



WASHINGTON RECREATIONAL BOATING PUMPOUT FACILITY ASSESSMENT

WASHINGTON STATE PARKS & RECREATION COMMISSION

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ACKNOWLEDGMENTS

WASHINGTON STATE PARKS & RECREATION COMMISSION

Rob Sendak Rhonda Dobbs Lydia Moorehead

ADVISORY COMMITTEE

We are grateful to the following professionals who provided technical guidance throughout the development of this report. Justine Asohmbom, Washington Department of Ecology Aaron Barnett, Washington Sea Grant Jeff Barney, Pierce County Public Works Shane Belson, Washington Department of Fish & Wildlife Emily Gonzalez, Puget Soundkeeper Jay Jennings, Northwest Marine Trades Association, The Boating Program Advisory Council Reid Parker, Washington State Parks & Recreation Commission Andrea Pierantozzi, Recreational Boating Association of Washington Natalie Sahli, Washington Department of Natural Resources Brenda Treadwell, Port of Anacortes Merita Trohimovich, Washington Department of Health Bridget Trosin, Washington Sea Grant

MAKERS ARCHITECTURE AND URBAN DESIGN

Julie Bassuk Beth Batchelder Laura Basile

BST

Paul Sorensen Brian Winningham

FACET

Steve Robert Erik Dahl

GMA RESEARCH

Don Morgan

ADDITIONAL PARTICIPANTS

We appreciate input received from other key partners in this effort, including the following representatives from other state boating programs and subject matter experts.

Victoria Gambale, Florida Sea Grant

Constance Sullivan, Oregon Sea Grant

Vivian Matuk, California State Parks and California Coastal Commission

Ethan Tratner, California State Parks and California Coastal Commission

Derek VanDyke, Washington State Parks

Steven Exe, Washington Kayak Club

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Washington Recreational Boating Pumpout Facility Assessment

GLOSSARY OF TERMS

Anchorage: A location where vessels can lower anchor. These locations usually have conditions for safety and protection from inclement weather and other hazards¹.

Boater: For the purposes of this study, "boater" refers to anyone using watercraft including powerboats, sailboats, and human-powered vessels such as kayaks and paddleboards.

Coastal waterways: Waterways situated outside of a land mass adjacent to the shorelines, which contain a high percentage of sea water (sounds, bays, lagoons, bayous, ponds, and estuaries)². Washington's coastal waterways include the Puget Sound, Strait of Juan de Fuca, and the coast, among others.

Clean Vessel Act (CVA): Federal legislation passed in 1992 that aims to reduce water pollution from vessel sewage discharges. CVA established the Clean Vessel Act Grant Program.

CVA Grant Program: Federal grant program that awards funds to states to subaward to marinas, ports, local governments, etc. for pumpout facility development/ replacement, operation, and maintenance. References in this report refer to Washington's program administered by the Washington State Parks and Recreation Commission Boating Program.²

Dump station: A place where boaters can safely dispose of sewage from a portable toilet chamber.

Floating restroom: Sewage facilities provided for use by recreational boaters on lakes and reservoirs, not connected to land or a marina and only accessible by water. Floating restrooms are installed and utilized to prevent sewage from entering waterways¹.

Homeport harbor: Long-term or permanent moorage for a vessel, also known as a "parking lot harbor".

Human-powered vessels: Non-motorized watercraft, typically propelled by paddle, such as a canoe, kayak, or paddleboard.

Inland waterways: lakes, rivers, and waterbodies in the interior of Washington State, outside of coastal waterways; includes all of Eastern Washington².

¹ California Department of Parks and Recreation Division of Boating and Waterways, (2020). California Vessel Waste Disposal Plan.

² Washington State Parks, (2024). https://parks.wa.gov/about/grants/clean-vessel-act-grantprogram

GLOSSARY OF TERMS (CONT.)

Marine sanitation device (MSD): Any equipment for installation on board a vessel which is designed to receive, retain, treat, or discharge sewage; sewage holding tank.³

Mooring buoy: a mooring buoy fixes a vessel's position relative to a point on the bottom of a waterway without connecting the vessel to shore¹.

No Discharge Zone (NDZ): a United States Environmental Protection Agency (EPA) designated body of water where the discharge of sewage (blackwater/toilet waste) from boats, whether treated or not, is prohibited⁴.

Operation and maintenance (O&M): Costs and work associated with managing and maintaining a facility.

Pumpout boat: A vessel that travels to recreating boats and moorage accommodations in order to empty sewage from a boat's holding tank ²; also referred to as a mobile pumpout.

Pumpout: Equipment that pumps or receives sewage from a marine sanitation device.

Slip: A portion of a pier or dock where a boat is berthed and used for embarking or disembarking¹.

Recreational vessel: Watercraft manufactured or used primarily for pleasure. This term includes any watercraft leased, rented, or chartered to another for the latter's pleasure³.

Transient harbor: (or "destination harbor") temporary or guest moorage for a vessel.

³ United States Environmental Protection Agency. (2024). https://www.epa.gov/vessels-marinas-andports/marine-sanitation-devices-msds.

⁴ United States Environmental Protection Agency. (2024). https://www.epa.gov/vessels-marinas-andports/vessel-sewage-no-discharge-zones.

ACRONYMS

ABC	Agencies Boating Committee
BSDF	Boat Sewage Disposal Facility
Boating Program	Washington State Parks Recreational Boating Safety Program
BPAC	Boating Programs Advisory Council
CVA	Clean Vessel Act
DBW	California State Parks Division of Boating and Waterways
DNR	Washington Department of Natural Resources
DOH	Washington Department of Health
Ecology	Washington Department of Ecology
EPA	The Environmental Protection Agency
ERTS	Environmental Report Tracking System
GPM	Gallons Per Minute
JLARC	Joint Legislative Audit & Review Committee
MSD	Marine sanitation device
NDZ	No-Discharge Zone
NEP	National Estuary Program
NMTA	Northwest Marine Trade Association
NOAA	National Oceanic and Atmospheric Administration
O&M	Operation and maintenance
PAC	Paddle Advisory Committee
Parks	Washington State Parks Commission
RBAW	Recreational Boating Association of Washington
RCO	Washington State Recreation and Conservation Office
Sea Grant	Washington Sea Grant
SFEP	San Francisco Estuary Partnership
SMBNEP	Santa Monica Bay National Estuary Program
SPPR	Spill Prevention, Preparedness and Response
TBF	The Bay Foundation
USACE	U.S. Army Core of Engineers
USCG	U.S. Coast Guard
USFW	U.S. Fish and Wildlife Services
VSEO	Vessel Sewage Education and Outreach
WDFW	Washington Department of Fish and Wildlife
WPPA	Washington Public Ports Association

EXECUTIVE SUMMARY

Since the passage of the Clean Vessel Act (CVA) in 1992, the Recreational Boating Safety Program of the Washington State Parks and Recreation Commission (Parks) has been stewarding grant funding to "reduce accidents and fatalities, increase stewardship of Washington waterways, and keep recreational boating a safe, accessible, and enjoyable pastime."¹

In 2013, the Washington State Department of Ecology (Ecology) published a study assessing Puget Sound water quality. Findings showed several areas were impaired due to pollutants associated with human actions, including sewage discharge from vessels. The report built the case for designating the Puget Sound as a No Discharge Zone (NDZ), which was adopted in 2018.

Since then, there have been multiple efforts to understand boater behavior and waste facility use in the Puget Sound (see "Related Efforts"); however, less is known about the efficacy of waste facilities in other areas of the state. In 2023, Parks received a state appropriation for the 2023-25 biennium to conduct a needs assessment of recreational pumpout facilities. This report updates previous efforts by assessing the waste infrastructure system that supports recreational boating in Washington State. Its recommendations are intended to guide investments in waste disposal infrastructure, boater education and outreach, and legislative engagement.

KEY ISSUES

Washington's current vessel waste disposal system faces a range of issues that hinder its effectiveness. These challenges are grouped into six categories: service gaps, lack of restrooms, minimal data from human-powered vessels, gaps in boater awareness, CVA grant fund limitations, and insufficient data. Addressing these issues will require coordinated efforts and improved infrastructure, education, and data collection to support more sustainable boating practices.

SERVICE GAPS

Although most popular boating areas are well-served, several require additional pumpouts, restrooms, or mobile service to meet boater demand. Additional issues include limited access to pumpouts and a lack of adequate maintenance. These service gaps affect boater behavior; survey respondents noted long wait times and inaccessible facilities as key reasons for avoiding pumpouts.

LACK OF RESTROOMS

The lack of adequate restroom facilities also impacts boaters and other recreational users. This is especially notable in remote locations, smaller lakes, and river launches. Additionally, many existing restrooms are aging, non-ADA-compliant, and may be difficult to maintain, especially in remote areas. Data on floating restrooms is incomplete, making it challenging to assess their distribution and condition. There is also a need for better signage to help boaters locate restrooms and pumpout facilities within marinas.

1 www.parks.wa.gov

RELATED EFFORTS

- 1986 Boat Pumpout Study for Washington State Parks and Recreation Commission
- 1995 Comprehensive Boat Sewage Management Plan for Washington State
- 2001 Statewide Recreational Boating Study
- 2007 Clean Vessel Pumpout Grant Program Transition Plan
- 2018 Statewide Boating Sewage Disposal Facility Plan

WASHINGTON WASTE INFRASTRUCTURE SYSTEM CHALLENGES

Were identified through:

- Boater and facility owner surveys with over 1,200 respondents
- Facility supply and demand analysis
- Eleven discussion groups around a variety of relevant topics, including water quality, boating facilities and organizations, human-powered vessels, boat launches/CVA grant use, user experience, boating in eastern Washington, and pumpout facilities at Washington State Parks
- Interviews with subject matter experts from Washington, Oregon, California, and Florida



Figure 4. Park restrooms can be helpful for boaters without waste disposal devices (Source: Washington Department of Fish and Wildlife)

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MINIMAL DATA FROM HUMAN-POWERED VESSELS

With the increasing popularity of paddle sports, Washington faces a growing challenge managing waste from human-powered vessels. Data on where and how frequently paddlers use waterways is lacking, making it difficult to assess the potential environmental impact of their waste. While outreach efforts have targeted engine-powered and sail vessels, paddlers have received less attention regarding proper waste disposal education.

GAPS IN BOATER AWARENESS

Despite various educational resources, boater awareness regarding sewage disposal regulations remains inadequate. According to the boater survey (see page 38), some boaters remain unsure of where and how to discharge sewage, and illegal dumping continues to occur. More targeted outreach is needed to improve compliance and reduce water quality impacts.

Flickr. 2016)

CVA GRANT FUND LIMITATIONS

The CVA grant program has been instrumental in supporting pumpout installations, but several limitations may hinder its effectiveness. One issue is the 25% match requirement, which can be a barrier for smaller operators or those facing financial hardship. Additionally, grant restrictions on construction and maintenance projects in aquatic environments that may facilitate adding pumpouts, as well as burdensome reporting requirements, have led to frustration among existing and potential pumpout facility owners. These limitations reduce the potential impact of the CVA program and discourage participation.

INSUFFICIENT DATA

The lack of reliable and comprehensive data hinders the ability to pinpoint and address challenges in Washington's vessel waste disposal system. For example, facilities receiving CVA grant funds self-report gallonage, but this data is prone to inaccuracies due to outdated calculation methods and equipment malfunctions. There is also insufficient information on non-grant funded facilities and sewage disposal after pumping out, which obscures challenges with disposal and waste management. Similarly, the location and usage of dump stations are not consistently tracked, and no centralized database exists for restroom facilities across the state. Insufficient data makes it difficult to plan and allocate resources effectively.



Figure 6. Connecting the pumpout hose to the sewer line at the Delin Docks (Source: Parks)



RECOMMENDATIONS PROJECTS The Washington Recreational Boating Pumpout Facility Assessment identifies and prioritizes project, programmatic, and policy solutions to address issues and improve **NEW BOATING** the state's water quality. SEWAGE DISPOSAL **FACILITIES** PROJECT RECOMMENDATIONS To address service gaps and improve water quality, this report recommends the NON-OPERATIONAL following actions, organized into three categories shown at right: **PUMPOUTS** • Support marinas in adding new pumpouts in under-served areas • Add floating restrooms in high-traffic areas • Support addition of mobile pumpout boats **UPLAND WASTE** • Support marinas in addressing pumpout repairs FACILITIES • Add and improve upland waste facilities See Figure 7 for the recommended locations for added service as well as the "Recommendations" chapter starting on page 57 for more information. New pumpout • Pumpout in progress Non-operational pumpout Figure 7. Project recommendations for Washington State. 0 10 20 Miles

POLICY AND PROGRAM RECOMMENDATIONS

Policy and program solutions were divided into four categories, shown at right. The bullets below summarize the recommended solutions to address these challenges.

CVA GRANT STRATEGIES

- Reduce barriers to CVA grant fund use by adjusting CVA grant fund eligibility restrictions.
- Develop more accurate and user-friendly annual reporting methods for grant fund users to more easily update and improve CVA data.
- Increase support for CVA grant recipients around pumpout maintenance and state funding resources for facilities needing additional support.
- Enhance monitoring efforts and build relationships with pumpout owners by working with interns or non-profits.

WASTE DISPOSAL EDUCATION

- Develop an educational campaign targeting moorage facility owners to increase awareness around the CVA grant program.
- Supplement existing educational campaigns and identify gaps in knowledge and user groups access to more strategically reach boaters who are unaware of regulations around sewage disposal.
- Update educational curriculum and develop user-friendly information around regulations, waste disposal options, pumpout information, reporting illegal dumping, etc.
- Update and place pumpout instructions at each pumpout and provide additional wayfinding signage.
- Update the Pumpout Nav app to provide more resources and frequent updates.

HUMAN-POWERED VESSELS

- Develop an educational campaign targeting non-motorized boaters to increase awareness and encourage use of restrooms and waste bags.
- Encourage use of human waste bags.
- Collect data on paddle sport recreation to understand boater behavior and its correlation to water quality issues.
- If data reflects impacts to water quality, consider enhancing paddle sport regulations, including requiring sanitation devices and/or limiting traffic in highest use areas lacking waste disposal facilities.

MULTI-AGENCY COORDINATION

- Collaborate across agencies to manage data on recreational boaters and boating sewage disposal facilities in a central location.
- Work with boating organizations to provide information on how to document illegal dumping and encourage new services near illegal dumping hotspots.





Figure 8. Washington Sea Grant uses Patty the Poo to help spread the word about proper waste disposal

PLANNING CONTEXT

ALLIN



KEEPING OUR WATERS CLEAN

Washington has more than 4,000 lakes, 74,000 miles of rivers and streams, and nearly 3,000 square miles of marine estuaries.¹ These waterways are an essential part of our health, livelihood, and culture in Washington State. They have sustained life for the region's earliest peoples and continue to nourish Tribal nations that depend on and steward these waters.

The richness and beauty of Washington's marine and inland waters draw people to live in and visit the state and recreate in its waters. Unfortunately, this rapid population growth has also increased agricultural and urban runoff, industrial point source pollution, and municipal sewage overflows, especially in Western Washington.

The increase in recreational boating has strengthened economic vitality but also impacted water quality. A vessel discharging sewage in the water or kayaker burying waste along a shoreline both contribute to water pollution. Sewage, both treated and untreated, can carry pathogens, cause sedimentation, and reduce water oxygen levels. This degrades water quality and impacts wildlife and human health.²

Vessel sewage is more concentrated than municipal sewage discharge and can have a disproportionate impact on water quality. Vessel discharge may occur in areas such as shellfish harvest beds and swimming beaches or in sensitive ecosystems like seagrass beds, which comprise some of the most productive habitats in the biosphere. Seagrass provides food and habitat for numerous aquatic species like fish, wading birds, turtles, and invertebrates. Eelgrass, a type of seagrass, is monitored closely as a valuable ecosystem indicator and is one of Puget Sound Partnership's Vital Signs, which measure Puget Sound's ecosystem health.³ See Figure 10.

³ Washington State Department of Natural Resources. (2019). Puget Sound Seagrass Monitoring Report, Monitoring Year 2016 - 2017



Figure 10. Impaired water quality in the Puget Sound

LEGEND

🔺 Areas with recent decline in Eelgrass

High bacteria and low levels of dissolved oxygen.¹

¹ Washington State Department of Ecology. (2024). Water Quality. https://ecology.wa.gov/About-us/ Who-we-are/Our-Programs/Water-Quality

² Washington State Department of Ecology. (2021). Puget Sound No Discharge Zone Implementation Strategy

WA Dept of Ecology- Clean Water Act Section 303(d) - Category 5: Polluted water that requires a water improvement project. Bacteria includes Enterococci, Escherichia coli, and Fecal Coliform

WHAT WASHINGTON HAS ACCOMPLISHED

In 1989, Washington implemented the state's first boat sewage disposal facility (BDSF) program, which funded 12 facilities in the year the program was active. After the federal Clean Vessel Act (CVA) was implemented in 1992, Washington completed a Comprehensive Boat Sewage Management Plan for Washington State. There have been a number of efforts to grow and improve vessel sewage management since that time.

This section begins with a snapshot of the government agencies, non-profit organizations, and advocacy groups working on the intersection of water recreation and water quality in our state. It then reviews the key regulatory actions, studies, and programs - the CVA, No-Discharge Zone (NDZ), and CVA grant program - that help ensure boaters do their part to protect Washington State's water resources for generations. It concludes by providing a brief orientation around this 2025 Washington Recreational Pumpout Facility Assessment report.

Figure 11. Cap Sante Marina, Port of Anacortes, Washington



AGENCIES AND ORGANIZATIONS

WITH MISSIONS RELATED TO BOATING AND/OR WATER QUALITY

The following government agencies, non-profit organizations, and boater advocacy groups are working to minimize sewage contamination from water recreation in Washington. They have developed programs, built infrastructure, and promoted awareness to improve our water quality.

FEDERAL AGENCIES

Environmental Protection Agency (EPA) enforces the CVA, regulates marine sanitation devices (MSDs), funds the CVA grant program, and supports NDZs to prevent boater sewage pollution.

United States Fish and Wildlife Services (USFW) collaborates with other agencies to administer the CVA program, supports boater sewage waste management by promoting pumpouts stations, and enforces the Clean Water Act.

United States Coast Guard (USCG), the nation's maritime law enforcement agency, has the authority to enforce maritime laws, including NDZ regulations.

STATE AGENCIES

Washington State Parks & Recreation Commission (Parks) Boating Safety Program (Boating Program) promotes safe boating practices, funds installation and maintenance of sewage disposal facilities through the CVA Grant Program, and educates boaters on proper waste disposal methods.

Washington Department of Ecology (Ecology) protects water quality by enforcing the Puget Sound NDZ, prohibiting vessel sewage discharge, promoting clean boating practices, funding pumpout facilities, and educating boaters on proper waste disposal to prevent pollution.

Washington Department of Fish & Wildlife (WDFW) manages approximately 400 boat launches, the largest number among all public land management agencies in the state.

Washington Department of Natural Resources (DNR) manages the Derelict Vessel Removal Program, which addresses pollution from abandoned boats; collaborates with other agencies to enforce the Puget Sound NDZ; and authorizes marinas, mooring buoys, and floating restrooms located on state-owned aquatic lands.

Washington Department of Health (DOH) collaborates with Ecology to enforce the Puget Sound NDZ and promotes proper waste disposal through boater education and pumpout facility support.

Puget Sound Partnership brings together hundreds of partners to advance policy and mobilize funding needed to restore and protect Puget Sound. The partnership builds the Action Agenda, which helps to direct resources toward priority actions to accelerate ecosystem recovery.

Recreation and Conservation Office (RCO) administers grant programs to develop and renovate boating facilities, including sewage pumpout stations, to reduce boater sewage discharge and protect water quality. Washington Sea Grant (Sea Grant) is a federal-university partnership between the National Oceanic and Atmospheric Administration (NOAA) and the University of Washington. Washington Sea Grant conducts research, outreach, and education to serve Washington's coastal communities. See "Key Resources" on page 8.

NONPROFIT ORGANIZATIONS

Puget Soundkeeper Alliance is a non-profit organization dedicated to protecting and restoring Puget Sound's water quality through advocacy, monitoring, legal action, and community engagement. It focuses on reducing pollution from sewage and industrial discharge.

ADVOCACY GROUPS

Washington Public Ports Association (WPPA) represents Washington's public port districts, supports development and maintenance of pumpout stations, assists ports in complying with environmental regulations, and promotes best management practices to prevent water pollution.

Recreational Boating Association of Washington (RBAW) advocates for recreational boaters, promotes pro-boating policies, is a partner in the Clean Marina Washington program¹, and secures CVA grants to enhance mobile pumpout services.

Northwest Marine Trade Association (NMTA) supports recreational boating and businesses that support boating; helps to reduce boater sewage waste and support marina operators in adopting best management practices.

Boating Program Advisory Council (BPAC) advises Parks' Boating Program on policy and financial strategies affecting recreational boaters, promotes safe boating practices, and manages infrastructure grants to prevent sewage discharge into waterways.

Agencies Boating Committee (ABC), an information-sharing group, develops a consistent set of criteria for waste disposal instruments that meet the needs of boaters and other nearshore water users, with the goal of using these criteria to award capital grants.

Vessel Sewage Education and Outreach (VSEO) and NDZ Enforcement Committees promote compliance with regulations prohibiting vessel sewage discharge, focusing on educating boaters and commercial vessel operators about proper sewage management practices.

Incentive-based certification program for marinas at https:// cleanmarinawashington.org/

CLEAN VESSEL ACT

The Clean Vessel Act of 1992 is federal legislation that aims to reduce water pollution from vessel sewage discharges. It established a grant program administered by the U.S. Fish and Wildlife Service, and provided funding for facilities to dispose of recreational boater sewage.¹

COMPREHENSIVE SEWAGE MANAGEMENT PLAN FOR WA STATE - 1995

The plan sought to identify if there were sufficient BSDFs throughout the state to meet boater demand by creating an inventory of facilities and comparing that with boater registration data. The planning process included visiting existing pumpout facilities to gather information, visiting facilities without pumpouts to evaluate their need, surveying boaters to gather information about boater practices, interviewing facility operators, and conducting a thorough search and review of existing reports on boat sewage management. The plan recommended facilities to be installed or replaced in order to meet boater sewage disposal demand.²

STATEWIDE RECREATIONAL BOATING STUDY - 2001

BST Associates (BST) completed an inventory and needs analysis of BSDFs in Washington State to guide Parks' allocation of CVA funds. The project included on-site visits of BSDFs, a BSDF operator survey, and a boater survey. The project sought to identify the number and location of BSDFs needed to serve boaters during peak use, highlight challenges with pumpout use and technologies to improve user experience, and identify trends in boat size that may impact sewage waste disposal efforts.

