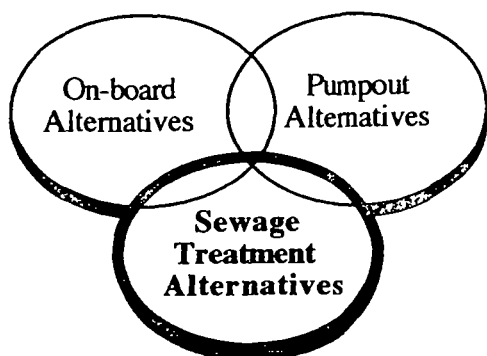
Purchase of pumpout/dump station equipment	34 percent
Float/dock construction	18 percent
Plumbing	14 percent
Electrical costs	10 percent
Engineering	6 percent
Treatment/disposal costs	7 percent
Other costs	7 percent
Permit/inspection fees	3 percent
Signage	1 percent

- As is evident, the most significant percentage of total budgets was for the purchase of the pumpout/dump station equipment. The table below provides further detail on the per unit ranges and average cost of specific types of equipment.

Per unit ranges and average cost of specific types of equipment

<u>EQUIPMENT</u>	<u>RANGE</u>	<u>AVERAGE</u>
stationary pumpout	\$2,421 - \$8,000	\$4,308
portable pumpout	\$3,650 - \$4,310	\$4,092
vacuum pump	\$16,830 - \$28,200	\$22,515
pumpout skiff	-	\$17,755
dump station	\$1,000 - \$4,000	\$1,834

- Of the 14 grants awarded, three included support for Washington "firsts." 1) The Port of Port Townsend received funding for a pumpout skiff. Although similar type skiffs are used by pumpout companies, this is the first such skiff to be owned and operated by a public agency in Washington. 2) Skyline Marina in Anacortes received funding for the installation of a hydrant system. When installed the vacuum pump hydrant system will interconnect three stationary pumpout units and three dumpstations. 3) Semiahmoo Marina in Blaine received funding for the installation of a hydrant system that will be used with a portable pumpout unit. The system will utilize a vacuum pump. Although there is a stationary vacuum pump in operation at Fidalgo Marina (Anacortes) and at Lakeshore Marina (Lake Chelan), there are no existing hydrant systems in Washington.
- Grant awards ranged from \$9,000 to \$56,723 with an average of \$22,192. The median award was approximately \$19,250.



Sewage Treatment Alternatives

Sewage disposal is the final step in the path to cleaner waters. The discussion that follows focuses on the five alternatives for disposing of boat sewage. Much of the information was adapted from the *Clean Vessel Act: Pumpout Station and Dump Station Technical Guidelines* developed by the U.S. Fish and Wildlife, 1994 and a report entitled *Mitigation measures to control water pollution from liveaboard vessels in marinas* prepared by the Shellfish Section of the Washington State Department of Social and Health Services, April 1989.

Throughout the State of Washington, sewage disposal methods will differ depending on a number of variables. These variables include sanitation codes, the number and location of recreational vessels, the proximity of boating facilities to sewage treatment facilities, and hydrogeologic characteristics. With these factors in mind, consideration may be given to each of the following potential methods of sewage disposal.

MUNICIPAL SEWER SYSTEMS

When an existing municipal sewer system is available, pumpout waste may be piped from the collection point through the sewer system to the treatment facility. Typically collection points would be stationary pumpout units, dumpstations, and transfer stations servicing portable pumpout units.

According to U.S. Fish and Wildlife, this is the best option for the safe and sanitary disposal of vessel sewage. However, this method is contingent on the acceptance of the sewage by the wastewater treatment facility. In the research conducted for the development of this plan, only three wastewater treatment facilities in Washington State were identified as having a problem accepting boat sewage and one of these facilities was concerned with current over capacity problems.

According to a paper prepared by the Washington State DSHS,

If an existing municipal sewer is available, the relatively small volume of watercraft wastes will be sufficiently diluted with the municipal wastewater to render them readily treatable upon arrival at the wastewater treatment facility. (DSHS, 1989)

Further support is offered by the U.S. Fish and Wildlife,

Most municipal treatment plants should have no problem accepting vessel holding tank waste. The relatively small volume of holding tank waste, bled into the sanitary waste stream, is effectively diluted by municipal sewage...Sewage treatment plants with a long history of accepting holding tank waste have reported no problems with this practice. (USFW, 1994)

HOLDING TANKS

Many boating facilities are located where connection to a wastewater collection system is difficult or infeasible. In these cases, connection of the pumpout or dumpstation to a holding tank is the next best option. (USFW 1994) Holding tanks provide a means for sanitary storage of vessel sewage until it can be transported by a licensed septage hauler to an approved septic waste receiving/treatment facility. Holding tanks may be onshore or offshore. Typically an offshore holding tank would be part of a barge or floating dock pumpout unit such as the one stationed in Reid Harbor at Stuart Island. Both onshore and offshore holding tanks are periodically pumped by a pumpout service either onto a truck or vessel for transfer to an appropriate sewage treatment system.

In the research conducted as part of this plan, approximately 13 percent of the pumpout facilities in Washington were identified as using the holding tank disposal method. These facilities were commonly in more remote areas such as the San Juan Islands and Eastern Washington. The most frequent complaint of facility operators in terms of this method was the high cost for septage hauling.

SEPTIC TANK SOIL ABSORPTION SYSTEMS

Septic systems are the conventional on-site sewage treatment systems throughout the United States. The system consists of a septic tank where primary treatment takes place and a drainfield in which the secondary "leaching" treatment takes place.

According to the Washington State DSHS:

In those areas where a municipal sewage system is not available and suitable soil exists, treatment and disposal may be by an onsite septic tank soil absorption system (STSAS). The USEPA Coastal Marina Assessment Handbook identifies the STASAS as a logical and acceptable treatment choice in such instances. (DSHS 1989)

This opinion, however, seems to be somewhat in contradiction with that of U.S. Fish and Wildlife:

In general, septic systems are not a favorable option for the disposal of vessel sewage, because they are not designed to treat the high solids content, high strength, and possibly toxic content of these wastes...Vessel sewage should be discharged to a septic system only if no other options exist and the system is specifically designed and sited to receive such waste. (USFW 1994)

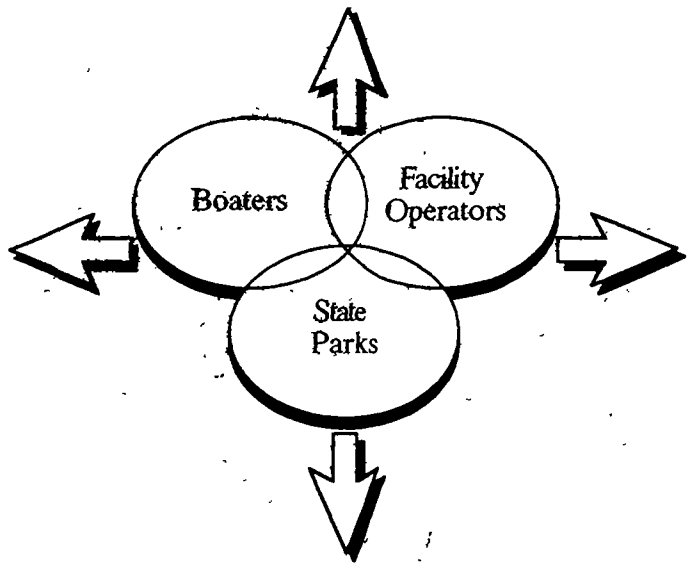
One concern expressed by both agencies regarding this type of disposal is the presence of chemical additives in pumpout wastes. These chemicals may inhibit or have deleterious influence on the biological process in the septic tank. Due to both the potential of chemical additives and the higher suspended solids concentration in boat sewage, both agencies recommend using large tanks and large drainfields if using this method.

SMALL-PACKAGE BIOLOGICAL TREATMENT PLANT SYSTEMS

Package treatment plants offer an alternative for the treatment of both vessel sewage and waste generated by marina restrooms and other shoreside sanitary facilities. Package treatment plants are usually small, prefabricated sewage treatment plants that provide secondary treatment with subsequent disposal of the treated effluent into marine receiving waters. There are numerous proprietary systems available which usually are a form of the activated sludge process, such as extended aeration or contact stabilization. This alternative is considered impractical for marina applications because of the short retention time, extreme flow fluctuations, formaldehyde concentration, shock loads, and corrosion problems.

AERATED LAGOON TREATMENT FACILITY

An aerated lagoon is an on-site treatment facility that may be a viable alternative when the marina is not located near sewer lines, when transport of waste is prohibitively expensive, when the local sewage treatment plant is unable to accept additional discharges, and when groundwater and coastal waters can be protected. This option involves the provision of a lagoon to provide storage, dilution, and treatment of the boat sewage. In order to maintain aerobic conditions in the lagoon, an aeration system must be provided. Because of the potentially harmful effects of chemical additives on the biological process, adequate dilution must also be provided. Final disposal involves an outfall into the marine receiving water.

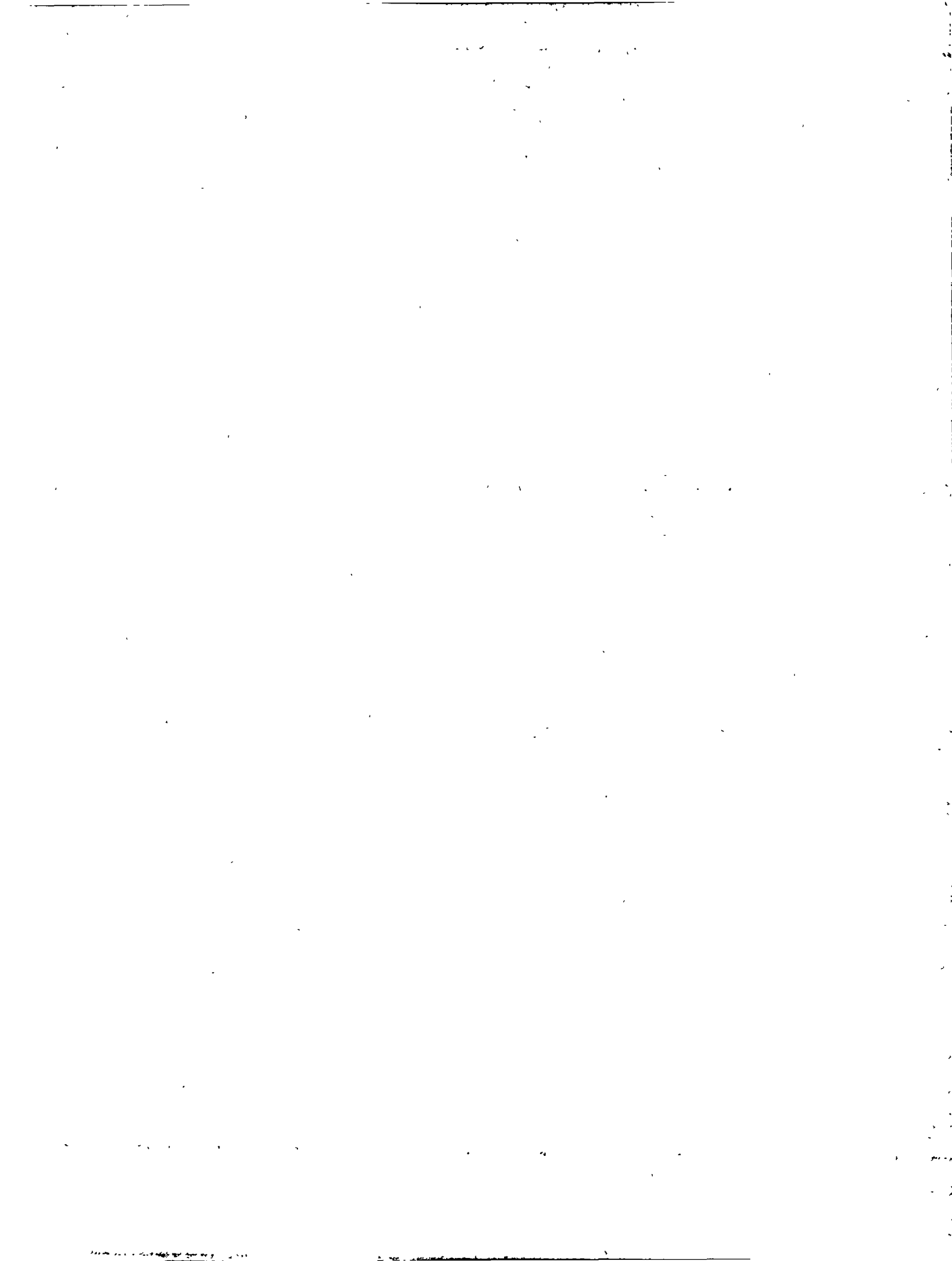


Where do we go from here?

Given the importance of boating in Washington State, it is the premise of this plan that a successful boat sewage management program must be an aggressive program of pumpout installation and maintenance and an enthusiastic program of boater education and awareness.

The recommendations that follow focus on five areas of need:

1. MAINTENANCE AND OPERATIONS SUPPORT
2. LEADERSHIP
3. FACILITY OPERATOR EDUCATION AND AWARENESS
4. BOATER EDUCATION AND AWARENESS
5. INSTALLATION OF PUMPOUT SYSTEMS AND DUMP STATIONS



NEED: MAINTENANCE AND OPERATIONS SUPPORT

Premise

In general, the operational level of pumpout equipment in the State of Washington is not acceptable. Although slightly over half of the existing pumpouts throughout the state are in good working condition, too many are intolerably slow or not working at all. When pumpouts are not working or do not work properly, boaters may find it necessary to discharge overboard and may become discouraged with preferred disposal practices. Washington State Parks should set and support a goal for the maintenance and operation of all public-use pumpouts provided by or funded by Washington State Parks.

Supporting Data

- During August-November, 1994, tests were conducted by Cheyne and Associates, Inc. on 61 public-use pumpout units. The results were: 54 percent in *good working condition*, 16 percent *passed the test but with difficulty*, and 30 percent *not working*.
- In the 1993 Marina Pumpout Survey conducted by the Washington State Department of Health, 70 percent of the 26 pumpout units selected for the survey were found to be working properly at the time of inspection.
- The most common dislike about pumpouts among facility operators related to maintenance/servicing requirements. (Operator Survey, 1994)
- Ninety percent of the facility operators reported that pumpout equipment repairs were done in-house. (Operator Survey, 1994)
- The most common pumpout maintenance problems reported by facility operators were plugged hoses, poor suction, and broken nozzles - all of which might be addressed through a regular maintenance program. (Operator Survey, 1994)
- Of the five states interviewed, four provide maintenance and operation grant monies for pumpouts. These include Oregon, Massachusetts, Maryland, and Pennsylvania.
- Among boaters, repair/better maintenance of existing pumpouts was the most frequently identified needed improvement. (Boater Survey, 1994)
- Higher use of pumpouts is related to lower fees charged. (Ross & Amaral, 1992)

Recommendations

1. Provide grant funding for maintenance of pumpout systems.

Expand eligible activities within the Clean Vessel Act grant program administered by Washington State Parks to allow facility operators to apply annually for funds to assist with up to 75 percent of the maintenance and operations cost of pumpout facilities.

It is recommended that maintenance funding not exceed \$900 (75 percent of an estimated annual maintenance cost of \$1,200). The rate of payment is proposed to be \$100 per month during the May - September boating season and \$50 per month that the pumpout for each month the pumpout is open in the off-season (October - April). To qualify for funding, operators should be required to provide documentation of maintenance costs, pumpout use data, and provide the use of the pumpout to the public at no fee.*

2. Provide grant funding for facilities which have extraordinary sewage disposal costs.

State Parks recognizes that remote locations often must pay much higher costs for sewage disposal than facilities that dispose of waste through municipal sewer systems. These costs are especially prohibitive when sewage must be hauled to a waste treatment site via a truck or barge. The high cost of disposal may discourage facility operators from installing pumpout systems and/or encouraging pumpout use.

It is recommended that disposal costs related to the hauling of boat waste to treatment facilities be eligible for up to 75 percent funding through the Clean Vessel Act program. To qualify for funding, operators must submit a proposal which includes the cost of sewage disposal and the estimated number of gallons to be disposed of annually. Upon funding, operators must establish a financial account specifically for sewage disposal and must keep documentation of number of gallons of sewage collected and hauled and costs associated with such disposal. Any facility receiving funding for sewage disposal must provide the use of the pumpout to the public at no fee.

3. Encourage boating facilities to offer free-of-charge use of pumpouts by instituting a marina-wide environmental impact fee to offset costs of environmental protection programs.

Disposing of boat waste via a pumpout is much preferred to overboard discharge. Yet, boaters are sometimes discouraged from this practice by having to pay fees for the use of pumpouts. It is recommended that State Parks encourage facilities to consider the use of a marina-wide environmental impact fee to provide the 25 percent match necessary for Clean Vessel Act funding. A nominal environmental fee could be used to assist with costs associated with pumpouts and dump stations, to establish and maintain a recycling center for hazardous waste, and to provide oil absorbent pads and an oil boom as part of a marina-wide oil spill prevention plan. Through the use of a marina-wide environmental impact fee, all boaters share the responsibility for the costs associated with sewage management versus only those who actually demonstrate preferred practices.**

4. Monitor the working condition of all public-use pumpouts provided by or funded by Washington State Parks.

Keeping pumpouts in good working condition is important to avoid discouraging boaters from using them. It is recommended that Washington State Parks initiate a testing program that involves testing all public-use pumpouts provided by or funded by Washington State Parks. This program would involve testing each pumpout at least once every two years, sharing the results with facility operators, and analyzing the results in terms of the maintenance and operation funding program offered by State Parks.

* The information in this paragraph is adapted from the State of Maryland Department of Natural Resources, Boating Administration's program.

** The recommendation for a marina-wide environmental fee and originated in the publication *Sound Watch, An Environmental Guide for Boaters*. The suggestions for how the impact fees could be used are from that same publication.

NEED: LEADERSHIP

Premise

To maximize the success of boat sewage management in Washington State, a strong leadership role must be assumed.

Supporting Data

- In terms of effective boat sewage management in Washington State, one of the key issues emerging from the Boat Waste Management *Think Tank* held in October, 1994 was the need for strong leadership. Two recommendations from the *Think Tank* were that 1) Washington State Parks take the leadership role and 2) that a Marine Advisory Board be formed to provide additional leadership and support.

Recommendations

1. **Form a Marine Advisory Board** to:
 - a. review boat sewage program on an annual basis
 - b. coordinate efforts to reduce other types of boater pollution
 - c. other possible roles include recreational boating advocacy, boater education, research, funding, and safety.

NEED: FACILITY OPERATOR EDUCATION AND AWARENESS

Premise

Operators need assistance in identifying pumpout systems appropriate to their needs, understanding the maintenance requirements of pumpout systems, and understanding Clean Vessel Act grant opportunities.

Supporting Data

- During August-November, 1994, tests were conducted by Cheyne and Associates, Inc. on 61 public-use pumpout units. The results were: 54 percent in *good working condition*, 16 percent *passed the test but with difficulty*, and 30 percent *not working*.
- In the 1993 Marina Pumpout Survey conducted by the Washington State Department of Health, 70 percent of the 26 pumpout units selected for the survey were found to be working properly at the time of inspection.
- The most common dislike about pumpouts among facility operators related to maintenance/servicing requirements. (Operator Survey, 1994)
- Ninety percent of the facility operators reported that pumpout equipment repairs were done in-house. (Operator Survey, 1994)
- The most common pumpout maintenance problems reported by facility operators were plugged hoses, poor suction, and broken nozzles - all of which might be addressed through a regular maintenance program. (Operator Survey, 1994)
- In 1994, 83 percent of the Clean Vessel Act pumpout grants in Washington State were for the acquisition of new systems. New systems require facility operators to understand and be able to evaluate the types of pumpouts available prior to acquisition and understanding of how to maintain the pumpout system once it has been installed.
- In several of the telephone interviews with facility operators there was either a lack of awareness of the Clean Vessel Act grant program or confusion as to how to apply for grants.

Recommendations

- 1. Annually sponsor a one-day pre-application conference.**
The day-long conference should include five hours of facility operator training in selecting and maintaining pumpout systems and two hours of facilitated discussion on applying for funding through the Clean Vessel Act.
- 2. Prepare and distribute an operator brochure on boat sewage management.**
The brochure should include information on the Clean Vessel Act program, basic information on pumpout equipment and manufacturers, and information on where and what types of systems are being used at facilities throughout the state.

NEED: BOATER EDUCATION AND AWARENESS

Premise

Boater education efforts are critical to the success of the boat sewage management program and should be continued and expanded.

Supporting Data

- The most frequent reason given by facility operators for the increased use of pumpouts was increased boater awareness and education. (Operator Survey, 1994)
- Sixty-six percent of the boaters interviewed felt that more boater education is needed to encourage boaters to use pumpouts. (Boaters Survey, 1994)
- Facility operator reported that the most commonly needed improvement to pumpout facilities was more boater understanding of how to use pumpouts. (Operator Survey, 1994)
- Demand for the publication *Sound Watch, An Environmental Guide for Boaters* quickly depleted the 75,000 copies that were published. (Briggs Interview, 1994)
- A recommendation of the 1993 Marina Pumpout Survey conducted by the Washington State Department of Health was as follows.

Literature about pumpout unit location should always be available for marinas to provide to the boating public. The information should continue to be updated regularly.

- High use of pumpouts and dump stations has been related to aggressive management practices, active enforcement of "No Discharge Areas," perception of need by the public (related to the environmental sensitivity of the area and educational efforts), and good maintenance. (Ross & Amaral, 1992)
- In an evaluation of the visibility of each of the 90 public-use pumpout units in Washington State, only 62 percent rated good, 17 percent rated fair and 18 percent rated poor. (Site Visits, 1994)

Recommendations

1. Coordinate the preparation and distribution of a boat sewage management publication for Puget Sound.

The document should be specifically designed for boaters in Puget Sound. It should inform boaters about boat sewage management laws and practices, help boaters to understand how to operate the various types of pumpouts found throughout Puget Sound, provide maps for locating pumpout stations, and help boaters understand other ways to promote cleaner waters in Washington State. The publication should be distributed free of charge and via the mail to all owners of registered vessels over 16' residing in the areas of the state within a reasonable distance of Puget Sound.

2. Coordinate the preparation and distribution of a boat sewage management publication for southwest Washington.

The document should be specifically designed for boaters in southwest Washington. It should inform boaters about boat sewage management laws and practices, help boaters to understand how to operate the various types of pumpouts found along the Pacific Coast and Columbia River, provide maps for locating pumpout stations, and help boaters understand other ways to promote cleaner waters in Washington State. The publication should be distributed free of charge and via the mail to owners of all registered vessels over 16' residing in the areas of the state within a reasonable distance of southwest Washington waters.

3. Develop a boat sewage management booth.

Washington State Parks should develop a traveling boat sewage management booth to be used at the various boat shows throughout Washington State. The booth should feature an interactive pumpout exhibit which allows for the demonstration of proper use of a pumpout (and allows boaters to try it). In addition, the booth should contain information (brochures, pamphlets, etc) on clean water stewardship.

4. Increase facility operator awareness of the pumpout signage program.

Washington State Parks should inform facility operators with existing pumpouts of the pumpout signage available free-of-charge through State Parks. Facility operators who are intending to install a pumpout should also be made aware of the program. Through the signage program, facilities may request free pumpout logo signs and pumpout interpretive signs.

Additionally, facility operators may request up to \$500 for signage under the Washington State Clean Vessel program. This money may be used for additional relevant signage (ie No Discharge Area sign).

NEED: INSTALLATION OF PUMPOUT SYSTEMS AND DUMP STATIONS

Premise

The existing pumpout facilities in Washington State meet less than 52 percent of the current need for such facilities. An aggressive program of pumpout replacement and new installation is needed to meet the current needs of Washington boaters.