The survey found an increase in use of BSDFs due to the overall growth of recreational boating, but also due to increased environmental awareness. Boaters noted they are willing to use a BSDF if they know where to locate facilities and how to operate them.

1 U.S. Fish & Wildlife Service. (2025). https://www.fws.gov/program/clean-vessel-act

EDUCATIONAL MATERIALS

Educational materials for boater awareness of proper waste disposal include tote bags, pamphlets, and educational posters. These materials share information about where it is illegal to dump waste, the types of waste and sewage accepted in pumpouts and dump stations, and the volume of waste diverted from Washington waterways through the pumpout program.



Figure 12. A tote bag with a map of the Puget Sound NDZ.(Source: Parks)



Figure 13. A free pumpout adapter. (Source: Parks)

NO DISCHARGE ZONE

A NDZ is a designated body of water where the discharge of vessel sewage, whether treated or not, is prohibited. The EPA has established over 80 NDZs in 27 states. The Puget Sound NDZ was implemented in February of 2017 to protect its unique, sensitive aquatic and shoreline ecosystems and the people who depend on them. The NDZ was established in all marine waters inward from the Discovery Island Lighthouse to the Canadian border and fresh waters of Lake Washington, Lake Union and connecting waters between and to Puget Sound. The following sections outline efforts made in establishing the NDZ, as well as outreach, enforcement, and education efforts.

PUGET SOUND NO DISCHARGE ZONE FOR VESSEL SEWAGE REPORT - 2013

Herrera Environmental Consultants, Inc. prepared a report for Ecology to petition for the establishment of an NDZ in Puget Sound. The report provided environmental, economic, vessel population (commercial and recreational), and BSDF data to justify the need for increased water quality protection in the area.

The report included a recreational boater survey conducted by Washington Sea Grant (Sea Grant) and Ecology to demonstrate a sufficient quantity of pumpout facilities in the Puget Sound for NDZ implementation to be feasible. A review of implementation strategies in other states was also included. Staff members from Massachusetts, Maine, New York, Virginia, and California were interviewed for feedback on their experience successfully petitioning for an NDZ.







NDZ

Figure 15. Port of Friday Harbor Marina, within the Puget Sound NDZ (Source: Parks)

PUGET SOUND NDZ IMPLEMENTATION STRATEGY - 2016

Ecology developed an implementation strategy focused on education, outreach, and enforcement to achieve NDZ goals. It provided a framework for promoting boater awareness about NDZ requirements, developed messaging and tools for partner organizations to engage with and educate boaters, and explored enforcement strategies to prevent non-compliance.

MARKETING INSIGHTS AND RECOMMENDATIONS - 2020

Great Lakes Marketing Research and Talitha Consults developed three studies to understand boater behaviors and awareness regarding the NDZ. The studies included phone interviews with nine stakeholders representing boater constituency groups and two recreational boater studies. The research found awareness of the NDZ was high, but that messaging should focus on behavior change and boaters positive impact rather than focusing on regulations as a punishable offenses. The report also noted that compliance is both an infrastructure and marketing issue. In addition to public awareness, sufficient operational pumpout stations must exist in locations that are accessible and convenient to use.

The report recommended promoting multilingual messaging through a variety of platforms including social media, web content, signage, and digital and printed publications. It also recommended improving the pumpoutwashington.com website, enhancing and promoting the Pumpout Nav App, and employing the "Pump Out, Don't Dump Out" tagline.



Figure 16. Washington State Boater Education Card

BOATER EDUCATION CARD

Boaters learn about proper waste disposal through the Washington boating safety courses. There is also a minor mention of the NDZ available on the online study guide. Since 2005, all boaters with an engine of 15 horse power or greater must register with the Department of Licensing and pass an exam to obtain a Boater Education Card. In addition to information on boating safety, the course includes a small section on proper discharge of sewage and waste, educating applicants on types of marine sanitation devices (MSD), and where and when to discharge treated and untreated sewage into proper channels.

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NDZ ENFORCEMENT

While education and outreach is the first line of defense in preventing vessel sewage discharge in the NDZ, enforcement is necessary to deter some boaters from sewage discharges. The NDZ Enforcement Committee, which includes Ecology's Spill Prevention, Preparedness and Response (SPPR), WDFW, USCG, and county and city law enforcement, guides and coordinates enforcement strategies.

NDZ enforcement interactions mostly occur with stationary vessels at ports, marinas, and other moorage locations. Enforcement of the NDZ is documented in Ecology's Environmental Report Tracking System (ERTS) and follows a "three strike" approach.¹

- First offense: notice of violation and education.
- Second offense: education and warning letter. Depending on the level of cooperation of the responsible party, and the amount of sewage discharged, Ecology may issue an Administrative Order requiring the documentation of sewage pumpout (e.g. receipts) at a defined frequency and over a specified period of time.
- Third offense: notice of violation with penalty.
- Fourth offense: notice of violation with penalty plus additional means of enforcement (e.g. proof of pumpout receipts); penalties increase with continued discharge.

Washington State Department of Ecology. (2021). Puget Sound No Discharge Zone Implementation Strategy

CVA GRANT PROGRAM

The CVA Grant Program is a nationally competitive process administered by the U.S. Fish and Wildlife Service to state agencies that provides funding for vessel sewage disposal systems, including pumpouts, dump stations, floating restrooms, and pumpout boats. State Parks subawards federal funds through an annual competitive grant process. Roughly 90% of the 191 statewide stationary and portable pumpouts having received CVA grants funds.

Eligible applicants include public and private boating facilities, cities, towns, counties, port districts, state agencies, Tribes, non-profit organizations, and private vessel operators.

Types of grants include construction and renovation or operation and maintenance (O&M).

The application process involves submitting an application with supporting documents into PRISM, an online computer system managed by Parks. Applications are reviewed and scored by a panel of evaluators, evaluating public need, water quality benefit, public benefit, cost benefit, partnerships and project support, site suitability and project design, and financial hardship.

Requirements: grantees must cover costs up front and will receive a 75% reimbursement upon completion. Grant recipients of O&M grants must keep and submit a maintenance log as well as an annual gallonage report. Pumpout vessels receiving O&M funds are required to keep a sewage disposal log describing offload locations and frequency of sewage discharge, along with a pumpout vessel service log detailing when and where pumpout service is being provided.

Items eligible for reimbursement:

- Supplies necessary for BSDF operations and maintenance
- Replacement or back-up parts for BSDF
- Sales tax and shipping costs for replacement parts
- Meters used for monitoring gallons of sewage collected
- Documented in-house or contract labor associated with routine and non-routine BSDF maintenance and repairs
- Operating costs for BSDF (i.e. staff, fuel, fluids, parts)
- Electricity or water costs of the pumpout station (if costs can be separated from others in the same facility)
- Cost of sewage disposal from pumpout holding tank or disposal to public sewer, costs must be pro-rated for the portion that is for Clean Vessel purposes only
- Signage providing use instruction and information about facility, including hours of operation, seasonal closures, etc; free signage can be obtained by contacting the CVA Grant Program manager

KEY RESOURCES

State Parks CVA website includes information and guidance on the CVA grant as well as a reimbursement and reporting information and forms.

Pumpoutwashington.org includes information on why using pumpouts is efficient, how and where to pumpout, and directs visitors to other educational sources.

Pumpout Nav App is a recreational boating app funded by the CVA grant and managed by Sea Grant. This app provides sewage management information, from nearby disposal unit locations to resources to learn how a pumpout and holding tank works.

Ecology.wa.gov details pumpout information on the NDZ, educational videos on pumpout locations, how to use pumpouts, and ways to get involved in spreading awareness.

Informational blogs like the Trawler Forum and Washington Sea Grant blog provide information on conservation and proper waste disposal.

The Clean Marina Washington Program provides free technical assistance to facility owners to improve safety, prevent pollution, and become a certified Clean Marina.

Facility owner resources include workshops on government grants, free pumpout adapters for customers, and pumpout and floating restroom maintenance videos.

WASHINGTON RECREATIONAL PUMPOUT FACILITY ASSESSMENT

This report assesses boating waste infrastructure in Washington State. It was prepared by MAKERS architecture and urban design (MAKERS) in partnership with Parks. It also includes an economic and market analysis, developed by BST (see "Appendix D. Boating Sewage Disposal Facility Supply and Demand" on page D-1), an engineering analysis and cost estimation prepared by Facet (see "Appendix C. Project Cost Estimates" on page C-1), and a statistical survey led by GMA Research Corporation (GMA, see "Boater Survey" on page A-2).

This report is organized into the following sections:

RECREATIONAL BOATING AND THE WASTE DISPOSAL SYSTEM

Introduces types of vessels, berthing and launching patterns - including marina locations and water recreation access points - waste disposal facilities, and boating regions throughout the state.

KEY FINDINGS

Includes a summary of findings from the discussion groups and surveys, and highlights best practices from California, Oregon, and Florida.

ISSUES

Summarizes key issues in six categories: service gaps, lack of restrooms, CVA grant fund limitations, outdated and multi-sourced data, minimal data from humanpowered vessel waste, and waste education gaps.

RECOMMENDATIONS

Presents project recommendations, which include adding new pumpouts, addressing non-operational pumpouts, and adding upland facilities, and program and policy recommendations, which address the CVA grant, waste disposal education, human powered vessels, and multi-agency coordination.

APPENDICES

Appendix A. Survey Data reviews findings from the facility and boater surveys.

Appendix B. Recommendation Summary provides details on project recommendations.

Appendix C. Project Cost Estimates provides rough order of magnitude cost estimates for new pumpout facilities and replacements of non-operational pumpouts.

Appendix D. Boating Sewage Disposal Facility Supply and Demand reviews market analysis findings.

Appendix E. State Best Practice Findings summarizes findings from research on boating waste disposal facility management in California, Oregon, and Florida.

ADVISORY COMMITTEE

Theproject team assembled an advisory committee with representatives from state agencies, boating organizations, and pumpout facility owners to advise on the project. There were five meetings and three work sessions to review and provide feedback on findings and recommendations throughout the planning process.

DISCUSSION GROUPS

MAKERS and Parks hosted eleven discussions groups on nine topics including facilities, water quality, boating organizations, human powered vessels, boat launches/CVA grants, user experience, boating in eastern Washington, and pumpout facilities at Washington State Parks.

PUBLIC OUTREACH

The outcomes of this assessment will be presented to the public as a virtual webinar.

RECREATIONAL BOATING AND THE WASTE DISPOSAL SYSTEM



WATERCRAFT RECREATION

To assess Washington's boater sewage disposal facility infrastructure, it is necessary to determine if waste facilities are sufficient to meet current and future demand. This section introduces the types of vessels discussed in the report: registered vessels and human-powered vessels.

REGISTERED VESSELS

Washington has some of the most popular boating destinations in the country, especially within the Puget Sound and San Juan Islands. The number of registered boats in the state has declined at 0.8% per year between 2000 and 2023, totaling 222,000 in 2023.¹

This study divides registered vessels into two main categories by size: under 26 feet in length and over 26 feet. Smaller boats under 26 feet are more likely to have either a portable toilet, or no toilet at all; and larger boats over 26 feet are more likely to have a marine sanitation device (MSD), which require the use of pumpouts to empty.

Most vessel growth has been with smaller boats under 26 feet in length, which make up 89% of the registered fleet. Refer to "Appendix D. Boating Sewage Disposal Facility Supply and Demand" on page D-1 for additional information. Vessels are registered by county, with roughly 80% of recreational fleet registered in counties surrounding the Puget Sound and almost half concentrated in the central Puget Sound. Seven percent of boats are registered in eastern Washington counties, 32% of which are under 26 feet in length. The full summary of data on vessels and usage can be found in "Appendix D. Boating Sewage Disposal Facility Supply and Demand" on page D-1.

1 "Appendix D. Boating Sewage Disposal Facility Supply and Demand", BST



Figure 18. Recreational vessel under 26 feet (Source: <u>Kai Pilger</u>, Pexels)



Figure 19. Recreational vessel over 26 feet (Source: <u>deep Bhullar</u>, Pexels)

MARINE SANITATION DEVICES

According to the Clean Water Act, MSDs are "any equipment for installation on board a vessel which is designed to receive, retain, treat, or discharge sewage, and any process to treat such sewage."

MSD Type I

Flow-through type treatment that macerates and disinfects. Allowed only in vessels under 65 feet.

MSD Type II

Flow-through treatment that uses biological treatment for disinfection. May be installed on any length of vessel.

MSD Type III

A tank that stores sewage until it can be discharged. Vessels of any length may have this type.

¹ www.epa.gov/vessels-marinas-and-ports/marine-sanitation-devices-msds

HUMAN-POWERED VESSELS

Boaters using human-powered vessels, such as kayaks, stand-up paddleboards, and canoes, make up one of the fastest growing user groups. Although data on current human-powered vessel use is difficult to track as there is no registration requirement, the Washington State Recreation and Conservation Office (RCO) conducted an Assessment of Outdoor Recreation Demand and found that 52% of individuals surveyed had participated in paddle sports at least once in the prior twelve months.²

2 2023 Recreation and Conservation Plan, Washington State RCO, 2023.

Figure 20. Kayakers (Source: Ian Hunter, Flickr)



BERTHING AND LAUNCHING

This section introduces berthing and launching patterns, including marina locations and water recreation access points.

MARINAS AND MOORAGE

While we do not have data tracking boat travel, moorage locations offer clues to usage patterns since marinas act as homeports and destinations. There are over 330 marinas in Washington State (see "Appendix D. Boating Sewage Disposal Facility Supply and Demand"). Many boats launch from their homeport marina or boat ramps nearest to home. However, boats can be trailered nearly anywhere and many boaters enjoy taking longer journeys during peak season. Guest or transient slips at marinas, as well as temporary buoys and anchorage spots, can suggest boating destinations since tie-up locations primarily serve as transient moorage during peak boating season. There are 1,482 mooring buoys and 169 anchorages in the state and most (98%) are located within the Puget Sound or San Juan Islands. See "Appendix D. Boating Sewage Disposal Facility Supply and Demand" on page D-1 for the inventory of marinas and moorage.



Marina

Figure 21. Boats docked at Baker Lake



BOAT RAMPS, PUBLIC SHORELINES, AND LAKEFRONTS

There are 631 boat launches in Washington State that range from paved to more primitive surfaces (see "Appendix D. Boating Sewage Disposal Facility Supply and Demand" on page D-1). Ownership ranges between cities, counties, state agencies, Tribes, ports, utilities, non-profits, and privately owned launches. Of these launches, 262 have either restrooms or dump stations that are assumed to be available for dumping waste from portable toilets (see Figure 24).

This report assumes all other public shorelines and lakefronts serve as soft launch areas for human-powered vessels (see Figure 23).



Figure 23. Soft launch and dock area to launch human-powered vessels



WASTE DISPOSAL FACILITIES

The growing popularity of recreational boating in Washington State has made effective sewage disposal infrastructure essential in protecting the state's waters and marine environments. Washington has one of the most robust BSDF networks in the country, having implemented a variety of solutions to ensure that waste from boats is properly managed.

BSDFs in Washington include pumpouts (stationary pumpouts, portable pumpout carts, and pumpout boats), as well as dump stations, upland restrooms, and floating restrooms.

PUMPOUTS

Washington has 192 stationary and portable pumpout carts statewide. An additional 19 pumpouts are located in Oregon and can be accessed by boaters on the Columbia River. Unless otherwise indicated, this study uses the term "pumpout" to refer to both fixed stations and portable carts.





Figure 25. Stationary pumpouts like this one at Stehekin Landing on Lake Chelan are affixed to docks where boats temporarily moor while they pump out their holding tanks (Source: BST)



Figure 26. Portable pumpout carts, like this one at Zittel's Marina in South Puget Sound, can be rolled to wherever a boat is moored within a marina to pump out their holding tank (Source: BST)

Figure 27. A stationary pumpout at the former Chandler's Cove Marina on Lake Union in Central Puget Sound (Source: BST)

PUMPOUT BOATS

Pumpout boats, also known as "mobile pumpouts" travel to other boats or marinas to pump out sewage from their holding tanks (see Figure 28). There are 21 pumpout boats in the state. All except one are located in the Puget Sound/San Juan Island region. Eight boats serve regionally while most serve the marinas where they homeport. Pumpout vessels rely on municipal sewage systems to discharge.

The NW Mobile Pump Out and Marine Environmental Services is an example of a regional collaboration that brings mobile pumpout service directly to South Puget Sound boaters in the Key Peninsula-Gig Harbor-Islands watershed during the summer. Working closely with Pierce County, this grant-funded program keeps an estimated 18,000 gallons of sewage out of Puget Sound annually, protecting shellfish beds and improving water quality.



Figure 29. NW Mobile Pump Out and Marine Environmental Service

- Regional mobile pumpouts
- Marina-based mobile pumpouts
- Peninsula Pumpout serves Port Angeles
 Marina and John Wayne Marina

Figure 28. Mobile pumpout boats



OTHER SANITATION FACILITIES

Smaller vessels typically rely on dump stations to empty their portable toilets. They do this by carrying the removable chamber from the toilet and emptying the contents in a dump station (see Figure 30). Upland restrooms are any restrooms in places accessible to recreational watercraft, typically found along marine or freshwater shorelines. Boaters with all types of vessels rely on upland restroom facilities.

While a comprehensive database of dump stations and upland restrooms is lacking, RCO and WDFW maintain records of boat launches, which track if amenities like bathrooms are available. Since portable toilet chambers can be emptied into restroom facilities, this data shows some available BSDFs for upland restroom users as well as boaters requiring a place to empty their portable toilet. Refer to the map on page 14 for locations.



Figure 30. Dump stations like this one at the Oak Harbor Marina are facilities where boaters can dump waste from portable toilets.



Figure 31. Upland restrooms are any restrooms accessible to boaters from land, including plumbed facilities and vault toilets (Source: WDFW)

FLOATING RESTROOMS

Floating restrooms are restrooms installed on floating docks or barges that are typically accessed by temporarily mooring boats or human-powered vessels adjacent to the facility. Floating restrooms that are in federally managed parks and restrooms installed on docks at marinas are not covered by CVA grants and therefore may not be tracked.



Figure 32. Floating restrooms sit on water and are typically anchored or attached to a dock (Source: Parks)



BOATING REGIONS

Washington State encompasses a wide range of aquatic environments, from Puget Sound's network of islands and inlets, to expansive lakes like Chelan and Roosevelt in Central and Eastern Washington. These diverse marine and freshwater landscapes provide a variety of experiences for recreational boaters, but also pose unique challenges to boating sewage infrastructure. Understanding the interplay between boating activities and the health of these waters is essential for developing strategies to mitigate negative impacts and ensure the sustainability of these vital habitats.

This section introduces regions used in the assessment and includes popular boating areas and pumpout infrastructure found in each region. Regions were defined based on distinct water bodies and boater use patterns. See "Appendix D. Boating Sewage Disposal Facility Supply and Demand" on page D-1 for more explanation of boating regions..



Figure 34. Boating regions in Washington State

PUGET SOUND

Puget Sound is undoubtedly one of the most popular boating regions in Washington State, with 80% of recreational fleet registered in counties surrounding the sound.¹

This assessment divides the Puget Sound Region into five subregions. The three biggest include the North Sound - stretching from the northern border south to Everett, Central Sound - extending from Everett to the Tacoma narrows, and South Sound - ranging from the Tacoma Narrows south to Olympia and beyond. Two smaller subregions include Lake Washington - spanning the full lake bordered by Bothell in the north and Renton in the south, and Lake Union in the heart of Seattle.

Washington Department of Licensing

Pumpout

Anchorage

Mooring buoy

Boating region

3.5 7

J Miles

Figure 35. Puget Sound Region

Marina



Washington Recreational Boating Pumpout Facility Assessment

NORTH SOUND

North Puget Sound is a popular boating, fishing, and wildlife viewing area. Boaters congregate in saltwater areas around Whidbey Island, Cap Sante Marina, Skyline Marina, Fidalgo Marina, La Conner, Squalicum Harbor, Blaine Harbor, Semiahmoo Marina, and Point Roberts.

The Skagit River Delta is one of the many sensitive ecosystems in this region. It is an important estuary for migratory birds and spawning salmon and hosts essential marine habitats like kelp forests and eelgrass beds.

There are 53 pumpouts in North Puget Sound. Squalicum Harbor in Bellingham has ten portable pumpouts, Cap Sante Marina in Anacortes has a mix of eight portable and stationary pumpouts, and there are nine stationary pumpouts in the Port of Everett.



Pumpout
 Floating restroom at marina dock

- Marina
- Anchorage
- Mooring buoy
- --- Boating region

Figure 36. Pumpouts in North Sound Subregion

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CENTRAL SOUND

Central Puget Sound includes major urban centers and diverse marine habitats. In addition to a high density of marinas and private docks, many trailered boats launch from this area. The Seattle waterfront along the western edge of the city has several popular saltwater boating areas.

There are 59 total pumpouts distributed throughout Central Sound, with most marinas having one or two pumpouts. Foss Harbor in Tacoma, Des Moines Marina, Bremerton Marina, and Shilshole Bay Marina in Seattle are some locations with at least one portable and/ or stationary pumpouts.

SOUTH SOUND

South Puget Sound is a maze of inlets, bays, and islands. It includes a mix of urban and remote natural areas and boating spots. Jarrell Cove and McMicken Island State Parks provide peaceful boat-in camping spots alongside other recreational boating opportunities. The Henderson and Eld Inlets near Olympia host important shellfish growing areas and orca and Shelton seals are sometimes spotted here.

There are 10 pumpouts and one floating restroom attached to a marina dock in this subregion. Most marinas have just one pumpout, with the exception of West Bay Marina in Olympia and Jarrell's Cove in Shelton that each have two pumpouts.

Pumpout

Floating restroom at marina dock

- 🔲 Marina
- Anchorage
- Mooring buoy
- --- Boating region

Figure 37. Pumpouts and moorage in Central and South Sound Subregions





A.

LAKE UNION

Lake Union is a freshwater lake in the center of Seattle. It is accessed through the Ballard Locks from Shilshole Bay via the Ship Canal. It is connected to Lake Washington to the east via the eastern portion of the Ship Canal. This area is filled with marinas, house boats, and shipyards.

There are six total pumpouts distributed throughout the Lake Union subregion, with most marinas having one pumpout. Morrison's North Star Marina has three pumpouts on their fuel dock.

LAKE WASHINGTON

Lake Washington is a larger lake to the east of Seattle bordered by Renton in the south and Kenmore in the north. There are a number of marinas and anchorages, including popular locations near Seward Park and Kirkland.

There are three pumpouts in this subregion. The marinas have one pumpout each and are dispersed the length of the lake.



PumpoutMarinaAnchorageMooring buoy

--- Boating region

Figure 38. Pumpouts, marinas, and moorage in Lake Washington and Lake Union Subregions

SAN JUAN REGION

The San Juan Islands are a scenic archipelago known for wildlife, natural beauty, and recreational opportunities. This region accounts for 6% of the state's recreational fleet registrations.¹ Popular boating areas include Friday Harbor and Roche Harbor on San Juan Island, Sucia Island, and Stuart Island. Some islands, like Lopez and Shaw, offer shellfish harvesting and whale watching. The eelgrass beds and kelp forests found along the shores of these islands provide essential habitat for marine life.

Eleven pumpouts are located in this region. Orcas Island has four pumpouts distributed throughout. San Juan Island also has four pumpouts, three of which are within Friday Harbor, Lopez, Stuart, and Shaw Islands have one pumpout each.



WEST REGION

The West Region encompasses the Olympic Peninsula, coast, and Columbia River, diverse maritime regions known for their boating and fishing opportunities. This region accounts for roughly 9% of the state's registered recreational fleet.¹

This assessment divides the West Region into four subregions. Hood Canal is located on the interior of the Salish Sea and stretches from Bainbridge Island around to Belfair. The Olympic Peninsula spans the shorelines of the Strait of Juan de Fuca and includes the Port Townsend area in the east and Neah Bay to the west. The Coast subregion covers the western coastline of the state that borders the Pacific Ocean, and the Lower Columbia area runs from the mouth of the Columbia River to the Skamania area.



Figure 40. Pumpouts in the West Region

Washington Recreational Boating Pumpout Facility Assessment



25

HOOD CANAL

Hood Canal is a narrow fjord separating the Olympic and Kitsap peninsulas. This area is popular among boaters, especially marinas at the Port of Allyn, Alderbrook Inn, Hood Canal Marina, and Pleasant Harbor. This subregion also has regionally important commercial shellfish growing areas and provides opportunities for recreational shellfish harvest. The area's sensitivity to water quality impairment has been highly studied and has spurred investments to reduce pollution. There are currently eight pumpouts in the Hood Canal area.

OLYMPIC PENINSULA

The Olympic Peninsula borders the Strait of Juan de Fuca and includes commercial shellfish growing areas as well as whale migration regions. Popular areas where boats congregate are in Sequim Bay State Park and at anchorages in areas around Neah Bay and John Wayne Marina. The Olympic Peninsula has eleven pumpouts.


COAST

The Olympic Coast encompasses 73 miles of shoreline within the Olympic National Park and includes three national wildlife refuges. Extending out from the park's coastline is 3,188 square miles of the Olympic Coast National Marine Sanctuary. The region is home to the Makah, Quileute, and Hoh Tribes.

Whale watching and fishing charters are popular activities in Neah Bay, La Push, and Westport. Paddling, kayaking, and canoeing are popular at Lake Quinalt and along rivers that empty into the coast, such as Hoh River. Due to the rugged coastline, relative inaccessibility, and protections within the national park, many recreational boaters stick to the south coast around Grays Harbor and Willapa Bay. Grays Harbor Estuary provides vital habitats for migratory birds, shellfish, and marine life. There are four pumpouts supporting water quality and ecosystem health in this area.

LOWER COLUMBIA

The Lower Columbia River Estuary is a key breeding ground for salmon and sensitive wetlands. Further inland, Beacon Rock State Park, the area around the Port of Camas-Washougal, and Government Island are popular boating areas. There are eight pumpouts located along this stretch of the river.



--- Boating region

Figure 42. Pumpouts, marinas, and moorage in the Lower Columbia (below) and Coast (right) subregions





EAST REGION

Eastern Washington is characterized by deep river canyons and expansive freshwater lakes. The middle Columbia River, Lake Chelan, Lake Roosevelt, Banks Lake, Sun Lake, and the Potholes Reservoir are popular boating and fishing areas. There are a total of 20 pumpouts in the East Region with three seasonal floating restrooms. This region accounts for 7% of the state's recreational fleet registrations.¹

Efforts are in place to reduce pollution and protect water quality at the Spokane River and Lake Couer d'Alene tributaries, along with higher water quality standards in Columbia Basin Wildlife Areas, a region home to migratory birds and sensitive wetlands.



Washington Recreational Boating Pumpout Facility Assessment

MIDDLE COLUMBIA

The Middle Columbia River area begins at the stretch of river just south of the Tri-Cities area of Richland, Pasco, and Kennewick, and drains to the west towards Beacon Rock State Park near Skamania. The river in most of this area is in a deep canyon aside from the more flat arid region near the Tri-Cities. Only one pumpout is located along this stretch of the Columbia River.

SNAKE RIVER

The Snake River begins in western Wyoming and enters Washington at Lewiston before heading west and draining into the Columbia River. This area includes the busy stretch of the Columbia River that runs through the Tri-Cities. Similar to the Columbia, the Snake River area is a mostly arid desert with areas of deep river canyon. Boyer Park and Marina and Lyons Ferry Marina and State Park are popular boating areas in this region, as well as portions of the river near Kennewick and Richland. This area has ten pumpouts.



LAKE CHELAN

Lake Chelan is a narrow deep lake that resembles a fjord primarily within the forested areas of Lake Chelan National Recreation Area and the Okanogan-Wenatchee National Forest. Popular areas for boaters include Lucerne, Weaver Point, and Stehekin on the upper end and at public and private marinas and docks on the lower end. Most of the marinas and five pumpouts are concentrated on the southeast portion near Chelan, but there is one pumpout at Stehekin Landing at the northwest corner.

LAKE ROOSEVELT

While technically a reservoir created by the Grand Coulee Dam, Lake Roosevelt is a long deep lake that stretches through forested land from the Canadian border to Grand Coulee. A large portion of this lake runs through Lake Roosevelt National Recreation Area. Boaters congregate along the Spokane River, the Gifford Ferry landing, Sumner Island, Jones Bay, Hawk Creek, and Rogers Bar. Three pumpouts are located on this lake with three seasonal floating restrooms



Washington Recreational Boating Pumpout Facility Assessment

Pumpout

on lake

Floating restroom

KEY FINDINGS



Figure 46. Port of Port Townsend

OVERVIEW

In an effort to understand how well the current boating sewage disposal system functions and to identify areas that need improvement, the project team hosted discussion groups with subject matter experts, surveyed boaters and marina and pumpout facility owners, and completed best practice research by interviewing subject matter experts in other states.

DISCUSSION GROUPS

MAKERS and Parks hosted 11 discussion groups in nine topic areas found on page 33. Discussion group findings are summarized on the same page.

BOATER SURVEY

A boater survey was conducted by GMA with support from MAKERS, BST, and Parks. The survey was developed for boaters in Washington State to understand waste disposal use, behavior, and preferences. It was distributed through multiple channels with support from RBAW, the Waggoner Guide, and members of the Advisory Committee and received over 1,000 responses. Key survey results are highlighted starting on page 34; full results can be found in "Appendix A. Survey Data" on page A-1.

FACILITY SURVEY

A survey was sent to marina owners asking about their existing waste disposal infrastructure, usage, and maintenance issues. Questions about CVA grant usage were also included. A summary of results begins on page 39; with the full results in "Appendix A. Survey Data" on page A-1.

BEST PRACTICE RESEARCH

Research and interviews with staff who manage CVA and/or BSDFs programming was conducted in Oregon, California, and Florida. Findings from this research are highlighted on page 42 and in "Appendix E. State Best Practice Findings" on page E-1.

DISCUSSION GROUPS

The main findings from the discussion groups are listed below:

PUMPOUTS

- Aging receiving infrastructure is unable to manage existing or accept new waste.
- CVA grant funds are limited.
- Pumpouts may be difficult to permit due to overwater coverage and mitigation requirements.
- Jurisdictional overlap can make adding or maintaining facilities a challenge.

HUMAN-POWERED VESSELS

- Most paddlers use restrooms for day trips; multi-day trips can be challenging depending on facility availability.
- Few users carry waste bags, opting to bury waste which can result in leeching.
- Without permits or registration, it is difficult to track users, distribute information, and monitor sanitation practices.

PUMPOUT VESSELS

- Lack of waste disposal facilities for offloading are a barrier for potential commercial pumpout boats who might provide service in high use areas.
- More mobile pumpout service is needed, especially in the NDZ and at events like fishing derbies and boating rendezvous.

CVA LIMITATIONS

- Required tank size for mobile pumpouts limits boats being served.
- Pumpout use by live-aboards is not covered by CVA funds.
- Marinas serving recreational and commercial vessels with a single pumpout are ineligible.

INLAND WATERS

- Facilities at remote boat-in campgrounds are difficult to maintain and repair, especially when damaged in wildfires.
- Lack of CVA grant fund use for inland facilities may indicate a need for more education and outreach to facility owners, local jurisdictions, elected officials, and Tribal governments.

ENFORCEMENT

- Anchored/buoyed boats have been known to illegally dump in place to avoid losing reserved space, which can be difficult to monitor and enforce.
- Enforcing illegal dumping can be challenging in areas managed by multiple jurisdictions.

DISCUSSION GROUP PARTICIPANTS Facility Owners

Jeff Barney, Pierce County Public Works Brenda Treadwell, Port of Anacortes Torey Grandt, Port of Kingston, WPPA **Water Quality**

Jeff Barney, Pierce County Public Works

Noel Sharp, DNR

Justine Asohmbom, Ecology

Merita Trohimovich, DoH

Emily Gonzalez, Puget Soundkeeper

Washington State Parks

Reid Parker, WA Parks

Boating Organizations

Jay Jennings, NMTA, BPAC

Andrea Pierantozzi, RBAW

Human-powered Vessels

Derek Van Dyke, WA Parks

Steve Exe, Washington Water Trails Association

Boat Launches/CVA Grants

Shane Belson, WDFW

User Experience

Lorena and Leonard Landon, Waggoner Guide

Eastern Washington Boating

Erik Nelson, Lake Chelan Boating Club

Brian Anderson, Walla Walla Yacht Club

Jeff Chapla, Clover Island Yacht Club

BOATER SURVEY

GMA conducted an online survey of watercraft owners in Washington State through the summer and early fall of 2024. Participants were reached through third-party databases, boat registrations, marinas, yacht clubs, newsletters, and other sources, with a total of 1,200 completed surveys.

Participants included vessel owners, as well as those who rent or belong to clubs. Most are male (65%) over the age of 65 (42%), and married (79%), and most homeport from counties bordering the Puget Sound or San Juan Islands (72%), with 22% in King County.

KEY FINDINGS FROM THE BOATER SURVEY

- Common issues preventing use of pumpouts are limited availability, poor accessibility, and occasional malfunction, especially in high-traffic areas.
- There is a need for more education and outreach to raise awareness about regulations, environmental impacts of sewage dumping, and how to properly use pumpouts.
- Pumpout boats are a popular waste disposal option, and boaters believe more are needed.
- Floating restrooms are not commonly used due to a lack of availability, however, boaters would like more of them.

Where do you typically travel (may choose more than one)?



Figure 48. Travel destinations for 37-52% of respondents include locations in the Puget Sound or San Juan Islands. Most write-in reponses included in the "other" category mentioned travel to Canada with the rest comprising a mix of Washington lakes and other states.

Typical trip length



Figure 47. The typical length of respondents' trips range from a few hours to a few days

VESSELS TYPE, STORAGE, AND USE

Nearly two-thirds of respondents use a powerboat and 20% use a sailboat (see Figure 49). Powerboats typically cruise at greater speeds than sailboats and therefore operators may be willing to travel greater distances to reach waste disposal facilities. Fifty-eight percent of those surveyed use a boat over 26 feet, vessels most likely to have a MSD type I.

Just over half of respondents (54%) store their vessels at a dock or marina and do not live aboard. These respondents are most likely to have access to marina pumpouts and restroom facilities when they launch and return. A third of survey respondents use their boat or watercraft frequently, from one to three times per month.

WASTE FACILITY USE

Boaters were asked what waste disposal infrastructure they use. Eighty-three percent have some type of onboard waste removal system, 51% of which have an installed toilet with a holding tank (see Figure 50). When asked to select what type of restroom facilities they use, most boaters use the marina restroom (67%) or their onboard toilet (44%). Only 28% of respondents use a pumpout facility.

Type of watercraft



Figure 49. Most survey respondents use powerboats and a third use human-powered watercraft



Type of waste removal system

Figure 50. Half of those surveyed have a toilet with holding tank on their boats



WASTE FACILITY FEEDBACK

The survey requested feedback on Washington's recreational pumpout facility system. While most respondents are satisfied, some noted a number of issues preventing use of pumpouts, dump stations, and restrooms. The most common issues were long wait times, non-operational facilities, and location (see Figure 52).

PUMPOUT FACILITIES

When asked what would encourage more frequent use of pumpout facilities, the following themes were highlighted:

- Availability and Accessibility: Many respondents emphasized the need for more pumpouts at popular marinas, anchorages, and state parks, in addition to floating restrooms for ease of access.
- **Ease of Use and Convenience**: Respondents noted a desire to decouple pumpouts from fuel docks to improve accessibility.
- Reliability and Maintenance: A recurring concern highlighted the need for maintenance to ensure facilities are consistently operational. Respondents noted a need for reliable suction, adapters, and clear signage when facilities are non-operational.
- Cost and Incentives: Many users suggested free or low-cost pumpout services, especially mobile options, and a few noted that incentives, such as discounts or rewards, could help promote use.
- Education and Enforcement: Education about environmental impacts and the importance of pumpout use, along with stricter enforcement of regulations and fines for non-compliance, were frequently mentioned as effective motivators.

What prevents usage of pumpout facilities?



Figure 52. According to respondents, location, availability, and nonfunctional pumpouts were the top reasons preventing pumpout use

Most Requested Pumpout Spots

Sucia Island

Blake Island

Lake Washington

Lake Union

Friday Harbor

Figure 51. The five desired locations for new or additional pumpouts

How far would you travel to use a pumpout facility or dump station?



Figure 53. Most (65%) of respondents prefer to travel less than a half hour to use a BSDF

RESTROOMS

The survey also asked for feedback on restroom facilities. Eighty-six percent of respondents noted they were mostly satisfied with the availability and condition of restrooms.

FLOATING RESTROOMS

Roughly a third of respondents noted they used floating restrooms. When asked about using floating restrooms, respondents noted the following:

- Accessing and docking at floating restrooms can be difficult, especially in conditions with waves and wind, or crowded docking.
- **Stability and balance** on the floating structures is challenging for some, with movement from waves or wakes leading to an unsteady experience that could be uncomfortable or unsafe.
- Cleanliness and sanitation was a significant concern, with several comments about maintenance challenges, sanitation issues, and the need for regular cleaning and stocking.
- Location and availability could be improved. Respondents noted minimal floating restrooms and difficulty locating existing ones, particularly in remote or high-traffic areas.
- Adverse weather and environmental conditions—such as strong winds, cold temperatures, and freezing pipes—were mentioned as potential issues that impact usability.

What do you use when in your home port?



Figure 54. The majority of respondents use the marina restroom when at their home port

Satisfaction with restroom availability



Figure 55. The majority of respondents are mostly satisfied with restroom availability



Figure 56. The majority of respondents are fairly satisfied with restroom conditions and availability

Satisfaction with restroom condition

EDUCATION/AWARENESS

The boater survey found awareness of proper waste discharge could be improved. The five most frequently mentioned themes for information boat owners would find helpful are:

- Location of Pumpout Stations: Boaters frequently requested maps, apps, or guides with accurate locations of pumpout stations, including detailed marina locations, GPS coordinates, and access to nearby mobile services.
- Operating Hours and Status: Respondents emphasized the importance of knowing when facilities are operational and receiving real-time updates about availability or downtime, especially during peak boating times and at popular sites.
- **Clear Instructions on Usage**: Many respondents suggested detailed, step-bystep guides on how to use the pumpout stations, including visuals or instructional videos to avoid issues like splashing or spills.
- Environmental Importance and Regulations: Some respondents requested information on the environmental impact of waste disposal and the importance of using pumpout stations, alongside details on regulations, penalties, and fines.
- Cost and Payment Methods: Clear information about the cost of pumpout services, including whether stations are free and payment options (cash, card, mobile app), was also frequently mentioned.

A portion of respondents were aware of existing boater waste discharge resources: 40% have used the pumpoutwashington.org website, 29% have not, and 31% were unaware of it. Roughly a third use the Pumpout Nav app (34%), another third do not (32%), and the remaining third (34%) were not aware of it. See page 52 for more on educational resources and outreach.

Untreated sewer discharges are

allowed in which bodies of water?





Figure 57. 35% of respondents were unclear or unaware of sewage discharge regulations.

Washington Recreational Boating Pumpout Facility Assessment

In the past year, how often did you discharge sewage into waters less than 3 miles offshore?



Figure 58. 25% of respondents admitted to discharging boat sewage in prohibited areas

Gaps in Boater Awareness

Regulations:

- 35% of respondents were unclear or unaware of sewage discharge regulations.
- 25% of respondents admitted to discharging boat sewage in prohibited areas (less than three miles offshore, inland waterways) this past year.

Resources:

- 31% of respondents were unaware of PumpoutWashington.org.
- 34% were unaware of the Pumpout Nav App.

FACILITY OWNER SURVEY

The facility owner survey was sent to 145 marina owners with pumpouts and mobile pumpout owners statewide. There were 71 partially completed, and 50 fully completed surveys. Most of the marinas represented in the survey are open year round (84%) and accessible any time (80%). Nearly all facilities (94%) are open to the public. See Figure 59 and Figure 60 for types of users served by the facilities represented in the survey.

WASTE FACILITIES

The survey found 46% had one and 23% had two pumpouts. Some had a dump station (38%). When owners were asked how frequently their pumpouts were used, responses varied from seldom to frequent use. The necessity of dump stations seemed to vary in opinion; one respondent noted that pumpout hoses could be used to empty port-a-potties, and another noted that many vessels only need dump stations.

Very few survey participants had a mobile pumpout dedicated to their marina; rather, 44% relied on third-party services. Most (72%) felt that providing a fixed pumpout was more economical than providing mobile service; one respondent noted their location made it cost prohibitive, and another noted that using a mobile pumpout increases insurance costs.

Facility owners with a floating restroom made up only 14% of those surveyed. When asked to describe how their floating restroom was emptied, some noted that they use a mobile pumpout service and others noted they it gets pumped to a municipal system.





What type of vessel does your pumpout(s) serve?





Figure 60. Pumpouts at just over half of the marinas surveyed (53%) served only recreational vessels, with 39% serving both recreational and commercial vessels





Figure 61. Facility owners believe that most boaters locate their pumpouts through word of mouth

WASTE DISPOSAL SYSTEM FEEDBACK

When facility owner respondents were asked if they felt there was a need for more pumpouts, 44% said yes, 30% were unsure, and 26% said no. Owners highlighted the Puget Sound (North, Central, and South) as the top areas in need, followed by the Hood Canal.

Most marina owners (47%) stated that nothing limits pumpout access, but 33% are limited by vessel size, 20% tide level, and 16 % by location.

Respondents reported that 64% of their pumpout facility users find them through other boaters and 27% find them through the Pumpout Nav App. About half say they are found through signage. A number of respondents commented that social media and web searches were a main source of information for boaters locating their pumpouts.

MAINTENANCE

Maintenance is a concern both for boaters and facility owners. Owners note pumpouts are expensive to maintain, one commenting that they spend \$10,000 a year for upkeep. The most prominent theme to emerge from the survey regarding maintenance is user error and misuse of equipment.

Pumpout facility owners feel that user error and misuse of equipment is their most significant maintenance challenge.

Where are additional pumpouts needed?



Figure 62. Owners selected North, Central, and South Puget Sound as areas most in need of pumpouts, with the San Juans as a common write-in

What type of additional facilities are needed?



Figure 63. According to facility owner respondents, stationary pumpouts and pumpout boats are the types of facilities most needed

CVA FUNDING

Most respondents have used the CVA grant for installation or maintenance of BSDFs. Only three of the 48 responses (6%) were unaware of the CVA grant, and seven (15%) have not used it. However, there was little representation of respondents from Eastern Washington.

Have you used the CVA's operations and maintenance reimbursement grant?



Figure 64. Most facility owners have used CVA grant funds for installing and/or maintaining a pumpout

REASONS FACILITY OWNERS DO NOT UTILIZE CVA FUNDING

Respondents who had not utilized the CVA grant fund program provided the following reasons for opting out:

The 25% match required is a financial barrier.

Paperwork requirements are an administrative burden.

Commercial vessel use makes some pumpout facility owners ineligible.

Insufficient funding was noted by one respondent who stated that the grant money "tends to run out frequently."

When asked what could reduce these barriers, some suggestions included an easier interface for reimbursement and additional funding for the 25% match.

BEST PRACTICE REVIEW

This section summarizes key takeaways from research around boater waste disposal systems and programs, with a specific focus on programs in California, Oregon, and Florida.

SYSTEM MANAGEMENT

- Many states manage boating-related matters through a department within the state parks and recreation department, while other departments handle items such as licensing, registrations, and education.
- Oregon offers an example of a more consolidated management approach; their State Marine Board tracks marine waste facilities, manages data related to recreational marine waste, develops regulations for all user types, and represents needs to the state legislature.

FLOATING RESTROOMS

- Although not ADA accessible and difficult to use by kayaks, Oregon's fresh water floating restrooms are well designed and stable, with no maintenance/failure issues.
- California has over 100 floating restrooms; they provide these for free on freshwater waterways (state funds cover the 25% match).

MONITORING

- Using CVA grant funds, California works with non-profits to monitor facilities, build relationships, provide education, and ensure operational facilities.
- Oregon Sea Grant monitors facilities one to two times per year.
- California requires a 7-10 year maintenance contract with new facilities.
- California, Oregon, and Florida remove non-operational pumpouts unlikely to ever be fixed from their roster.

EDUCATION/MARKETING

- Oregon Sea Grant representatives regularly attend meetings of the Columbia River Yachting Association to provide educational updates.
- California has seen increased engagement using social media, especially around content focused on conveying the reason and importance for managing boating sewage.
- California developed an economic study that shows the financial benefits to marinas that add pumpouts. They use this study to dispel myths about increased financial burden due to installing pumpouts and encourage new marinas to install pumpouts.