Supporting Data

- To adequately service the boating population, the total demand for pumpouts in Washington State is 187. This demand is based on the following information from the *Clean Vessel Act: Pumpout Station and Dump Station Technical Guidelines* (USFW, 1994) and the Washington State Boater Survey conducted as part of the planning process.
 - 86 percent of boats 26-40' have holding tanks (Boater Survey, 1994)
 - 100 percent of boats 41'+ have holding tanks (Boater Survey, 1994)
 - during boating season an average of 40 percent of the total boats are used on weekends (USFW, 1994)
 - a pumpout operated 12 hours per day for the weekend has a capacity of 96 boats. (USFW, 1994)
 - applying the above information to the number of boats in Washington State, the need for additional pumpouts in Washington State may be calculated as follows:

No. of boats with holding tanks	
26-40' 45,650 x .86% =	39,259
41+: 5,663 x 100% =	5,663
	<hr/>
	44,922
Average weekend use of boats 26'+	x .40
Total boats with holding tanks in use	<hr/>
	17,969
Capacity of each pumpout	- 96
Total pumpouts needed	<hr/>
	187

- Given that there are a total of 90 existing pumpouts, the need for additional pumpouts in Washington State is 97. Thus, existing pumpouts address only 47 percent of the total need.
- *The need for more pumpouts* was the highest ranked need in terms of pumpout improvements by boaters participating in the boater survey. (Boater Survey, 1994)

Recommendations

1. Encourage the new installation/repair/renovation of pumpout stations throughout the state.

In the planning process, 41 specific sites were identified as needing pumpouts. The principle criteria used to identify need were as follows:

- location within an environmentally sensitive area as identified by the Department of Ecology
- identified as a high need location by the 1993 Puget Sound Marina/Boater Advisory Committee
- application of the minimum standard of one pumpout per 300 slips
- boater recommendation as identified in the 1994 Boater Survey
- operator interest as identified in the 1994 Operator Survey or through operator interviews
- distance to nearest pumpout station

Details about each recommendation are included on pages 77 - 102.

FACILITY	LOCATION	NEW	ADDITIONAL	REPLACEMENT
Beacon Rock State Park	southwest Washington	X		
Blaine Harbor	north Puget Sound		X	
Blakely Island Genl. Store/Marina	San Juan Islands	X		
Cap Sante Boat Haven	north Puget Sound		X	
City of Des Moines	south Puget Sound		X	
Deer Harbor Marina	San Juan Islands	X		
Dockton County Park	south Puget Sound			X
Elliott Bay Marina	central Puget Sound		X	
Fishermen's Terminal	central Puget Sound			X
Jeresich City Dock	south Puget Sound	X		
La Conner Marina	north Puget Sound			X
Lakebay Marina or Penrose Point State Park	south Puget Sound	X		
Longbranch Marina	south Puget Sound	X		
Neah Bay	north Puget Sound	X		
Newport Yacht Basin	central Puget Sound	X		
Oak Harbor Marina	north Puget Sound			X
Ocean Shores Marina	southwest Washington	X		
Pleasant Harbor Marina	central Puget Sound		X	
Point Hudson Marina	north Puget Sound	X		
Point Roberts Marina	north Puget Sound		X	
Port Angeles Marina	north Puget Sound		X	
Port Ludlow Marina	north Puget Sound			X
Port of Chinook	southwest Washington	X		
Port of Edmonds	central Puget Sound		X	
Port of Everett Marina	north Puget Sound		X	
Port of Friday Harbor	San Juan Islands		X	
Port of Ilwaco	southwest Washington		X	
Port of Silverdale	south Puget Sound	X		
Port Orchard Marina	central Puget Sound		X	
Quartermaster Marina	south Puget Sound	X		
Roche Harbor Resort	San Juan Islands	X		
Rosano Resort	San Juan Islands	X		
Seabeck Marina	central Puget Sound	X		
Shulshole Bay Marina	central Puget Sound		X	
Snug Harbor Resort	San Juan Islands	X		
Stuart Island State Park	San Juan Islands		X	
Sucia Island State Park	San Juan Islands	X		
Tokeland Marina	southwest Washington	X		
Totem Marina	south Puget Sound		X	
Westbay Marina	south Puget Sound		X	
Westport Marina	southwest Washington		X	
TOTAL FACILITIES		19	17	5

2. Construct and operate two pumpout skiffs to provide pumpout services in the San Juan Islands.

It is recommended that Washington State Parks construct and operate two pumpout skiffs. These skiffs will provide pumpout services to remote harbors throughout the San Juan Islands.

3. Encourage the installation of dump stations throughout the state.

In the planning process, 44 specific sites were identified as needing dump stations. The criterion used to identify need was the existence of a pumpout without adjacent dump station. In addition two sites that are recommended for dump stations even though there isn't an existing or recommended pumpout. In addition to the specific dump station installations recommended, it is recommended that State Parks adopt a policy that requires the installation of a dump station adjacent to any new pumpout installation.

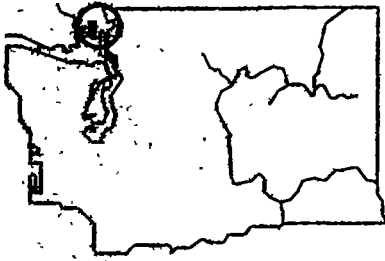
The recommended dump station sites are included on the next two pages.

The following facilities currently have pumpouts without adjacent dumpstations. It is recommended that each of these facilities be encouraged to install a dumpstation adjacent to the existing pumpout. The facilities marked with an * are facilities for which other improvements have been recommended as well. The * facilities are included in the individual listings under pumpout recommendations.

Site: Arabella's Landing Marina Address: 3323 Harborview Drive Gig Harbor, WA 98332 Phone: 206-851-1793	Site: Eagle Harbor Marina Address: 5834 Ward Avenue NE Bainbridge Island, WA 98110 Phone: 206-842-4003
Site: Ballard Mill Marina Address: 4733 Shilshole Avenue NW Seattle, WA 98107 Phone: 206-789-4777	Site: Fishermen's Terminal* Address: 3919 18th Avenue W Seattle, WA 98119 Phone: 206-728-3395
Site: Berg's Marina Address: 2730 Westlake N Seattle, WA 98109 Phone: 206-285-2250	Site: Harbor Island Marina Address: 1001 S.W. Klickitat Way Seattle, WA 98134 Phone: 206-467-9400
Site: Cap Sante Boat Haven* Address: P.O. Box 297 Anacortes, WA 98221 Phone: 206-299-0998	Site: Harbour Village Marina Address: 6155 NE 175th St. Seattle, WA 98155 Phone: 206-485-7557
Site: Central Ferry State Park Address: Hwy 127, Snake River Bridge Pomeroy, WA 99347 Phone: 509-549-3551	Site: H.C. Henry Pier Address: 809 Fairview Place North Seattle, WA 98109 Phone: 206-624-6534
Site: Chandler's Cove Address: 901 Fairview Avenue North Seattle, WA 98109 Phone: 206-628-0838	Site: John Wayne Marina Address: 2577 West Sequim Bay Road Sequim, WA 98382 Phone: 206-683-9898
Site: Charbonneau Park Address: R.R. 6, Box 693 Pasco, WA 99301 Phone: 509-547-7781	Site: Keller Ferry Marina Address: 300 Mead, P.O. Box 5 Coulee Dam, WA 99116 Phone: 509-647-5755
Site: Chief Timothy State Park Address: 13766 Highway 12 Clarkston, WA 99403 Phone: 509-758-0999	Site: Kettle Falls Marina Address: P.O. Box 340 W. 4105 Williams Kettle Falls, WA 99141 Phone: 509-736-6121
Site: City of Des Moines Marina* Address: 22307 Dock Avenue South Des Moines, WA 98198 Phone: 206-824-5700	Site: La Conner Marina* Address: P.O. Box 456 La Conner, WA 98257 Phone: 206-466-3118
Site: Dockton County Park* Address: 2500 Dock Street Dockton, WA 98070 Phone: 206-463-2947	Site: Marina Mart Moorings Address: 1505 Westlake Avenue N Suite 105 Seattle, WA 98109 Phone: 206-281-8260

Site: Marine Servicenter	Site: Port of Everett Marina*
Address: 2417 T Avenue Anacortes, WA 98221	Address: 1720 West Marine View Drive Everett, WA 98201
Phone: 206-293-8200	Phone: 206-259-6001
Site: Metz Marina	Site: Port of Friday Harbor*
Address: 206 Clover Island Kennewick, WA 99336	Address: P.O. Box 889 Friday Harbor, WA 98250
Phone: 509-582-8709	Phone: 206-378-2688
Site: Mystery Bay State Park	Site: Port of Kalama Marina
Address: 10541 Flagler Road Nordland, WA 98358	Address: P.O. Box 70 Kalama, WA 98625
Phone: 206-385-3701	Phone: 206-673-2325
Site: Oak Harbor Marina*	Site: Port of Kingston
Address: 3075 300th Avenue W Oak Harbor, WA 98277	Address: 25864 Washington Blvd. NE Kingston, WA 98346
Phone: 206-679-2628	Phone: 206-297-3545
Site: Old Mill Park	Site: Port of Poulsbo
Address: Box 368 Manson, WA 98831	Address: P.O. Box 732 Poulsbo, WA 98370
Phone: 509-687-3829	Phone: 206-779-3505
Site: Point Roberts Marina*	Site: Port Townsend Boat Haven
Address: 713 Simundson Drive Point Roberts, WA 98281	Address: 2601 Washington St. Port Townsend, WA 98368
Phone: 206-945-2255	Phone: 206-385-2355
Site: Port Angeles Marina*	Site: Port Washington Marina
Address: 832 Boat Haven Drive Port Angeles, WA 98362	Address: 1805 Thompson Drive Bremerton, WA 98310
Phone: 206-457-4504	Phone: 206-479-3037
Site: Port Ludlow Marina*	Site: Seven Bays Resort/Manna
Address: 421 Marine View Drive Port Ludlow, WA 98365	Address: 300 Mead, P.O. Box 5 Coulee Dam, WA 99116
Phone: 206-437-0513	Phone: 509-725-1676
Site: Port of Camas/Washougal Marina	Site: South Lake Union Moorage
Address: 24 A Street Washougal, WA 98671	Address: 1111-1107 Fairview Avenue N Seattle, WA 98109
Phone: 206-835-2196	Phone: 206-682-0159
Site: Port of Edmonds*	Site: Totem Marina*
Address: 336 Admiral Way Edmonds, WA 98020	Address: 821 Dock Street Tacoma, WA 98402
Phone: 206-774-0549	Phone: 206-272-4404
Site: Port of Everett Boat Ramp	Site: Westbay Marina*
Address: 1720 West Marine View Drive Everett, WA 98201	Address: 2100 West Bay Drive Olympia, WA 98502
Phone: 206-259-6001	Phone: 206-943-2080

It is recommended that dump stations be installed at Fish Hook Park (Lake Sacajawea-Snake River) and Washington Park (Fidalgo Head-Anacortes) even though these sites do not have pumpout stations.



Region: San Juan Islands

Blakely Island General Store and Marina

Deer Harbor Marina

Port of Friday Harbor

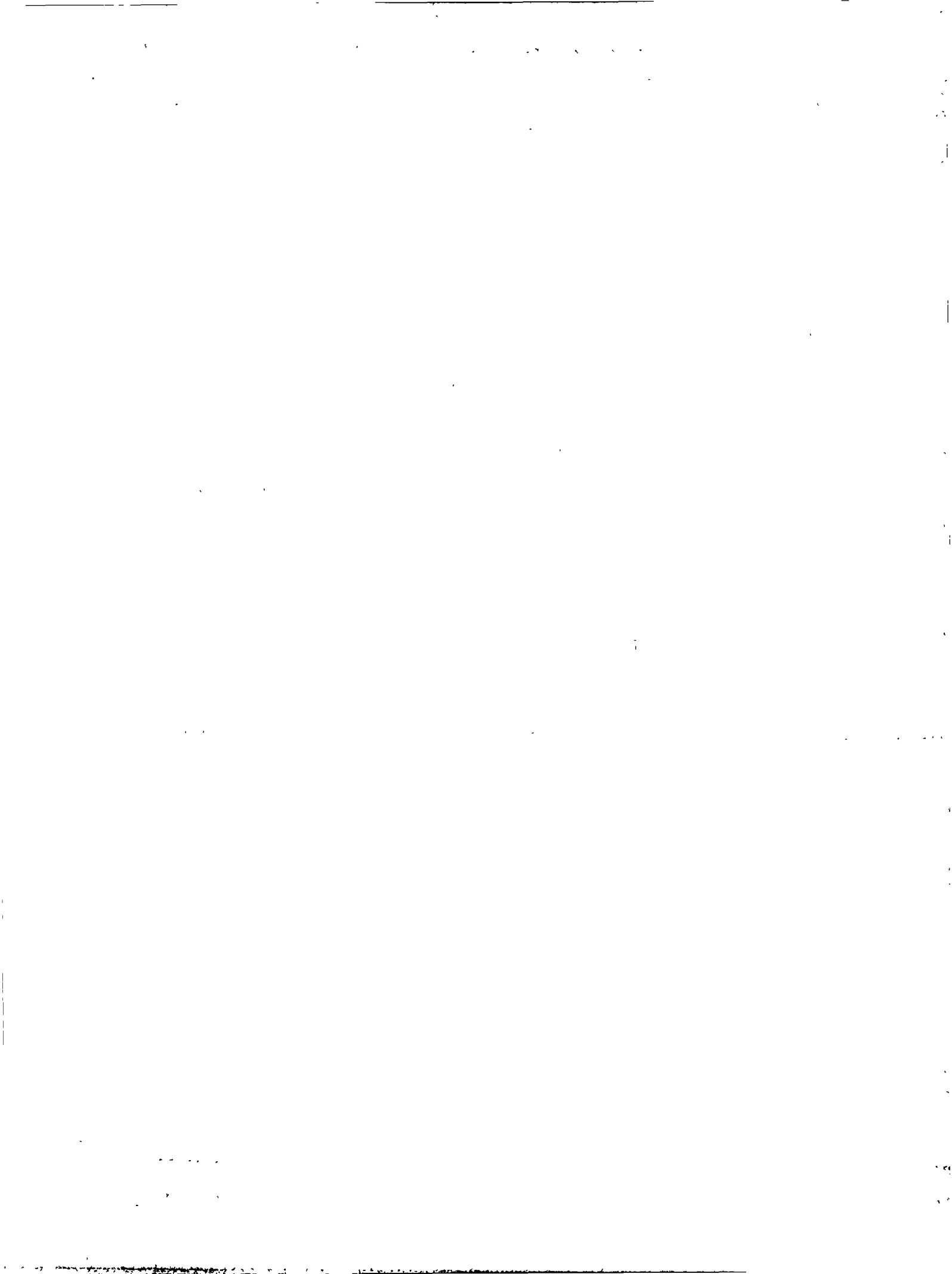
Roche Harbor Resort

Rosario Resort

Snug Harbor Resort

Stuart Island Marine State Park

Sucia Island Marine State Park



FACILITY: **Blakely Island General Store and Marina**

REGION: San Juan Islands

BODY OF WATER: Rosario Strait

CHARACTERISTICS OF FACILITY:

- no existing pumpout/dump station
- permanent manna and guest moorage
- fuel, store
- popular supply stop for boaters cruising the San Juan Islands
- fuel dock in good condition with good access for all boat lengths
- approximately 7.5 miles from nearest pumpout (West Sound-Orcas Island)
- environmentally sensitive area (Ecology, 1994)

RECOMMENDATION(S). new additional replacement

Install a pumpout and dump station. Recommend locating on or adjacent to fuel dock.

FACILITY: **Deer Harbor Marina**

REGION: San Juan Islands

BODY OF WATER: Deer Harbor - San Juan Channel (Orcas)

CHARACTERISTICS OF FACILITY

- no existing pumpout/dump station in Deer Harbor
- 75 slip guest marina; other guest marinas in harbor
- during boating season the harbor is crowded with boats in marnas and on buoys
- fuel, restaurant, store
- popular destination facility
- boater recommendation (boater survey)
- approximately 3.5 miles from nearest pumpout (West Sound-Orcas Island)
- environmentally sensitive area (Ecology, 1994)

RECOMMENDATION(S) new additional replacement

Install a barge with pumpout, dump station, and restroom. A barge unit is recommended due to the number of boats at anchor and on buoys in the harbor and the limited dock space available during boating season.

FACILITY: Port of Friday Harbor

REGION: San Juan Islands

BODY OF WATER: Friday Harbor

CHARACTERISTICS OF FACILITY.

- 484 permanent slips, 94 guest slips, and 4800' of guest dock
- busiest guest transient facility in Washington; popular destination facility
- several other marinas in Friday Harbor
- currently has four pumpouts - 2 units on 1 barge, a stationary unit on dock, and a portable unit
- in tests conducted during a 1994 site visit, both pumpouts on the barge were *not working*, the stationary pumpout *passed but with difficulty*; and the portable *passed but with difficulty*.
- port is the only pumpout site on San Juan Island and one of only three in all the San Juan Islands
- boater recommendation (boater survey)
- operator interest (interview)
- environmentally sensitive area (Ecology, 1994)
- identified as high need site (Puget Sound Marina/Boater Advisory Committee, 1993)
- San Juan Island has its own waste treatment plant which services the Port via sewer line. However, the Port believes the waste treatment plant will request funds for capacity expansion to meet increased boater waste. In addition to improving the pumpout facilities at the Port, there is a need to provide facilities at the Port for the transfer of waste from pumpout skiffs and barges servicing other islands as well as San Juan Island. This will substantially increase the boat waste load on the treatment plant.

RECOMMENDATION(S): new additional replacement

Install an interconnected pumpout system with several pumpout and dump stations. System should be able to accommodate boats 100'+ and the transfer sewage from pumpout barge/skiffs. Work with Port and San Juan waste treatment plant to address capacity deficiencies associated with increased boat sewage.

FACILITY Roche Harbor Resort

REGION San Juan Islands

BODY OF WATER: Roche Harbor - Haro Strait

CHARACTERISTICS OF FACILITY

- 206 slips; mooring buoys
- throughout the boating season, Roche Harbor's protected waters accommodate hundreds of boats
- no existing pumpout/dump station
- store, restaurant, fuel, hotel, boat ramp
- popular destination facility
- approximately 5 miles from the nearest pumpout (Stuart Island Marine State Park)
- several boater recommendations (boater survey)
- operator interest (interview)
- environmentally sensitive area (Ecology, 1994)
- identified as high need site (Puget Sound Marina/Boater Advisory Committee, 1993)

RECOMMENDATION(S) new additional replacement

Install three pumpouts - unit at fuel dock, unit at guest dock, and barge with dump station and restroom in harbor.

FACILITY: Rosario Resort

REGION: San Juan Islands

BODY OF WATER Cascade Bay - East Sound

CHARACTERISTICS OF FACILITY

- 45 slips; significant number of mooring buoys
- popular destination facility
- no existing pumpout/dump station
- hotel, restaurant, fuel
- approximately 10 miles from the nearest pumpout station (West Sound - Orcas Island)
- boater recommendation (boater survey)
- owner interest (interview)
- environmentally sensitive area (Ecology, 1994)

RECOMMENDATION(S): new additional replacement

Install a pumpout and dump station. Recommend locating on fuel dock.

FACILITY Snug Harbor Resort

REGION San Juan Islands

BODY OF WATER Mitchell Bay

CHARACTERISTICS OF FACILITY

- 74 permanent slips and 24 guest slips
- no existing pumpout/dump station
- popular destination facility
- operator interest (interview)
- environmentally sensitive area (Ecology, 1994)

RECOMMENDATION(S): new additional replacement

Install a pumpout and dump station.

FACILITY Stuart Island Marine State Park

REGION San Juan Islands

BODY OF WATER Prevost and Reid Harbors - Haro Strait

CHARACTERISTICS OF FACILITY

- currently there is a barge with a manual pumpout and dump station in Reid Harbor
- in a "bucket test" conducted during a 1994 site visit, the pumpout was found to be *in good working condition*
- popular destination facility
- two recreational docks, 22 mooring buoys, and ample space for anchorage
- throughout boating season the harbors' protected waters accommodate hundreds of recreational boaters
- boater recommendation for additional pumpouts
- environmentally sensitive area (Ecology, 1994)

RECOMMENDATION(S) new additional replacement

Install an additional barge with a manual pumpout, dump station, and restroom either in Prevost Harbor or Reid Harbor.

FACILITY: **Sucia Island Marine State Park**

REGION **San Juan Islands**

BODY OF WATER: **Echo Bay - Rosario Strait**

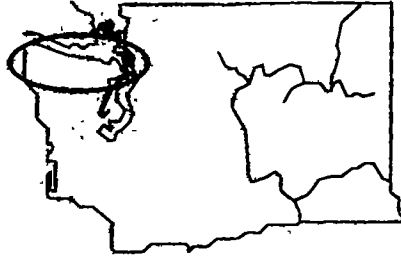
CHARACTERISTICS OF FACILITY:

- 2 floating docks and 50 mooring buoys
- no existing pumpout/dump station
- popular destination facility
- throughout boating season the harbor's protected water accomodates hundreds of recreational boaters
- popular as a clamming, crabbing, fishing, swimming, and scuba diving area
- approximately 14 miles from nearest pumpout (Stuart Island Marine State Park)
- this location was the most frequently mentioned by boaters in the boater survey as needing a pumpout
- environmentally sensitive area (Ecology, 1994)
- identified as high need site (Puget Sound Manna/Boater Advisory Committee, 1993)

RECOMMENDATION(S): new additional replacement

Install a barge with manual pumpout, dump station, and restroom.

Note: Washington State Parks has a pumpout barge in storage. The stored barge was constructed at the same time as the Stuart Island barge. Although never installed, Sucia Island was the intended placement for the second barge. It is recommended that the barge be taken out of storatge and placed in Echo Bay (Sucia Island) for use beginning during the 1995 boating season.