ENFORCEMENT

- Many marinas in California actively enforce illegal dumping by requiring use of dye tabs and closure of y-valves.
- Florida reviews locations with problematic dumping and looks for marinas in the area to encourage them to add a pumpout to address the need.

The team reviewed reports and

available boating waste disposal facility information from California, Florida, Oregon, Rhode Island, Virginia, and Maine. Research covered topics such as boating waste disposal regulations, CVA grant fund use, demand analyses, and enforcement.

RESEARCH METHODS

The team also conducted in-depth interviews with representatives from California, Florida, and Oregon.

BEST PRACTICES: CALIFORNIA

California has had success on social media educating boaters on why sewage in water is bad and providing tutorials on pumping out.



Washington Recreational Boating Pumpout Facility Assessment



ISSUES OVERVIEW

Washington's marine waste disposal system challenges are summarized in the following six categories:

- 1. Service gaps
- 2. Lack of restrooms
- 3. Waste from human-powered vessels
- 4. Gaps in boater awareness
- 5. CVA grant fund limitations
- 6. Insufficient data

1. SERVICE GAPS

When asked to select the main reasons that prevent people from using pumpout facilities, dump stations, or restrooms (with the option to select multiple), 55% of boater survey respondents chose availability/long wait times and 53% chose location. More than two-thirds of respondents prefer to travel under 30 minutes to use pumpouts or dump stations.

Figure 66. Floating restroom located at the City of Oak Harbor Marina.



NUMBER OF PUMPOUTS

BST analyzed statewide boating trends and pumpout facilities to identify gaps in service. The analysis compared the quantity of marina slips over 26 feet, buoys, and anchorages with the quantity of publicly accessible pumpout facilities (fixed, carts, and mobile service) using a threshold of at least one pumpout facility for every 300 vessels most likely to be equipped with MSDs (over 26 feet). Subregions were determined based on usage patterns taken from boater survey responses. See the list at right for areas requiring additional pumpouts.

After calculating the number of pumpouts needed per subregion, additional gaps were identified based on data gathered from the recreational boater survey. BST's analysis found that most subregions are well-served; however, several require additional pumpouts and/or mobile pumpout service. For more information see the list to the right and "Appendix D. Boating Sewage Disposal Facility Supply and Demand" on page D-1.

AREAS REQUIRING ADDITIONAL PUMPOUTS

- San Juan Region
- Lake Washington Subregion
- North Sound Subregion
- South Sound Subregion
- Hood Canal Subregion
- Coast Subregion



Figure 67. Regions/subregions with demand for additional pumpouts noted in red

Areas needing more pumpouts

HIGH DEMAND FOR MOBILE PUMPOUTS

Mobile pumpout vessels may help fill gaps in boating sewage facilities by providing on demand service to boaters within a service area. Feedback from the boater survey and interviews highlight the need for more mobile pumpouts, especially within the NDZ and at events like fishing derbies and boating rendezvous.

Despite the demand, Washington has only eight mobile pumpouts serving subareas, with eleven others serving single marinas (see the list to the right). Participants in discussion groups suggested one barrier to mobile pumpouts may be locating facilities to offload after collection. Seasonality may also play a role; with very little business in the winter months, operators may need other sources of income during the off-season.

REGIONAL MOBILE PUMPOUTS

- Bluewater Pumpout
- NW Mobile Pump Out (& Marine Environmental Services)
- Pelican Pump
- Peninsula Pumpout
- Poe's Pumpout
- Pump Me Out
- Pumpout Seattle
- Rose Head Service

MARINA PUMPOUTS

- City of Oak Harbor Marina
- Foss Harbor Marina
- Narrows Marina
- Point Roberts Marina
- Port of Bremerton
- Port of Brownsville
- Port of Friday Harbor Marina
- Roche Harbor Marina
- Semiahmoo Marina

ъ



- O Marina mobile pumpout
- Pumpout serving two marinas

Figure 68. Mobile pumpouts in Washington State



Miles

0 10 20

ACCESS ISSUES

Accessibility is another crucial factor in meeting BSDF demand. Boater survey respondents noted a need for improved docking to ensure pumpouts have easy access and maneuverability. Some pumpouts are located deep within a marina and may be difficult to locate or access. This may be especially true for larger vessels during high tide when the water level is low, or if a pumpout dock is too short. Additionally, pumpouts are often located on docks with fueling stations and may be inaccessible while other boats are fueling. Docks can also be used for temporary moorage, making pumpouts inaccessible.

Boaters may also have trouble locating restrooms within a marina, with some survey respondents suggesting better wayfinding. A number of respondents remarked that marina restrooms often require codes to enter that may be difficult to obtain if other boaters, marina staff, or residents are not around.



Figure 69. Some boaters have difficulty locating pumpouts at busy marinas



Figure 70. Fueling boats may block access to pumpout stations on docks where pumpouts and fuel pumps are located together, such as this pumpout at Jarrell's Cove Marina (Source: Parks)

NON-OPERATIONAL PUMPOUTS

In addition to availability, the boater survey found that poor functionality was a main barrier to pumpout use. The Pumpout Nav App allows boaters to send notice of pumpout problems; however, survey respondents commented that they frequently found pumpouts non-operational. It is possible that these respondents do not use the Pumpout Nav App, or they arrive before the status is updated on the app. Boaters also noted that signage indicating an out-of-service pumpout is often lacking.

Operational data for pumpouts indicates there are three perpetually nonoperational pumpouts in the Puget Sound. Survey respondents suggest improved pumpout maintenance to ensure facilities are consistently operational. Boater satisfaction is highly variable depending on the condition of a given facility. Reliable suction, availability of necessary adapters, and clear signage when facilities are nonoperational were all important factors.



Figure 71. Some pumpouts are aging, function poorly, or are frequently non-operational, such as the pumpout at the Port of Allyn that was recently restored to operational status (Source: Parks)

Non-operational pumpout

Figure 72. Non-operational pumpouts in Washington State



Conversations with boater advocacy groups suggested that some boaters find pumpout hoses to be heavy and unwieldy, and may require two people to manage. User error and mistreatment by the public, specifically nozzle damage from dropping hoses, was a common frustration noted in the facility owner survey. Pumpout equipment can be costly to maintain. A quarter of respondents from the facility owner survey say pump malfunctions are their most common equipment failure, just ahead of blockages at 24%. Vacuum seal failure and poor suction are other common maintenance issues.

CAPACITY ISSUES

Equipment failure can put a pumpout out of service, but pumpouts with holding tanks can also become non-operational if they reach capacity. Some smaller municipalities and islands, such as areas in the San Juan Islands, have limited capacity, often with waste facilities undersized for their permanent and visiting population. Pumpouts connected to these sewer systems often offload waste at night when small municipal sewer systems are less likely to become overtaxed. Pumpouts that are not connected to a municipal system or septic drain field must rely on mobile pumpout boat service.

Figure 73. Some pumpouts, such as this one at Shaw Island in the San Juans, may rely on septic systems or small holding tanks that have limited capacity (Source: Parks)



2. LACK OF RESTROOMS

Availability of restrooms may vary greatly, with high-traffic boating areas more likely to have available facilities (though sometimes longer lines) than smaller lakes, river launches, or more remote boating areas. The lack of facilities at some popular boating destinations is problematic both for those that need to use a restroom and boaters who need to empty their portable toilet.

RESTROOMS ARE AGING AND REQUIRE ADA UPGRADES

The Washington Department of Fish and Wildlife (WDFW) manages a number of restroom facilities at water access points throughout the state. These are primarily vault toilets, many of which are aging and in need of significant repair. Many facilities are not ADA accessible. Restrooms at remote boat-in campgrounds, such as on Lake Chelan, are also more fire-prone and can be difficult to maintain and repair. Construction and O&M grants for upland facilities are not eligible for CVA grant funding (see "5. CVA Grant Program Limitations" on page 55).

RESTROOM DATA IS DISPERSED AMONG MULTIPLE AGENCIES

WDFW is initiating a series of regional water access management plans that will include restroom facilities to understand existing conditions and plan for improvement; however, there is no centralized database tracking shoreline public restroom location, condition, and functionality. See "6. Gaps in Data" on page 56.

MORE FLOATING RESTROOMS NEEDED

One issue noted in surveys and discussion groups was the overall lack of floating restrooms. The total number of floating restrooms in Washington State is not known (see "6. Gaps in Data" on page 56), and infrastructure and programming is less developed than in other western coastal states like California, which has 119. During best practice research, other states shared similar challenges with installing floating restrooms including cost, maintenance, and vandalism; see "Floating Restrooms challenges" in the side panel.

Only 31% of boaters surveyed have used floating restrooms, several noting that they had never seen one, and only 14% of facility owners surveyed have a floating restroom at their location. Boaters commented that they would like to see more floating restrooms in lakes and state parks, and in specific locations like Stuart Island, Sucia Island, Lake Roosevelt, and along the Colombia River.

Boaters noted that floating restrooms can be difficult to locate, both in busy areas where they may be obscured, as well as in remote areas where their location may not be certain. Some survey respondents found getting on and moving around on the restroom platform challenging under certain wave conditions.

Challenges posed by adverse weather and environmental conditions—such as strong winds, cold temperatures, and freezing pipes—were mentioned as potential issues that affect floating restroom usability and maintenance. Floating restrooms may be located in remote, difficult to reach places, and require vessel pumpout service. Facilities located in saltwater may require more maintenance and replacement due to corrosion and harsh marine environments.

FLOATING RESTROOMS CHALLENGES

California

- Due to the high project costs, facility owners must use the California State contracting and bidding system.
- Costs often increase between the time the state requests CVA funds and when they are received.
- Approximately nine floating restrooms are requested each year, but only four installed due to a lack of manufacturing companies and the length of time to build them.
- Lake marinas may have challenges emptying floating restrooms, as many have to be towed land-side to a septic system.
- Water level may fluctuate at some reservoirs requiring facilities to be removed when levels are low.

Oregon

- Staff who manage BSDF programs in Oregon noted their biggest maintenance challenges are due to vandalism.
- Floating restrooms are typically designed for fishing boats or canoes that sit higher on water, making it difficult to access from kayaks. They are also not designed for disabled users. Oregon is working to make their design more accessible.

3. WASTE FROM HUMAN-POWERED VESSELS

Paddle sports have grown rapidly to become one of the top forms of recreation in Washington state, according to the Washington State Recreation and Conservation Office (RCO). RCO conducted an Assessment of Outdoor Recreation Demand and found that 52% of individuals surveyed had participated in a paddle sports at least once in the prior twelve months.¹

DATA IS LACKING

Though the RCO survey indicates a growth in paddle sports, there is a general lack of data on where people are paddling, how often, and for how long. Registration for human-powered vessels is not required and with little regulation or permitting in place, use patterns and paddlers' potential impact on water quality is difficult to determine.

Subject matter experts from the discussion groups observed that most kayakers and other paddlers are casual boaters, typically going out for a few hours on a lake or along shorelines where upland restrooms may be available. However, as the number of people using human-powered vessels grow, discussion group participants expect the number of paddlers visiting remote locations and taking longer day or overnight trips to increase.

BURIED WASTE MAY CONTAMINATE WATERS

Areas like marine parks are popular with paddlers, but typically lack waste facilities. Many river voyages also lack public restroom access and paddlers may not carry waste bags, opting instead to bury their waste. This has raised concern among subject matter experts about the impact of human waste contaminating waters along shorelines.

Though not common in Washington, Oregon and Idaho require users to obtain a permit and carry a portable waste receptacle on certain rivers to help reduce contamination.

MORE OUTREACH AND EDUCATION NEEDED

While there have been a number of proper waste disposal outreach and education campaigns targeted toward wind- and engine-powered boaters, paddlers have receive less attention. Findings from discussions with subject matter experts suggest that paddlers may not be aware of the environmental impact of burying waste.



Figure 74. Some popular paddling areas are in remote locations without bathrooms

¹ Washington State Recreation and Conservation Office. (2023). Recreation and Conservation Plan

4. GAPS IN BOATER AWARENESS

State Parks, Ecology, and other government and non-profit agencies have developed outreach and educational resources for boaters in an effort to ensure they are aware of and practice proper sewage disposal. Despite these efforts, discussion groups and the boater and facility owner survey respondents identified persistent gaps in awareness (see facility owner survey results on page A-9 and boater survey results on page A-2).

LACK OF REGULATORY AWARENESS

Many boater survey respondents feel that education focusing on the importance of proper waste disposal and harmful environmental impacts of vessel sewage, along with stricter enforcement of regulations and fines for non-compliance, are effective motivators for abiding by water quality regulations. However, only 50 to 60% of boater survey respondents knew where treated and untreated sewage could lawfully be discharged and only around 35% of respondents were adequately informed on sewage discharge regulations.

The discussion group findings suggest possible reasons for lack of awareness may include the following.

- **Boaters obtain a boater education card once** and additional testing or renewal of the card is not required; boaters may forget rules, or regulations may change (such as with the adoption of the NDZ in the Puget Sound).
- The boater exam materials are out of date and could include a more robust section on water quality.
- Human-powered vessel users are not required to take a test or obtain a boater education card.
- Vessel rental companies provide varying degrees of information on proper waste disposal.
- **Boaters traveling from other states or Canada may not be aware** of Washington State disposal regulations.

The Environment and Your Vessel

Boarers appreciate the tich natural resources that abound throughout the waterways of Washington State. However, many people are unaware of the impact boating can have on these unique and treasured resources. Water pollution problems associsted with beating include dischages of ed. furt, arwage, tranh, fishing line, toxic cleaning and maintenance products, bottom paints, gay water, aquatic misance species, and aquatic invasive apecies. As a boater, it's your legal responsibility to help protect Washington's aquatic environment.

Discharge of Sewage and Waste

- Sewage discharged from vessels can pose environmental problems, especially in shallow bays and inless. *Untrouted* sewage (even if it has been dead with a decidence product) MAY NOT be discharged into inlend or causial unters.
- It is important that you treat se dispose of your sewage property. If you have a vessel with installed toilet facilities, it must have an operable marine sanitation device (MSD) on board and be designed to present discharge into the water. If your vessel does not have installed toder facilities, consider carrying a portable toilet.
- All installed MSDs must be U.S. Coast Guard-certified.



Figure 75. Pages from the Boating Program's Adventures in Boating Washington Handbook (Source: Parks)

ILLEGAL DUMPING

Whether due to lack of awareness or disregard for regulations, vessels have been known to illegally discharge in place, particularly those anchored or buoyed for long periods of time. A number of boater survey respondents believe live-aboards are responsible for illegal dumping.

Twenty-five percent of boater survey respondents admitted to discharging boat sewage in prohibited areas (less than three miles offshore, inland waterways) in the past year. One possible reason for this, according to discussion group participants, may be to avoid losing moorage accommodations, which can be in high demand during peak season.

ENFORCEMENT IS CHALLENGING

Despite known instances of illegal dumping, enforcement is challenging. According to RCW 79A.60.100, enforcement of recreational boating rules can be done by law enforcement officers, including but not limited to county sheriffs, officers of other local law enforcement entities, fish and wildlife officers, through the director, the state patrol, and state park rangers.² While park rangers can enforce boating rules on Parks property, they do not enforce laws on all waters and policing vessels. The Parks boating program oversees laws in the state and partners and approves local jurisdictions to enforce these laws. Despite the number of agencies who can support enforcement, subject matter experts from discussion groups noted one barrier to enforcement is that most agencies do not have adequate staffing and prefer education and outreach to be the central effort in promoting compliance.

Supporting this sentiment, Ecology's NDZ Framework for Action stresses that enforcement is not the central strategy for implementing the NDZ, but rather social marketing through education and outreach programs and tools. See page 7 for more on NDZ enforcement and page 72 for outreach and engagement strategies.³

MORE BOATER RESOURCE OUTREACH NEEDED

In an effort to help prevent sewage discharge, Washington Sea Grant, in partnership with Parks, created pumpoutwashington.org to provide information and resources around pumpouts and how they can be located (learn more about this resource on page 8). Approximately 40% of boater survey respondents have visited this site, 29% have not, and 31% were unaware of it. This indicates that there is room for additional promotion of this resource.

The Pumpout Nav app, which assists boaters in locating pumpouts and dump stations, could also benefit from more promotion. Roughly a third of boater survey respondents have used the Pumpout Nav app (34%), another third have not (32%), and the remaining third (34%) were not aware of it.



Figure 76. US Coast Guard can enforce illegal sewage dumping at major boating events (Source: Nathan Henise, Wikipedia, 2009)



Figure 77. Roughly a third of boaters surveyed were not aware of the Pumpout Nav App (Source: Parks)

² RCW 79A.60.100 Enforcement - Chapter to supplement federal law.

³ A Framework for Action WA Department of Ecology (2021). Puget Sound No Discharge Zone Implementation Strategy

UP-TO-DATE CONTACT AND LOCATION FOR PUMPOUT BOATS

Boaters may also have trouble knowing who to contact when requesting a pumpout boat. One facility owner from a discussion group noted that the businesses tend to come and go from year to year and they may leave boaters unsure of who they can depend on. The Pumpout Nav App and pumpoutwashington.org website both have a list of pumpout boat operators; however, some operators serve various locations at different times and may not be available when needed. Sea Grant is developing a real time tracker that could allow boaters to identify and contact pumpout boats nearest to them.

SIGNAGE AND OUTREACH FOR PUMPOUT INSTRUCTION

Facility owners surveyed noted the misuse of pumpout equipment as a major frustration. Some also suggested that boater complaints about dysfunctional or nonoperational pumpouts may be caused by user error. Discussion group participants noted that pumpout use may be intimidating for new users and lack of knowledge on how to operate them may contribute to avoidance.

Pumpoutwashington.org has a "How to Pumpout" section that includes step-by-step instructions and videos. However, one boater survey respondent felt that signage could improve, stating "usually instructions are small, simple, hard to read. Better to have graphic instructions. Most people won't read a lot of text." Boaters from the survey and subject matter experts agree that clear, graphic signage at the pumpout is necessary to reduce user error.



Figure 78. Some pumpout signage is outdated or features text with small lettering that is difficult to read, such as this sign at Beacon Rock State Park (Source: Parks)



Figure 79. This pumpout sign at the Port of Allyn lacks instructional graphics (Source: Parks)

5. CVA GRANT PROGRAM LIMITATIONS

While most CVA grant recipients interviewed or surveyed found the grants to be a great incentive for pumpout installation, there were a few issues noted.

25% MATCH IS A BARRIER FOR SOME OWNERS

Some facility owners noted that the 25% match in funds required for CVA installation and maintenance could be a barrier for some owners. Some states, such as California, offer grants to cover the remaining 25% (see page 42). In the 2023-25 biennium, State Parks received an appropriation of \$500,000 for the enhancement of Puget Sound pumpout facilities. Owners that might experience hardship in meeting the 25% match for new or replacement equipment were eligible to apply for these funds to cover their match. However, this was only offered for the 2023-25 grant cycles.

LIMITS IN TYPES OF PROJECTS COVERED

Some participants in discussion groups expressed concerns regarding CVA grant fund restrictions. For instance, many pumpouts feed into septic systems and some septic tanks may be old and dysfunctional. However CVA funding does not cover septic system maintenance or replacement, which may be a useful incentive for owners to repair systems and prevent leeching. Leeching occurs when sewage travels from a septic system through permeable soils into groundwater and nearby water bodies.

There are other CVA restrictions that may have environmental implications. For instance, replacing an old dock that may be leeching creosote could improve water quality, but an owner may be hesitant due to the permitting process required to install a new structure. All construction in aquatic environments must go through a U.S. Army Core of Engineers (USACE) permitting process and the timeline and cost to permit and replace a structure can be prohibitive due to a prolonged reimbursement schedule.⁴

CVA REPORTING AND RECORD KEEPING CAN BE BURDENSOME

Some facility owners expressed frustration around the CVA application and reporting process. One facility owner found that the change to PRISM created additional work and hoped that the system would remain consistent in the future. Other comments were focused on reporting, one stating that an "easier interface for reimbursement" would help to reduce barriers and another noting that "it was deemed not worth it to apply for reimbursement with all of the paperwork requirements."



Figure 80. Dock at the Coupeville Wharf

⁴ WA State Parks and Recreation Commission. (2001) Statewide Recreational Boating Study Washington Recreational Boating Pumpout Facility Assessment

6. GAPS IN DATA

There are several data points missing for BSDFs. For instance, while facilities that receive CVA grant funds are required to submit annual gallonage reports, the process was developed in the early 1990's and has some inherent flaws:

- Owners are tasked with calculating and reporting gallonage themselves.
- The formula is based on a 25-gallon holding tank, which may not be applicable for all owners.
- The calculation may be overly complicated leaving room for errors.
- · Harsh saltwater environments lead to frequent breakage of pump meters.

These issues lead to potential over-reporting of annual gallonage. Rough estimates by Parks indicate that volume of sewage may be closer to half of what is reported based on a standardized gallon per minute (GPM) estimate of fixed and mobile cart pumps. Until these issues are resolved, the data remains unreliable.

In addition to the volume of sewage reported, information on how pumpouts dispose of waste is lacking, for example, if waste is pumped to a municipal system or collected by a mobile pumpout vessel. This data could help to identify potential challenges facility owners face in offloading if they are pumping to a municipality with limited capacity.

Other missing data includes the locations and usage of dump stations. The location of some dump stations are known, but the volume of sewage pumped from dump stations may not be tracked separately from sewage that is pumped from boats. Without a comprehensive database of location and use, it is difficult to determine dump station demand and where more may be needed.

Data on restrooms is also lacking. The quantity and locations of floating restrooms in Washington state is not known and while most upland restroom locations are known, records are dispersed among disparate jurisdictions and agencies. A comprehensive database of publicly available upland and floating restrooms would improve planning efforts and make it easier to identify service gaps.



Figure 81. Pumpout meter tracks usage hours (Source: Parks)

RECOMMENDATIONS

Figure 82. Pumpout and marina at Shaw Island in the San Juans (Source: Parks)

BULLIT

ROLL

RECOMMENDATIONS BY CATEGORY

Recommendations to address the issues summarized in the previous chapter have been divided into two categories: projects, and policies and programs.

PROJECT RECOMMENDATIONS

Project recommendations focus on gaps found in the analysis of pumpout facilities and include:

- New boating sewage disposal facility strategies, focused on adding new pumpouts, mobile pumpout services, and floating restrooms.
- Non-operational pumpout strategies, addressing perpetually non-operational pumpout facilities.
- Upland waste facility strategies, that add and improve upland restrooms and dump stations.

Projects are prioritized relative to the severity of service gap they will fill, their likely water quality benefit, and their potential implementation complexity as described in page 59.

POLICY AND PROGRAM RECOMMENDATIONS

Policy and program recommendations address issues identified in the discussion groups and surveys and include:

- CVA grant strategies, focused on reducing barriers to CVA grant fund use, improving data collection to better track facility performance and condition, and supporting grant recipients.
- Waste disposal education strategies, seeking to provide updated information to recreational water users.
- Human-powered vessel strategies, aiming to improve understanding of and influence human-powered vessel user behavior.
- **Multi-agency coordination strategies**, focused on coordinating to enforce illegal dumping and improve data collection.

Policies and programs are prioritized considering their likely water quality benefit and implementation complexity, as described on page 69. All recommendations are listed by their relative priority level in "Appendix B. Recommendation Summary" on page B-1.



PROJECTS

PROJECT RECOMMENDATIONS

This section covers new boating sewage disposal facilities, non-operational pumpouts, and upland waste facilities. It proposes draft solutions, and includes suggested action leads, supporting parties, and potential funding mechanisms.

New boating sewage disposal facilities and non-operational pumpout recommendations were prioritized based on the following three criteria:

- Service Gap: project fills a gap in service, there are no facilities nearby, project is in a popular destination
- Water Quality: project is in an area with declining sea grass and/or low oxygen and high fecal coliform levels have been detected
- **Complexity**: project has a willing facility owner, is in an area with existing infrastructure, with no significant cost or feasibility barriers

New boating sewage disposal facilities and non-operational pumpouts are addressed by region, see "Appendix B. Recommendation Summary" on page B-1 for more details. Rough order of magnitude cost estimates can be found in "Appendix C. Project Cost Estimates" on page C-1 and indicate total project costs in 2025 dollars. Total project costs include construction, design, permitting, etc.



Figure 83. Project recommendations for Washington State



NEW BOATING SEWAGE DISPOSAL FACILITIES

THE CHALLENGE

THE SOLUTION

NOT ENOUGH PUMPOUTS

To meet the growing need for boating sewage disposal facilities in Washington, this study recommends one pumpout per 300 moorage spaces, see page 76. To meet that threshold, 15 new pumpouts should be added throughout the state dispersed in the regions as shown in Figure 83 on page 59.

SUPPORT MARINAS IN ADDING PUMPOUTS



Figure 84. Pumpout at Jarrell's Cove Marina (Source: Parks)

LIMITED RESTROOMS

Popular destinations for humanpowered vessel use can sometimes lack restroom facilities, sometimes resulting in improper waste disposal.

ADD FLOATING RESTROOMS IN HIGH-TRAFFIC AREAS

ILLEGAL DUMPING HOTSPOTS

Many problematic areas for illegal dumping are at long-term anchorages. Boats in anchorages and at mooring buoys often choose to stay moored rather than giving up their spot to use a pumpout, suggesting a need for mobile services. or a nearby floating pumpout.

SUPPORT ADDITION OF MOBILE PUMPOUT BOATS



Figure 85. Floating restroom at Glen Canyon (Source: Parks)



Figure 86. Sea Grant pumpout boat (Source: Sea Grant)

SUPPORT MARINAS IN ADDING NEW PUMPOUTS

ACTION

Connect marinas in areas needing additional pumpouts with CVA grant resources and encourage construction of new pumpouts.

CONSIDERATIONS

- Adding pumpouts to existing facilities is typically relatively cost effective and straightforward to permit.
- This effort also requires a willing marina owner who is able to provide the required matching funds and sustain upfront costs while awaiting reimbursement.
- There may be issues with adding pumpouts to marinas that need to upgrade their receiving infrastructure. See page 8 to review what is eligible for reimbursement from CVA grant funds.
- Installing a barge-based pumpout may be the best option for remote locations that lack existing marinas with willing owners.

The table below summarizes how far each project went to satisfy the evaluation criteria by filling a gap in service, benefiting water quality, and being straightforward to implement.

Action lead: Parks CVA Grant Manager

Supporters: Sea Grant

Potential funding: CVA grant, matching funds from the facility owner

SERVICE GAP						
Less Go	ap		Higher Gap			
WATER QUALITY						
Fewer I	issues		Knowr	n Issues		
COMPLEXITY						
Comple	ex	St	raightf	orward		

	Service Gap	Water Quality	Complexity
Blakely Island Area			
Boston Harbor Marina			
Hope Island Marine State Park			
Clark Island Marine State Park			
Everett Area			
Jones Island Marine State Park			
Kirkland Area			
Lakebay Marina/Penrose Point State Park			
Longbranch Area			
Lopez Island - Northeast Area			
Lopez Island - Southeast Area			
Eastsound Area			
Seabeck Area			
South Seattle Area			
Westport Area			

NEW BOATING SEWAGE DISPOSAL FACILITIES

Puget Sound Region

In addition to the two pumpouts in progress on Lake Washington, this study recommends seven new pumpouts in the Puget Sound Region.



New pumpout

• Pumpout in-process



Figure 87. New Puget Sound Region pumpout recommendations

Washington Recreational Boating Pumpout Facility Assessment
NEW BOATING SEWAGE DISPOSAL FACILITIES

San Juans Region

In addition to the pumpout in progress on Sucia Island, this study recommends six new pumpouts in the San Juans Region.



NEW BOATING SEWAGE DISPOSAL FACILITIES

West Region

This study recommends two new pumpouts in the West Region.



New pumpout $\bigwedge^{N} 0 6.5 13$ Miles

Figure 89. Recommended locations for new pumpouts in the West Region

Location markers are not to scale

NEW BOATING SEWAGE DISPOSAL FACILITIES

ADD FLOATING RESTROOMS IN HIGH-TRAFFIC AREAS

ACTION

Add floating restrooms in freshwater areas with high boater traffic, and frequently used for boating events.

CONSIDERATIONS

- High-traffic areas include Lake Union and Lake Washington.¹
- Permitting and regulatory issues are a barrier to installing floating restrooms.
- There is concern around the stability and longevity of the restroom design, especially given extreme weather and salt water conditions.
- Floating restrooms require offloading from a mobile pumpout service.
- 1 "Boater Survey" on page A-2

SUPPORT ADDITION OF MOBILE PUMPOUT BOATS

ACTION

Work with potential boat operators to provide information on available CVA grant funding and encourage addition of new mobile pumpout boats.

Connect boat operators with municipalities to facilitate locations where boats can periodically offload waste.

CONSIDERATIONS

- Potential mobile pumpout boat operators may have difficulty finding the required matching funds or fronting the cost of purchasing a new boat until they can be reimbursed by the CVA grant.
- It may be challenging to sustain a mobile service due to the highly seasonal need. Mobile pumpout operators could be connected with marinas that need their holding tanks pumped for more consistent year-round operations.
- Mobile pumpout boats may need assistance in establishing a relationship with local municipalities to offload waste.



Figure 90. Northwest Mobile Pumpout boat (Source: Parks)

Washington Recreational Boating Pumpout Facility Assessment

Action lead: Parks
Supporters: DNR, WDFW
Potential funding: CVA grant
SERVICE GAP
WATER QUALITY
COMPLEXITY
Action lead: Parks
Supporters: RBAW,
municipalities, WPPA
Potential funding: CVA grant
SERVICE GAP
WATER QUALITY
COMPLEXITY

CASE STUDY: RBAW

In 2024, RBAW started the West Sound Mobile Pumpout boat service to serve the west Puget Sound during peak boating season. By using CVA grant funds, RBAW has been able to initially work with Northwest Mobile Pumpout while they construct a new pumpout vessel.

NON-OPERATIONAL PUMPOUTS

THE CHALLENGE

THE SOLUTION

PERPETUAL OPERATION ISSUES

There are three pumpouts that are perpetually non-operational and require repairs.



SUPPORT MARINAS ADDRESSING PUMPOUT REPAIRS

ACTION

Connect marinas with non-operational pumpouts to available CVA grant funds and encourage them to make the necessary repairs or replacements.

CONSIDERATIONS

 In the event that a marina is not interested in repairing or replacing their nonoperational pumpout, the CVA grant manager should take the necessary steps to remove the pumpout from the operational list and search for alternative nearby marinas that are interested in adding a pumpout.

The table below summarizes how far each project went to satisfy the evaluation criteria by filling a gap in service, benefiting water quality, and being straightforward to implement.

Arabella's Landing (assumes repair)

Blake Island Marina (assumes replacement)

Langley Marina (assumes replacement)



Action lead: Parks CVA Grant Manager

Supporters: Sea Grant

Potential funding: CVA grant maintenance and operations funds, marina matching funds



NON-OPERATIONAL PUMPOUTS

Puget Sound Region

This study recommends fixing three non-operational pumpouts in North and Central Sound subregions.



67

• Non-operational pumpout

3.5 7 Miles

Figure 91. Pumpout repair recommendations in the Puget Sound

Washington Recreational Boating Pumpout Facility Assessment

UPLAND WASTE FACILITIES

THE CHALLENGE

THE SOLUTION

LIMITED USABLE RESTROOMS

As boating in vessels without MSDs increases, many challenges with the supporting upland waste facilities need to be addressed. Many facilities are aging, hard to find, are not accessible, and/or are at times inoperable. Public facilities are also lacking in popular areas.

ADD AND IMPROVE UPLAND WASTE FACILITIES

ADD AND IMPROVE UPLAND WASTE FACILITIES

ACTION

Encourage facility managers to provide easy to find upland restrooms that are accessible and operational.

Support WDFW efforts to assess and improve upland waste facilities at water access sites.

Add upland waste facilities in high-traffic areas lacking restrooms.

CONSIDERATIONS

- WDFW is initiating a series of regional water access management plans that will include restroom facilities to understand existing conditions and plan for improvements.
- Many aging facilities were not built to be ADA accessible and should be replaced to ensure compliance and better serve the public.
- Some popular boating destinations and water access sites lack restroom facilities, making it difficult for boaters to empty portable toilets or otherwise properly dispose of other waste.



Washington Recreational Boating Pumpout Facility Assessment



Figure 92. Aging vault toilet (Source: WDFW)

Action lead: WDFW (WDFWmanaged lands), Parks

Supporters: DNR, WPPA, municipalities

Potential funding: WDFW, RCO, other state funds

SERVICE GAP



COMPLEXITY

Figure 93. Accessible vault toilet (Source: WDFW)

POLICY AND PROGRAM RECOMMENDATIONS

This section covers four policy and program areas shown at right. It restates the challenges, proposes draft solutions, and includes major considerations, suggested action leads, supporting parties, and potential funding mechanisms. Each of the policy and program recommendations were evaluated on two criteria:

- Water Quality: action has the potential to make a substantial beneficial impact on water quality
- Complexity: action does not require legislative action, involve buy-off from multiple agencies, or changes to agency funding or missions, and has a reasonable funding path forward



POLICIES AND PROGRAMS

CVA GRANT

STRATEGIES

WASTE DISPOSAL EDUCATION

HUMAN-POWERED

REDUCE BARRIERS TO CVA GRANT FUND USE

ACTION

Advocate to reduce barriers by adjusting CVA grant fund eligibility restrictions.

CONSIDERATION

- Potential barriers to eligibility include combined recreational/commercial use of existing facilities, and inability to use approved types of receiving infrastructure.
- Some of the identified barriers come from federal law, adding to the difficulty of implementing this strategy. Example barriers include use for commercial vessels, live-aboards, septic systems, or on shore improvements, etc.
- Applicants may find it difficult to pay for ineligible components, find matching funds, or carry the cost of construction while waiting for reimbursement.

UPDATE AND IMPROVE CVA DATA

ACTIONS

Develop more user-friendly application and annual reporting methods for grant fund users.

Prepare a statewide annual report on CVA grant use, pumpout use, and progress implementing this assessment's recommendations.

CONSIDERATIONS

- Reporting could be made easier for facility owners, potentially with an app they can use on a mobile device. This could also be part of the Pumpout Nav application.
- PRISM, the program currently handling the CVA grant application, is able to capture usage data, but is currently unable to support this use. This added capability would require Parks to add features as well as use staff time to build out.
- A report could serve as an annual snapshot on the state's boating sewage waste disposal system. Topics covered could include information on pumpout use, CVA grant basics, and an assessment of all pumpouts. See the case study below for a best practice in California.

CASE STUDY: ANNUAL CVA REPORTING IN CALIFORNIA

The California State Parks Division of Boating and Waterways updates the California Clean Vessel Act Pumpout and Dump Station Performance Report. This report reviews each pumpout by region, notes their operational status, and provides a usability snapshot score for each pumpout during the spring, summer, and fall. In addition to assessing the state's pumpout system, it serves as an educational resource for boaters, showing the importance of proper waste disposal.

		SPRING		SUMMER		FALL	
FACILITY	PUMP TYPE	USABILITY SNAPSHOT (%)	OPERATIONAL STATUS	USABILITY SNAPSHOT (%)	OPERATIONAL STATUS	USABILITY SNAPSHOT (%)	OPERATIONAL STATUS
Ventura Harbor Island Packers	Peristaltic	80	Operational	83	Operational	80	Operational
Ventura Harbor Marine Fuel, far	Diaphragm	28	Non-Operational	28	Non-Operational	28	Non-Operational
Ventura Harbor Marine Fuel, near	Diaphragm	28	Non-Operational	22	Non-Operational	0	Non-Operational

Action lead: Recreational Boating Association of Washington (RBAW), Northwest Marine Trade Association (NMTA)

Supporters: Parks

Potential funding: ?

WATER QUALITY

COMPLEXITY

Action lead: Parks

Supporters: Sea Grant, RCO (Prism), DNR, WDFW, Department of Ecology, RBAW, NMTA

Potential funding: CVA grant

WATER QUALITY

COMPLEXITY

INCREASE SUPPORT FOR CVA GRANT FUND RECIPIENTS

ACTION

Clarify grant requirements around maintenance/monitoring, such as outlining how frequently inspections should take place.

Provide ongoing support to facilities receiving CVA grant funds to address nonoperational pumpouts.

Connect CVA grant applicants needing additional support with available state funding.

CONSIDERATIONS

- Grantees are currently required to maintain their pumpout or dump station; however, no specifics are provided as to the frequency of inspections to ensure the equipment is maintained appropriately.
- This recommendation could build on other efforts to expand online tutorials and educational videos, see recommendation on page 73.
- Support could include educational videos on how to do simple pumpout repairs and ideally be located in the Pumpout Nav app.
- This may also include devotion of staff time to coach marina owners through maintenance and operational best practices.

ENHANCE MONITORING EFFORTS

ACTION

Work with interns or non-profits for more robust pumpout monitoring and to build relationships with pumpout owners and pathways to communicate with boaters, assist with annual reporting, communicate program highlights or changes, address non-operational pumpouts, etc..

CONSIDERATIONS

- California works with non-profits to regularly monitor their pumpouts.
- Sea Grant and Parks do not have the resources for more robust monitoring.
- Increased monitoring could enhance relationships, provide educational support, and help pumpouts remain operational.

Action lead: Sea Grant

Supporters: Parks, Department of Ecology, WDFW

Potential funding: CVA grant

WATER QUALITY



COMPLEXITY Varies in level of complexity

BEST PRACTICES: CALIFORNIA

Grant contracts include a seven to 10 year maintenance clause with at minimum annual monitoring.

California state funds provide the remaining 25% matching funds to provide floating restrooms at no charge.

Action lead: Parks

Supporters: Environmental/ water non-profits, Sea Grant

Potential funding: CVA grant

WATER QUALITY



WASTE DISPOSAL EDUCATION

THE CHALLENGE

THE SOLUTION

MINIMAL CVA AWARENESS

Use of CVA grant funds by inland marinas is very minimal, indicating a potential gap in knowledge of available funds to add facilities.

PROVIDE INFORMATION TO MOORAGE FACILITY OWNERS

LIMITED KNOWLEDGE

According to the boater survey, there is limited knowledge of sewage dumping regulations and how to operate pumpouts, indicating that boaters would benefit from education around these issues.

STAND UP AN EDUCATIONAL CAMPAIGN FOR BOATERS

OUTDATED EDUCATIONAL MATERIALS

Parks and Ecology data shows that educational materials, including those used for the boater education card exam, are outdated and need to be revised.

ON-SITE INFO ISSUES

Information at pumpouts may be outdated.

UPDATE ON-LOCATION INFORMATION

OUTDATED APP INFORMATION

The Pumpout Nav app could benefit from more frequent updates and educational resources. FREQUENTLY UPDATE THE PUMPOUT NAV APP

PROVIDE INFORMATION TO MOORAGE FACILITY OWNERS

ACTION

Develop a user-friendly educational campaign to target potential pumpout facility owners.

CONSIDERATIONS

- This action could potentially target municipalities, Tribes, agencies, and ports to
 encourage adding more pumpouts, especially in inland waterways as this area
 was identified as having less CVA grant use by Parks. Private boating facility
 owners, agencies, jurisdictions, and Tribal Governments in coastal areas with
 gaps in pumpout service would also be useful to target (see page 44).
- Resources could provide information on the CVA grant program, potential matching funds, and guidance on building new waste facilities.
- Educational materials could also list consultants; outline the typical design, permitting, and installation process; and provide a list of resources to support acquiring permits.



Action lead: Parks Supporters: Sea Grant Potential funding: CVA grant WATER QUALITY



Figure 94. The pumpout at Fields Point Marina, an area of inland Lake Chelan noting a gap in service (Source: Parks)

STAND UP AN EDUCATIONAL CAMPAIGN FOR BOATERS

ACTION

Update boater sewage disposal educational curriculum and materials for online and in-person classes.

Review and augment pumpout-related questions on the boater education card exam.

Supplement existing educational campaigns and identify gaps in knowledge and user groups access to more strategically reach boaters who are unaware of regulations around sewage disposal.

CONSIDERATIONS

- The educational materials need to incorporate regulatory updates that impact water recreation as well as the NDZ. Materials could also be used as part of the strategy targeting education of human-powered vessel users, see page 76.
- The boating program manager is responsible for updating the boater education card exam. The manager can either entertain individual suggestions or form a committee to develop recommendations and review existing educational materials and provide suggested updates to exam questions.
- This action can build on educational campaigns led by Sea Grant and supported by the Vessel Sewage Education and Outreach (VSEO) Committee, a group focused on education and outreach. Materials could also include information on pumpout operations and troubleshooting as well as reporting illegal dumping.
- The campaign should identify the most effective communication conduits to utilize (boat show, news blasts through organizations, etc.).
- This could be an opportunity to partner with education non-profits such as Harbor Wildwatch.
- There may also be potential to apply for inter-agency CVA funds to support RBAW participation.



Action lead: Sea Grant

Supporters: education non-profits, Parks, RBAW, DNR, Ecology, VSEO Committee

Potential funding: CVA grant matching partner (potential municipalities), National Estuary Program (NEP grant), Parks boating program, funding from boater education card

WATER QUALITY



NATIONAL ESTUARY PROGRAM

The National Estuary Program (NEP) protects and restores water quality and ecological integrity in specific estuaries of national significance across the country. NEP funds hazard mitigation among other things, including protection and restoration of key habitats that increase resiliency and carbon sequestration.

Figure 95. Information booth at Lake Washington (Source: Parks)

UPDATE ON-LOCATION INFORMATION

ACTION

Update and support placement of standardized pumpout instructions and provide additional wayfinding signage at each pumpout.

CONSIDERATIONS

- The information provided should be easy to understand, regardless of ability.
- Existing signs may be damaged and in need of a refresh. Signs should be provided to all facilities, including those not funded through the CVA grant.
- Information provided to non-CVA funded facilities could serve as an educational tool for the program.
- Signage is required by CVA grant recipients. Requirements could be updated to include additional information about educational materials such as videos, the Pumpout Nav app, website, or other helpful resources.



Figure 96. Example of pumpout instructions at Port of Allyn (Source: Parks)

UPDATE THE PUMPOUT NAV APP

ACTION

Add resources to Sea Grant to improve the Pumpout Nav app functionality and provide more frequent updates.

CONSIDERATIONS

- Concerns have been expressed that the app is not updated frequently, especially if a pumpout was reported as non-operational in error. This could result in distrust from boaters.
- The app could include videos or instructions on how to use a pumpout in addition to live monitoring of mobile pumpout boats.
- This action could benefit from additional marketing around the available resources within the app, such as educational videos, pumpout information, and contact information for mobile pumpout boats. Updates should include resources created as part of the boater education strategy on page 74. Sea Grant could work with RBAW and other boating organizations to market this information, as detailed in the boater education strategy on page 74.

. Signs should be e CVA grant. as an educational

Action lead: Sea Grant

WATER QUALITY

COMPLEXITY

Supporters: Department of Ecology

Potential funding: CVA grant

Action lead: Sea Grant, VSEO Committee

Supporters: Parks, RBAW (if aligned with grants)

Potential funding: CVA grant

WATER QUALITY



COMPLEXITY

Washington Recreational Boating Pumpout Facility Assessment

HUMAN-POWERED VESSELS

THE CHALLENGE

IMPROPER WASTE DISPOSAL

Health officials have expressed concern over the impact to water quality from improper waste disposal in this fast-growing area of recreation. This is further challenged around heavy use destinations and along popular multi-hour or multiday routes

THE SOLUTION

DEVELOP AN EDUCATIONAL CAMPAIGN TARGETING NON-MOTORIZED BOATERS

ENCOURAGE HUMAN WASTE BAG USE

LIMITED DATA

Data on use and behavior is not currently collected for humanpowered vessels, making it difficult to understand use patterns and their correlation to improper waste disposal and poor water quality. COLLECT DATA ON PADDLE SPORT RECREATION

CONSIDER ENHANCING PADDLE SPORT REGULATIONS

DEVELOP AN EDUCATIONAL CAMPAIGN TARGETING NON-MOTORIZED BOATERS

ACTION

Develop user-friendly educational materials to target human-powered vessel users and encourage use of restrooms and waste bags.

CONSIDERATIONS

- This effort could build on materials developed for boaters as part of the strategy on page 74. Information could be further tailored to topics related to human-powered vessels.
- Educational materials could be marketed at in-person and online locations frequented by this user group, such as at vessel purchase, rental locations, and through hobby groups, etc.
- Resources should be usable by all ages and abilities.