Region: North Puget Sound

Blaine Harbor

Cap Sante Boat Haven

La Conner Marina

Neah Bay

Oak Harbor Marina

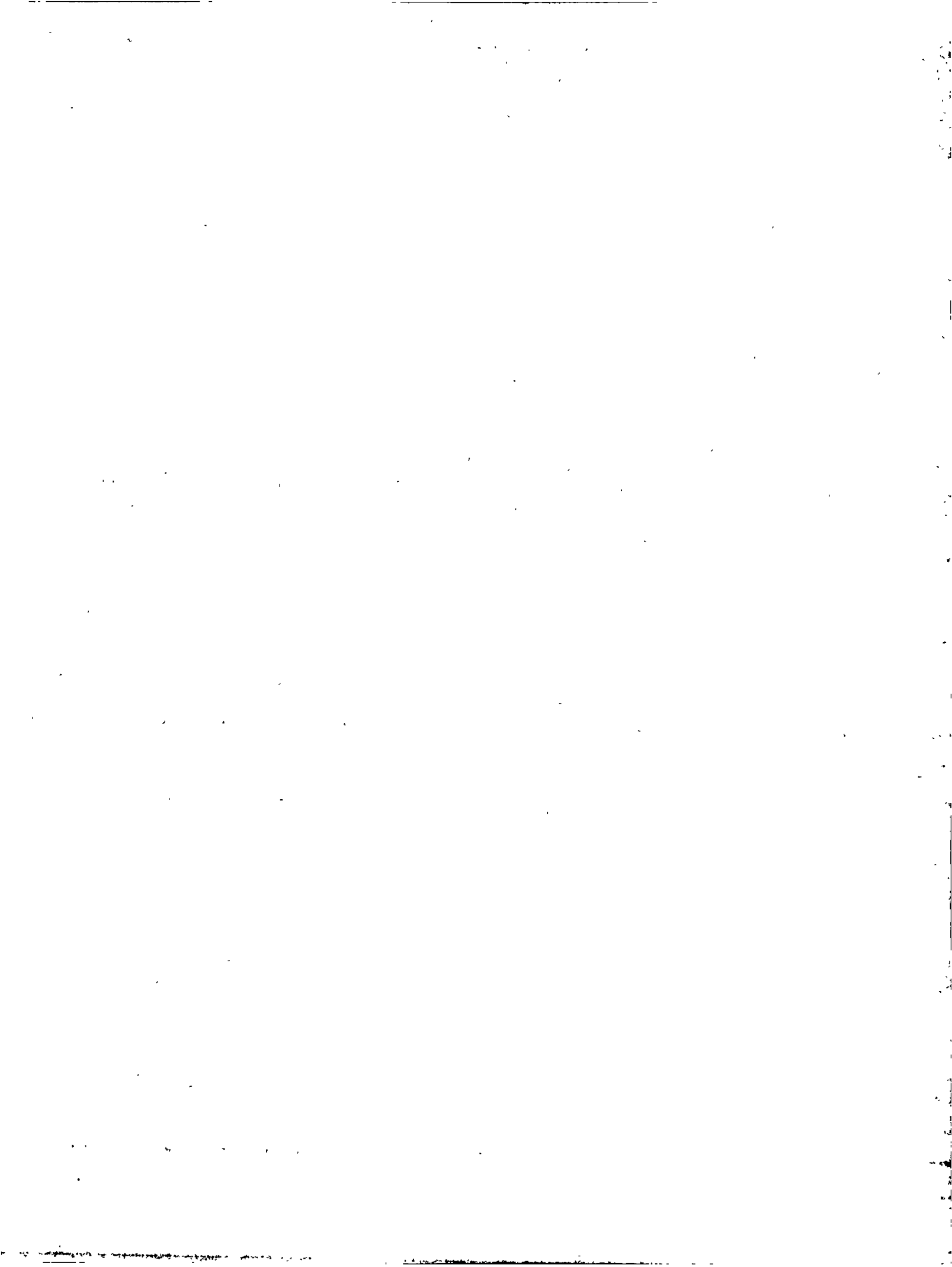
Point Hudson Resort

Point Roberts Marina

Port Angeles Marina

Port of Everett Marina

Port Ludlow Marina



FACILITY: **Blaine Harbor**

REGION: north Puget Sound

BODY OF WATER: Drayton Harbor - Semiahmoo Bay

CHARACTERISTICS OF FACILITY

- 400 slip marina; mainly commercial boat harbor
- currently have a stationary pumpout
- in a "bucket test" conducted during a 1994 site visit, the pumpout was found to be in *good working condition*
- facility owned by Port of Bellingham
- adjacent to Canada border
- environmentally sensitive area (Ecology, 1994)

RECOMMENDATION(S): new additional replacement

Install an additional pumpout and dump station.

FACILITY **Cap Sante Boat Haven**

REGION: north Puget Sound

BODY OF WATER: Fidalgo Bay

CHARACTERISTICS OF FACILITY

- 1,030 slips
- currently have stationary pumpout and a portable pumpout unit
- in a "bucket test" during a 1994 site visit, the stationary pumpout was found to be in *good working condition*; portable unit was not tested
- fuel, restaurants, travel lift, boat yard
- boater recommendation (boater survey)

RECOMMENDATION(S) new additional replacement

Install an additional pumpout and dump station. Install a dump station adjacent to existing pumpout.

FACILITY **La Conner Marina**

REGION north Puget Sound

BODY OF WATER Swinomish Slough

CHARACTERISTICS OF FACILITY

- currently have stationary pumpout on fuel dock
- in a "bucket test" conducted during a 1994 site visit, the pumpout was found to be *not working*
- only pumpout site on Swinomish Slough
- popular destination facility, well traveled Slough
- approximately 8 miles from nearest pumpout (Marine Servicecenter-Anacortes)
- operator interest (interview)
- identified as high need site (Puget Sound Marina/Boater Advisory Committee, 1993)

RECOMMENDATION(S) new additional replacement

Replace pumpout and add a dump station.

FACILITY: Neah Bay

REGION. north Puget Sound

BODY OF WATER: Strait of Juan de Fuca

CHARACTERISTICS OF FACILITY.

- no existing pumpout/dump station
- large sheltered bay with several resort operated marinas
- season from April - September after which all docks are removed
- redevelopment of entire bay is being considered

RECOMMENDATION(S): new additional replacement

Install a pumpout and dump station system appropriate to the redevelopment.

FACILITY Oak Harbor Marina

REGION north Puget Sound

BODY OF WATER. Oak Harbor - Saratoga Passage

CHARACTERISTICS OF FACILITY

- 315 permanent slips; 38 guest slips
- currently has 2 pumpouts - a stationary on fuel dock and a pumpout barge with restroom and dump station
- in a "bucket test" conducted during a 1994 site visit, the stationary unit was found to be in *good working condition* and the pumpout on the barge was *not working*.
- the operator would like to replace stationary pumpout on fuel dock (operator survey)
- a "no discharge" marina

RECOMMENDATION(S): new additional replacement

Replace stationary pumpout at fuel dock and install an adjacent dump station.

FACILITY Point Hudson Resort

REGION north Puget Sound

BODY OF WATER Port Townsend Harbor - Puget Sound

CHARACTERISTICS OF FACILITY

- 40+ slips; 8-10 live-aboards; with rafting manna accomodates up to 80 boats
- manna is leased from Port of Port Townsend
- no existing pumpout/dump station
- approximately .5 miles from the nearest pumpout (Port Townsend Boat Haven)
- boater recommendations (boater survey)
- operator interest (interview)
- environmentally sensitive area (Ecology, 1994)

RECOMMENDATION(S) new additional replacement

Install a pumpout and dump station. Operator does not want a portable pumpout.

FACILITY: Point Roberts Marina

REGION: north Puget Sound

BODY OF WATER: Strait of Georgia

CHARACTERISTICS OF FACILITY:

- 1,000 slips
- currently have stationary pumpout
- in a "bucket test" conducted during a 1994 site visit, the pumpout was found to be in *good working condition*
- fuel, travel lift, restaurant
- the only land access from U.S. to Point Roberts is through Canada

RECOMMENDATION(S): new additional replacement

Install an additional pumpout and dump station. Add a dump station adjacent to existing pumpout.

FACILITY: Port Angeles Marina

REGION: north Puget Sound

BODY OF WATER: Port Angeles Harbor
Strait of Juan de Fuca

CHARACTERISTICS OF FACILITY

- 510 slips; 25 live-aboard
- currently have stationary pumpout on fuel dock
- the pumpout was not working at the time of a 1994 site visit
- fuel
- environmentally sensitive area (Ecology, 1994)

RECOMMENDATION(S) new additional replacement

Install an additional pumpout and dump station. Add a dump station adjacent to existing pumpout.

FACILITY: Port of Everett Marina

REGION: north Puget Sound

BODY OF WATER: Possession Sound - Puget Sound

CHARACTERISTICS OF FACILITY:

- 2,100 slips; 210 live-aboards; guest moorage
- average year-round occupancy is 97 percent
- currently have a stationary unit located at fuel dock and access to a commercial pumpout service that will provide pumpouts upon request
- a stationary pumpout unit is located on boat ramp adjacent to the marina
- in "bucket tests" during a 1994 site visit both the pumpout unit on the fuel dock and the one at the boat ramp was in *good working condition*
- environmentally sensitive area (Ecology, 1994)
- identified as high need site (Puget Sound Marina/Boater Advisory Committee, 1993)

RECOMMENDATION(S): new additional replacement

Install an interconnected pumpout system that includes a minimum of four pumpout stations for recreational boats (system may incorporate existing pumpouts). System should be designed to address the needs of live-aboards as well. Install a dump station adjacent to each of the pumpout stations.

FACILITY: **Port Ludlow Marina**

REGION: north Puget Sound

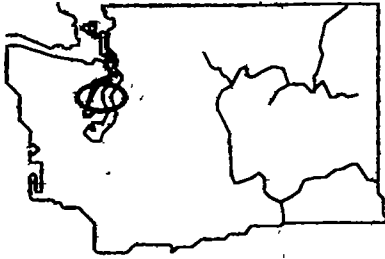
BODY OF WATER Port Ludlow Bay
Admiralty Inlet - Hood Canal

CHARACTERISTICS OF FACILITY

- 300 slips
- currently have stationary pumpout and shoreside dump station
- in a "bucket test" conducted during a 1994 site visit, the pumpout unit *passed but with difficulty*
- popular destination facility
- fuel, lodging, store
- operator interest (operator survey), operator would like to replace unit because the existing unit requires operator assistance
- environmentally sensitive area (Ecology, 1994)

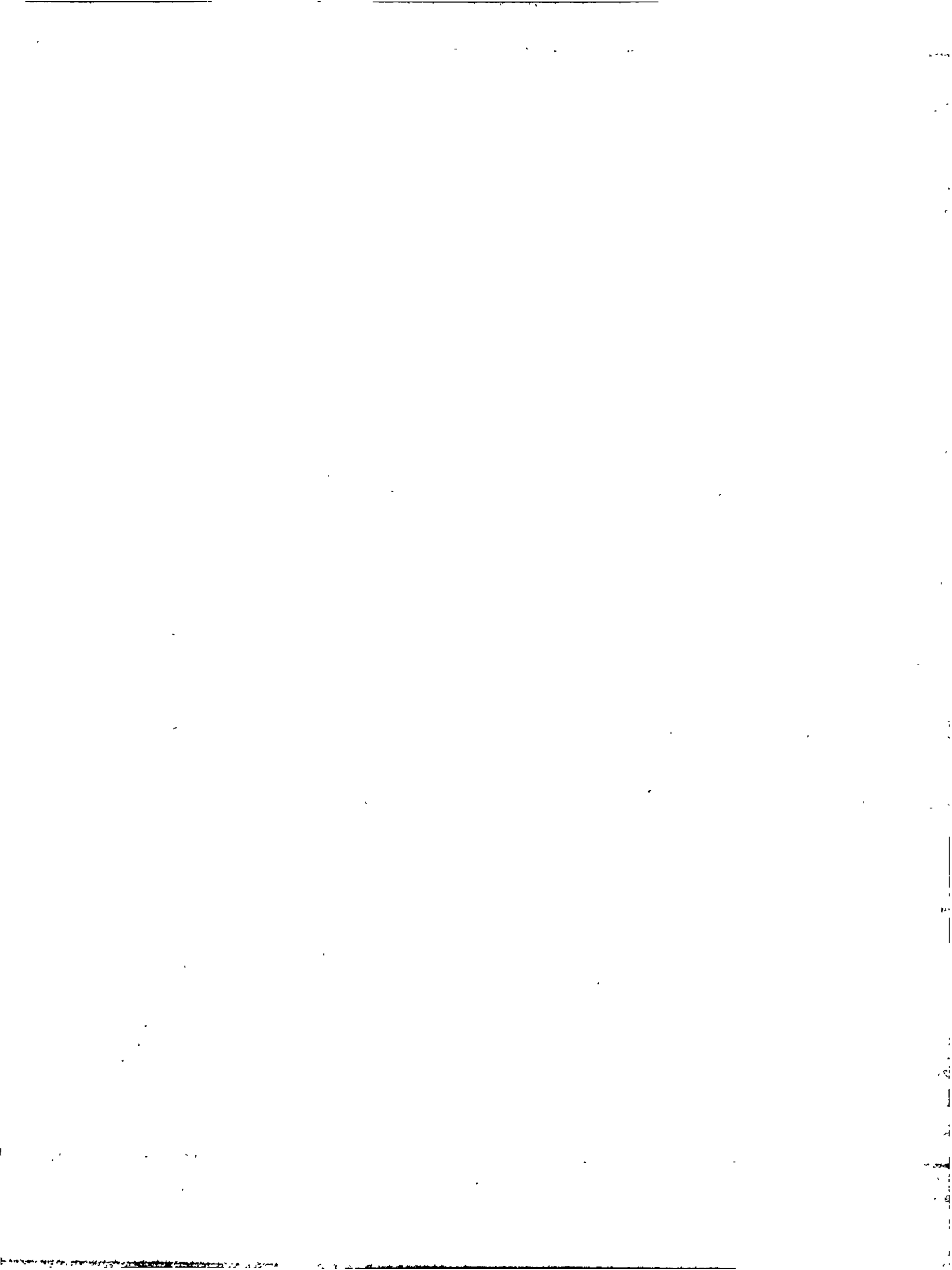
RECOMMENDATION(S): new additional replacement

Replace existing pumpout and add an adjacent dump station.



Region: Central Puget Sound

Fishermen's Terminal
Elliott Bay Marina
Newport Yacht Basin
Pleasant Harbor Marina
Port of Edmonds
Port Orchard Marina
Seabeck Marina
Shilshole Bay Marina



FACILITY: Fishermen's Terminal

REGION: central Puget Sound

BODY OF WATER: Ship Canal

CHARACTERISTICS OF FACILITY:

- only pumpout facility on Ship Canal
- currently have a stationary pumpout which does not work (confirmed at 1994 site visit)
- commercial fishing moorage only
- operated by the Port of Seattle
- Port applying for new pumpout permit but operator does not know what kind or when one will be installed
- fuel dock, restaurants
- environmentally sensitive area (Ecology, 1994)
- identified as high need site (Puget Sound Marina/Boater Advisory Committee, 1993)

RECOMMENDATION(S): new additional replacement

Replace the existing inoperable pumpout with a system capable of servicing large vessels as well as recreational boats. Install an adjacent dump station.

FACILITY Elliott Bay Marina

REGION: central Puget Sound

BODY OF WATER: Elliott Bay - Puget Sound

CHARACTERISTICS OF FACILITY

- 1,200 slip marina; forty-two percent of slips are 40'+; 40 live-aboards
- currently have stationary pumpout and access to a commercial pumpout service that will provide pumpouts upon request
- in a "bucket test" conducted during a 1994 site visit, the pumpout was found to be in *good working condition*
- operator interest (operator survey)
- environmentally sensitive area (Ecology, 1994)

RECOMMENDATION(S) new additional replacement

Install 2 additional pumpouts with adjacent dump stations. Recommend locating one of these pumpouts at guest dock.

FACILITY Newport Yacht Basin

REGION: central Puget Sound

BODY OF WATER East Channel - Lake Washington

CHARACTERISTICS OF FACILITY

- 416 slips
- adjacent to private marina with 110 slips
- adjacent to public boat ramp
- fuel, travel life, boat yard
- boater recommendation
- environmentally sensitive area (Ecology, 1994)

RECOMMENDATION(S). new additional replacement

Install a pumpout and adjacent dump station.

FACILITY: Pleasant Harbor Marina

REGION central Puget Sound

BODY OF WATER: Pleasant Harbor - Hood Canal

CHARACTERISTICS OF FACILITY:

- 165 moorage slips
- currently have portable pumpout
- in a "bucket test" conducted during a 1994 site visit the portable pumpout *passed but with difficulty*
- popular destination facility
- boater recommendation
- operator interest (operator survey)
- environmentally sensitive area (Ecology, 1994)

RECOMMENDATION(S) new additional replacement

Install an additional portable pumpout. Operator would like to have a portable pumpout at each ramp.

FACILITY Port of Edmonds

REGION central Puget Sound

BODY OF WATER: Puget Sound

CHARACTERISTICS OF FACILITY:

- 800 moorage slips; guest moorage
- currently have a stationary pumpout
- in a "bucket test" conducted during a 1994 site visit the pumpout *passed but with difficulty*
- popular destination facility
- fuel, travel lift, boat yard, restaurants

RECOMMENDATION(S) new additional replacement

Install an additional pumpout and adjacent dump station. Install a dump station adjacent to existing stationary pumpout.

FACILITY Port Orchard Marina

REGION central Puget Sound

BODY OF WATER Sinclair Inlet - Puget Sound

CHARACTERISTICS OF FACILITY

- 410 slips and 1500' of inside side tie; moorage includes 16 live-aboards; guest moorage
- currently have stationary pumpout and dump station at fuel dock
- in a "bucket test" conducted during a 1994 site visit, the pumpout *passed but with difficulty*
- guest moorage is located a significant distance from pumpout station
- environmentally sensitive area (Ecology, 1994)

RECOMMENDATION(S) new additional replacement

Install an additional pumpout and adjacent dump station. Recommend locating in guest moorage area.

FACILITY: **Seabeck Marina**

REGION: central Puget Sound

BODY OF WATER Seabeck Bay - Hood Canal

CHARACTERISTICS OF FACILITY

- 180 slips
- no existing pumpout/dump station
- approximately 3 miles from nearest pumpout (Pleasant Harbor-Hood Canal)
- applied for 1994 grant for installation of pumpout system - unsuccessful
- operator interest (operator survey)
- environmentally sensitive area (Ecology, 1994)

RECOMMENDATION(S): new additional replacement

Install a pumpout and adjacent dump station.

FACILITY: **Shilshole Bay Marina**

REGION central Puget Sound

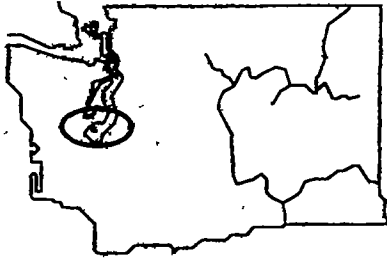
BODY OF WATER Shilshole Bay - Puget Sound

CHARACTERISTICS OF FACILITY:

- 1,500 slips (all over 26'); 256 live-aboards, guest moorage
- currently have two stationary pumpouts and access to a commercial pumpout service that will provide pumpouts upon request
- in a "bucket test" conducted during a 1994 site visit, both pumpouts *passed but without difficulty*
- fuel dock, restaurants, stores, boat ramp, boat yard
- boater recommendation (boater survey)
- operator interest (operator survey and interview)

RECOMMENDATION(S): new additional replacement

Install an interconnected pumpout system that includes a minimum of four pumpout stations for use by recreational boats (system may incorporate existing pumpouts). System should be designed to address the needs of live-aboards as well. Install dump stations adjacent to each pumpout.



Region: South Puget Sound

City of Des Moines
Docketon County Park
Jeresich City Dock
Lakebay Marina or Penrose Point State Park
Longbranch Marina
Port of Silverdale
Quartermaster Marina
Totem Marina
Westbay Marina



FACILITY City of Des Moines

REGION south Puget Sound

BODY OF WATER Puget Sound

CHARACTERISTICS OF FACILITY:

- 780 slips; 25 live-aboards
- currently have a stationary pumpout on fuel dock and a shoreside dump station
- in a "bucket test" conducted during a 1994 site visit, the pumpout *passed but with difficulty*
- identified as high need site (Puget Sound Marina/Boater Advisory Committee, 1993)

RECOMMENDATION(S) new additional replacement

Install an additional pumpout and adjacent dump station. Recommend considering a portable unit. Install a dump station adjacent to existing stationary pumpout.

FACILITY Dockton County Park

REGION south Puget Sound

BODY OF WATER: Quartermaster Harbor - Puget Sound

CHARACTERISTICS OF FACILITY

- 44 slips
- boat ramp
- popular destination facility; many boats anchor or moor at buoys
- currently have a stationary unit on dock
- at the time of the site visit made in 1994 the pumpout was closed for the winter (open March 15-October 15); according to the operator the county had to modify the pump substantially but it is operational; efforts to contact the manufacturer (Marland Environmental Systems - Lorton, Virginia) were unsuccessful
- several boater recommendations

RECOMMENDATION(S): new additional replacement

Replace existing pumpout and add an adjacent dump station.

FACILITY Jeresich City Dock

REGION south Puget Sound

BODY OF WATER Gig Harbor - off Dalco Passage

CHARACTERISTICS OF FACILITY

- no available pumpout/dump station
- city-owned recreational dock accommodating 12-15 boats
- city is planning to expand dock in 1995 to accommodate an additional 9-12 boats
- only public dock in Gig Harbor
- Gig Harbor has seven private marinas, there are only two existing pumpout sites in the harbor
- popular destination facility
- boater recommendation
- operator interest (interview)
- Gig Harbor was identified as high need area (Puget Sound Marina/Boater Advisory Committee, 1993)

RECOMMENDATION(S) new additional replacement

Install a pumpout and adjacent dump station.

FACILITY: Lakebay Marina or Penrose Point State Park

REGION: south Puget Sound

BODY OF WATER: Carr Inlet - south Puget Sound

CHARACTERISTICS OF FACILITY:

- inlet has a private marina and a state park with recreational dock and mooring buoys
- no existing pumpout/dump station
- marina has a fuel dock and store
- Penrose Point State Park was identified in 1991 by the New Moon Project and the Mayo Cove Protection Committee (a group of concerned citizens) as a marine state park in need of a pumpout facility
- approximately 15 miles from nearest pumpout (Murphy's Landing - Gig Harbor)
- boater recommendation (boater survey)
- Carr Inlet identified as an environmentally sensitive area (Ecology, 1994)
- Mayo Cove identified as high need site (Puget Sound Marina/Boater Advisory Committee, 1993)

RECOMMENDATION(S). new additional replacement

Install either a pumpout and adjacent dump station at marina or a barge with pumpout, dump station, and restroom at state park.

FACILITY Longbranch Marina

REGION south Puget Sound

BODY OF WATER Filucy Bay - Puget Sound

CHARACTERISTICS OF FACILITY:

- 46 moorage slips
- no existing pumpout/dump station
- boater recommendations (boater survey)
- approximately 13 miles from nearest pumpout (Murphy's Landing - Gig Harbor)
- identified as high use site (Puget Sound Marina/Boater Advisory Committee, 1993)

RECOMMENDATION(S) new additional replacement

Install a pumpout and adjacent dump station.

FACILITY Port of Silverdale

REGION south Puget Sound

BODY OF WATER Dyes Inlet - Puget Sound

CHARACTERISTICS OF FACILITY

- 60 guest moorage slips
- no existing pumpout/dump station
- boat ramp
- approximately 5 miles from nearest pumpout (Port Washington)
- boater recommendations (boater survey)
- operator interest (interview)
- environmentally sensitive area (Ecology, 1994)

RECOMMENDATION(S) new additional replacement

Install a new pumpout and adjacent dump station.

FACILITY: **Quartermaster Marina**

REGION: south Puget Sound

BODY OF WATER: Quartermaster Harbor

CHARACTERISTICS OF FACILITY:

- 59 permanent moorage slips
- a number of boats are moored in harbor
- boat yard and travel lift
- no existing pumpout/dump station
- boater recommendation (boater survey)

RECOMMENDATION(S): new additional replacement

Install a pumpout and adjacent dump station.

FACILITY **Totem Marina**

REGION: south Puget Sound

BODY OF WATER: Thea Foss Waterway

CHARACTERISTICS OF FACILITY

- 400 permanent slips; 15 guest slips; 50 live-aboards
- currently have a stationary pumpout located on fuel dock, user must request hose from marina operator
- in a "bucket test" conducted during a 1994 site visit, the pumpout was found to be in *good working condition*
- applied for 1994 grant to install interconnected pumpout hydrant system with remote stationary stand - unsuccessful

RECOMMENDATION(S) new additional replacement

Install an interconnected pumpout system that includes a minimum of one pumpout station for recreational boats (system may incorporate existing pumpout). System should be designed to address the needs of live-aboards as well. Install a dump station on fuel dock.

FACILITY **Westbay Marina**

REGION south Puget Sound

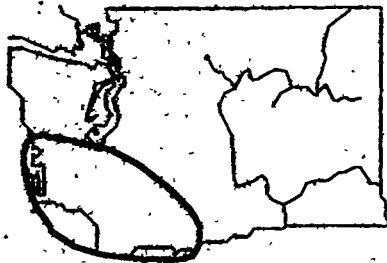
BODY OF WATER: Budd Inlet

CHARACTERISTICS OF FACILITY

- 472 permanent slips
- fuel, store, boat yard
- currently have a portable unit; operator reported use as frequent
- operator interest (interview)
- environmentally sensitive area (Ecology, 1994)
- identified as high need site (Puget Sound Marina/Boater Advisory Committee, 1993)

RECOMMENDATION(S) new additional replacement

Install a stationary pumpout and adjacent dump station. Recommend locating on fuel dock.