Action lead: VSEO Committee

Supporters: Parks, DNR, Ecology Washington Water Trails Association, education non-profits

Potential funding: CVA grant, RCO grant, NEP grant

WATER QUALITY



ENCOURAGE HUMAN WASTE BAG USE

ACTION

Develop a rebate program to encourage use of human waste bags.

Create a marketing campaign to support the rebate program and encourage use.

CONSIDERATIONS

- Similar to pet waste bags, human waste bags are intended to pack waste out of a recreation area to lessen any negative water quality impacts, especially at popular destinations. These can be purchased online or in-person at stores.
- This effort requires additional staff to develop and implement.
- This solution could build on the educational campaign targeting humanpowered vessel users, see the strategy on page 76.

COLLECT DATA ON PADDLE SPORT RECREATION

ACTION

Explore the potential to expand the Washington Paddle Advisory Committee purview beyond boating safety to address other human-powered vessel use issues. If not feasible, identify another mechanism to accomplish the strategy objectives.

Develop a system to track human-powered vessel use to better understand boater behavior and how that may correlate with water quality issues.

CONSIDERATIONS

- The Washington Paddle Advisory Committee (PAC) is a subcommittee of the Boating Programs Advisory Council (BPAC) focused on paddle-sport safety. This cross-agency entity is well suited to advise on paddle-sport matters, however their purpose needs to be expanded beyond safety to advise on all paddlesport issues.
- While the PAC could be the most streamlined approach, an alternative committee outside the legislative process could be created to advise Parks on these issues. It is important that any group intended to advise or make decisions around human-powered vessel regulations have representation from across state agencies and interest groups.
- Management of human-powered vessels is currently funded using money generated by the boating community, such as fees to register boats and get a boater education card. This effort could potentially be funded using these fees.
- It is difficult to determine the best approach to tracking human-powered vessel ownership and use. Without registration requirements, it is challenging to estimate use, especially in households with multiple vessels, it is difficult to estimate use based on registration. Key data to track would be vessel registration and use to better understand potential correlation to water quality issues.
- This effort could also start with a focus on education to help human-powered vessel users understand the importance of tracking this data. This option could then be tied to an expanded educational campaign targeting boaters. See the education strategy on page 76.

Action lead: Parks

Supporters: Department of Ecology, DNR, WDFW

Potential funding: CVA grant

WATER QUALITY



HUMAN WASTE BAGS

Human waste bags, including WAG Bags (Waste Alleviation and Gelling bags), are helpful to have on hand when boating. Some popular brands include the Restop2 and the Cleanwaste WAG BAG, pictured below.



"The Infamous WAG Bag". Source: <u>Patrick</u> <u>Maloney</u>, Flickr

Action lead: Parks, WA PAC, or other committee

Supporters: WDFW, Department of Licensing

Potential funding: Department of Licensing

WATER QUALITY



CONSIDER ENHANCING PADDLE SPORT REGULATIONS

ACTION

If data reflects impacts to water quality, consider requiring sanitation devices, limiting human-powered vessel traffic in highest use areas lacking waste disposal facilities, and or other regulations that would limit environmental impacts from this user group.

CONSIDERATIONS

- This solution assumes findings from the paddlesport data collection show that increased regulations will positively impact water quality.
- Human-powered vessels are subject to boating laws and regulations; however, there are no other regulations specific to this user group.
- Colorado, Idaho, and Oregon regulate popular river usage by rafts and large groups, primarily from commercial businesses. A similar approach could be used in Washington to reduce impacts to the natural environment and water quality.
- Vessel traffic could be limited on waterways in remote areas or at popular multi-hour or multi-day destinations without access to bathrooms by requiring permits. These permits could be tied into existing upland recreational permitting for easy management.
- This solution requires additional Parks and WDFW staff to enforce regulations in addition to DNR taking an additional role. Staff time could be funded through permit revenue.
- Requiring sanitation devices may be a financial burden for those unable to afford them.
- Enhancing regulations would be increasing burden on users that already lack ready access to facilities.



Action lead: TBD

Supporters: PAC or similar committee, entities that manage park passes

Potential funding: Clean Air/Water Act, CVA grant (plan development)



COMPLEXITY

BEST PRACTICE: OREGON

The Oregon State Marine Board has successfully regulated waterway access by issuing permits, similar to those issued for back country hiking.

Figure 97. "Blind Island Kayak" (Source: <u>Alyssa Mac Donald, BLM</u>, Flickr)

MULTI-AGENCY COORDINATION

THE CHALLENGE

THE SOLUTION

DATA MANAGEMENT

Multiple state agencies manage data related to recreational boating. This makes analysis and tracking difficult, and impedes holistic planning.

MANAGE DATA IN A CENTRAL LOCATION

ENFORCEMENT

Illegal dumping is problematic, especially in areas with long-term anchorages. Enforcing dumping regulations is a challenge given a lack of documentation and multiagency management.

DISCOURAGE ILLEGAL DUMPING

MANAGE DATA IN A CENTRAL LOCATION

ACTION

Collaborate across agencies to develop a central database to track information on recreational boaters and boating support facilities.

CONSIDERATIONS

- Key data that would be helpful if centrally managed includes information on boat sales (Department of Revenue), registrations (Department of Licensing), moorage (Sea Grant, DNR, marinas), recreation participation and destinations (WA State Recreation and Conservation Office), water quality data related to boating (Department of Health), boat launches (WDFW) and boating sewage disposal facility location and usage (Sea Grant, National Park Service, marinas, WPPA, WDFW).
- Sea Grant currently manages data on the recreational boating fleet and supporting waste facilities that receive CVA grant funding.
- It is difficult to track facilities that are privately or federally owned, such as floating restrooms within marinas or on federally owned park land. Data on BSDFs that are privately or federally owned should be shared with Parks and included in the Pumpout Nav app.

Action lead: Sea Grant

Supporters: DNR, Department of Licensing, Department of Revenue, WA State Recreation and Conservation Office, Department of Health, WPPA, National Park Service, marinas

Potential funding: CVA grant

WATER QUALITY

COMPLEXITY

DISCOURAGE ILLEGAL DUMPING

ACTION

Have boating organizations, such as RBAW or NMTA, provide easily accessible guidance on their websites with instruction on how to document and report illegal dumping.

Encourage new pumpouts and/or mobile pumpout services at marinas near illegal dumping hotspots.

CONSIDERATIONS

- The areas with the most illegal dumping issues are long-term anchorages.
- Enforcement is primarily handled by WDFW and local law enforcement. The reporting method varies based on the location of the violation. Locations covered by larger municipalities such as King County or Seattle have separate websites for online reporting and phone numbers to call. There are also separate online tools through WDFW and the Department of Ecology that can be used to report violations.
- Issues with enforcing illegal dumping include minimal to no documentation of the violation and boaters who are resistant to being documented and reported for illegally dumping waste.
- Instructions on how to properly document illegal dumping could be included as part of the boater education strategy, see page 74.
- Offenders should be required to take or re-take the boater education card class to refresh information on proper waste disposal.
- The Pumpout Nav app could have the capability to document illegal dumping. Further research is needed to determine capacity.



Action lead: RBAW, NMTA

Supporters: WDFW, law enforcement, Coast Guard, Department of Ecology

Potential funding: CVA grant for education/outreach, Department of Ecology

WATER QUALITY Varies between medium to big impact

COMPLEXITY

Varies between complex to straightforward

Figure 98. Boat tied to a mooring buoy (Source: <u>Johnny Killroy</u>, Unsplash)

RECOMMENDATION SUMMARY

NEXT STEP ACTIONS

This section summarizes the project, policy, and program recommendations that were identified as highest priority for near-term focus. They fill a service gap, address known water quality issues, and are thought to be reasonably straightforward to implement relative to other recommendations. A complete list of recommendations by priority is included in "Appendix B. Recommendation Summary" on page B-1.

NEW BOATING SEWAGE DISPOSAL FACILITIES

Support marinas in areas needing additional pumpouts by connecting them with CVA grant resources and encouraging construction of new pumpouts at the following locations:

- Blakely Island Area
- Boston Harbor
- Everett Area
- Kirkland Area
- Longbranch Area
- Lopez Island Southeast Area
- Seabeck Area
- South Seattle Area
- Westport Area

Add floating restrooms in areas with high boater traffic and areas frequently used for boating events.

Support addition of mobile pumpout boats.

- Work with potential boat operators to provide information on available CVA grant funding and encourage addition of new mobile pumpout boats.
- Connect boat operators with municipalities to facilitate locations where boats can periodically offload waste.

NON-OPERATIONAL PUMPOUTS

Support marinas addressing pumpout repairs by connecting marinas with nonoperational pumpouts to available CVA grant funds and encouraging them to make the necessary repairs or replacements at the following marinas:

- Arabella's Landing
- Blake Island Marina

BENEFITS

- Meets immediate needs in some of the most popular boating areas
- Adds services to areas with known water quality issues
- Leverages interested marinas with existing infrastructure
- Adds services to meet the needs of human-powered vessel users
- Has the potential to reduce illegal dumping by adding service to illegal dumping hot spots

BENEFITS

• Restores service to areas with known water quality issues

CVA GRANT STRATEGIES

Reduce barriers to CVA grant fund use.

• Advocate to reduce barriers by adjusting CVA grant fund eligibility restrictions.

Update and improve CVA data.

• Develop more user-friendly annual reporting methods for grant fund users.

Increase support for CVA grant fund recipients.

 Connect CVA grant applicants needing additional support with available state funding.

WASTE DISPOSAL EDUCATION

Stand up an educational campaign for boaters.

- Update boater sewage disposal educational curriculum and materials for online and in-person classes.
- Supplement existing educational campaigns and identify gaps in knowledge and user groups access to more strategically reach boaters who are unaware of regulations around sewage disposal.

Update the Pumpout Nav app.

• Add resources to Sea Grant to improve the Pumpout Nav app functionality and provide more frequent updates..

HUMAN-POWERED VESSELS

Develop an educational campaign targeting non-motorized boaters.

• Develop user-friendly educational materials to target human-powered vessel users and encourage use of restrooms and waste bags.

Collect data on paddle sport recreation.

 Explore the potential to expand the Washington Paddle Advisory Committee purview beyond boating safety to address other human-powered vessel use issues. If not feasible, identify another mechanism to accomplish the strategy objectives.

BENEFITS

- Increases use of CVA grant funds
- Improves data and supports grant fund recipients

BENEFITS

 Increases awareness of proper boating sewage waste disposal and resources

BENEFITS

- Increases awareness of proper sewage waste disposal for a new market of boaters
- Improves understanding of paddle sport behaviors

LONGER-TERM ACTIONS

This section summarizes the project, policy, and program recommendations that were identified as medium- and longer-term priorities. A complete list of recommendations by priority is included in "Recommendation Summary" on page B-2.

NEW BOATING SEWAGE DISPOSAL FACILITIES

Support marinas in areas needing additional pumpouts by connecting them with CVA grant resources and encouraging construction of new pumpouts at the following locations:

- Eastsound Area
- Clark Island Marine State Park
- Hope Island Marine State Park
- Jones Island Marine State Park
- Lakebay Marina/Penrose State Park
- Lopez Island Northeast Area

NON-OPERATIONAL PUMPOUT

Support the Langley Marina in addressing their non-operational pumpout by connecting them to available CVA grant funds and encouraging them to make the necessary repairs or replacements.

UPLAND WASTE FACILITIES

Add and improve upland waste facilities.

- · Encourage facilities to provide easy-to-find upland facilities that are accessible and operational.
- · Support WDFW efforts to assess and improve upland waste facilities at water access sites.
- Add upland waste facilities in high-traffic areas lacking restrooms.

CVA GRANT STRATEGIES

Update and improve CVA data.

• Prepare a statewide annual report on CVA grant use, pumpout use, and progress implementing this assessment's recommendations..

Increase support for CVA grant fund recipients.

- · Clarify and add detailed grant requirements around required maintenance/ monitoring, such as outlining how frequently inspections should take place.
- Provide ongoing support to facilities receiving CVA grant funds to address nonoperational pumpouts.

Enhance monitoring efforts.

 Work with interns or non-profits for more robust pumpout monitoring and to build relationships with pumpout owners and pathways to communicate with boaters, assist with annual reporting, communicate program highlights or changes, address non-operational pumpouts, etc.

BENEFITS

- Increases use of CVA grant funds
- Improves data and supports grant fund recipients

BENEFITS

• Restores service to areas with known water quality issues

BENEFITS

- Improves critical upland infrastructure to serve all boaters
- Could help to reduce illegal dumping

BENEFITS

- Increases use of CVA grant funds
- Improves data and supports grant fund recipients

Washington Recreational Boating Pumpout Facility Assessment

WASTE DISPOSAL EDUCATION

Provide information to moorage facility owners.

Develop a user-friendly educational campaign to target potential pumpout facility owners.

Update on-location information.

• Update and support placement of standardized pumpout instructions and provide additional wayfinding signage at each pumpout.

Stand up an educational campaign for boaters.

 Review and augment pumpout-related questions on the boater education card exam.

HUMAN-POWERED VESSELS

Encourage human waste bag use.

- Develop a rebate program to encourage use of human waste bags.
- Create a marketing campaign to support the rebate program and encourage use.

Collect data on paddle sport recreation.

 Develop a system to track human-powered vessel use to better understand boater behavior and how that may correlate with water quality issues.

Consider enhancing paddle sport regulations.

 If data reflects impacts to water quality, consider requiring sanitation devices, limiting human-powered vessel traffic in highest use areas lacking waste disposal facilities, and or other regulations that would limit environmental impacts from this user group.

MULTI-AGENCY COORDINATION

Manage data in a central location.

 Collaborate across agencies to develop a central database to track information on recreational boaters and boating support facilities.

Discourage illegal dumping.

- Have boating organizations, such as RBAW or NMTA, provide easily accessible guidance on their websites with instruction on how to document and report illegal dumping.
- Encourage new pumpouts and/or mobile pumpout services at marinas near illegal dumping hotspots.

BENEFITS

 Increases awareness of proper boating sewage waste disposal and resources

BENEFITS

- Increases awareness of proper sewage waste disposal for a new market of boaters
- Improves understanding of paddle sport behaviors
- Considers measures to further improve water quality

BENEFITS

- Improves management of recreational boating data
- Provides tools and services to discourage illegal dumping

APPENDIX A. SURVEY DATA



BOATER SURVEY

OVERVIEW

In summer and early fall of 2024 GMA conducted an online survey of boat and watercraft owners throughout Washington state, including those who rent or belong to clubs. Participants were reached through third-party databases, boat registrations, marinas, yacht clubs, newsletters, and other sources.

KEY INSIGHTS AND OBSERVATIONS

BOATER DEMOGRAPHICS & BEHAVIOR

Respondents included boaters who own or rent a variety of vessels of different lengths, see Figure 101 and Figure 102. Survey participation was from many sources, including third-party lists, marinas, yacht clubs, newsletter invitations and those in shared ownership programs. Respondents store their watercraft in a variety of locations, see Figure 103. Many respondents take their boats out frequently on short day trips to multi-day voyages and travel to multiple areas, including marinas, anchorages, and popular boating destinations, see Figure 100.

The following page shows respondent feedback on where boaters go and for how long. It also shows information on where respondents home port and launch from, and what type of waste facility they use when at home port.



Figure 100. Boat use frequency





Figure 101. Type of watercraft



Figure 102. Length of largest vessel



Figure 103. Vessel storage location



Figure 104. Typical destination





Figure 105. Typical trip length



Figure 106. Longest trip length



Figure 108. A. Home port county B. Launching county

County	Α	В	County	А	В
Adams	0.43%	0.23%	Lewis	0.43%	0.68%
Asotin	0.43%	0.90%	Lincoln	0.32%	0.79%
Benton	1.82%	1.80%	Mason	1.29%	1.35%
Chelan	0.96%	0.79%	Okanogan	0.43%	0.34%
Clallam	1.82%	1.69%	Pacific	0.21%	0.79%
Clark	6.11%	5.86%	Pend Oreille	0.21%	0.34%
Columbia	1.07%	1.24%	Pierce	12.11%	12.05%
Cowlitz	1.50%	1.80%	San Juan	2.14%	2.25%
Douglas	0.75%	0.56%	Skagit	7.61%	7.88%
Ferry	0.32%	0.90%	Skamania	0.21%	0.23%
Franklin	0.96%	1.13%	Snohomish	7.40%	7.66%
Garfield	0.00%	0.11%	Spokane	2.04%	1.24%
Grant	0.11%	1.01%	Stevens	0.32%	0.45%
Grays Harbor	0.64%	1.35%	Thurston	4.61%	4.17%
Island	2.47%	2.03%	Wahkiakum	0.32%	0.23%
Jefferson	2.25%	2.36%	Walla Walla	0.75%	0.45%
King	23.37%	21.62%	Whatcom	5.36%	5.63%
Kitsap	6.22%	5.97%	Whitman	0.75	0.56%
Kittitas	0.43%	0.34%	Yakima	1.71%	0.90%
Klickitat	0.11%	0.34%			

Figure 107. Waste disposal facility used when at home port



Portable toilet
Pumpout facility
Dump station
Other

SEWAGE DISPOSAL BEHAVIOR AND ATTITUDES

Respondents have a variety of waste removal systems, see Figure 111 and Figure 112. Eighty-two percent of boaters use public or private pumpouts or mobile pumpout boats, but a portion admitted to illegally discharging sewage, see Figure 109. This may be due to confusion regarding where treated and untreated sewage can legally be discharged, suggesting a need for better education on regulations, see page A-8.

The top five reasons boaters avoid using pumpouts are listed below, see Figure 110:

- Availability and accessibility: Many respondents emphasized the need for more pumpouts, specifically at popular marinas, anchorages, and state parks, as well as floating pumpout options for ease of access.
- Ease of use and convenience: There was frequent mention of improving ease of docking, positioning pumpouts away from fuel docks, and ensuring facilities are easy to maneuver into. Suggestions included adding mobile pumpout services and creating simpler access points to pumpouts.
- **Reliability and maintenance**: A recurring concern was operational consistency for pumpouts with calls for improved maintenance. Respondents also requested reliable suction, increased availability of necessary adapters, and clear signage when facilities are non-operational.
- Cost and incentives: Many users suggested free or low-cost pumpout services, especially for mobile options, and a few noted that incentives, such as discounts for usage or rewards, could help promote use.
- Education and enforcement: Education about environmental impact and the importance of pumpout use, along with stricter enforcement of regulations and fines for non-compliance, were frequently mentioned as effective motivators.



Figure 109. In the past year, how often did you discharge sewage into waters less than 3 miles offshore?





Figure 112. MSD type

Washington Recreational Boating Pumpout Facility Assessment

PUMPOUTS AND RESTROOMS SATISFACTION

The average satisfaction rating for Washington's pumpout system was 3.6 out of 5.0, indicating room for improvement, see Figure 113. Respondents rated satisfaction with restroom availability in marinas at 3.6 out of 5.0, see Figure 115. The cleanliness and condition of marina restrooms were rated 3.5 out of 5.0 (see Figure 116), suggesting some dissatisfaction with maintenance and upkeep.

Thirty-two percent of respondents use floating restrooms (see Figure 114) and noted the following challenges:

- Accessibility and docking: A common issue noted was the difficulty in accessing and docking at floating restrooms, especially in conditions with waves, wind, or high use.
- **Stability and balance**: Many respondents mentioned concerns about stability of the floating structures, with movement from waves or wakes leading to an unsteady experience that could be uncomfortable or even unsafe.
- **Cleanliness and sanitation**: Several comments mentioned cleanliness as a significant concern, especially regarding maintenance challenges, sanitation issues, and the need for regular cleaning and stocking.
- Location and availability: Some respondents noted limited number of floating restrooms that were difficult to locate, particularly in remote or high-traffic areas.
- Weather and environmental exposure: Challenges posed by adverse weather conditions—such as strong winds, cold temperatures, and freezing pipes—were mentioned as potential issues that affect both usability and maintenance.







2

1 - Very unsatisfied





Figure 115. Satisfaction with restroom

Figure 116. Satisfaction with restroom condition



Washington Recreational Boating Pumpout Facility Assessment

PUMPOUT USE INCENTIVES

Respondents noted how far they would be willing to travel to use a pumpout or dump station, see Figure 117. Respondents also indicated the following would make them use more pumpouts:

- More stations in key locations: Boaters want more pumpouts, especially in hightraffic areas like popular marinas, anchorages, and state parks.
- Floating and mobile pumpout services: Many suggested floating or mobile pumpout services to improve accessibility.
- Better maintenance and reliability: Boaters emphasized the need for consistently operational facilities with good suction, necessary adapters, and clear signage if out of order.
- Incentives for use: Respondents suggested discounts or rewards for using pumpouts to encourage compliance.
- More education and stronger enforcement: Many boaters believe more education about environmental impacts and stricter enforcement of regulations would improve usage rates.

INFORMATION BOATERS WANT ABOUT PUMPOUT FACILITIES

Boaters expressed a desire to learn more on the following topics:

- Pumpout locations: Boaters requested maps, apps, and guides to show the exact locations of pumpouts.
- Real-time status updates: Respondents want real-time information on whether pumpouts are operational to avoid wasted trips.
- Better usage instructions: Many boaters struggle with using pumpouts properly and suggested step-by-step guides, videos, or on-site instructions.
- Clarification on costs and payment options: Respondents want clear information about pumpout fees, if any, and the available payment methods (cash, card, or mobile apps).

PUMPOUT NAV APP AND PUMPOUTWASHINGTON.ORG

AWARENESS AND USAGE

A significant portion of boaters are not aware of the Pumpout Nav app or PumpoutWashington.org website, see Figure 118. Among those who are aware, not all have used it for information on pumpout facilities. Those who have used the site find it useful, particularly for locating pumpouts and understanding regulations. Respondents suggested that better promotion of the app and website would increase usage including through marinas, boating clubs, and social media. Figure 117. Distance to travel to use pumpout or dump station



Figure 118. Use of the pumpoutwashington.org website or Pumpout Nav app



SUGGESTIONS FOR IMPROVEMENT

Boaters provided feedback on what would make the Pumpout Nav app and PumpoutWashington.org more useful:

- Better maps and search functions: Some respondents found it difficult to locate facilities using the site and suggested interactive maps with GPS-based searches.
- **Real-time updates:** Users want live updates on pumpout functionality, including whether pumpouts are operational or undergoing maintenance.
- **Mobile-friendly design**: Many boaters access information on their phones while on the water, and some found the current website hard to navigate on mobile devices.
- More educational content: Respondents suggested including step-by-step guides, videos, and FAQs on how to properly use pumpout facilities.
- Increased awareness efforts: Boaters recommended more promotion of the app and website via marina bulletin boards, newsletters, and boating license materials.

MAJOR CONCLUSIONS

BOATERS WANT MORE CONVENIENT AND RELIABLE PUMPOUT FACILITIES

A significant number of boaters struggle with accessibility and availability of pumpouts. The most commonly mentioned issues include:

- Not enough pumpouts in key locations (popular marinas, anchorages, and state parks).
- Difficulty maneuvering boats into pumpout stations.
- Frequent maintenance problems, with some pumpouts being non-operational.
- Boaters strongly support increasing the number of pumpouts and introducing mobile pumpout boats and floating restroom options.

COST AND INCENTIVES INFLUENCE PUMPOUT USAGE

Many boaters hesitate to use pumpout facilities if they are expensive or inconvenient. Respondents suggested that offering free or low-cost pumpout services would increase compliance. Some recommended incentives such as discounts or loyalty programs for frequent users.

LACK OF AWARENESS AND EDUCATION IS A BARRIER TO PROPER SEWAGE DISPOSAL

Many boaters don't fully understand where treated and untreated sewage can be legally discharged, see Figure 119 and Figure 120. There is low awareness of helpful resources, such as PumpoutWashington.org and the Pumpout Nav app. Respondents want more education on the environmental impact of improper sewage disposal, along with clearer information on rules, fines, and enforcement. Boaters suggested better outreach via marinas, yacht clubs, and social media.

BOATERS WANT REAL-TIME INFORMATION ON FACILITY STATUS AND LOCATIONS

Respondents frequently encounter non-functional pumpouts but have no way to check their status beforehand. Boaters want real-time updates on pumpout availability via an app, website, or text alerts. Improved maps and GPS integration would also help them find nearby stations more easily.

RESTROOM FACILITIES AT MARINAS NEED IMPROVEMENT

Satisfaction with restroom availability (3.6/5.0) and condition (3.5/5.0) was moderate, indicating room for improvement. Many boaters reported issues with cleanliness, maintenance, and stocking of marina restrooms. Floating restrooms face additional challenges, including stability, sanitation, and difficult docking. There is strong demand for improved restroom facilities at docks and marinas, particularly in high-traffic boating areas.

FINAL THOUGHT

The survey highlights that improving accessibility, affordability, and awareness of pumpout services can lead to higher usage and better environmental compliance.

DISCHARGE REGULATION TEST QUESTIONS





Figure 120. Bodies of water that allow untreated sewage discharges



FACILITY SURVEY

1. WHAT IS YOUR NAME?

[data removed for privacy]

2. WHAT IS THE NAME OF YOUR PROPERTY?

FACILITY NAME		
Beacon Rock State Park	Hood Canal Marina	Port of Port Angeles
Bell Harbor Marina	Ice Harbor Marina LLC	Port of Poulsbo
Bellingham Cruise Terminal	Jerisich Dock and Maritime Pier	Port of Silverdale
Blaine Harbor, Port of Bellingham	Lakeshore Marina	Quartermaster Marina
Boat Street Marina	Longbranch Marina	Ridgefield Marina
Browns Point Marina	Lyons Ferry Marina	Seattle Boat Co
Cap Sante Marina	Mystery Bay Marine State Park	Seattle Northwest Yachts, LLC.
Carillon Properties / Carillon Point	Oak Harbor Marina	Semiahmoo Marina
City of Richland , WA	Oakland Bay Marina	Shelter Bay Marina
Clover Island Yacht Club	Parkshore Marina	Skyline Marina
Coupeville Wharf (Port of Coupeville)	Percival Landing	Squalicum Harbor, Port of Bellingham
Deception Pass State Park	Pleasant Harbor Marina	Stuart Island Marine State Park
Delin Docks and Dock Street Marina	Port of Bremerton	Tidewater Cove Marina
Duwamish Yacht Club	Port of Camas-Washougal	Tokeland Marina
Everett Bayside Marine	Port of Edmonds	Two Rivers Marina
Fort Flagler State Park	Port of Everett	West Bay Marina
Foss Waterway Seaport	Port of Ilwaco	West Sound Mobile Pumpout
Gig Harbor Marina	Port of Kingston	Westport Marina-Port of Grays Harbor
Harbour Village Marina	Port of Lopez	
		TOTAL: 56

3. ARE YOU OPEN SEASONALLY OR YEAR-ROUND?



ANSWER CHOICES	RESPONSES	
Year-round	84.51%	60
Seasonally	15.49%	11
TOTAL		71

4. WHAT PERCENT OF RECREATIONAL USERS ARE:



ANSWER CHOICES	AVERAGE NUMBER	TOTAL NUMBER	RESPONSES
Home port and/or frequent users?	66	4,201	64
Transient/infrequent visitors?	29	1,855	65
Live-aboards?	8	408	54
Other?	6	136	22
TOTAL RESPONDENTS			66



5. HOW DO BOATERS FIND YOUR FACILITY? (CHECK ALL THAT APPLY)

ANSWER CHOICES	RESPONSES	
Pumpout Nav application	26.76%	19
Signage	50.70%	36
Other boaters	64.79%	46
I'm not sure	23.35%	18
Other (please specify)	47.89%	34
TOTAL RESPONDENTS		71

OTHER (PLEASE SPECIFY)							
NA	Boating publications	Seattleboat.com					
DockWa	Social media and online apps	Online					
Several online listings	Internet and social media	Maps, navigational apps					
Websites	Marina maps, websites	Website					
Boat Street Marina	Advertisements	Social media, RBAW newsletter					
Internet search	Our website www. quartermastermarinavashon.com	Internet					
Guest dock moorage	Vacation destination	Popular state park destination					
Internet and social media	We are in several guides	Other yacht clubs					
Marketed through various platforms	Our recreation pumpouts are not active	Posters and business cards					
KOA marketing	Google	They can see it or ask					
Online and repeat customers	Nearby YCs are aware of facility	Web					

6. HOW MANY PUMPOUT FACILITIES DO YOU HAVE (STATIONARY AND PORTABLE)?



ANSWER CHOICES	RESPONSES	
1	46.48%	33
2	22.54%	16
3	7.04%	5
4	5.63%	4
More than 4	14.08%	10
My property does not have a pumpout facility	4.23%	3
TOTAL		71

Q7. FOR EACH PUMPOUT FACILITY, PLEASE PROVIDE THE FOLLOWING INFORMATION.



TYPE OF PUMPOUT

TYPE OF PUMPOUT

	PORTABLE	STATIONARY	OTHER	TOTAL			
Pumpout 1	15.69% 8	82.35% 42	1.96% 1	51			
Pumpout 2	42.86% 12	57.14% 16	0.00% 0	28			
Pumpout 3	56.25% 9	43.75% 7	0.00% 0	16			
Pumpout 4	50.00% 5	40.00% 4	10.00% 1	10			
Pumpout 5	42.86% 3	57.14% 4	0.00% 0	7			

IS IT OPERATIONAL?



IS IT OPERATIONAL?									
	YES	YES NO SOMETIMES							
Pumpout 1	94.12%	48	5.88%	3	0.00%	0	511		
Pumpout 2	42.86%	12	3.57%	1	7.14%	2	28		
Pumpout 3	100.00%	16	0.00%	0	0.00%	0	16		
Pumpout 4	100.00%	10	0.00%	0	0.00%	0	10		
Pumpout 5	100.00%	7	0.00%	0	0.00%	0	7		



HOW WOULD YOU CHARACTERIZE ITS CONDITION?

HOW WOULD YOU CHARACTERIZE ITS CONDITION?									
	GOOD	GOOD FAIR POOR							
Pumpout 1	72.55%	37	27.45%	14	0.00%	0	51		
Pumpout 2	78.57%	22	17.88%	5	3.57%	1	28		
Pumpout 3	75.00%	12	25.00%	4	0.00%	0	16		
Pumpout 4	80.00%	8	20.00%	2	0.00%	0	10		
Pumpout 5	71.43%	5	14.29%	1	14.29%	1	7		

PROVIDE ANY ADDITIONAL DETAILS
In process purchasing second portable pumpout
#4 is plumbed on E & F docks, hose is the portable part
New electric monitors are posing gear issues which need repair
We also have a weekly commercial pumpout vessel service visit our marina bi-weekly
We have a brand new pumpout to be installed when permits are issued
It is quite old
We have a peristaltic system. Hydrants located at each slip. Hose cart movable to each slip
2 separate marinas, 2 pumpouts each +1 portable
Stationary pumpout open to the public but portable are closed

8. WHAT TYPE OF VESSEL DOES YOUR PUMPOUT(S) SERVE?



ANSWER CHOICES	RESPONSES	
Only recreational vessels	52.94%	27
Only commercial vessels	0.00%	0
Both recreational and commercial vessels	39.22%	20
Other	7.84%	4
TOTAL		

9. WHAT DO YOU ESTIMATE IS THE AVERAGE NUMBER OF VESSELS USING PUMPOUT(S) PER DAY DURING PEAK BOATING SEASON?



RESPONSES						
Don't know	Don't know	0	1	1		
1	1	1	1	1		
1	1	1.5	2	2		
2	2	2-3	3	3		
3	3	4	4	4		
5	5	5	5	5		
5	6	6	6	10		
10	10	10	10-15	15		
15	15-20	15-20	20	20		
20-35	25	25	25-30			
10. WHAT IS THE MAXIMUM AMOUNT OF VESSELS YOU'VE EXPERIENCED IN ONE DAY USING YOUR PUMPOUT(S)?



RESPONSES					
Don't kr	IOW	Don't know	Don't know	Don't know	Don't know
0		1	1	2	3
3		3	3	4	4
4		5	5	5	5
5		7	8	8	10
10		10	10	10	11+
12		12	12	15	15
15		15	19	20	20
20+		22	25	25	25-30
26+		30	30	45	100

11. IS YOUR PUMPOUT(S) AVAILABLE FOR ANYONE/GENERAL PUBLIC TO USE?



ANSWER CHOICES	RESPONSES	
Yes	94.12%	48
No	5.88%	3
TOTAL		51

12. IF YOUR PUMPOUT(S) IS NOT AVAILABLE FOR GENERAL PUBLIC USE, WHO CAN USE IT? (SKIP IF "PUBLIC")

RESPONSES
Club members
Anyone during working hours, for mobile and stationary all are welcome 24/7
Staff has to operate
NA
Our marina is privately held by the 110 owner-members so only our yacht club members and visiting reciprocal yacht club members can use it

13. IS YOUR PUMPOUT(S) ACCESSIBLE AT ANY TIME OF DAY?



ANSWER CHOICES	RESPONSES	
Yes	80.39%	41
No	19.61%	10
TOTAL		51

14. WHAT, IF ANY, FACTORS LIMIT ACCESS TO YOUR PUMPOUT FACILITIES? (CHECK ALL THAT APPLY)



ANSWER CHOICES	RESPONSES	
Vessel size	33.33%	17
Tide level	19.61%	10
Wait times	9.80%	5
Location	15.69%	8
Other	13.73%	7
There are no limiting factors	47.06%	24
TOTAL RESPONDENTS		71

15. DO YOU HAVE A WORKING METER MEASURING PUMPOUT VOLUME?



ANSWER CHOICES	RESPONSES	
Yes	52.94%	27
No	27.45%	14
No, but I'd like more information on how to obtain and install one	5.88%	3
I'm not sure	9.80%	5
Other (please specify)	3.92%	2
TOTAL		51

OTHER (PLEASE SPECIFY)

We measure our intake based on time and GPM, then we know the tank size (350 gallons) on the boat

The 250 gallon tank on board has volume increments on it

16. WHERE DOES THE SEWAGE GO WHEN IT LEAVES YOUR PUMPOUT FACILITY?



ANSWER CHOICES	RESPONSES	
Municipal sewer system	72.55%	37
Local community treatment facility	1.96%	1
Septic drainfield	9.80%	5
I'm not sure	5.88%	3
Other (please specify)	3.92%	2
Storage tank	5.88%	3
TOTAL		51

OTHER (PLEASE SPECIFY)

Wastewater treatment facility

It is pumped out of the vessel and taken to Anacortes

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17. DO YOU NEED TO OFFLOAD?



ANSWER CHOICES	RESPONSES	
Yes	13.76%	7
No	86.27%	44
TOTAL		51

18. IF SO, WHERE DOES THE SEWAGE GO?



ANSWER CHOICES	RESPONSES	
Served by mobile pumpout	13.73%	7
I don't need to offload	78.43%	40
Nearby jurisdiction or other (please specify)	7.84%	4
TOTAL		51

NEARBY JURISDICTION OR OTHER (PLEASE SPECIFY)

Portable pumpout goes in municipal system

Portable pumpout goes in municipal system

Into the City Sewer System

Sewer system

19. IF USING A TANK, WHAT IS YOUR TANK'S CAPACITY? (IF UNKNOWN OR NO TANK, NOTE N/A)

OTHER (PLEASE SPECIFY)					
N/A (46 responses)	50 gal	250 gal	350 gal	2000 gal	

20. PLEASE NOTE ANY ISSUES WITH THE OFFLOAD SYSTEM. (SKIP IF NONE)

RESPONSES
Portable system requires much more maintenance
We are very dependent on proper working facilities
Portable system requires much more maintenance
Costly to have a barge transport a pump truck

21. DO YOU PERFORM REGULAR MAINTENANCE ON YOUR PUMPOUT FACILITIES?



ANSWER CHOICES	RESPONSES	
Yes	90.20%	46
No	9.80%	5
TOTAL		51

22. DO YOU KEEP A MAINTENANCE LOG?



ANSWER CHOICES	RESPONSES	
Yes	62.75%	32
No	37.25%	19
TOTAL		51

23. WHAT ARE THE BIGGEST CHALLENGES TO MAINTAINING OR OPERATING YOUR PUMPOUT FACILITIES? (IF NONE, LIST N/A)

RESPONSES			
Portable system limitations with maintenance and shutdowns	Suction	Users dropping the valve on dock and breaking it	
Nozzles and hoses	Staff time	Hose gets clogged, need to flush constantly, few other easy fixes	
We maintain the vessels pump and tank, and often do hose repairs	The public treating the equipment with respect	Public abuse	
Portable system limitations with maintenance and shutdowns	User operational error	Tide level	
Freezing in winter	Staff time	Damage to hose and missing nozzles	
Sometimes users break it or don't know how to use it	The manual pumps are difficult for elderly users	Pump lifespans	
Maintenance	Electric motors	Misuse by inexperienced boaters	
Fiscal	User error, damage	N/A (28 responses)	

24. WHAT ISSUES DO YOU EXPERIENCE MOST?



ANSWER CHOICES	RESPONSES	
Blockages	23.53%	12
Pump malfunctions	25.49%	13
Electrical	3.92%	2
Vacuum seal failure	19.61%	10
Deteriorated/corroded pipes	11.76%	6
No issues experienced	29.41%	15
Other (please specify)	19.61%	10
TOTAL RESPONDENTS		71

RESPONSES
Hose cracking and suction and low tide due to draft of the boats
Belt deterioration
Operator error or confusion
Operator error, operator abuse
Freezing in winter
User failure
Endless issues with electric outboard motors
Customer misuse

25. HAVE YOU USED THE CLEAN VESSEL ACT'S OPERATIONS AND MAINTENANCE REIMBURSEMENT GRANT? (CHOOSE ALL THAT APPLY)



ANSWER CHOICES	RESPONSES	
Yes, for installing a pumpout	16.67%	8
Yes, for maintaining a pumpout	22.92%	11
Yes, for both installing and maintaining a pumpout	50.00%	24
I have not used grant funds	14.58%	7
I am unaware of the grant	6.25%	3
Yes, other (please specify)	4.17%	2
TOTAL RESPONDENTS		48

YES, OTHE	R (PLEASE SPECIFY	')
-----------	-------------------	----

For mobile pumpout vessel programs in south and west puget sound

We did in the past but we do not currently

26. ARE THERE ANY BARRIERS FOR YOU IN APPLYING FOR THE GRANT FOR PUMPOUT INSTALLATION AND/OR MAINTENANCE? (NOTE N/A IF NO BARRIERS)

RESPONSES	
NEOI OINOEO	

More info needed	Changing computer program and sign in made for more work than necessary	Coming up with the 25% match funds
It was deemed "not worth it" to apply with all the paperwork requirements	Converting one of the pumpouts to a commercial version	Grant money seems to run out frequently
Missed the deadline to apply	As a private marina, accepting a grant requires us to open our dock to the public	Funding
Clarify timeline	N/A (38 responses)	

27. IF THERE ARE BARRIERS, WHAT MIGHT MAKE YOU MORE LIKELY TO UTILIZE THE GRANT? (SKIP IF NONE)

RESPONSES
I will use the grant to fix and maintain the pumpout
State funding to meet CVA match
An easier interface for reimbursement
Added to my Outlook calendar
Not requiring public access to our private marina
Greater than 75% grant, 100% funding prior to grant funding

28. DOES YOUR MARINA OWN AND USE A MOBILE PUMPOUT VESSEL?



ANSWER CHOICES	RESPONSES	
Yes	6.00%	3
No	94.00%	47
TOTAL		50

29. DOES YOUR MARINA/CUSTOMERS UTILIZE THIRD-PARTY MOBILE PUMPOUT VESSEL SERVICES?



ANSWER CHOICES	RESPONSES	
Yes	44.00%	22
No	56.00%	28
TOTAL		50

30. WHICH OPTION DO YOU BELIEVE IS MORE ECONOMICAL, VIABLE, AND EFFICIENT?



ANSWER CHOICES	RESPONSES	
Mobile pumpout	12.00%	6
Fixed location	72.00%	36
Depends on circumstance (please explain)	16.00%	8
TOTAL		50

DEPENDS ON CIRCUMSTANCE (PLEASE EXPLAIN)

We would love to see a mobile pumpout service for our liveaboards and larger boats. Our location makes it cost prohibitive for a paid service. We miss the state funded 3rd party program.

Our insurance has gone up a lot when we have most of our tenants using mobile pumpouts instead of a stationary one

Mobile pumpout is challenging when experiencing mechanical issues

Some boaters seem more interested in having a mobile unit come to them vs docking at a fixed pumpout site

Washington Recreational Boating Pumpout Facility Assessment

31. DO YOU HAVE A DUMP STATION?



ANSWER CHOICES	RESPONSES	
Yes	38.00%	19
No	62.00%	31
TOTAL		50

32. IF "YES", PLEASE DESCRIBE ITS LOCATION AND FREQUENCY OF USE. (SKIP IF "NO")

RESPONSES		
Once a day	Many of the vessels only need a dump station - used frequently	At our fuel/pump dock and used weekly
Few times a month	Very seldom used, we have one guest moorage at Dock Street and another one on D-Dock at Delin Docks	Near the pumpout
Next to pumpout	Central Pier, unknown frequency	Located where the mobile pumpout is housed
At our fuel dock - used 2-3 times a week	Alongside the stationary pumpout	Fuel dock
The pumpout hose can be used with a porta-potty	Porta potty dump on the dock	Located at bulkhead

33. DOES YOUR PROPERTY HAVE A FLOATING RESTROOM?



ANSWER CHOICES	RESPONSES	
Yes	14.00%	7
No	86.00%	43
TOTAL		50

34. IF "YES", PLEASE DESCRIBE ITS LOCATION AND HOW SEWAGE IS DISPOSED. (SKIP IF "NO")

RESPONSES	
Mobile pumpout from a boat, from clean harbors	Located at our guest dock. To empty it, we move it to the fuel dock, drop a grinder pump into it and connect it to the City sewer pipe
Very interested in pursuing in future budget cycles - demand is very high	Dock it goes to the sewer
The sewage is pumped up to the municipal sewer system	Our restrooms and showers are ashore
Mid-float location. Vault then pumped to municipal system	Line is pumped out 2x a week by NW Mobile Pumpout. Unit is located on new breakwater with guest moorage slips
Jetty Island. Pumped by media operator	

35. WHICH USERS DO YOU BELIEVE WILL HAVE AN INCREASING DEMAND FOR PUMPOUTS IN THE FUTURE? (CHECK ALL THAT APPLY)



ANSWER CHOICES	RESPONSES	
Day use	56.00%	28
Multi-day users	70.00%	35
Live-aboard	54.00%	27
Rentals	18.00%	9
Other (please specify)	10.00%	5
TOTAL RESPONDENTS		50

OTHER (PLEASE SPECIFY)
We are seeing an increase in all of the above areas
Visitors
We have 16 live-aboards so we do not expect any increase in that arena. Our demand will increase during fair weather
Permanent moorage

36. WHICH VESSEL TYPES DO YOU BELIEVE WILL HAVE AN INCREASING DEMAND FOR PUMPOUTS IN THE FUTURE? (CHECK ALL THAT APPLY)



ANSWER CHOICES	RESPONSES	
Sailboats	52.00%	26
Powerboat (not on a trailer)	74.00%	37
Powerboat (on a trailer)	24.00%	12
Other (please specify)	10.00%	5
TOTAL RESPONDENTS		50

OTHER (PLEASE SPECIFY)

Commercial vessels

Houseboat

Larger boats and liveaborads

We have a fixed number of slips, so our use of pumpout service is likely to remain constant, we are not a commercial marina inviting public access. The majority of our slips is covered with a roof so the majority of our slip owners operate powerboats. Some sailboats operating out of uncovered slips.

Q37: DO YOU THINK ADDITIONAL PUMPOUTS WOULD BE HELPFUL?