Region: Southwest Washington

Beacon Rock State Park

Ocean Shores Marina

Port of Ilwaco

Port of Chinook

Westport Marina

Tokeland Marina

FACILITY: **Beacon Rock State Park**

REGION: southwest Washington

BODY OF WATER: Columbia River

CHARACTERISTICS OF FACILITY.

- no existing pumpout/dump station
- large recreational dock
- popular destination facility; attracts large boats
- approximately 15 miles from nearest Washington pumpout (Port of Camas/Washougal)
- boater recommendation
- operator interest (interview)
- environmentally sensitive area (Ecology, 1994)

RECOMMENDATION(S): new additional replacement

Install a pumpout and adjacent dump station.

FACILITY **Ocean Shores Marina**

REGION southwest Washington

BODY OF WATER. North Bay - Grays Harbor

CHARACTERISTICS OF FACILITY

- no existing pumpout/dump station
- the City is pursuing acquiring marina from a private developer
- environmentally sensitive area (Ecology, 1994)

RECOMMENDATION(S) new additional replacement

No specific recommendation at this time. Should the City of Ocean Shores be successful in acquiring the marina, installing a pumpout system would be appropriate.

FACILITY: **Port of Ilwaco**

REGION southwest Washington

BODY OF WATER: Baker Bay - Pacific Ocean

CHARACTERISTICS OF FACILITY

- 1,000 slips; 4 live-aboards
- currently have a stationary unit and dump station on a finger pier
- in a "bucket test" conducted during a 1994 site visit, the pumpout was found to be *in good working order*
- most of the docks in the marina are accessible from one ramp

RECOMMENDATION(S) new additional replacement

Install an additional pumpout with an adjacent dump station. Recommend considering a portable unit.

FACILITY **Port of Chinook**

REGION southwest Washington

BODY OF WATER: Baker Bay - Columbia River

CHARACTERISTICS OF FACILITY.

- 300 permanent slips
- no existing pumpout/dump station
- approximately 4 miles from nearest pumpout (Port of Ilwaco)
- fuel, convenience store

RECOMMENDATION(S): new additional replacement

Install a pumpout and adjacent dump station.

FACILITY **Westport Marina**

REGION southwest Washington

BODY OF WATER: South Bay - Grays Harbor

CHARACTERISTICS OF FACILITY

- 1,000 slips; 30 guest slips
- has a stationary pumpout unit
- Grays Harbor Yacht Club located next door
- fuel, travel lift, boat yard
- environmentally sensitive area (Ecology, 1994)

RECOMMENDATION(S) new additional replacement

Install an additional pumpout and adjacent dump station. Recommend installing on fuel dock. Install a dump station adjacent to existing pumpout.

FACILITY **Tokeland Marina**

REGION southwest Washington

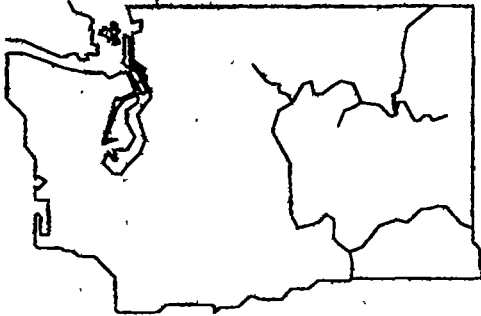
BODY OF WATER Willapa Bay - mouth of Willapa River

CHARACTERISTICS OF FACILITY

- 62 permanent slips
- boat ramp, general store
- no existing pumpout/dump station
- approximately 24 miles from nearest pumpout (Grays Harbor Yacht Club)
- a popular commercial fishing area, during fishing season local marinas experience capacities requiring rafting three boats deep
- a pumpout barge could be used to service other facilities on the Willapa River such as docks at South Bend, Raymond, and Bay Center Moorage
- operator interest (interview)

RECOMMENDATION(S) new additional replacement

Install a barge with pumpout, dump station, and restroom. Recommend considering moving barge to various locations on the river depending on seasonal demands.



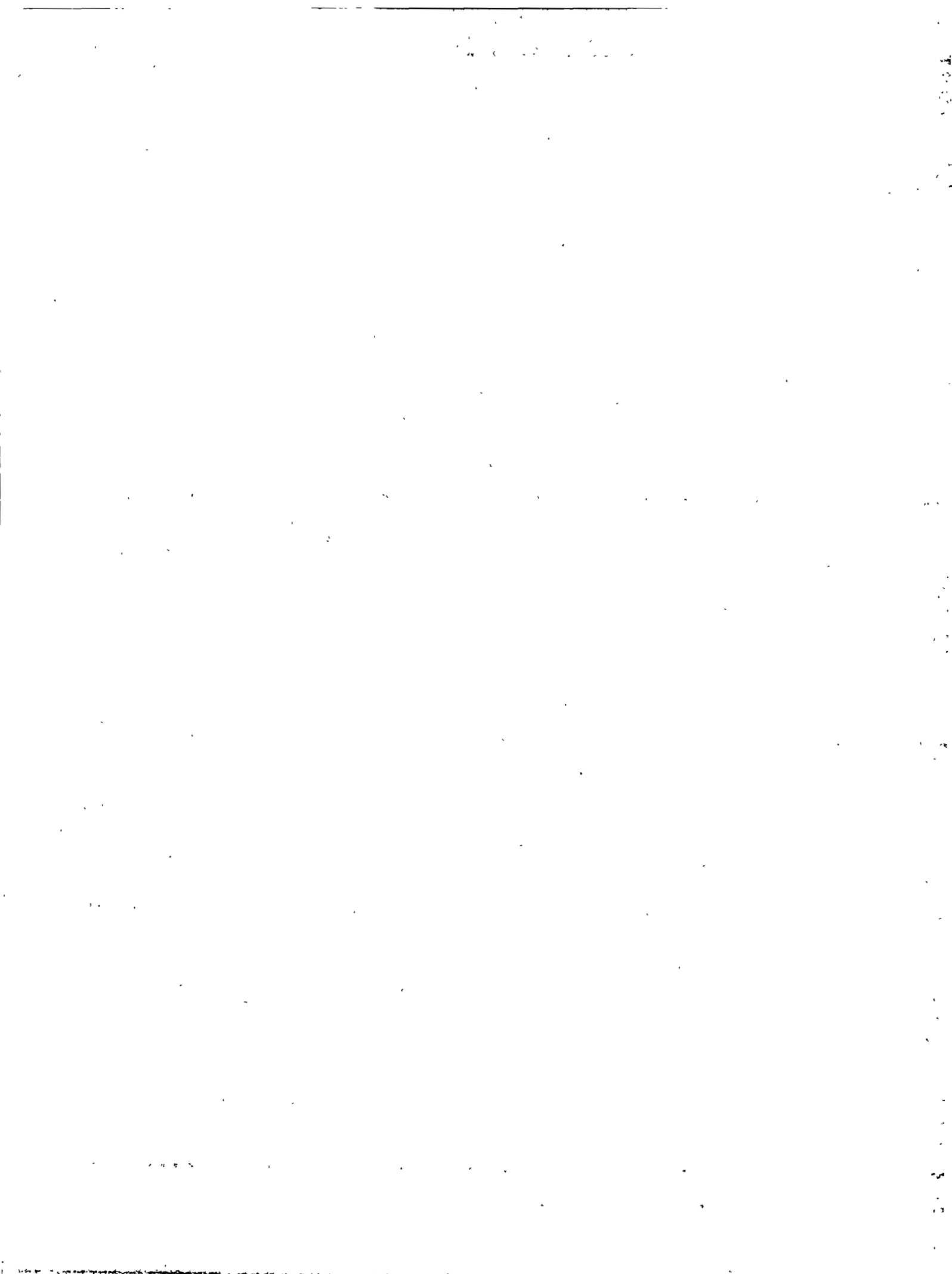
Appendix A Existing Pumpout Facilities

Washington State currently has 80 boating facilities which offer pumpout services to the general public. This inventory will be enlarged with the addition of eight new sites in 1995 and enhanced with the renovation/replacement of pumpouts at six existing sites. Improvements and additions to the inventory of are made possible through grants funds provided by Washington State Parks and Recreation Commission.

The following pages provide information about the 1995 pumpouts installation/renovation projects and a pictorial overview of the 80 existing pumpout facilities in Washington State.

Information about the 1995 projects is on page 105, followed by the pictorial overview of existing facilities. The overview is organized into six regions. The regions, in the order presented, are:

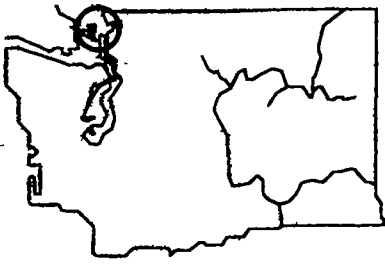
- San Juan Islands
- North Puget Sound
- Central Puget Sound
- South Puget Sound
- Southwest Washington
- Central and Eastern Washington



Recently Washington State Parks approved grants to support the 1995 new installation of pumpouts at eight facilities which have not offered public pumpout services in the past. In addition, grants were approved for the replacement/renovation of six existing pumpout facilities during 1995. The plans of all fourteen of the facilities are highlighted in the table below.

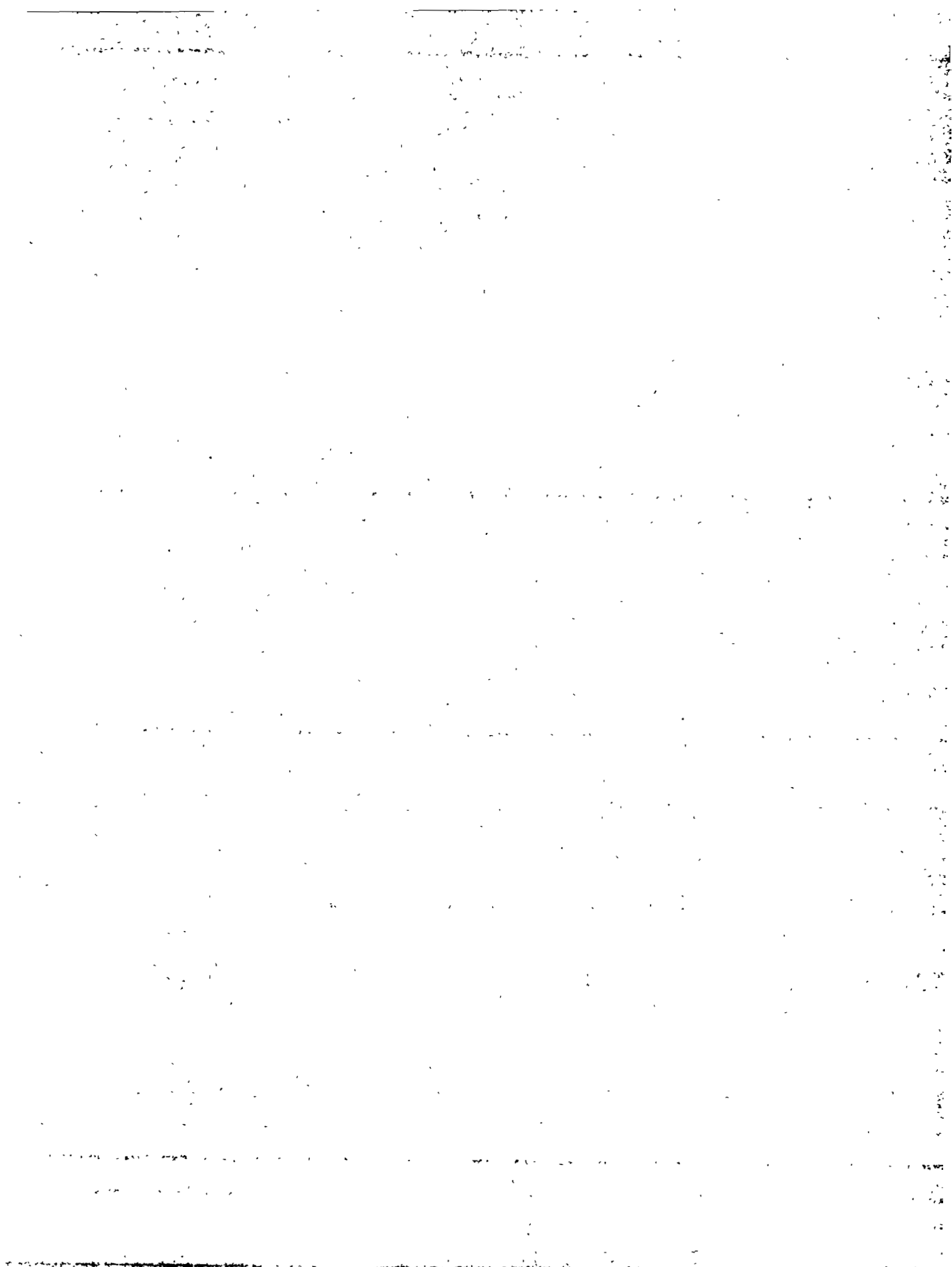
Pumpout facilities to be added or improved over the next 12 months.

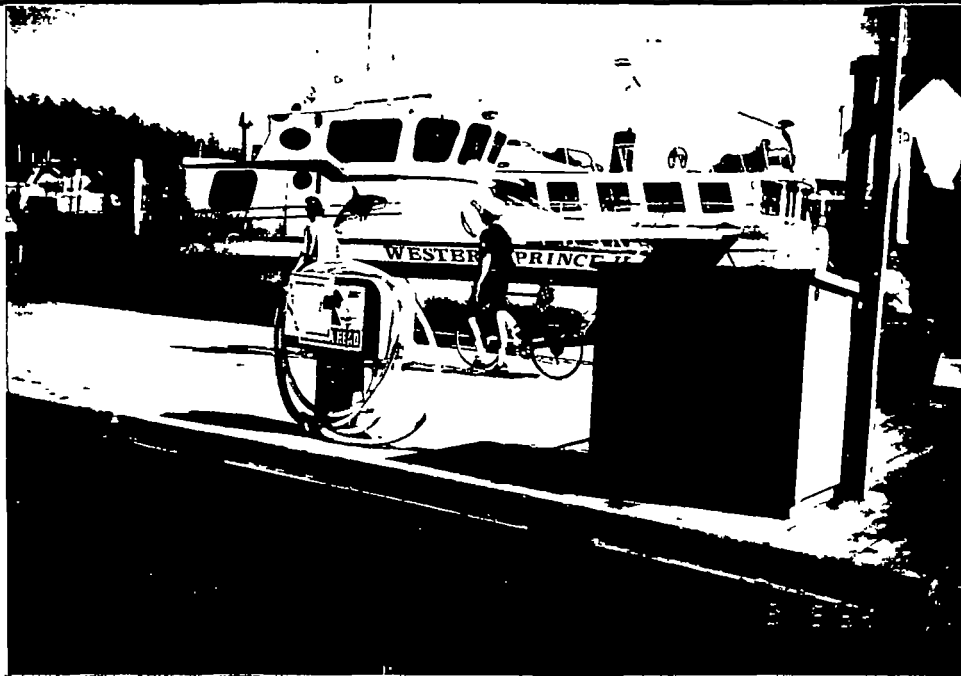
SITE	REGIONAL LOCATION	TYPE OF PUMPOUT	TYPE OF CONSTRUCTION	MANUFACTURER MODEL NUMBER
Island Marine Center	San Juan Islands (Lopez)	• stationary	new	Keco (200)
Semiahmoo Marina	north Puget Sound (Blaine)	• portable (hydrant) • dump station • hydrant system • basin with grinder	combination	Keco (609) Keco (300)
Langley Small Boat Harbor	north Puget Sound	• undetermined	new	undetermined
Port of Bellingham Squalicum Harbor	north Puget Sound	• portable • transfer station • wash station	new	Edson (282) Edson (283) Edson (281)
Port of Port Townsend	north Puget Sound	• stationary • skiff w/ holding tank pumpout (on skiff)	combination	Keco (150) Skallerud Marine Keco (50G)
Skyline Marina	north Puget Sound (Anacortes)	• 3 interconnected stationary units with dumpstations		Waubauskene (BVR 300)
Carillon Point Marina	central Puget Sound (Lake Washington)	• stationary • dump station • lift station	renovation	SaniService (D54) Keco (300G) underdetermined
Parkshore Marina Assoc	central Puget Sound (Lake Washington)	• stationary • dump station	combination	Keco (150) Keco (300G)
Shelton Yacht Harbor	south Puget Sound	• stationary • dump station	new	SaniSailor (Sentinel P)
Johnny's Dock Marina	south Puget Sound (Tacoma)	• stationary • dump station	new	Keco (175) Keco (300P)
Tyee Marina	south Puget Sound (Tacoma)	• 2 barges with pumpouts • 6 dump stations	new	Keco (175) Keco (300G)
Crow's Nest Marina	south Puget Sound (Tacoma)	• 2 portable • dump station	new	Keco (125) Keco
Pick's Cove Marina	south Puget Sound (Tacoma)	• stationary • dump station	new	Edson (284 EB)
Modutech Marine, Inc.	south Puget Sound (Tacoma)	• stationary • dump station	new	Keco (175)



Region: San Juan Islands

Port of Friday Harbor
Stuart Island State Park
West Sound Marina





Port of Friday Harbor

P.O. Box 889
Friday Harbor, WA 98250
206-378-2688

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 484
FACILITY OWNER: Port of Friday Harbor
BODY OF WATER: Friday Harbor

LONGITUDE: 123D 01.1'W
LATITUDE: 48D 32.35'N
COUNTY: San Juan

CONTACT PERSON: Steve Simpson
TITLE: Port Manager

PUMPOUT #1

TYPE: stationary
LOCATION: main walkway to breakwater
FEE: \$.25/2 min.
VISIBILITY: fair

MANUFACTURER: Keco (Pump-A-Head)
HOURS: 24hrs/year-round
ADJACENT DUMPSTATION: no
ACCESSIBILITY: fair

PUMPOUT #2

TYPE: portable (self service)
LOCATION: in marina near main walkway
FEE: none
VISIBILITY: poor

MANUFACTURER: VIM (Van Ives Manufacturing)
HOURS: 24hrs/year-round
ADJACENT DUMPSTATION: no
ACCESSIBILITY: fair

PUMPOUT #3

TYPE: barge (w/2 pumpout units)
LOCATION: breakwater
FEE: none
VISIBILITY: good

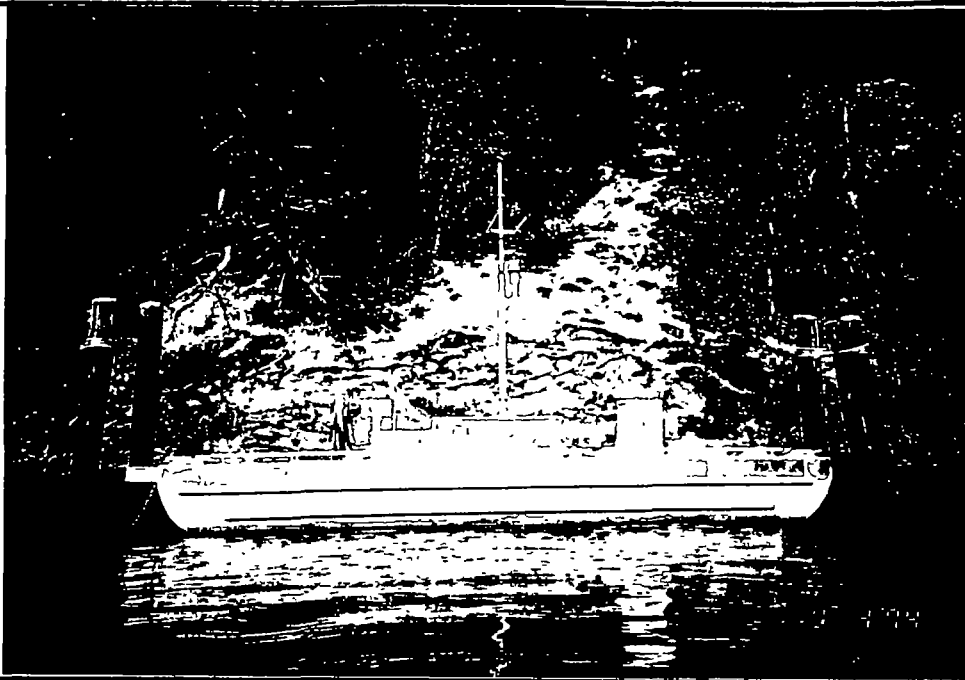
MANUFACTURER: Amer. Eagle Manuf. (Ecobarge)
HOURS: 24hrs/year-round
ADJACENT DUMPSTATION: yes (American Eagle Manuf.)
ACCESSIBILITY: good

SEWAGE DISPOSAL

city sewer system - San Juan Island waste treatment facility

COMMENTS

Ecobarge unit is solar-powered; dumpstation by shoreside restrooms; busiest guest moorage facility in the state of Washington



Stuart Island State Park

6158 Lighthouse Road
Friday Harbor, WA 98250

206-378-2044/2744

TYPE OF FACILITY: recreational boat harbor
NUMBER OF SLIPS: primarily anchorage
FACILITY OWNER: Washington State Parks

BODY OF WATER: Reid Harbor, Haro Strait

CONTACT PERSON: Chris Guidotti
TITLE: Park Manager

LONGITUDE: 123D 11.9'W
LATITUDE: 48D 40.46'N
COUNTY: San Juan

PUMPOUT

TYPE: barge
LOCATION: anchored barge in harbor
FEE: none
VISIBILITY: good

MANUFACTURER: Impero Constuction
HOURS: 24hrs/year-round
ADJACENT DUMPSTATION: yes (Keco Kleen-A-Pottee)
ACCESSIBILITY: good

SEWAGE DISPOSAL

holding tank, private vendor disposes at San Juan Island waste treatment facility

COMMENTS

pumpout is hand-operated

holding tank on unit is periodically pumped to a vessel or truck on barge, sewage is transferred to San Juan Island waste treatment facility



West Sound Marina

P.O. Box 19
Orcas, WA 98280

206-376-2314

TYPE OF FACILITY: marina
NUMBER OF SLIPS: 150
FACILITY OWNER: West Sound Marina

BODY OF WATER: White Beach Bay, West Sound

LONGITUDE: 122D 57.31'W

LATITUDE: 48D 37.6'N

COUNTY: San Juan

CONTACT PERSON: Margaret Warcham
TITLE: President

PUMPOUT

TYPE: stationary
LOCATION: fuel dock
FEE: \$10.00
VISIBILITY: poor

MANUFACTURER: Jabsco
HOURS: office hours
ADJACENT DUMPSTATION: no
ACCESSIBILITY: good

SEWAGE DISPOSAL

holding tank that is pumped to truck/barge

COMMENTS

pumpout is operated by marina personnel
150 slips (20% under 26', 50% 26-40', 30% over 40') includes 5 live-aboards
pumpout was installed in 1990

Table of Contents

Introduction.....	1
Methodology.....	1
Facility Survey	1
On-site visits of all state funded boating sewage disposal facilities.....	2
Boater intercept survey	2
Survey Results – Major Findings.....	2
Location Analysis for Additional Boating Sewage Disposal Facilities.....	6
Existing BSDF Devices	6
Where are additional facilities needed?	9
Clean Vessel Funding	9
Types of Facilities Needed.....	10
Estimated Number of Boats with Marine Sanitation Devices	11
Calculation of Demand for Additional Boating Sewage Disposal Facilities.....	14
Transient Moorage Demand for BSDF’s.....	15
Permanent Moorage Demand for BSDF’s.....	16
Total Demand for Boating Sewage Disposal Facilities	17
Specific Areas Needing Additional Boating Sewage Disposal Facilities.....	21
NE Puget Sound.....	21
Central Puget Sound	21
South Puget Sound.....	22
NW Puget Sound.....	23
San Juan Islands.....	23
Peninsula.....	24
SW Washington	24
Eastern Washington	24
Facilities expressing interest in the BSDF grant program	25
Analysis of Existing Pumpout Equipment.....	26
Additional Issues.....	27
Pumpout skiffs	27
Live-aboards	28
Notes from field visits.....	29

Recommendations.....	30
Intercept Survey Detail	31
Appendix A – Boating Facilities Visited On-Site.....	1
Appendix A – Environmentally Sensitive Areas Designated by Washington State Parks. 1	
Appendix B - Washington State Boating Facility Survey Form.....	1
Appendix C - Boating Needs Survey Form	1

List of Figures

Figure 1 – What source of information about water quality and water pollution would you be most likely to read and find credible?	4
Figure 2 – Which of these do you feel would be the most effective tools for ensuring that boater waste is disposed of properly?	5
Figure 3 – Types of Boating Sewage Disposal Facilities (BSDFs).....	6
Figure 4 – Location of Boating Sewage Disposal Facilities (BSDFs).....	8
Figure 5 - Sewage Recovered through Clean Vessel Program in Washington.....	10
Figure 6 – Peaking and Transient Moorage Use.....	16

List of Tables

Table 1 – Has Use of the Facility Changed, and Why?	3
Table 2 – Number of Boating Sewage Disposal Facilities by County and Type of Device.....	7
Table 3 – Intercept Survey Results regarding MSDs by boat size	12
Table 4 – Estimated Number of Boats with Marine Sanitation Devices	13
Table 5 – Estimated Permanent Slip Occupancy This is the argument for IAC, not Parks	17
Table 6 – Estimated Demand for BSDFs to Meet Permanent and Transient Fleet Requirements	19
Table 7 – What types of problems does the equipment have?.....	26
Table 8 – Estimated Number of Live-Aboards.....	28
Table 9 – (Q14) What type of head (toilet) is on your boat?.....	31
Table 10 – (Q15) What type of MSD?.....	31
Table 11 – (Q16) Where do you usually empty the Porta-potty?	32
Table 12 – (Q17) What would encourage you to use dump stations?	32
Table 13 – (Q18) Is your marine head plumbed with a Y-valve to allow for overboard discharge when needed?	33

Table 14 – (Q19) Do you leave the Y-valve open to allow for overboard discharge when needed?	33
Table 15 – (Q20) Do you use additives with your MSD?	34
Table 16 – (Q21) Do you use your holding tank?	34
Table 17 – (Q22) How much of the time do you use shoreside pumpout facilities?.....	34
Table 18 – (Q23) What method is normally used to empty the holding tank?	35
Table 19 – (Q24) Have you encountered any of the following problems connected with pumping out the tank or with using the shoreside facility?	35
Table 20 – (Q25) How do you dispose of oil and gas in the bilge?.....	36
Table 21 – (Q26) While in harbors or marinas, how often do you use the shoreside toilet facilities, as opposed to facilities on the boat?.....	36
Table 22 – (Q27) Which one of these would most encourage you to use shoreside facilities more often?.....	37
Table 23 – (Q28) Have you heard or read anything lately about pollution in Puget Sound?.....	37
Table 24 – (Q29) Where did you hear or read about it? (more than one response OK)..	38
Table 25 – (Q30) Have you, yourself, observed any of these forms of water pollution during your last few trips in Puget Sound?.....	39
Table 26 – (Q31) When you are boating, has water pollution ever prevented you from	39
Table 27 – (Q32) Do you feel that any of the following boating activities pose environmental problems in bays and inlets.....	40
Table 28 – (Q33) Which of these do you feel would be the most effective tools for ensuring that boater waste is disposed of properly	41
Table 29 – (Q34) What source of information about water quality and water pollution would you be most likely to read and find credible?	42

Boat Sewage Facilities in Washington State

Introduction

BST Associates was retained by Washington State Parks to complete an inventory and needs analysis of boating sewage disposal facilities in the State of Washington. The goal of the project is to provide Washington State Parks guidance in allocating Clean Vessel Act funds. This updates and replaces the earlier 1994 *Comprehensive Boat Sewage Management Plan For Washington State*. This represents the Washington State plan for placing boat sewage disposal facilities, and is not a boat sewage management plan.

Methodology

This project included a number of tasks:

- A written survey form was received from each boating sewage disposal facility operator
- On-site visits of boating sewage disposal facilities (BSDF's), and,
- An intercept survey was conducted with boaters.

These tasks, and the results of each, are described in greater detail in the following document. The goal of this document is to describe where BSDF facilities now exist and to make recommendations for additional facilities.

Facility Survey

BST Associates mailed a survey form in September and October 2000 to each marine facility operator in the state. This list of facilities was based upon a review of an earlier survey conducted by Washington Sea Grant, and was supplemented with information from current publications¹. The list included all facilities with and without boating sewage disposal facilities (BSDF's). A BSDF could be any type of facility that handles sewage generated by boaters, including:

- Stationary Pumpout on Dock without a Dump Station,
- Pumpout on Dock with a Dump Station,
- Portable Pumpout on Dock,
- Floating Restroom,
- Floating Restroom with Pumpout,
- A restroom on a dock for use only for boaters

¹ Sources included: Washington Public Ports Association Marina Directory, Characteristics of Washington State Parks, Washington State Parks and Recreation Commission website, Boating Web Site (covering boat ramps and launches) Interagency Committee for Outdoor Recreation, Pacific Northwest Marinas section of 48° North, The Sailing Magazine, Waggoner Cruising Guide for 2000 and 2001, Gunkholing in the San Juan Islands, A Comprehensive Cruising Guide Encompassing Deception Pass to the Canadian Boundary – 2001 edition, Docks and Destinations by Peter Vassilopoulos, 1998 edition, The Marina Handbook, Washington Edition by FOXPACIFIC, 1996 edition..

- Barge Unit with Pumpout & Dump Station, or,
- Dump Station Only.

BST Associates followed up the initial mailing with telephone inquiries and visits to facilities in order to create as complete a data set as possible. The survey form mailed to each facility is displayed in Appendix C; questions 27 through 52 focus on boating sewage disposal facilities. The resulting database is published at the end of this report and will be available on the Washington State Parks website.

On-site visits of boating facilities

During the on-site visits of the boating facilities, BST Associates took digital photos of and recorded the geographic coordinates each BSDF. These site visits facilitated visual inspection of each facility for general condition, access, and signage. The information collected during this task is presented in this document and will be displayed on the Washington State Parks web site.

A list of the marinas visited is included in Appendix A.

Boater intercept survey

In addition to the facilities survey, boaters were interviewed using an intercept survey. This survey was designed to obtain user feedback regarding boating sewage disposal facilities and to be compatible with previous surveys. A copy of this survey form is displayed in Appendix D.

The boater intercept survey was administered in a number of locations using a variety of methods. BST Associates staff traveled to marinas and asked boaters to answer the survey questions as staff filled out the form. At the Seattle Boat Show, attendees were encouraged to fill out the surveys themselves, with prizes available to boaters completing the form. Finally, at a series of boating focus groups held around the state, the attendees were encouraged to fill out surveys.

Survey Results – Major Findings

To date, Washington State Parks has allocated Clean Vessel Act funds to more than 100 recreational boating facilities in this state. In order to see whether this was helping to change boaters' behavior, facility operators were asked whether use of their BSDF facilities has changed, and if so, why.

As shown in Table 1, there were 85 responses to this question. Of these 85 responses, 52 operators, or nearly two-thirds, reported increased use of BSDF's. The most commonly cited reason for the increased use was that boaters are now more environmentally aware than they were in the past. An increase in the number of boats or an increase in business was another primary reason for the increase. Also, boaters learning that a marina or dock had a BSDF was an important reason for increased use. Finally, new or better equipment was listed as a reason for increased usage.

A common theme that runs throughout most of the responses listed in Table 1 is awareness and education. The survey shows that if boaters understand the need to use Marine Sanitation Devices (MSDs) and BSDF facilities they are willing to do so, but they need to know where the facilities are and how to operate them.

It is also imperative that these facilities function properly and be provided in sufficient numbers that boaters not avoid them because it takes too much time to use them.

Table 1 – Has Use of the Facility Changed, and Why?

Reason for change in use	Number of responses
More boats / more business	17
New / better equipment	7
Better maintenance	3
Boaters are more environmentally aware	21
Boaters know how to use the equipment	4
Boaters know that facility has a pumpout	12
Live-aboard compliance	3
Accessibility	4
Low cost	4
Number of facilities reporting increased use	52
Number of facilities reporting no increase in use	33

Source: BST Associates, facility survey

In the boater intercept survey, respondents were asked what credible source of information about water quality and water pollution they would be most likely to use. As shown in Figure 1, the sources cited most often were boating magazines (22% of responses) and newspapers (17% of responses). Boaters' clubs and television each were listed by 10% to 15% of the respondents, and radio, friends, newsletters, the internet, and the Puget Sound Water Quality Authority each garnered 5% to 10 % of responses.

During the intercept survey boaters were also asked what they thought would be the most effective and the next most effective methods for ensuring that boating waste is disposed of properly. More than 60% of the boaters responding to this question said that the most effective method is to improve disposal facilities. Approximately 40% of boaters felt that an education program was of primary importance, and one-third of respondents felt that enforcement of existing regulations and peer pressure were also of primary importance.

Few respondents felt that development of new regulations would be an effective way to ensure proper waste disposal. On the other hand, nearly as many boaters listed new regulation as those who listed boater education as a backup method for achieving compliance.

The responses from the boater survey are consistent with those from the facility operator survey – more education and more facilities will increase the proper disposal of boating

waste. The most effective media for educating boaters, according to this survey, are boating magazines and newspapers.

Figure 1 – What source of information about water quality and water pollution would you be most likely to read and find credible?

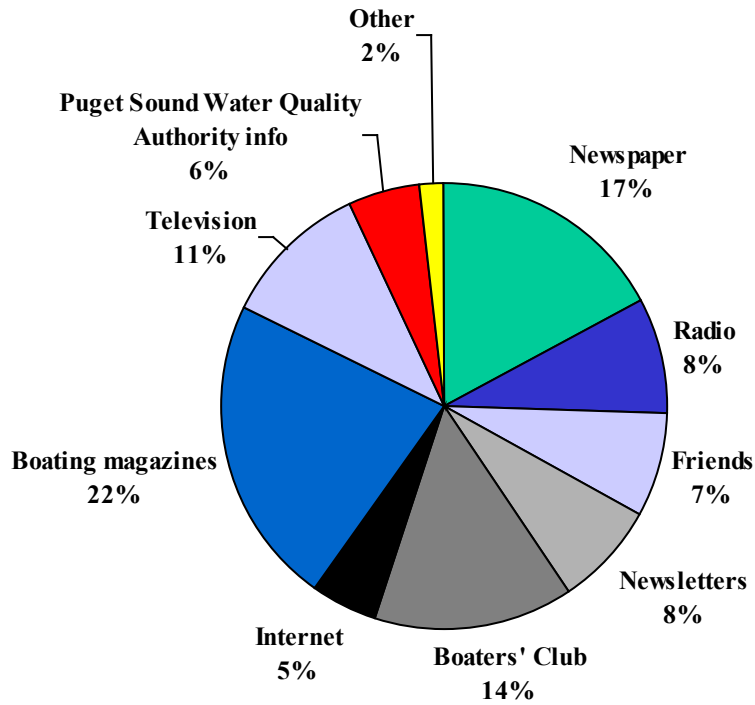
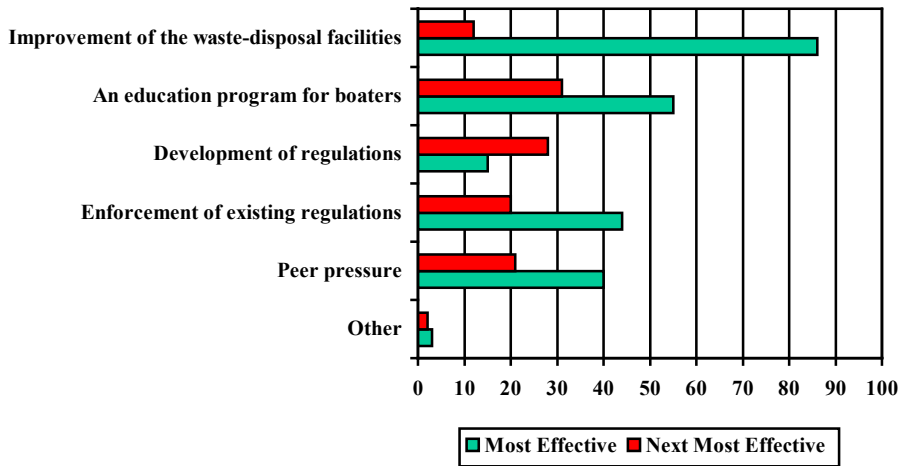


Figure 2 – Which of these do you feel would be the most effective tools for ensuring that boater waste is disposed of properly?



Another method of educating boaters was suggested in the focus groups. In these groups, boaters were asked what state agencies provided information and services to the boating public. Consistently, these people indicated that they were not aware what agencies are involved in boating, what the responsibility of each agency is, and which agency they would contact for information. Two consensus suggestions resulted from these focus groups. First, the boaters strongly suggested that the different agencies coordinate their efforts. Second, the boaters strongly suggested that these agencies communicate with boaters directly.

The idea that emerged was that the different agencies (i.e., Washington State Parks, IAC, Department of Fish & Wildlife, Department of Licensing) put together a package of information to send along with vessel registration notices. One piece that should be included in this mailing, for example, is a brochure that Washington State Parks published in 1998 which includes a map of BSDF facilities, pictures of each type of equipment (i.e., Pump-A-Head, Waubashene, Sani-Sailor, etc.) and instructions on using each type. While this brochure has been widely distributed through marinas, boating organizations and other channels, including a copy with the registration notice would provide another cost-effective means of reaching boaters. This pamphlet should be updated, based on new information gathered in this study.

Location Analysis for Additional Boating Sewage Disposal Facilities

Existing BSDF Devices

There are currently 124 BSDF facilities in Washington State, consisting of:

- Stationary Pumpout on Dock without a Dump Station (44 – 35.5% of total),
- Pumpout on Dock with a Dump Station (54 – 43.5% of total),
- Portable Pumpout on Dock (10 – 8.1% of total),
- Floating Restroom with Pumpout (3 – 2.4% of total),
- Barge Unit with Pumpout & Dump Station (6 – 4.8% of total), and,
- Dump Station Only (7 – 5.6% of total).

These different types of facilities are illustrated in the Figure 3 below. The statewide inventory of such facilities is listed by region and county in Table 2, and is mapped in Figure 4.

Figure 3 – Types of Boating Sewage Disposal Facilities (BSDFs)

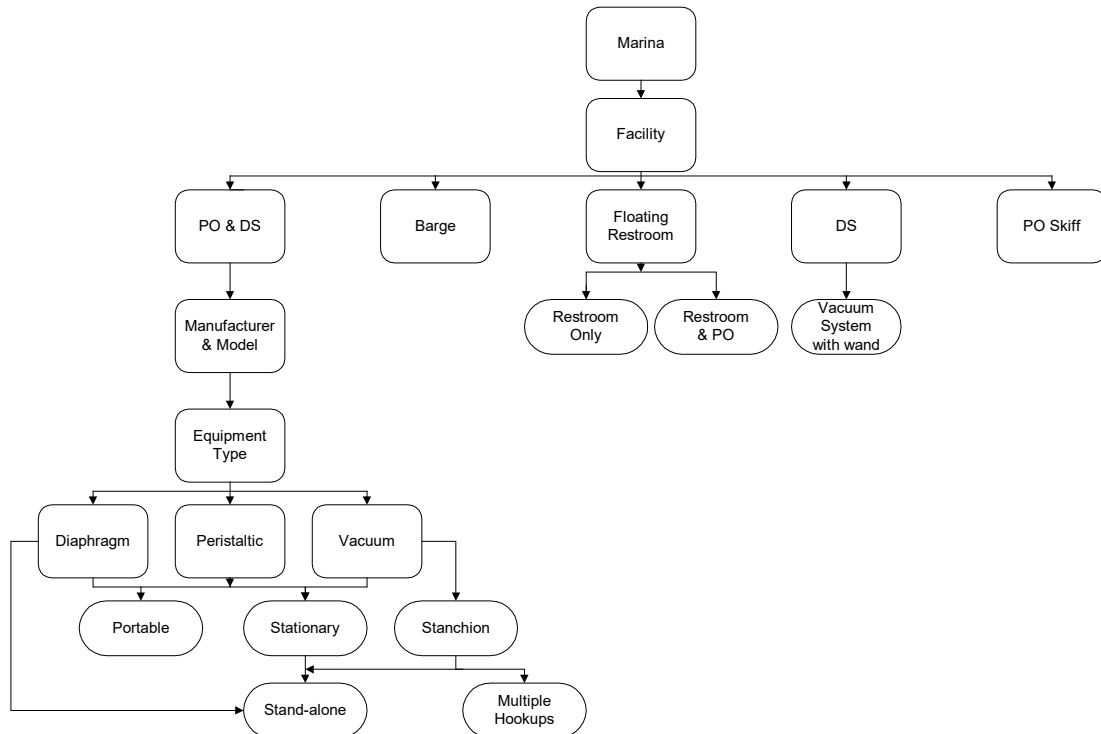


Table 2 – Number of Boating Sewage Disposal Facilities by County and Type of Device

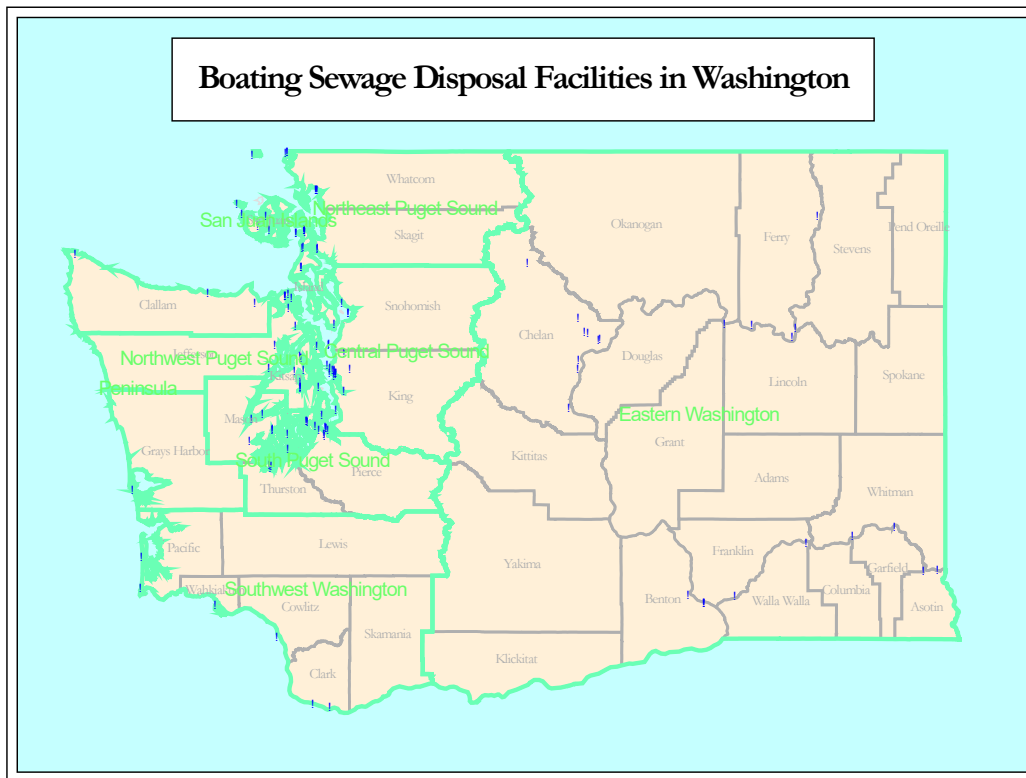
Region/County	Stationary Pumpout on Dock, No Dump Station	Pumpout on Dock with Dump Station	Portable Pumpout on Dock	Floating Restroom with Pumpout	Barge Unit with Pumpout & Dump Station	Dump Station Only	Total
Central Puget Sound							
King	11	5	2				18
Snohomish		5					5
Subtotal	11	10	2	0	0	0	23
Eastern Washington							
Adams							0
Asotin	1	1					2
Benton	2	1					3
Chelan	1	2			1	2	6
Columbia	1						1
Douglas	1					1	2
Ferry							0
Franklin		1					1
Garfield		1					1
Grant							0
Kittitas							0
Klickitat							0
Lincoln	2			1			3
Okanogan							0
Pend Oreille							0
Spokane							0
Stevens	1			1			2
Walla Walla							0
Whitman		1					1
Yakima							0
Subtotal	9	7	0	2	1	3	22
NE Puget Sound							
Island		2			1		3
Skagit	4	1	1		1	3	10
Whatcom		4	4	1			9
Subtotal	4	7	5	1	2	3	22
NW Puget Sound							
Jefferson	6	1	1			1	9
Kitsap	5	5			1		11
Subtotal	11	6	1	0	1	1	20
Peninsula							
Clallam	1	2					3
Grays Harbor	1						1
Subtotal	2	2	0	0	0	0	4
San Juan Islands							
San Juan	2	2			1		5

Table 2 – Number of BSDFs by County and Type of Device (Continued)

Region/County	Stationary Pumpout on Dock, No Dump Station	Pumpout on Dock with Dump Station	Portable Pumpout on Dock	Floating Restroom with Pumpout	Barge Unit with Pumpout & Dump Station	Dump Station Only	Total
South Puget Sound							
Mason		4			1		5
Pierce	4	8	1				13
Thurston		3	1				4
Subtotal	4	15	2	0	1	0	22
SW Washington							
Clark		2					2
Cowlitz	1						1
Lewis							0
Pacific		2					2
Skamania							0
Wahkiakum		1					1
subtotal	1	5	0	0	0	0	6
State	44	54	10	3	6	7	124
Percent	35.5%	43.5%	8.1%	2.4%	4.8%	5.6%	100.0%

Source: BST Associates, facilities survey, Washington State Parks

Figure 4 – Location of Boating Sewage Disposal Facilities (BSDFs)



Where are additional facilities needed?

It is the goal of Washington State Parks to meet peak demand for boating sewage disposal facilities. In order to know where additional BSDF facilities are needed, it is critical to know the locations most favored by boaters, and to establish both the timing and the level of this peak demand. In the following section, information from a number of different sources is used to develop an understanding of where additional facilities are needed. The goal of this section is to develop methods for measuring the demand for BSDF facilities.

Demand for boating sewage disposal facilities is based on where boats are used. Homeports are an obvious choice – for moored vessels, all boating trips begin and end at their home marina, and for trailered boats, the boat ramps closest to home are often the most used. Not all boating takes place close to home, though. Larger boats cruise away from their home marinas to popular overnight destinations such as the San Juan Islands, and trailered boats can be taken anywhere.

In order to develop a thorough understanding of where boating sewage disposal facilities are needed, information on both of these types of use must be combined. While neither type of use is the sole indicator of demand, in combination they help to indicate where additional facilities are needed.

A further, critical, factor in deciding where to locate boating sewage disposal facilities is the designation of environmentally sensitive waters. A number of bodies of water have been designated as environmentally sensitive due to high numbers of boats, low levels of flushing, the presence of shellfish beds, and for other reasons. In these areas it is especially important that there be a sufficient number BSDF's to provide a high level of service to boaters. A complete list of water bodies designated as environmentally sensitive is included in Appendix B of this document.

Clean Vessel Funding

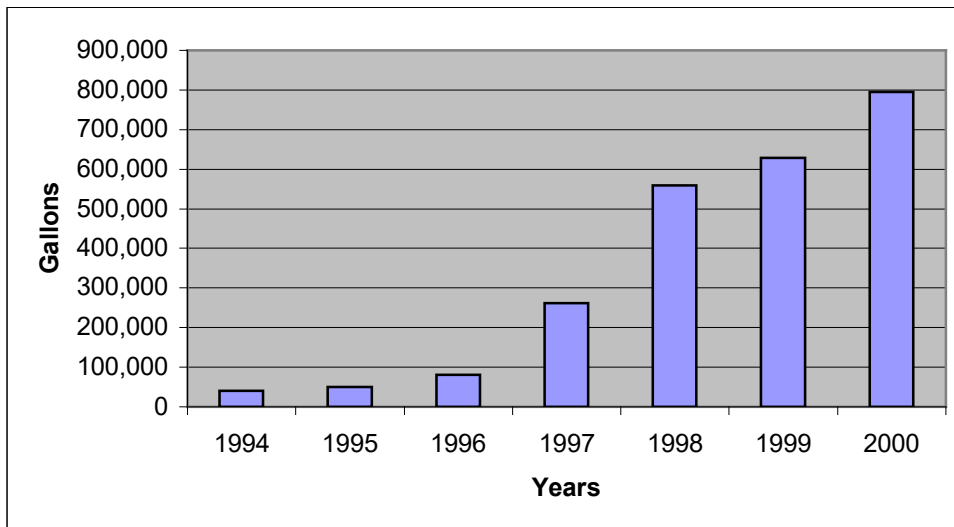
In order to meet the goal of reducing the release of boater-generated sewage, Washington State Parks works closely with boating facility operators to provide funding for boating sewage disposal facilities. Under this program funding is available to a wide array of public and private entities, including, public, tribal or private marinas, boat launch operators, or other boater destination sites to be used solely by recreational boaters. The main requirement of this program is that any BSDF funded by the Clean Vessel Act (CVA) program must be available for use by the general boating public. Examples of the types of projects covered by this funding include:

- Construction or renovation of an existing pumpout and/or dump station
- Installation of a dump station in conjunction with an existing stationary pumpout
- Purchase of a barge unit with some combination of restroom, pumpout, and/or dump station
- Construction of a floating restroom with a stationary or portable pumpout

- Purchase of a pumpout skiff for use in a marina in conjunction with stationary pumpout equipment

The clean vessel program in Washington, including both the facilities funding and the boater education program, have been very effective in reducing the amount of sewage discharged into the water from boats. The following figure demonstrates graphically the growth in the amount of boating sewage collected by BSDF's. The numbers shown in the figure are conservative, because data is not available for all facilities in Washington.

Figure 5 - Sewage Recovered through Clean Vessel Program in Washington



Types of Facilities Needed

All boaters need facilities for disposing of sewage generated while boating, regardless of the size of the boat or the type of equipment installed. Larger boats may carry marine heads with built-in holding tanks, medium boats may carry a porta-potty, and small boats and canoes may carry no such devices. Regardless of the type of equipment on the boat, the people on the boat create the demand for boating sewage disposal facilities.

For large boats with built-in holding tanks, a stationary or portable pumpout is needed to dispose of waste. For boats with porta-potties, either a dedicated dump station or a restroom is needed for disposing of waste. For boats with no marine sanitation devices (MSD's), restrooms are needed. Restrooms, both land-based and floating, serve all boaters regardless of whether or not their boat is equipped with a marine sewage device.

As listed in the previous section, the funding available through Washington State Parks will finance a wide array of boating sewage disposal facilities, as long as they are open to the public. Types of facilities eligible for funding include construction or renovation of: pumpouts; dump stations; barge units with some combination of restroom, pumpout, and dump station; floating restrooms; and pumpout skiffs.

Estimated Number of Boats with Marine Sanitation Devices

The bigger a boat is, the more likely it is to have a Marine Sanitation Device (MSD) on board. The Washington State Department of Licensing registers recreational vessels in Washington, and provides information about the length of the vessel and the county in which it is stored. Whether a boat carries some type of MSD, and the type that it carries, tends to be a function of the size of the boat. Regardless of whether a boat carries an MSD, however, there is a benefit from provision of boating sewage disposal facilities for all boat types and all boaters.

According to the Bayliner Engineering Department², market forces drive the demand for MSDs:

- Boats between 20 and 24 feet in length may have a self-contained portable head,
- Boats between 24 feet and 30 feet in length may have a marine head, typically a holding tank with a manual flush system, and
- Boats over 30 feet in length generally have an advanced (vacuum flush) marine head, with a holding tank.

As a part of the intercept survey undertaken in this study, boaters were asked to describe whether they had an MSD and if so, what type it was. The results are as follows:

- 58% of boaters with boats between 17 and 24 feet in length indicated that they had a Porta-potty or similar conveyance and the remaining 42% had no such feature,
- 92% of boaters with boats over 24 feet in length indicated that 92% have MSDs, and 8% do not. Most boats have a Coast Guard approved MSD with a holding tank while some have a marine toilet with a treatment feature that allows discharge overboard (macerator and treatment that allows overboard discharge).

² Source: Personal telephone call.

Table 3 – Intercept Survey Results regarding MSDs by boat size

Type of Facility	Number	Percent of Total
Boats between 17 and 24 feet in length		
Porta-potty	22	57.9%
No MSD	16	42.1%
Total	38	100.0%
Boats greater than 24 feet in length		
None	5	7.8%
Porta-potty	8	12.5%
Marine toilet with direct discharge overboard	10	15.6%
Marine toilet with Coast Guard-approved Marine Sanitation Device	41	64.1%
Total	64	100.0%

Source: BST Associates, intercept survey

Since respondents were very active boaters, BST Associates suspects that they were more likely to have MSDs than other boaters. In order to be conservative, we assumed that

- 50% of boats between 17 and 24 feet have Porta-potties, 50% have no MSD,
- 85% of boats between 24 and 30 feet have marine heads, 12.5% have Porta-potties, 2.5% have no MSD, and,
- 100% of boats greater than 30 feet in length have a marine head.

Using these ratios, BST Associates estimated the number of boats with MSDs (both Porta-potties and marine heads) by region and county in Table 4. As shown, BST Associates estimated that there are approximately 22,000 boats in Washington State that have a Porta-potty and 28,000 that have a marine head. By region, there are estimated to be:

- Central Puget Sound – 30,228 boats with MSDs and 17,838 boats without MSDs,
- Eastern Washington – 14,398 boats with MSDs and 12,449 boats without MSDs,
- NE Puget Sound – 8,119 boats with MSDs and 3,854 boats without MSDs,
- NW Puget Sound – 5,559 boats with MSDs and 2,624 boats without MSDs,
- Peninsula – 1,904 boats with MSDs and 1,245 boats without MSDs,
- San Juans – 1,511 boats with MSDs and 493 boats without MSDs,
- South Puget Sound – 12,894 boats with MSDs and 8,496 boats without MSDs,
- SW Washington – 6,022 boats with MSDs and 4,866 boats without MSDs.

Table 4 – Estimated Number of Boats with Marine Sanitation Devices

Region/County	Estimated # with MSDs		Estimated # without MSDs	Boats 17' and longer
	Porta-potty	Marine Head		
Central Puget Sound				
King	12,698	9,106	12,492	34,296
Snohomish	5,445	2,979	5,346	13,770
Subtotal	18,143	12,086	17,838	48,066
Eastern Washington				
Adams	151	25	149	325
Asotin	139	54	138	330
Benton	1,873	334	1,860	4,067
Chelan	1,060	199	1,051	2,310
Columbia	55	9	55	119
Douglas	442	64	439	945
Ferry	77	27	76	180
Franklin	460	76	456	992
Garfield	30	7	30	67
Grant	984	119	978	2,082
Kittitas	277	44	275	596
Klickitat	111	12	110	233
Lincoln	288	61	285	634
Okanogan	316	43	314	674
Pend Oreille	194	38	192	423
Spokane	3,256	367	3,241	6,864
Stevens	698	146	691	1,535

Table 4 – Estimated Number of Boats with Marine Sanitation Devices (Continued)

Region/County	Estimated # with MSDs		Estimated # without MSDs	Boats 17' and longer
	Porta-potty	Marine Head		
Walla Walla	396	43	394	834
Whitman	230	32	229	491
Yakima	1,491	171	1,484	3,146
Subtotal	12,527	1,870	12,449	26,847
NE Puget Sound				
Island	1,028	611	1,010	2,649
Skagit	1,345	2,037	1,304	4,686
Whatcom	1,581	1,517	1,540	4,638
Subtotal	3,954	4,165	3,854	11,973
NW Puget Sound				
Jefferson	460	761	442	1,664
Kitsap	2,229	2,109	2,181	6,519
Subtotal	2,689	2,870	2,624	8,183
Peninsula				
Clallam	759	475	747	1,981
Grays Harbor	505	165	499	1,168
Subtotal	1,264	640	1,245	3,149
San Juan Islands				
San Juan	517	994	493	2,004
South Puget Sound				
Mason	893	296	884	2,073
Pierce	5,769	2,815	5,698	14,282
Thurston	1,946	1,175	1,914	5,035
Subtotal	8,608	4,286	8,496	21,390
SW Washington				
Clark	2,829	553	2,807	6,188
Cowlitz	1,079	231	1,070	2,380
Lewis	623	118	617	1,358
Pacific	230	117	225	573
Skamania	71	17	70	157
Wahkiakum	80	75	77	232
subtotal	4,911	1,111	4,866	10,888
State	52,613	28,022	51,885	132,520

Source: BST Associates, intercept survey, Department of Licensing registration database.

Calculation of Demand for Additional Boating Sewage Disposal Facilities

In order to estimate the required number of BSDF facilities it is important to understand the types of use that these facilities receive. Intensity of use of BSDF facilities includes (from most to least intensive use).

- Liveboards³,

³ Liveboards may use a pumpout or may subscribe to skiff service. There are currently three skiffs operating in Central Puget Sound. In addition, there is a skiff with service for vessels in Roche Harbor. Service is also being considering at other marinas in Puget Sound. Skiff operators need approximately 20

- Overnight cruising or other overnight boat use,
- Day cruising,
- Use in marinas when not cruising or sailing (parties, working on boat etc.),
- Moored in marina but not used.

For a variety of reasons, in many regions peak occupancy is substantially higher during the peak season than during the off-peak season. It is the goal of Washington State Parks to provide enough boating sewage disposal facilities to meet the demand for such facilities during the busiest hour of the busiest day of the year. These BSDF's can be portable units, they can be additional stanchions operating from a single pump, and they can be floating restrooms/pumpouts placed in the water only during the peak seasons, among others. The analysis in the following section examines the demand created by each of the types of uses listed above, and then combines the demand from each of these uses into an estimated total number of BSDFs required.

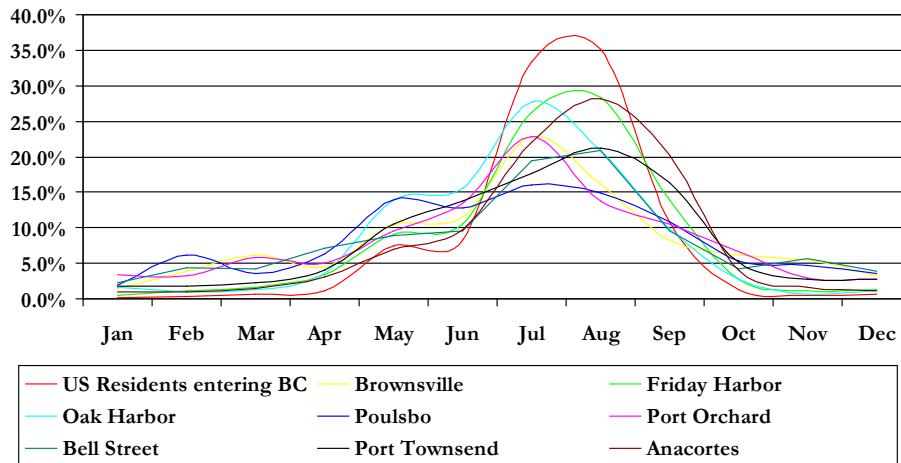
Transient Moorage Demand for BSDF's

Statistics on the use of transient moorage are useful in estimating the number of BSDF's needed. While transient moorage is not the only factor that causes demand for sewage facilities, it does give a good indication of the timing and magnitude of the peaking issue. As shown in the following figure, peak transient demand occurs during July and August, and is more pronounced in some areas than in others.

customers per outing for economical operation. This, of course, depends on the distance from the marina(s) to the pumpout facility.

Figure 6 – Peaking and Transient Moorage Use

Peaking & Transient Moorage Usage



BST Associates gathered actual transient use for selected facilities and calculated the average daily use for the peak month of the season (typically July or August). We then divided the daily use by the number of dedicated transient spaces (slips, dock or mooring buoys) to derive a ratio of use to transient moorage supply by county.

This ratio was multiplied by the total number of transient spaces in the county to determine the total number of boats in transient activity during the average day of the peak month. (See Table 6).

Multiplying the number of transient boats by type of BSDF determined the number of boats that needed either a dump station or a pumpout. Finally, we calculated the number of BSDFs required by assumed that using a BSDF took approximately 15 minutes to complete and that stations were generally open for 12 hours a day.

Permanent Moorage Demand for BSDF's

Statistics on the use of permanent moorage facility are also useful for estimating the number of BSDF's needed. The peak season for the use of permanent moorage is similar to that for transient moorage, with greatest demand occurring in July and August. In addition to these statistics, moorage data from a number of marinas around the state was compiled in such a way that a comparison could be made between peak and off-peak

usage of moorage facilities. As with transient moorage, permanent moorage is not the only factor creating demand for BSDF's, but the statistics are useful in documenting when peak demand occurs. Because it is the goal of Washington State Parks to meet peak demand, there is a need to establish both the timing and the level of this peak demand.

As shown in the following table, the ratio of peak moorage to off-peak moorage varies widely. This information is useful in deciding what types of BSDF's are needed in which areas. For example, because off-peak moorage is so much lower than peak moorage in Eastern Washington, BSDF's that can be removed from the water during the off-peak season may be the most cost-effective way of meeting demand. In the Central Puget Sound and Northwest Puget Sound regions, however, peak and off-peak demand is nearly the same, so permanent BSDF's may provide better service to the boating public.

Table 5 – Estimated Permanent Slip Occupancy

Region	Peak	Off-Peak	Ratio peak to off-peak
Central Puget Sound	98.4%	95.4%	1.03
Eastern Washington	86.0%	23.8%	3.61
NE Puget Sound	95.9%	93.1%	1.03
NW Puget Sound	88.1%	53.0%	1.66
Peninsula	69.0%	46.4%	1.49
San Juan Islands	94.8%	69.6%	1.36
South Puget Sound	92.1%	74.7%	1.23
SW Washington	87.5%	47.7%	1.83
Statewide	92.5%	74.2%	1.25

Source: BST Associates, facility survey

Total Demand for Boating Sewage Disposal Facilities

This section provides an estimate of the total number of boating sewage disposal facilities needed by county, and the estimated shortage by county (See Table 6). The evaluation of demand for BSDF's takes both permanent and transient use into account.

Statewide, there are currently approximately 1,069 boats per BSDF. However, the ratio of permanently boats per BSDF varies significantly between the counties. In King County, for example, there are 1,905 permanent boats for each BSDF. In addition, there are an estimated 253 boats using at transient spaces in King County (dedicated transient slips or mooring buoys) on the average day of the peak month of the season. Assuming that the average boat takes 15 minutes per discharge to dump station and the station is open 12 hours per day, there is a need for 5 additional dump stations to service the transient fleet ((253 boats) divided by (4 uses per hour times 12 hours or 48 uses per day) equals 5).

EPA Region I determined that, in general, a range of one pumpout facility per 300-600 boats with holding tanks (type III MSDs) should be sufficient to meet the demand for

pumpout services in most harbor areas (USEPA, 1991b). EPA Region 4 suggested one facility for every 200 to 250 boats with holding tanks and provided a formula for estimating the number of boats with holding tanks. The State of Michigan has instituted a no-discharge policy and mandates one pumpout facility for every 100 boats with holding tanks⁴.

The approach used in this analysis differs from both the one advocated in the 1991 EPA report and the one adopted by the State of Michigan. Both of those reports estimated the need for BSDF's based on the estimated number of vessels with holding tanks. In contrast, the need estimated in this analysis is based on the total number of vessels 17 feet and longer. The standard advocated in this analysis is one BSDF per 200 boats, regardless of on-board sanitation equipment.

The need for additional boating sewage disposal facilities in each region is summarized below (from greatest to smallest demand), and details for each county are presented in Table 6.

- Central Puget Sound – need for an estimated 223 additional BSDFs,
- Eastern Washington – need for an estimated 137 additional BSDFs,
- South Puget Sound – need for an estimated 89 additional BSDFs,
- San Juan – need for an estimated 61 additional BSDFs,
- SW Washington – need for an estimated 50 additional BSDFs,
- NE Puget Sound – need for an estimated 43 additional BSDFs,
- NW Puget Sound – need for an estimated 32 additional BSDFs,
- Peninsula - need for an estimated 12 additional BSDFs,
- Statewide – need for for 690 additional BSDFs.

As stated earlier, Washington State Parks will fund a wide variety of projects that facilitate the proper disposal of boating-generated sewage, including pumpouts, dump stations; barge units, floating restrooms, and pumpout skiffs. Public and private entities, working in close coordination between Washington State Parks, can provide benefits to all of the citizens Washington by working toward satisfying this unmet demand for 690 additional boating sewage disposal facilities.

⁴ Source: Sewage Facility Management Measure located at <http://www.epa.gov/nps/MMGI/Chapter5/ch5-2g.html>

Table 6 – Estimated Demand for BSDFs to Meet Permanent and Transient Fleet Requirements

Region/County	Permanent Fleet				Transient Fleet				Total	
	A	B	C	D	E	F	G	H	I	J
			B/A	B/200	*	*		G/(4*12)**	D+H	I-A
	Existing BSDFs	Boats - 17' & longer	Existing Ratio	Number to meet standard @200 boats per BSDF	Dedicated Spaces	Ratio of Use to Supply	Est Transient Boats - Ave Day Peak Month	BSDFs Needed	BSDFs Needed	Shortage by County
Central Puget Sound										
King	18	34,296	1,905	171	330	77%	253	5	177	159
Snohomish	5	13,770	2,754	69	12	77%	9	0	69	64
Subtotal	23	48,066	2,090	240	342	77%	263	5	246	223
Eastern Washington										
Adams	-	325		2	0	0%	-	-	2	2
Asotin	2	330	165	2	0	0%	-	-	2	-
Benton	3	4,067	1,356	20	66	0%	-	-	20	17
Chelan	6	2,310	385	12	397	174%	691	14	26	20
Columbia	1	119	119	1	0	0%	-	-	1	-
Douglas	2	945	473	5	14	0%	-	-	5	3
Ferry	-	180		1	0	0%	-	-	1	1
Franklin	1	992	992	5	0	36%	-	-	5	4
Garfield	1	67	67	0	0	0%	-	-	0	-
Grant	-	2,082		10	73	167%	122	3	13	13
Kittitas	-	596		3	0	0%	-	-	3	3
Klickitat	-	233		1	0	0%	-	-	1	1
Lincoln	3	634	211	3	48	0%	-	-	3	0
Okanogan	-	674		3	40	0%	-	-	3	3
Pend Oreille	-	423		2	0	0%	-	-	2	2
Spokane	-	6,864		34	60	0%	-	-	34	34
Stevens	2	1,535	768	8	24	0%	-	-	8	6
Walla Walla	-	834		4	0	0%	-	-	4	4
Whitman	1	491	491	2	0	0%	-	-	2	1
Yakima	-	3,146		16	0	0%	-	-	16	16
Subtotal	22	26,847	1,220	134	722	165%	1,188	25	159	137
*Washington State Recreational Boating Facilities										
**Peak usage is estimated using four boats per hour over 12 hours										

Table 6 – Estimated Demand for BSDFs to Meet Permanent and Transient Fleet Requirements (Continued)

	Permanent Fleet				Transient Fleet				Total	
	A	B	C	D	E	F	G	H	I	J
			B/A	B/200	*	*		G/(4*12)**	D+H	I-A
Region/County	Existing BSDFs	Boats - 17' & longer	Existing Ratio	Number to meet standard @200 boats per BSDF	Dedicated Spaces	Ratio Use to Supply	Est Transient Boats - Ave Day Peak Month	BSDFs Needed	BSDFs Needed	Shortage by County
NE Puget Sound										
Island	3	2,649	883	13	52	91%	47	1	14	11
Skagit	10	4,686	469	23	38	310%	118	2	26	16
Whatcom	9	4,638	515	23	10	226%	23	0	24	15
Subtotal	22	11,973	544	60	100	226%	226	5	65	43
NW Puget Sound										
Jefferson	9	1,664	185	8	156	85%	133	3	11	2
Kitsap	11	6,519	593	33	313	165%	518	11	43	32
Subtotal	20	8,183	409	41	469	117%	550	11	52	32
Peninsula										
Clallam	3	1,981	660	10	256	72%	185	4	14	11
Grays Harbor	1	1,168	1,168	6	0	0%	-	-	6	5
Subtotal	4	3,149	787	16	256	0%	-	-	16	12
San Juan Islands										
San Juan	5	2,004	401	10	537	504%	2,705	56	66	61
South Puget Sound										
Mason	5	2,073	415	10	49	120%	59	1	12	7
Pierce	13	14,282	1,099	71	49	217%	106	2	74	61
Thurston	4	5,035	1,259	25	49	41%	20	0	26	22
Subtotal	22	21,390	972	107	147	139%	204	4	111	89
SW Washington										
Clark	2	6,188	3,094	31	0	0%	-	-	31	29
Cowlitz	1	2,380	2,380	12	0	0%	-	-	12	11
Lewis	-	1,358		7	0	0%	-	-	7	7
Pacific	2	573	287	3	163	0%	-	-	3	1
Skamania	-	157		1	37	38%	14	0	1	1
Wahkiakum	1	232	232	1	50	0%	-	-	1	0
Subtotal	6	10,888	1,815	54	250	38%	95	2	56	50
State Total	124	132,520	1,069	663	2823	258%	7,283	152	814	690

Source: BST Associates

Specific Areas Needing Additional Boating Sewage Disposal Facilities

The goal of this analysis was to estimate the number of boating sewage disposal facilities needed in Washington State. As shown above, total statewide demand is 814 BSDFs. There are currently 124 such facilities in Washington, so there is demand for an additional 690 facilities. This demand was estimated at the county level, in order to provide guidance on locating new facilities.

In addition to the county-level information provided above, additional information was gathered through the facilities survey that indicated specific areas where boaters congregate. This information is provided below, and should be very useful for guiding state funding of boating sewage disposal facilities. These lists are not comprehensive: they provide specific areas where BSDF's might be placed, but they do not include enough locations to meet all of the estimated demand.

Many of the sites that are popular for boating are not well-suited for land-based boating sewage disposal facilities. Steep banks, lack of water, poor soils, and no electricity limit what can be done on shore. One possible solution for providing BSDF's in this type of area is to use self-contained barge-type units that can be pulled onto shore during the off-season. This would work well for many of the underserved bodies of water in Eastern Washington, but would also prove to be effective in other popular boating areas where there is an issue of serving peak demand, such as the San Juan Islands, Hood Canal, and Lake Washington.

NE Puget Sound

In Northeast Puget Sound boats congregate in a number of areas, including Cap Sante Marina, Skyline Marina, Fidalgo Marina, La Conner, Shelter Bay, Blaine Harbor, Semiahmoo Marina, Point Roberts, Whidbey Island, Oak Harbor, and Hope Island, as well as in the San Juan Islands. Two of these do not currently have boating sewage disposal facilities, Hope Island and Shelter Bay, and should be targeted for additional BSDF's.

Central Puget Sound

The Central Puget Sound Region encompasses freshwater boating areas as well as saltwater areas, in both King and Snohomish Counties. Around Seattle, popular congregating areas on salt water include Bell Harbor, on the Central Waterfront, and the Duwamish Waterway, both of which are on Elliott Bay. On Elliott Bay there are three marinas with BSDF facilities, including Harbor Island, on the south side of the bay, Bell Harbor, on the east side of the bay, and Elliott Bay Marina, on the north side.

In addition Shilshole Marina, which is located just a few miles to the north, has pumpouts in two locations, and both the City of Des Moines Marina and Dockton County Park (on

Vashon Island), both of which are located a few miles⁵ to the south of Seattle, have BSDF facilities.

On fresh water in the Seattle area, boats congregate all over Lake Washington and Lake Union. On Lake Washington north of the SR-520 bridge popular areas include Cap Sante Marina in Kenmore and Marina Park and Carillon Point in Kirkland. In this part of the lake there are only two BSDF facilities (at Harbour Village and at Carillon Point), and there are none along the west shoreline. There is substantial amount of transient and trailered-boat activity in this area and there also many boat moored at private residential docks. Magnuson Park represents a potential location for another BSDF.

South of SR-520 the only documented public BSDF facility is located at the Parkshore Marina, near the southern end of the lake. A very popular place to congregate in this part of the lake is Andrews Bay (in Seward Park). In addition, there are private marina facilities in Bellevue, public moorage in Seattle at Leschi Moorage and Lakewood Moorage, as well as large number of private residential docks. This part of Lake Washington is underserved by public BSDF facilities. Logical places to locate additional facilities include the two City of Seattle marinas – Lakewood Moorage and Leschi Moorage.

On salt water in Snohomish County, popular places for boats to congregate include the Port of Everett Marina and boat ramp and the Tulalip marina. All of these have BSDF facilities, so additional facilities are not warranted.

In Snohomish County, two recreational boating facilities are located on fresh water. Dagmar's Landing is on the Snohomish River in Everett, and Geddes Marina is on Ebey Slough in Marysville. While any boat sailing to Possession Sound from these two marinas will have to pass by BSDF facilities at the Port of Everett and the Tulalip Marina, Dagmar's Landing is big enough that a pumpout and dump station might be considered.

South Puget Sound

The South Puget Sound region includes both Hood Canal and Puget Sound. On Hood Canal, popular congregating areas include Bangor and Pleasant Harbor. BSDF facilities are located at the Alderwood Lodge (at the south end of Hood Canal), Pleasant Harbor (northwest side of Hood Canal), and Quilcene Boat Haven (far northwest corner). The east side of Hood Canal does not have any BSDF's. Seabeck Marina and Kitsap Memorial State Park are recommended locations for additional facilities on this part of Hood Canal.

The Kitsap County Health Department has been trying for several years to increase the number of BSDF's to a level that will support the boat population. Hood Canal is definitely underserved, with only three BSDFs for that entire body of water. This is

⁵ This distance may be substantial when on the water, depending on conditions.

especially critical, given the low level of flushing that occurs in Hood Canal and the presence of shellfish beds.

Olympia has seven marinas where boats congregate. Two of these have pumpouts open to the public (Swantown and West Bay), as does Percival Landing.

In the Key Peninsula area, popular congregating areas include Jarrell Cove State Park, Jarrell's Cove Marina, Fair Harbor Marina, Lakebay Marina, Longbranch Marina, and Joemma Beach State Park. BSDF facilities are located at Jarrell Cove State Park and Jarrell's Cove Marina, and the Shelton Marina. Boating sewage disposal facilities should be provided at all of these facilities.

In Tacoma boats congregate at the Tyee Marina, Chinook Marina, Totem Marina, and Ole & Charlie's, as well as in the Point Defiance area. With the exception of Ole & Charlies, each of these marinas has BSDF facilities. Renovation of the Thea Foss Waterway is also likely to bring about substantial changes to marine facilities in Tacoma, and should be watched closely to see if state assistance for BSDF facilities is needed there.

In the Gig Harbor area, boats congregate in Gig Harbor, off Owen's Beach, and at Wollochet Bay. Gig Harbor has a number of BSDF facilities, but Wollochet Bay does not.

NW Puget Sound

Popular boating areas in the Northwest Puget Sound region include Liberty Bay Marina, Port of Poulsbo and Poulsbo Yacht Club in Poulsbo, Mystery Bay State Park, Port Townsend (port and private facilities), Port Orchard, Silverdale, Manchester anchorage, Brownsville, Kingston, Mat Mats Bay and Lower Hadlock, Bremerton, Port Orchard, Manzanita Bay, Port Madison, Port Ludlow. Manchester, Mats Mats and Manzanita do not currently have BSDF's.

San Juan Islands

Boaters congregate in marinas and anchorages throughout the San Juan Islands, but there are currently only five pumpouts installed in that region. However, there is enough demand, especially in the summer months for more many more BSDF's in the San Juans. One marina operator, (Snug Harbor, on Mitchell Bay on San Juan Island) would like help buying BSDF equipment. Patos, Sucia, Clark and Matia Islands are all popular boating destinations, and none has boating sewage disposal facilities. Seasonal floating facilities might best serve these areas. In addition, the north side of Orcas Island does not have any BSDF's. The Bartwood Lodge and Capt. Cook Resort are both located in this area and would make good locations for facilities.

Another area where additional BSDF facilities are needed is on the east side of Lopez Island. Spencer Spit State Park is a popular anchorage and would be a good location for BSDF facilities. James Island, four miles southeast of Spencer Spit is also very popular.

Peninsula

Sequim Bay State Park, anchorages in the area around Neah Bay, and John Wayne Marina were all listed as areas where boats congregate. The John Wayne Marina and Makah Marina (at Neah Bay) both have pumpouts, but Sequim Bay State Park does not.

There are no BSDF facilities between Neah Bay and Port Angeles, a distance of 55 miles. However, Olson's Resort, in Sekiu, is interested in pursuing CVA funding to install a facility.

SW Washington

Along the Columbia River, in Southwest Washington, popular congregating areas from Vancouver upriver include the breakwater at Camas-Washougal, Beacon Rock State Park, and Government Island. The Port of Camas-Washougal currently has a pumpout, but Beacon Rock has only an RV dump station. Government Island is located on the Oregon side of the river.

Between Kalama and Ilwaco there is only one BSDF facility on the Washington side of the river, at Cathlamet. The Port of Chinook would be a good location for a BSDF facility, since it is located between Cathlamet and Ilwaco, and is popular with boaters.

Other locations where BSDF facilities may be useful include Longview and Stella. On this stretch of river it may be useful for Washington State Parks to coordinate its BSDF efforts with those of the Oregon Marine Board, because boaters frequently use both sides of the river and there are more facilities in Oregon.

Eastern Washington

In the Columbia/Snake River System, from the Tri-Cities to Clarkston, popular places for boats to congregate include marinas in Kennewick and Richland, Boyer Park & Marina, Lyons Ferry Marina & Lyons Ferry State Park, Hells Gate State Park, and Rooster's Landing. Currently there are three BSDF facilities in Kennewick and Richland, Lyon's Ferry Marina, and Boyer Park & Marina, as well as at Central Ferry State Park, Charbonneau Park, Hell's Canyon Resort, and Chief Timothy State Park.

There are four separate reservoirs on the Snake River, one behind each dam. To adequately serve recreational boaters a BSDF facility at each end of each reservoir is needed. Currently, the Ice Harbor Pool (Lake Sacajawea) has a pumpout on the downstream end, at Charbonneau Park. At the upstream end, Windust Park would be a good location for an additional facility.

The Lower Monumental pool (Lake Herbert G. West) has a pumpout at the Lyon's Ferry Marina, approximately two-thirds of the way upstream. On the downstream end of the pool there are no parks at which a BSDF facility could easily be located, but there is a boat ramp near the Lower Monumental Dam. This location is a good candidate for a seasonal floating facility.

In the Little Goose pool, BSDF facilities are located at the downstream end (Central Ferry State Park) and upstream end (Boyer Park and Marina).

In the Lower Granite Pool facilities are located at the upstream end, at Chief Timothy State Park and Hells Canyon Resort, both of which have boating sewage disposal facilities. There is no BSDF on the lower end of the reservoir, but there is a boat ramp that could be served by a seasonal floating facility.

In Lake Chelan, on the upper end of the lake recreational boats congregate at Lucerne, Weaver Point and Stehekin, as well as the many Forest Service Docks along the Lake. On this part of the lake there is only one pumpout, at Stehekin. Weaver Point, Lucerne, and Purple Point could all be served with seasonal barges.

On the lower end of the lake boats congregate at a number of public and private marinas and docks. BSDF facilities are located at Field's Point (more than one-third of the way uplake), as well as at Manson and Chelan at the lower end of the lake. There are a number of facilities located at the lower end of the lake already. However, one marina operator in this area is interested in obtaining BSDF funding to install a new pumpout.

Popular places for boats to congregate on Lake Roosevelt include the Spokane River arm, Sumner Island near Evans, the Gifford Ferry area, an area five miles north of Daisy, Jones Bay, Hawk Creek, Rogers Bar, and Swallie Basin.

The Spokane River Arm is served by the BSDF at the Two Rivers Marina, at the confluence of the Spokane River and Columbia River. The Gifford Ferry is located on a long stretch of lake with no BSDF facilities, and would make a good location for one. Daisy, Jones Bay, Hawk Creek, Rogers Bar, and Swallie Basin are not currently served by boating sewage facilities, and might best be served with seasonal floating facilities.

Facilities expressing interest in the BSDF grant program

During the course of the surveys and site visits, a number of facility operators expressed interest in learning more about the BSDF grant program. We strongly recommend that Washington State Parks contact these operators. Those expressing an interest include:

- The Port of Ilwaco would like to add a second set of pumpout and dump station.
- The La Conner Marina would also like to add another pumpout, and would also like to relocate the current pumpout from the fuel dock to the guest dock.
- Snug Harbor, on Mitchell Bay on San Juan Island, would like help buying equipment
- At Keller Ferry, money is needed to improve the system for lifting waste from dock to land. Depending on the lake level, this lift can be as much as 68 feet.
- In Chelan, Ship N'Shore Watercraft Rentals would like to install a pumpout.
- Northlake Marina and Morrisson's Northstar Fuel Dock (both on Lake Union in Seattle) may be interested in the program. Sinclair Inlet Marina (in Port Orchard) is also interested in information on the program.
- In Sekiu, Olson's Resort may also be interested in the BSDF program.

Two marina operators would like to receive new signs, including Hells Canyon in Clarkston, and the Port of Peninsula in Nahcotta.

In addition to the operators who expressed an interest in the BSDF program, a number of others stated that they had considered applying for grants in the past, but decided against it when they saw the paperwork. Given that the process for applying for these grants has been greatly simplified, it may be worthwhile for Washington State Parks to contact all marina operators and explain the details of the program.

Analysis of Existing Pumpout Equipment

Operators of BSDF facilities were asked to describe the types of problems they have had with their pumpouts. In Table 7, the types of problems experienced with each type of pumpout are described. Clogged equipment is the most common type of equipment problem. This includes blockage of the flapper valve on the pump as well as plugs in the nozzle or hose. For Waubashene pumpouts this is the most commonly reported problem.

Table 7 – What types of problems does the equipment have?

Manufacturer	Pump	Valves	Hose & Nozzle	Clogs	Operator	Electrical	Other
Eco-Barge	-	-	-	-	-	-	-
Edson	-	1	-	3	-	-	-
Floating restroom	-	-	-	1	1	-	1
Impero	-	-	-	-	-	-	1
Jabsco	1	-	1	-	-	-	-
Pump-A-Head	5	5	6	7	5	4	4
Sani-Sailor	3	-	4	3	2	-	2
Sani-Service	2	-	-	-	-	-	-
Sani-Station	-	-	-	1	2	-	-
Van Ives	1	1	1	-	-	-	-
Waubashene	-	2	2	4	2	-	1
Unknown	3	3	4	1	4	2	2
Grand Total	15	12	18	20	16	6	11

Source: BST Associates

Hose and nozzle problems, in addition to clogs, include lost fittings, lost nozzles, and holes in the hose. These problems are reported most often for Pump-A-Head products which are also the most commonly installed units.

Operator misuse is also a major problem. For the most part this is due to boaters not knowing how to operate the equipment, but it also includes intentional misuse. This is true regardless of equipment manufacturer.

Another common problem is pump failure. This has been reported most often for Pump-A-Head units, which for many years were the only type of pumpout installed in Washington.

Other comments collected about BSDF equipment include the following:

- With floating pumpouts, barges and tanks should be fiberglass, to save maintenance.
- Charcoal filters on Kleen-A-Pottee rust out, and the solar eye fan does not work.
- Pump-A-Heads need boost pumps to move waste uphill.
- Boaters do not know how to use the equipment.
- Nozzles fall into the water and disappear then the machine is out of order for a few days until a new one arrives.
- Instructions for using equipment disappear.
- Sani-Sailors are very effective – so much so that boaters run them much longer than they need to.

Additional Issues

Pumpout skiffs

An alternative to pumpouts located at marinas is pumpout skiff service. The availability of funding for this type of operation was mentioned during a number of site visits and interviews. Currently, this type of service exists in and around Seattle, but there is interest in expanding to other locations.

Pumpout skiff service offers a number of advantages to boat owners that may lead to increased compliance with dumping rules. First, many boaters simply do not want to deal with the perceived mess of the pumpout operation, and are willing to pay for the service. Second, many boaters use their boats while they are tied up dockside, and do not actually move the boat very often. For these people, it is more convenient to have a skiff come to their dock and pump their holding tank than it is for them to start the vessel, untie, sail to a pumpout, empty the holding tank, then sail back.

The key to making such an operation financially successful is density. The operations that currently exist operate on Lake Washington, Lake Union, Shilshole Bay, and Elliott Bay, due to the high concentration of boats in those areas. Other places where such density exists include Everett, Port Orchard & Kitsap County, Tacoma/ Gig Harbor, Anacortes/ La Conner, and Bellingham/ Blaine. Port Townsend is in the process of starting such a service, also.

At present, federal funds from the Clean Vessel Act Program can be used to fund pumpout skiffs, but the maximum fee that can be charged for the service is \$5.00. This fee is substantially less than commercial skiff operators now charge, and is not high enough to support a commercial operation. However, a number of skiff operators are interested in state funding for expanding their existing services or starting new services.

These skiff operators perform an important service to the state: by making sewage disposal easier for the boat owner, they help to decrease illegal dumping. Because of the benefit these services provide, we recommend that Washington State Parks determine whether there is money available from sources other than the Clean Vessel Act that might provide a level of funding that would make pumpout skiff service available in additional areas. We also recommend contacting the people who expressed interest in operating such a service when, or if, funds become available.

Live-aboards

The issue of boaters living on their boats (“live-aboards”) has serious implications in regard to water quality. Even though relatively few boaters do live aboard their vessels, these few generate a large share of the waste at any given marina.

During this project, the 322 marinas surveyed were asked if live-aboards were permitted in their facility. Of those surveyed, 62 reported that they allowed a total of 1,328 live-aboards. As shown in Table 8, the reported number of live-aboards amounts to approximately 3.4% of slip equivalents. Most live-aboards are located in Central Puget Sound (631), with secondary populations in South Puget Sound (222), NE Puget Sound (166), and NW Puget Sound (142). There are also more than 50 live-aboards in the Peninsula, San Juan Islands, and SW Washington regions.

Table 8 – Estimated Number of Live-Aboards

Region	Number	Percent	Slip Equivalents	Live- Aboards as % of Slip Equivalents
Central Puget Sound	631	47.5%	11,401	5.5%
Eastern Washington	1	0.1%	2,604	0.0%
NE Puget Sound	166	12.5%	7,835	2.1%
NW Puget Sound	142	10.7%	4,149	3.4%
Peninsula	58	4.4%	1,889	3.1%
San Juan Islands	53	4.0%	1,927	2.8%
South Puget Sound	222	16.7%	6,500	3.4%
SW Washington	55	4.1%	2,479	2.2%
Statewide	1,328	100.0%	38,782	3.4%

Currently, marina operators perceive that there is little guidance provided to them regarding enforcement of clean water rules, even though in 1999 the Department of Ecology provided each marina in the state with a Best Management Practices manual which included best management practices for removal of boater sewage. For example, one large Puget Sound marina has recently been trying to develop a policy for live-aboards. Originally, the advisory committee for this marina recommended that live-aboards not be allowed at all. After much objection, the recommendation was changed to installing sewer lines on all docks. Due to the expense of this proposed solution, the

policy was then changed to requiring live-aboards to provide documentation that they were utilizing the BSDF facilities at the marina. However, after a number of months a significant number of live-aboards failed to comply with the policy, so the committee has now required dye testing of MSDs on all live-aboards. Those found to be out of compliance will have a probationary period in which to begin complying, after which they will be evicted.

We strongly recommend that Washington State Parks work with representatives from the marina industry, and possibly live-aboard groups, to review the existing “Best Management Practices”. This set of rules should be reviewed for its applicability to live-aboards and amended if necessary. The working committee for this project must include representatives from the Washington Public Ports Associates (WPPA) and Northwest Marine Trade Association (NMTA), both of which have marina committees, as well as the Independent Moorage Association (IMA). These organizations manage the majority of moorage in Washington State.

Notes from field visits

The list of BSDF facilities provided by Washington State Parks included four facilities that were visited but did not actually have pumpouts installed. Breakwater Marina in Tacoma has not yet installed their equipment, and there were none installed at Lincoln Rock State Park (upriver from East Wenatchee) and at Crescent Bar (downstream of East Wenatchee).

In addition, the pumpout at Metz Marina in Kennewick had its hose removed, and was reported to have been taken out of service.

There is a need to locate facilities for easy access, for instance, at Friday Harbor they are located about as far inside the harbor as you can go, whereas at Cap Sante the floating facility is just inside the harbor entrance.

The issue of charging for the use of pumpouts drew mixed responses. Some people felt that if boaters are required to use pumpouts or the state pays for the equipment then there should not be a fee charged for using the pumpout. The operator of a private facility disagreed, making the point that providing the service to the public took dock space that could otherwise be used for a commercial purpose.

Another marina operator suggested that the State pay all of the cost of purchasing and installing pumpouts, but in return the operator should be obligated to maintain the equipment.

Another issue with regard to fees is the disposal of the waste after it has been removed from the boats. One marina operator in Kitsap County does not make his privately funded pumpout available to the general public because of the cost of disposing of the waste. This facility is not located on a city sewer system, and does not have a way of accessing a drainfield. Therefore, he must pay a barge service to remove the waste from his holding tank, at a cost of \$0.18 per gallon.

Holding tanks typically have a capacity of between 12 and 40 gallons. Using an average of 25 gallons per holding tank, the cost for disposing of the waste pumped from each holding tank is \$4.50. For a 30 gallon tank the cost would be \$5.40, which is more than the charge allowed under the BSDF program. This example is from one facility in Kitsap County, but it applies to other rural areas as well.

A number of boaters suggested that the intercept survey was too long.

Recommendations

- Provide information on the location and use of BSDF equipment to all owners of boats longer than 16 feet.
- Concentrate on adding facilities in the San Juan Islands, Olympic Peninsula, and Southwest Washington.
- Contact all operators who expressed interest in the program.
- Send information on the BSDF program to all operators of boating facilities.
- Encourage the use of one standard sign, and let operators know that these signs are available from State Parks
- Encourage facility operators to provide and maintain instructional signage
- Consider funding for pumpout skiff service.

Intercept Survey Detail

Table 9 – (Q14) What type of head (toilet) is on your boat?

	Description	Number of Responses	Share of Responses
14			
1	No toilet equipment or bucket (Skip to #25)	19	15.1%
2	Porta-potty (Skip to #16)	32	25.4%
3	Marine toilet with direct discharge overboard (Skip to #25)	10	7.9%
4	Marine toilet with Coast Guard-approved Marine Sanitation Device (MSD)	63	50.0%
	Both 1 and 2	1	0.8%
	Both 3 and 4	1	0.8%
	Total	126	100.0%

Table 10 – (Q15) What type of MSD?

	Response	Number of Responses	Share of Responses
1	Type I: Macerator/Chlorinator with overboard discharge (Skip to #18)	4	6.1%
2	Type II: Macerator/Treatment with overboard discharge (Skip to #18)	5	7.6%
3	Type III: Holding tank (Skip to #18)	54	81.8%
4	Type III: Other than holding tank - Please specify	3	4.5%
	Total	66	100.0%
	If 4, please specify		
	Electro Save		
	Holding tank & pump Y		
	Porta-potty w/macerator pumpout.		

Table 11 – (Q16) Where do you usually empty the Porta-potty?

Response		Number of Responses	Share of Responses
1	Dump stations	34	49.3%
2	Public restroom	9	13.0%
3	Home	20	29.0%
4	Overboard	5	7.2%
5	Other	1	1.4%
Total		69	100.0%
If other, please specify			
pumpout service			

Table 12 – (Q17) What would encourage you to use dump stations?

Response		Number of Responses	Share of Responses
1	More dump stations	34	38.2%
2	Dump stations in more convenient locations	27	30.3%
3	Dump stations better maintained	12	13.5%
4	Floating Restrooms	5	5.6%
5	Other	5	5.6%
6	Nothing	6	6.7%
Total		89	100.0%
If other, please specify			
No charge			
Reduced odor			
Easier to use			
Rubber hose maintained to prevent spillage			

Table 13 – (Q18) Is your marine head plumbed with a Y-valve to allow for overboard discharge when needed?

Response	Number of Responses	Share of Responses
1 Yes	47	56.6%
2 No	34	41.0%
3 Don't Know/Refused	2	2.4%
Total	83	100.0%

Table 14 – (Q19) Do you leave the Y-valve open to allow for overboard discharge when needed?

Response	Number of Responses	Share of Responses
1 Always	3	4.1%
2 In the main channels of Puget Sound	4	5.4%
3 Only when three miles offshore	11	14.9%
4 Never at a marina/near shore	13	17.6%
5 Never	30	40.5%
6 Other	10	13.5%
7 Don't know/refused	3	4.1%
Total	74	100.0%
If other, please specify		
auto bilge pump		
only +3 mi offshore in ocean		
valve open but head only pumps into holding tank		
When in Canada		
Wire tied shut.		

Table 15 – (Q20) Do you use additives with your MSD?

Response		Number of Responses	Share of Responses
1	Yes	63	82.9%
2	No	13	17.1%
		76	100.0%

Table 16 – (Q21) Do you use your holding tank?

Response		Number of Responses	Share of Responses
1	Yes	64	88.9%
2	No	8	11.1%
Total		72	100.0%

Table 17 – (Q22) How much of the time do you use shoreside pumpout facilities?

Response		Number of Responses	Share of Responses
1	Always	41	55.4%
2	Most of the time	14	18.9%
3	Half the time	0	0.0%
4	Occasionally	9	12.2%
5	Never	10	13.5%
Total		74	100.0%

Table 18 – (Q23) What method is normally used to empty the holding tank?

Response	Number of Responses	Share of Responses
1 Onboard pump	7	10.1%
2 Shoreside pumpout station	52	75.4%
3 Other	10	14.5%
Total	69	100.0%
If other, please specify		
Carry out		
Dump in toilet		
Home into bucket		
Porta-potty		
Pumpout service		
RV dump stations		
Self pump-empty public restroom		

Table 19 – (Q24) Have you encountered any of the following problems connected with pumping out the tank or with using the shoreside facility?

Response	Number of Responses	Share of Responses
1 No pump-outs available	45	23.0%
2 Pump-out inaccessible	23	11.7%
3 Pump-out often not working	38	19.4%
4 Crowded conditions	24	12.2%
5 No attendant to help	29	14.8%
6 Unsanitary conditions	19	9.7%
7 Excessive charge	14	7.1%
8 Don't use	3	1.5%
9 Other -	1	0.5%
Total	196	100.0%
If other, please specify		
Shortage in San Juans		
Bad access in Friday Harbor		
Should not have to pay		

Table 20 – (Q25) How do you dispose of oil and gas in the bilge?

Response		Number of Responses	Share of Responses
1	Discharged overboard	14	8.1%
2	Discharged to shoreside facility	23	13.4%
3	Use oil-absorbent products	61	35.5%
4	Mop up with a rag	29	16.9%
5	Other	5	2.9%
6	Don't know	0	0.0%
7	Don't have oil or gas in bilge	40	23.3%
Total		172	100.0%

Table 21 – (Q26) While in harbors or marinas, how often do you use the shoreside toilet facilities, as opposed to facilities on the boat?

Response		Number of Responses	Share of Responses
1	Always	44	35.5%
2	Almost always	38	30.6%
3	Half of the time	29	23.4%
4	Almost never	7	5.6%
5	Never	6	4.8%
Total		124	100.0%

Table 22 – (Q27) Which one of these would most encourage you to use shoreside facilities more often?

Response	Number of Responses	Share of Responses
1	57	32.8%
2	54	31.0%
3	43	24.7%
4	5	2.9%
5	13	7.5%
6	2	1.1%
Total	174	100.0%
Additional comments		
	Lower moorage rates	
	Safer	
	Heat	
	They are fine as is	
	Prefer shoreside!!	
	Better weather or chauffeur	

Table 23 – (Q28) Have you heard or read anything lately about pollution in Puget Sound?

Response	Number of Responses	Share of Responses
1	82	65.1%
2	44	34.9%
Total	126	100.0%

Table 24 – (Q29) Where did you hear or read about it? (more than one response OK)

Response	Number of Responses	Share of Responses
1 Newspaper	56	466.7%
2 Radio	24	200.0%
3 Friends	16	133.3%
4 Newsletters	12	100.0%
5 Internet	13	108.3%
6 Boating magazines	37	308.3%
7 TV	31	258.3%
8 Other	9	75.0%
9 Don't Know/Refused	2	200.0%
Total	200	100.0%
If other, please specify		
Brochure		
Coast Guard		
Odyssey		
Our own observations		
Planning commission		
RBAW		
State Publications		

Table 25 – (Q30) Have you, yourself, observed any of these forms of water pollution during your last few trips in Puget Sound?

Response	Number of Responses	Share of Responses
1 Plastic or styrofoam debris	80	25.1%
2 Wood or lumber debris	79	24.8%
3 Litter or garbage	61	19.1%
4 Oily film on water	58	18.2%
5 Fishing debris, such as free floating nets or lines	23	7.2%
6 Other	3	0.9%
7 Raw Sewage	5	1.6%
8 No evidence	10	3.1%
Total	319	100.0%
If other, please specify		
Crab pot floats		
Junk boat		
Not a problem		
Pollution from outfall		
Underwater - nets on reefs		

Table 26 – (Q31) When you are boating, has water pollution ever prevented you from

Response	Yes	No	Don't Engage in Activity	Total
1 Swimming	51	43	22	116
Share of responses	44.0%	37.1%	19.0%	100.0%
2 Harvesting clams or oysters	47	37	28	112
Share of responses	42.0%	33.0%	25.0%	100.0%
3 Fishing	33	54	24	111
Share of responses	29.7%	48.6%	21.6%	100.0%

Table 27 – (Q32) Do you feel that any of the following boating activities pose environmental problems in bays and inlets

	Response	Yes	No	Depends on size	Depends on flushing/ tides	Don't Know/ Refused	Total
1	Sewage discharge	79	18	8	12	3	120
	Share of responses	65.8%	15.0%	6.7%	10.0%	2.5%	100.0%
2	Bilge pumping	79	18	7	7	4	115
	Share of responses	68.7%	15.7%	6.1%	6.1%	3.5%	100.0%
3	Littering	92	16	3	1	1	113
	Share of responses	81.4%	14.2%	2.7%	0.9%	0.9%	100.0%
4	Boat maintenance	53	41	6	1	6	107
	Share of responses	49.5%	38.3%	5.6%	0.9%	5.6%	100.0%
5	Hull washdown	32	61	3	4	7	107
	Share of responses	29.9%	57.0%	2.8%	3.7%	6.5%	100.0%
6	Gas or oil spills	99	13	4	1	2	119
	Share of responses	83.2%	10.9%	3.4%	0.8%	1.7%	100.0%

Table 28 – (Q33) Which of these do you feel would be the most effective tools for ensuring that boater waste is disposed of properly

Response	First	Share ranked First	Second	Share ranked Second	Total
1 Improvement of the waste-disposal facilities	86	87.8%	12	12.2%	98
2 An education program for boaters	55	64.0%	31	36.0%	86
3 Development of regulations	15	34.9%	28	65.1%	43
4 Enforcement of existing regulations	44	68.8%	20	31.3%	64
5 Peer pressure	40	65.6%	21	34.4%	61
6 Other	3	60.0%	2	40.0%	5
If other, please specify (and additional comments)					
Better and more facilities					
Dockton Marine Park on Vashon Island has signs prohibiting disposal of boat trash.					
More portable pump outs!					
Availability/convenience					
Boating is a very small percent of our pollution problems					
More disposal facilities.					
Oversee commercial fishing					
Raise intelligence of boaters					
Reduce cost					

Table 29 – (Q34) What source of information about water quality and water pollution would you be most likely to read and find credible?

Response	Description	Number of Responses
1	Newspaper	56
2	Radio	27
3	Friends	24
4	Newsletters	25
5	Boaters' Club	47
6	Internet	15
7	Boating magazines	73
8	TV	35
9	Puget Sound Water Quality Authority info	18
10	Other	
	48degrees, National Fisherman	
	dive magazines/newsletters	
	RBAW	
	Send out with boat license bills, send out with utility bills, Boat US magazine	
	suggestion! Use a shorter survey!	
	brochures, boaters club, power squadron, coast guard auxiliary	
	Classes	
	Send a package of stuff with registration info (coordination with Parks & Licensing). Put info in electric bill.	

Appendix A – Boating Facilities Visited On-Site

Alderbrook Inn and Resort
Anacortes Marina
Arabella's Landing Marina
Ballard Mill Marina
Bell Harbor Marina
Blaine Harbor
Blake Island State Park
Boyer Park & Marina
Breakwater Marina
Bremerton Marina
Canal Marina
Cap Sante Boat Haven
Carillon Point Marina
Central Ferry State Park
Chandlers Cove Marina
Charbonneau Park
Chief Timothy State Park
Chinook Landing Marina
Clover Island Yacht Club
Columbia Point Park
Crow's Nest Marina
Deception Pass State Park
Des Moines Marina
Dockton Park
Eagle Harbor Dock
Elliott Bay Marina
Elochoman Slough Marina
Port of Everett Marina
Fairview Marina
Fields Point
Fishermen's Terminal
Fort Flagler State Park
H. C. Henry Pier
Harbor Island Marina
Harbor Village Marina
Harris Marina
Hell's Canyon Resort
Islands Marine Center
Jarrell's Cove Marina
Jarrell Cove State Park
Jeresich City Dock
John Wayne Marina
Kalama Marina
Keller's Ferry Marina

Kettle Falls Marina
La Conner Marina
Lakeshore Marina and Park
Liberty Bay Marina
Lincoln Rock State Park
Lyon's Ferry Marina
Manson Bay
Manson Parks, Old Mill Park
Marina Mart Moorings
Marina Services
Metz Marina Inc.
Morrison's North Star Fuel Dock
Murphy's Landing Marina
Mystery Bay
Oak Harbor Marina
Old Alcohol Plant
Orondo Park
Oro Bay Marina
Parkshore Marina
Penrose Point State Park
Percival Landing
Pick's Cove Marina
Pleasant Harbor Marina
Point Defiance Boat House
Point Hudson Marina
Point Roberts Marina
Port Ludlow Bay Marina
Port of Brownsville
Port of Camas/Washougal
Port of Edmonds
Port of Everett Marina
Port of Friday Harbor Marina
Port of Ilwaco
Port of Kingston
Port of Neah Bay, Makah Marina
Port of Peninsula/Nahcotta Boat Basin
Port of Port Angeles Boat Haven
Port of Poulsbo
Port Orchard Marina
Port Orchard Marine Railway
Port Plaza Dock
Port Townsend Boat Haven
Port Washington Marina
Quilcene Boathaven
Roche Harbor Resort
Semiahmoo Marina

Seven Bays Marina
Shelton Marina
Shilshole Bay Marina
Skyline Marina Inc.
Spring Canyon
Squalicum Harbor
Steamboat Landing Marina
Stehekin Landing
Stuart Island State Park / Reid Harbor
Swantown Marina
Totem Marina Moorage Assc.
Twanoh State Park
Two Rivers Marina
Tyee Marina
West Sound Marina
Westbay Marina
Zittel's

Appendix A – Environmentally Sensitive Areas Designated by Washington State Parks

Agate Passage	Liberty Bay
Nisqually Delta	Oakland Bay
Budd Inlet	Penn Cove
Bellingham Bay	Padilla Bay
Carr Inlet	Pickering Passage
Case Inlet	Portage Bay
Chehalis River (mouth to Montesano)	Port Angeles Harbor
Columbia River - Entire river within the state.	Port Gamble Harbor
Port Ludlow Harbor	Port Orchard Harbor
Commencement Bay	Port Madison Harbor
Dabob Bay	Port Susan Harbor
Discovery Bay	Port Townsend Harbor
Drayton Harbor	Quilcene Bay
Drayton Pass	Rich Passage
Duwamish Waterway	Samish Bay
Dungeness Bay	San Juan waters
Dyes Inlet	Shelton Harbor - inner
Eld Inlet	Similk Bay
Elliot Bay	Sinclair Inlet
Everett Harbor - inner	Skagit Inlet
FDR Reservoir	Stillaguamish River - mouth
Grays Harbor	Sequim Bay
Hammersly Inlet	Skookum Inlet
Henderson Inlet	Snake River
Holmes Harbor	Tacoma Narrows
Hood Canal	Totten Inlet
Kilisut Harbor	Willapa Bay
Lake Chelan	Willapa Bay - mouth
Lake Union	

Appendix B - Washington State Boating Facility Survey Form

The Washington State Agency for Outdoor Recreation (IAC) and Washington State Parks are currently developing a comprehensive inventory of marina facilities throughout the State of Washington, with a special focus on transient moorage and boat sewage facilities. The data gathered through this survey will be used to fund transient moorage and boating sewage facilities throughout Washington. As the operator of a boating facility, you are the most important source of information for this project.

We need your help in the planning process. The information listed on this form was gathered in an earlier survey and from other sources, but it may no longer be current. Please take a few minutes to review the information on the following pages and update any items that have changed. (For some facilities we had little or no previous information). When you are finished, place your completed questionnaire in the pre-addressed, stamped envelope and drop it in the mail. Your assistance will be publicly acknowledged in the Washington State Boaters Need and Facility Plan. If you have any questions about this survey or the planning process, please call Brian Winningham at BST Associates (Phone 425-486-7722, FAX 425-486-2977, e-mail bstassoc@seanet.com). Thank you for your assistance.

General Facility Information

Recreation/Habitat Area

1. Name of boating facility: _____
2. Description of facility _____

Additional Information For This Inventory Site

3. Accessed Water Body (e.g., Discovery Bay) _____
4. Owner's Name (Company/Agency) _____
5. Operator's Name: (Company/Agency) _____
6. Mailing Address (PO Box, other): _____
7. Telephone number _____
8. Fax number _____
9. What is the latitude/longitude of your facility? latitude _____ longitude _____
10. From your facility, looking up and down the shoreline, what is the nearest boating facility or business to either side of yours? (Note: this could be marinas, parks, boat launches, etc.)
To your left _____
To your right _____

Source of Inventory Information

11. Survey Respondent's name: _____ Title: _____
12. Mail Address _____
13. Physical Address of facility: _____

Marina Facility Information⁶

The following section will be used to determine where funding for boating facilities is needed, so please complete the tables as much as possible. Although these tables are very detailed, many of

⁶ We inadvertently forgot to include a question on dock space. As a result, all marinas were re-surveyed by telephone to address this information.

the spaces in the tables will not be relevant to your facility, and it is fine to leave those spaces blank.

14. How many slips do you have for **permanent** moorage?

Slip Length	Open			Covered		
	Number of Slips	ADA accessible (yes/no)	Est Life (yrs)	Number of Slips	ADA accessible (yes/no)	Est Life (yrs)
Less than 20 feet						
21 to 25 feet						
26 to 30 feet						
31 to 35 feet						
36 to 40 feet						
41 to 45 feet						
46 to 50 feet						
51 to 55 feet						
56 to 60 feet						
More than 60 feet						

15. How many slips do you have for **transient** moorage?

Slip Length	Open			Covered		
	Number of Slips	ADA accessible (yes/no)	Est Life (yrs)	Number of Slips	ADA accessible (yes/no)	Est Life (yrs)
Less than 20 feet						
21 to 25 feet						
26 to 30 feet						
31 to 35 feet						
36 to 40 feet						
41 to 45 feet						
46 to 50 feet						
51 to 55 feet						
56 to 60 feet						
More than 60 feet						

16. How many **boathouses** does your facility have?

Length	Number of Slips	ADA accessible (yes/no)	Est Life (yrs)
Less than 20 feet			
21 to 25 feet			
26 to 30 feet			
31 to 35 feet			
36 to 40 feet			
41 to 45 feet			
46 to 50 feet			
51 to 55 feet			
56 to 60 feet			
More than 60 feet			

17. What **launch** facilities do you have?

Facility Type	Unit	Qty	ADA accessible (yes/no)	Est Life (yrs)
Launch Ramps	Lanes			
Hoist	Tons			
Travelift	Tons			
Marine Rail	Tons			

18. How many parking spaces do you have? _____

19. When was your marina built? _____

When was the last major expansion or renovation? _____

What was done? _____

Marina Usage

20. How many moorage slips or dockage spaces are occupied by live-aboards? _____

21. What is the average occupancy rate for summer? (Memorial Day through Labor Day)
 _____ %

22. What is the average length of stay by guest boats during the summer? _____ days

23. What is the average occupancy rate for the remainder of the year? _____ %

24. What is the average length of stay by guest boats for the remainder of the year? _____ days

Additional Facilities

25. What other facilities or amenities does your marina have? (Please check the following boxes to indicate whether these facilities are available at your marina, or where the nearest such facility is located.)

Facility/Amenity	At Marina	Within 1/2 Mile	1/2 to 1 mile
Parking			
Fuel			
Gas			
Diesel			
2-Cycle			
Boat Repair			
Boat Sales			
Boat Brokers			
Boat Rental			
Other Amenities			
Bait			
Tackle			
Restroom			
Laundry			
Showers			
Restaurant/Bar			
Lodging			
Grocery Store			

26. Directions to the facility (from the road, or from the water if boat-in only) _____

Boat Sewage Facility Information

27. What type of marine sewage facility/service do you have?
 stationary _____ portable (self service) _____ pumpout service _____
 other _____

28. Do you have a dump station? yes _____ no _____

29. What year was the marine sewage facility installed? _____

30. How would you characterize current use of the pumpout facility/service? (check one)
 Under-used: _____ Just about right: _____ Over-used: _____

31. At your facility, which months are your busiest? _____

32. How many boats would you estimate use the pumpout during a single week?
 During the busiest time : _____ During the slowest time: _____

33. Has the use of the pumpout increased, decreased, or stayed about the same over the last few years?
 Increased: _____ Stayed about the same: _____ Decreased: _____

34. If use has changed, what do you think are the reasons for this change? _____

35. Is there a fee charged for using your marine sewage facility? Yes: ____ No: ____

36. If no, do you plan on charging a fee in the next two years? Yes: ____ No: ____

37. How would you rate the general condition of the marine sewage facility at your marina?
Good: ____ Fair: ____ Poor: ____ Don't Know: ____

38. Approximately how many times was the marine sewage facility out of order in the last month? _____

39. Approximately how many times was the marine sewage facility out of order in the last year? _____

40. When the marine sewage facility is out of order, who does the repairs? _____

41. On average, how long is the marine sewage facility out of order before it is repaired? _____

42. What types of maintenance problems are the most frequent with your marine sewage facility?

43. How is the waste from your marine sewage facility disposed of?

____ sewer pipeline that goes to waste treatment facility

____ holding tank that is pumped to truck/barge

____ upland septic system

____ other - Describe: _____

44. Are there any problems with disposal of the pumpout waste? Yes: ____ No: ____

Don't know: ____

45. Are there any plans to change your existing marine sewage facility or service?

Yes: ____ No: ____ Don't know: ____

If yes, what are the plans?

46. As a boat facility operator, what do you dislike about marine sewage facilities?

47. How could the marine sewage facilities or service at your marine be improved? Please rank the following potential improvements by intensity of preference (where 1 is least important and 5 is most important).

	Least Important				Most Important
Ranking of Improvements	1	2	3	4	5
Additional marine sewage facilities					
Easier boat access to the marine sewage facilities					
More convenient hours of operation					
Lower cost (e.g. reduced or no user fees)					
Better designed marine sewage facility so that it is easier for boaters to use					
More boater understanding of how to use marine sewage facilities					
Better signage identifying marine sewage facility or service					
Equipment that doesn't break down as often					
Other (Describe) _____					

48. How often do you think that heads and/or holding tanks are discharged into your marina?

Rarely: ___ Sometimes: ___ Regularly: ___ Often: ___

49. How often do you think most boaters with holding tanks use marine sewage facilities?

Rarely: ___ Sometimes: ___ Regularly: ___ Often: ___

50. Do you think that boaters are more likely to use marine sewage facilities now than they were five years ago? Yes: ___ No: ___ Don't Know: ___

51. Are there other places in your geographic area that boats congregate? Yes: ___ No: ___

52. If yes, where are those places

Other Questions

53. Would you be interested in a grant to improve your facility? Yes ___ No ___ If yes, please describe what you would use the funds for

54. Do you have a contingency plan for the following emergencies?

Emergency	Yes	No
Fuel & Oil Spills		
Fire		
Earthquake		
Snow		

55. Do you have expansion or reconstruction plans? _____

56. Please describe these plans, including the current stage of development (i.e., seeking permits, etc.) _____

57. Please use the space below for any additional comments that you would like to share. _____

THANK YOU FOR YOUR ASSISTANCE!

Appendix C - Boating Needs Survey Form

Dear boater,

A number of State agencies in Washington provide funding for recreational boating facilities. In order to determine how best to distribute funds for improvements to boating facilities, these agencies have joined forces to conduct a survey of boaters needs. We invite you to participate in this process by completing the following survey form.

The agencies involved in this study include the Inter-Agency Committee for Outdoor Recreation (IAC) and Washington State Parks and Recreation. The IAC funds improvements to transient vessel facilities and boating access, and Parks and Recreation funds facilities for marine sewage disposal. The following survey combines the needs of these two agencies. The first part of the survey form deals with the use of recreational vessels, while the second part seeks to document the need for marine sewage facilities.

Please fill this form as completely as possible, and then leave at the marina office. We thank you very much for your participation.

General Information

1. Type of boat: Cabin cruiser Runabout Sailboat
 Small open boat (Kayak, utility outboard, rowboat, skiff, etc.)
 Other - Specify: _____
2. How long is your boat? _____ feet
3. Does anyone live aboard? Yes No
4. In the last 12 months, on how many days did you use your boat?
 less than 20 21-30 31-40 41-50 More than 50
5. In the last 4 seasons, on how many days did you use your boat?
 Last fall Last winter Last spring This summer
6. Where do you normally keep your boat?
on land location (city) _____
dry-stack storage facility name &city _____
mini-storage facility name &city _____
wet moorage year-round facility name &city _____
wet moorage seasonally facility name &city _____
7. If trailered, where do you usually launch? _____

8. Where are additional launches needed? _____

9. Where are launch upgrades needed, and what upgrades? _____

10. Where is additional transient moorage needed? _____

11. Where are transient moorage upgrades needed, and what upgrades? _____

12. What is your ultimate destination on this trip? _____
13. Which of the following activities will you pursue while boating this trip? (circle all that apply)
 Fishing Water skiing
 Cruising (day trip) Shopping/sightseeing
 Nature viewing Camping
 Cruising (overnight trip) Other _____

Marine Sewage Devices

14. What type of head (toilet) is on your boat? (choose only one):
 ___ No toilet equipment or bucket (**Skip to #25**)
 ___ Porta-potty (**Skip to #16**)
 ___ Marine toilet with direct discharge overboard (**Skip to #25**)
 ___ Marine toilet with Coast Guard-approved Marine Sanitation Device (MSD)
15. What type of MSD?:
 ___ Type I: Macerator/Chlorinator with overboard discharge (**Skip to #18**)
 ___ Type II: Macerator/Treatment with overboard discharge (**Skip to #18**)
 ___ Type III: Holding tank (**Skip to #18**)
 ___ Type III: Other than holding tank – Please specify: _____

16. Where do you usually empty the porta-potty?
 Dump stations (**Skip to #25**)
 Public restroom
 Home
 Overboard
 Other — Please specify _____
17. What would encourage you to use dump stations?
 More dump stations
 Dump stations in more convenient locations
 Dump stations better maintained
 Floating Restrooms
 Other — Please specify _____
 Nothing
 Don't know

Types I, II, and III answer the following three questions:

18. Is your marine head plumbed with a Y-valve to allow for overboard discharge when needed?
 Yes No (**Skip to # 20**) Don't know/refused (**Skip to # 20**)
19. Do you leave the Y-valve open to allow for overboard discharge when needed? (more than one OK)
 Always
 In the main channels of Puget Sound
 Only when three miles offshore
 Never at a marina/near shore
 Never
 Other — Please specify _____
 Don't know/refused
20. Do you use additives with your MSD? Yes No

Only Type III answer the following four questions

21. Do you use your holding tank? Yes No (**Skip to 26**)
22. How much of the time do you use shoreside pumpout facilities?
 Always
 Most of the time
 Half of the time
 Occasionally
 Never
23. What method is normally used to empty the holding tank? Onboard pump
 Shoreside pumpout station Other – Specify: _____

24. Have you encountered any of the following problems connected with pumping out the tank or with using the shoreside facility?

Problem	Yes	No
No pump-outs available		
Pump-out inaccessible		
Pump-out often not working		
Crowded conditions		
No attendant to help		
Unsanitary conditions		
Excessive charge		
Don't use		
Other - _____		

25. How do you dispose of oil and gas in the bilge?

- Discharged overboard
- Discharged to shoreside facility
- Use oil-absorbent products
- Mop up with a rag
- Other – Specify: _____
- Don't know
- Don't have oil or gas in bilge

26. While in harbors or marinas, how often do you use the shoreside toilet facilities, as opposed to facilities on the boat?

- Always
- Almost always
- Half of the time
- Almost never
- Never

27. Which one of these would most encourage you to use shoreside facilities more often?

- More facilities
- Cleaner facilities
- More convenient facilities
- Better lighting
- Nothing
- Don't know/refused

28. Because we want to help maintain quality boating opportunities, we are interested in your observations and feelings about water quality

29. Have you heard or read anything lately about pollution in Puget Sound? Yes No

30. Where did you hear or read about it? (more than one response OK)

- Newspaper Boating magazines
- Radio TV
- Friends Other – Specify _____
- Newsletters Don't know/refused
- Internet

31. Have you, yourself, observed any of these forms of water pollution during your last few trips in Puget Sound? (more than one response OK)

- Plastic or Styrofoam debris Fishing debris, such as free floating nets or lines
- Wood or lumber debris Other – Specify _____

Litter or garbage Raw sewage
 Oily film on water No evidence

32. When you are boating, has water pollution ever prevented you from:

Activity	Yes	No	Don't engage in activity
Swimming			
Harvesting clams or oysters			
Fishing			

58. Do you feel that any of the following boating activities pose environmental problems in bays and inlets:

Activity	Yes	No	Depends on size	Depends on Flushing/ Tides	Don't Know/ Refused
Sewage discharge					
Bilge pumping					
Littering					
Boat maintenance					
Hull washdown					
Gas or oil spills					

33. Which of these do you feel would be the most effective tools for ensuring that boater waste is disposed of properly?

Activity	First	Second
Improvement of the waste-disposal facilities		
An education program for boaters		
Development of regulations		
Enforcement of existing regulations		
Peer pressure		
Other - _____		
Don't know		

34. What source of information about water quality and water pollution would you be most likely to read and find credible?

Newspaper Boating magazines
 Radio TV
 Friends Other – Specify _____
 Newsletters Puget Sound Water Quality Authority information
 Boaters' Club Don't know/refused
 Internet