ANSWER CHOICES	RESPONSES	
Yes	44.00%	22
No	26.00%	13
Not sure	30.00%	15
TOTAL		50



38. IF MORE ARE DESIRED, WHERE ARE ADDITIONAL PUMPOUTS NEEDED? (CHECK ALL THAT APPLY)

ANSWER CHOICES	RESPONSES	
North Puget Sound	34.00%	17
Central Puget Sound	32.00%	16
South Puget Sound	36.00%	18
Hood Canal	18.00%	9
The Coast	6.00%	3
Columbia River	10.00%	5
Other eastern WA rivers	6.00%	3
Other eastern WA lakes	6.00%	3
No additional pumpouts needed	16.00%	8
Other (please specify)	30.00%	15
TOTAL RESPONDENTS		50

OTHER (PLEASE SPECIFY)		
No idea (7 responses)	Fort of Chinook	
The more the better to encourage proper waste disposal	Areas like South Puget Sound are unable to provide more fixed locations, this is why the mobile program works so well	
Quartermaster Harbor	I'm told by boaters that many aren't working when they go in for a pumpout	
Inland takes	San Juan Islands	
All areas do a survey		



39. WHAT TYPE OF ADDITIONAL FACILITIES ARE NEEDED? (CHECK ALL THAT APPLY)

ANSWER CHOICES	RESPONSES	
Stationary pumpout'	46.00%	23
Portable pumpout cart	20.00%	10
Mobile pumpout vessels	34.00%	17
Dump station	14.00%	7
Floating restrooms	22.00%	11
No additional facilities needed	22.00%	11
Other (please specify)	10.00%	5
TOTAL RESPONDENTS		50

OTHER (PLEASE SPECIFY)

No idea (4 responses)

Commercial pumpouts

40. WHAT, IF ANY, ACCESS ISSUES DO YOU FORESEE IN ACCOMMODATING FUTURE DEMAND? (LIST N/A IF NO ISSUES)

RESPONSES		
Boats blocking pump out stations because they are tied up in front of them	N/A (29 responses)	Difficulty in keeping up with demand and regular mechanical shutdowns
Permitting	Wait time	Limit in ground lines
Limited access	N/A	Getting boaters to use the pumpouts, enforcement of NDZ
Funding	Shoreline permitting is difficult to obtain for these facilities on the federal level	Cost of maintenance
Funding	Difficulty in keeping up with demand and regular mechanical shutdowns	Tide levels
Security	More commercial pumpouts and funding	Cost of maintenance
Vessel size requires marinas to have mobile pumpout units	Debris buildup under our mooring/pumpout dock	

APPENDIX B. RECOMMENDATION SUMMARY



Figure 121. Pumpout at Port of Kingston

RECOMMENDATION SUMMARY

The following table summarizes recommendations by priority.

RECOMMENDATIONS	Action Lead	Supporters	Potential Funding Source
HIGHER PRIORITY			
New Boating Sewage Disposal Facilities			
Blakely Island Area	Parks CVA	Sea Grant	CVA grant, matching
Lopez Island - Southeast Area	Grant Manager		funds from the facility
Boston Harbor Marina			owner
Longbranch Area			
Kirkland Area			
S Seattle Area			
Everett Area			
Seabeck Area			
Westport Area			
Add floating restrooms in high-traffic areas.	Parks	DNR, WDFW	CVA grant
		RBAW, municipalities,	
Support addition of mobile pumpout boats.	Parks	WPPA	
Non-Operational Facilities			
Arabella's Landing	Parks CVA	Sea Grant	CVA grant maintenance
Blake Island Marina	Grant Manager		and operations tunds,
CVA Grant Strategies			Indrind marching funds
Reduce barriers to CVA grant fund use			
Advocate to reduce barriers by adjusting CVA grant fund eligibility restrictions.	RBAW, NMTA	Parks	?
Update and improve CVA data	r	I	1
Develop more user-friendly application and annual reporting methods for grant fund users.	Parks	Sea Grant, RCO, DNR, WDFW, Ecology, RBAW, NMTA	CVA grant
Increase support for CVA grant fund recipients			
Connect CVA grant applicants needing additional support with available state funding	Sea Grant	Parks, Ecology, WDFW	CVA grant
Waste disposal education			
Stand up an educational campaign for boaters			
Update boater sewage disposal educational curriculum and materials for online and in-person classes.	Sea Grant	Education non-profits, Parks, RBAW, DNR, Ecology, VSEO Committee	CVA grant, NEP grant, Parks, boater education card funds
Supplement existing educational campaigns and identify gaps in knowledge and user groups access to more strategically reach boaters who are unaware of regulations around sewage disposal.	Sea Grant	Education non-profits, Parks, RBAW, DNR, Ecology, VSEO Committee	CVA grant, NEP grant, Parks, boater education card funds
Update the Pumpout Nav app	-	Γ	1
Add resources to Sea Grant to improve the Pumpout Nav app functionality and provide more frequent updates.	Sea Grant, VSEO Committee	Parks, RBAW	CVA grant
Human-powered vessels			
Develop an educational campaign targeting non-motorized boaters	Voro		
Develop user-triendly educational materials to target human-powered vessel users and encourage use of restrooms and waste bags.	VSEO Committee	Parks, DNR, Ecology, WA Water Trails, non- profits	CVA grant, RCO grant, NEP grant
Collect data on paddle sport recreation			
Explore the potential to expand the Washington Paddle Advisory Committee purview beyond boating safety to address other human-powered vessel use issues. If not feasible, identify another mechanism to accomplish the strategy objectives.	Parks, PAC, or other committee	WDFW, Dept of Licensing	Dept of Licensing

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		Lea	rters	ial F
		tion	odd	tenti urce
RE	COMMENDATIONS	Ac	Sul	Poi
M				
Ne	w Boating Sewage Disposal Facilities	Damlas C) (A	Ga a Grant	
		Grant Manager	Sea Grant	CVA grant, matching
	Clark Island Marine State Park			owner
	Hope Island Marine State Park	-		
	Lakebay Marina/Penrose Point State Park			
No	n-Operational Facilities	I		
	Langley Marina	Parks CVA	Sea Grant	CVA grant maintenance
Up	land Waste Facilities			
Ad	d and improve upland waste facilities	1	L .	
	Encourage facilities to provide easy to find upland facilities that are accessible and operational.	WDFW	Parks, DNR, WPPA,	WDFW, RCO, other state
	Support WDFW efforts to assess and improve upland waste facilities at water access points.	-	municipalmes	Tunas
	Add upland waste facilities in high-fraffic areas lacking restrooms.			
	A Grant Strategies			
	Prepare a statewide annual report on CVA arant use, pumpout use, and progress implementing	Parks	Sea Grant, RCO, DNR,	CVA grant
	this assessment's recommendations.		WDFW, Ecology, RBAW,	U
			NMTA	
Inc	rease support for CVA grant fund recipients	Car Crant	Dertie Feeleeur M/DEM	C)/A grapt
	outlining how frequently inspections should take place	Sea Gran	Parks, Ecology, WDFW	C VA gruni
	Provide ongoing support to facilities receiving CVA grant funds to address non-operational	Sea Grant	Parks, Ecology, WDFW	CVA grant
	pumpouts.			
Eni	nance monitoring efforts	Daula		
	with number to where and pathways to communicate with boaters assist with annual reporting	POIKS	non-proms, sed Gram	CVA grani
	communicate program highlights or changes, address non-operational pumpouts, etc			
Wo	iste disposal education			
Pro	vide information to moorage facility owners			
	Develop a user-trienally educational campaign to target potential pumpout facility owners.	Parks	Sea Grant	CVA grant
Up	date on-location information			
<u> </u>	Update and support placement of standardized pumpout instructions and provide additional	Sea Grant	Ecology	CVA grant
	wayfinding signage at each pumpout.			
Μι	Iti-agency coordination			
MC	inage data in a central location	Sog Crant	DNR Dopt of Liconsing	CV/A grapt
	boaters and boating support facilities	Sed Grain	Dept of Revenue, WA	CVA gruin
			State RCO, Dept of	
			Health, WPPA, NPS,	
			marinas	
Die	courage illegal dumping			
213	Have boating organizations, such as RBAW or NMTA, provide easily accessible auidance on their	RBAW, NMTA	WDFW, law	CVA grant, Ecoloav
	websites with instruction on how to document and report illegal dumping.		enforcement, Coast	<u> </u>
Guard, Ecology				
	Encourage new pumpouts and/or mobile pumpout services at marinas near illegal dumping	RBAW, NMTA	WDFW, law	CVA grant, Ecology
			Guard, Ecoloav	

APPENDIX B. RECOMMENDATION SUMMARY

RECOMMENDATIONS		Action Lead	Supporters	Potential Funding Source
LOWER PRIORITY				
New Boating Sewage Disposal Facilities			1	1
Jones Island Marine State Park		Parks CVA	Sea Grant	CVA grant, matching
Lopez Island - Northeast Area		-Grant Manager		funds from the facility owner
Waste disposal education			•	
Stand up an educational campaign for boaters				
Review and augment pumpout-related quest	ions on the boater education card exam.	Sea Grant	Education non-profits, Parks, RBAW, DNR, Ecology, VSEO Committee	CVA grant, NEP grant, Parks, boater education card funds
Human-powered vessels		•	•	•
Encourage human waste bag use				
Develop a rebate program to encourage use	of human waste bags.	Parks	Ecology, DNR, WDFW	CVA grant
Create a marketing campaign to support the	rebate program and encourage use.	Parks	Ecology, DNR, WDFW	CVA grant
Collect data on paddle sport recreation		4		
Develop a system to track human-powered v and how that may correlate with water qualit	ressel use to better understand boater behavior y issues.	Parks, PAC, or other committee	WDFW, Dept of Licensing	Dept of Licensing
Consider enhancing paddle sport regulations				
If data reflects impacts to water quality, cons	ider requiring sanitation devices, limiting human-	TBD	PAC or similar	Clean Air/Water Acts,
powered vessel traffic in highest use areas lac regulations that would limit environmental imp	cking waste disposal facilities, and or other pacts from this user group.		committee, entities that manage park passes	CVA grant

PROJECT RECOMMENDATION DETAILS

The following section details the project recommendations and includes the criteria evaluation and rough order of magnitude cost estimates.

NEW BOATING SEWAGE DISPOSAL FACILITIES

PUGET SOUND: SOUTH SOUND

BOSTON HARBOR AREA

The Boston Harbor area is easily accessible in the South Puget Sound and is a key launching point for exploring nearby islands and state parks. Findings from the boater survey highlighted the need for more pumpouts in this area as there are few options nearby (see "Appendix A. Survey Data" on page A-1). The Boston Harbor Marina is a full-service marina with guest moorage, new fuel pumps, rentals, and boat repair. It is connected to a public sewer system, however there is no pumpout currently available.

Installing a pumpout would be cost-effective as it would leverage existing infrastructure and utilities. This marina's central location makes it ideal to address the growing pumpout demand in the region. Design questions remain around the feasibility of increased demand on the sewer system. More research is needed to determine infrastructure needs and the marina's level of interest.

CRITERIA EVALUATION

Service Gap	This location is lacking nearby pumpouts and is a popular boating destination
Water Quality	Declining seagrass, low oxygen, and fecal bacteria have been detected in and around the harbor
Complexity	Location has existing infrastructure, but feasibility still needs to be evaluated
COST ESTIMATE	
\$310.000	





Figure 122. Boston Harbor Marina (Source: Stephen Matera)



Figure 123. Recommended location for new pumpout, assumed to be at the Boston Harbor Marina Location markers are not to scale

PUGET SOUND: SOUTH SOUND

HOPE ISLAND MARINE STATE PARK

Located adjacent to the Hope Island Marine State Park is located adjacent to Carlyon Beach, Squaxin Island Reservation, and within a variety of inlets. This area is popular for anchorages but does not have a publicly accessible pumpout in the surrounding area. A pumpout at this location could serve the nearby Carlyon Beach Homeowners Association (HOA) marina, a private community marina that serves HOA members and guests.

A barge-based pumpout would likely be required due to the location and no existing infrastructure. Exact placement needs to consider currents and waves. A pumpout barge would need to be securely fastened to driven piles and the west side is likely the best location. The pumpout will also require maintenance access, but would likely only need to be active during peak summer months, after which the barge could be detached and stored off-site.

CRITERIA EVALUATION

Service Gap	This location is lacking nearby pumpouts and is a popular boating destination
Water Quality	Declining seagrass, low oxygen, and fecal bacteria have been detected in the area nearby
Complexity	Location has existing infrastructure, but requires private funding if not publicly accessible
COST ESTIMATE	

\$510,600





Figure 124. Hope Island Marine State Park (Source: Stephen Matera)



Figure 125. Recommended location for new pumpout, assumed to be at the Hope Island Marine State Park Location markers are not to scale

PUGET SOUND: SOUTH SOUND

LAKEBAY MARINA/PENROSE POINT STATE PARK AREA

The Lakebay Marina is owned by DNR and located adjacent to Penrose Point State Park on the Key Peninsula, a popular boating destination. The Carr Inlet area lacks a pumpout station and was identified as a priority location in the boater survey¹. Penrose Point State Park has a pumpout, however it is non-operational and suffers from tidal issues and a lack of depth for mooring. There are currently no plans to address these issues.

DNR is working on a multi-year project to redevelop the Lakebay Marina, which is likely to occur in the next 5-10 years pending funding. Exact design and amenities are still being determined, but a pumpout is currently envisioned in addition to moorage and fuel. Questions about sewer capacity and the potential to connect a new pumpout system to existing infrastructure remain, but it is assumed the project would need a septic or holding tank installed that can be routinely emptied.

CRITERIA EVALUATION

Service Gap	This location is lacking nearby pumpouts and is a popular boating destination
Water Quality	Declining seagrass, low oxygen, and fecal bacteria have been detected in the area nearby
Complexity	Location has a willing owner, but is in a multi-year process to determine design and acquire funding
COST ESTIMATE	
\$165,000	



1 "Boater Survey" on page A-2



Figure 127. Lakebay Marina and adjacent Penrose Point State Park (Source: Stephen Matera)



Figure 126. Recommended location for new pumpout location at the Lakebay Marina Location markers are not to scale

PUGET SOUND: SOUTH SOUND

LONGBRANCH AREA

The Key Peninsula and Nisqually Reach area is a region with many anchorages and mooring buoys, but few pumpouts within a reasonable distance. This popular area requires an additional pumpout to meet demand. One potential location for a new pumpout in this popular boating area is the Longbranch Improvement Club marina. This marina has guest moorage available as well as permanent moorage options for members. They do not have a pumpout, instead relying on mobile pumpout service.

The capacity to install a pumpout still needs to be determined. The upland connecting infrastructure will likely need to be a temporary holding tank that is routinely emptied. Adding a pumpout in this location will also need to have the surrounding community's interest and support.

CRITERIA EVALUATION

Service Gap	This location is lacking nearby pumpouts and is a popular boating destination
Water Quality	Declining seagrass, low oxygen, and fecal bacteria have been detected in the area nearby
Complexity	Willing owner and community needs to be assessed, but potential location has existing infrastructure
COST ESTIMATE	
\$170,500	

KEY MAP
Existing pumpout
New pumpout
Marina
Mooring buoy
Anchorage
Dissolved oxygen
Fecal bacteria



Figure 128. The Longbranch Improvement Club marina (Source: Stephen Matera)



Figure 129. Recommended location for new pumpout, assumed to be at the Longbranch Improvement Club marina Location markers are not to scale

PUGET SOUND: LAKE WASHINGTON

KIRKLAND AREA

The central and northern areas of Lake Washington have multiple moorage locations. One in-process pumpout at North Leschi Moorage will provide coverage for the center of the lake, however there are only two pumpouts to cover the north end of Lake Washington. Due to the demand in this high-traffic area, one additional pumpout is recommended near Kirkland on the east side of the lake.

The 2nd Avenue Dock is a public dock managed by the City of Kirkland and provides transient moorage with direct access to downtown amenities. The dock system includes 82 transient moorage slips. Adjacent to this is the Kirkland Homeport Marina, a private facility that provides long-term moorage. The 2nd Avenue Dock would be a great location to add a pumpout as its proximity to city utilities and existing marina infrastructure could make installation cost-effective, though regulatory approvals may be required. Ownership approval would be necessary to move forward with installation of a pumpout.

CRITERIA EVALUATION

Service Gap	This location is lacking nearby pumpouts and is a popular boating destination
Water Quality	Declining seagrass, low oxygen, and fecal bacteria have been detected in the area nearby
Complexity	Location has existing infrastructure and could likely connect to the city sewer system
COST ESTIMATE	

\$380,600



Existing pumpout



Figure 130. Kirkland Homeport Marina (Source: Stephen Matera)



Figure 131. Recommended location for a new pumpout on Lake Washington, assumed to be at the Kirkland Homeport Marina Location markers are not to scale

PUGET SOUND: LAKE WASHINGTON

SOUTH SEATTLE AREA

South Lake Washington is situated between south Seattle, Renton, and Bellevue, and is a popular boating destination, especially during boating events such as Seafair. A new pumpout is already being installed at the Newport Yacht Basin Association on the east side, but the west side of the lake is a critical area underserved by pumpouts. Lakewood Marina is managed by the City of Seattle and is located on the west side of the lake, just north of a popular anchorage adjacent to Seward Park. This marina primarily caters to a mix of recreational boaters and live-aboards, primarily serving vessels under 26 feet. While there are a few upland restrooms in the area, this marina uses a mobile pumpout service as there is currently no pumpout.

A pumpout would need to be positioned to accommodate smaller transient vessels. That said, since many vessels under 26 feet do not have MSDs, it may make most sense to add a dump station. This project assumes a direct connection to city sewer systems that may reduce costs and logistical challenges, however exact infrastructure requirements are to be determined. Further research is needed but initial contact with the facility manager shows interest.

CRITERIA EVALUATION

Service Gap	This location is lacking nearby pumpouts and is a popular boating destination
Water Quality	Declining seagrass, low oxygen, and fecal bacteria have not been detected in the area
Complexity	Location has existing infrastructure and likely a direct connection to the city sewer system
COST ESTIMATE	
\$153,500	

Existing pumpout New pumpout KEY MAP In-process pumpout Marina Mooring buoy Anchorage Dissolved oxygen 5 Fecal bacteria BELLEVUE Lake Washington Lakewood Newport Yacht Moorage Basin Association Seward Park RENTON

Figure 133. Recommended location for a new pumpout on Lake Washington, in the Lakewood Marina Location markers are not to scale



Figure 132. Lakewood Marina and Seward Park beyond (Source: Stephen Matera)

PUGET SOUND: NORTH SOUND

EVERETT AREA

The Everett area is popular for boating, with multiple pumpouts along the Puget Sound and Snohomish River. Dagmar's Landing is a well-used marina with approximately 1,200 dry dock slips that primarily serve motor craft vessels ranging between 20-50 feet in length. The marina serves mostly permanent tenants in the upland storage with minimal day use or transient moorage. Boats require pumping out to prepare for storage, creating significant demand at this marina.

Although there is no pumpout at this marina, it would be a great location given the demand from river and saltwater boaters. The Everett Marina is nearby and has a pumpout, however additional capacity may be needed to address the long-term storage needs of boaters and the pumpout requirements during the dry dock loading process. This project assumes a direct connection to city sewer systems that may reduce costs and logistical challenges, however exact infrastructure requirements are to be determined.







Figure 134. Dagmar's Landing on the Snohomish River (Source: Stephen Matera)

Figure 135. Recommended location for a new pumpout in the Everett area, assumed to be near Dagmar's Landing Location markers are not to scale

WEST: HOOD CANAL

SEABECK AREA

The Hood Canal, and specifically the Seabeck area, is a high-traffic boating area with significant recreational activity. Currently, there are no pumpout facilities available to serve this area.

The Olympic View Marina is a private marina with primarily permanent moorage, and due to its proximity to other marinas in a popular boating area, adding a pumpout at this location would directly benefit long-term tenants. Building on existing marina infrastructure and connecting to municipal sewer services are steps that could be taken to simplify the installation process, especially compared to more remote locations. More research is needed to determine the level of interest in hosting a pumpout.





Figure 136. Olympic View Marina in Seabeck (Source: Stephen Matera)



Figure 137. Recommended location for new pumpout at the Olympic View Marina in Seabeck Location markers are not to scale

BLAKELY ISLAND AREA

The east San Juan Islands generally lack marine waste disposal facilities. Blakely Island, a popular destination according to moorage visitation data¹, was identified as a priority in the boater survey (see "Appendix A. Survey Data" on page A-1). A pumpout at Blakely Island could also provide service for private island residents at Cypress, East Lopez, and Orcas Islands as well as nearby state parks such as Spencer Spit and Obstruction Island.

A potential great location to add a pumpout would be the Blakely Island General Store and Marina, a local business that is open to the public and offers fuel and moorage by reservation. Project costs would be lower due to existing infrastructure in place like floats, gangways, gas pumps, and a protected harbor. Questions remain about available space and back-end infrastructure, but there may already be a septic system in place for the store and other facilities. If there isn't a septic system, a holding tank would likely be needed. More discussion is needed to determine interest from the marina's owners.

1 WA State Parks visitation data, 2000-2023



Figure 138. Recommended location for a pumpout at the Blakely Island General Store (Source: Stephen Matera)

CRITERIA EVALUATION

Service Gap	This location is lacking nearby pumpouts and is a popular boating destination
Water Quality	Dissolved oxygen and fecal bacteria have been detected in the area nearby
Complexity	Potential location has existing infrastructure
COST ESTIMATE	
\$251,600	





Figure 139. Recommended location for new pumpout on the north end of Blakely Island Location markers are not to scale

CLARK ISLAND STATE PARK AREA

Ranked 13th in visiting moorage at state parks¹, Clark Island State Park is a popular albeit remote destination only accessible by boat in the northeastern San Juan Islands. The park has nine moorage buoys dispersed on either side of the island. This location is a significant distance away from any nearby pumpouts.

Similar to Sucia Island, a barge-based pumpout would likely be required due to the remote location. Exact placement needs to consider currents and waves - the west side experiences strong currents, while the east side is exposed to large waves from commercial ship traffic. A pumpout barge would need to be securely fastened to driven piles and the east side is likely the best location as it provides slightly more protection from wave exposure. The pumpout will also require maintenance access, but would likely only need to be active during peak summer months, after which the barge could be detached and stored off-site.

CRITERIA EVALUATION

Service Gap	This location is lacking nearby pumpouts and is a popular boating destination
Water Quality	No water quality issues have been detected in or near this location
Complexity	Location has no existing infrastructure
COST ESTIMATE	
\$600,000	



WA State Parks visitation data, 2000-2023



Figure 140. Potential destination for a new barge pumpout at Clark Island Marine State Park (Source: Stephen Matera)



Figure 141. Recommended location for new pumpout at the Clark Island Marine State Park Location markers are not to scale

EASTSOUND AREA

The south side of Orcas Island within Eastsound is a popular boating destination with multiple mooring buoys and anchorages. This sentiment was echoed in the boater survey (see "Appendix A. Survey Data" on page A-1). This area has potential demand from residents but primarily from transient vessels and has no known pumpout.

The Madrona Point County Dock is a public dock managed by San Juan County and provides transient moorage with access to the nearby town of Eastsound. A floating bargestyle pumpout would be required in this location, with regular service to empty the holding tank. Potential challenges at this location are a lack of existing dock or marine infrastructure as well as potential visual aesthetic concerns over barge placement.

CRITERIA EVALUATION

Service Gap	This location has one existing pumpout located nearby
Water Quality	Declining seagrass has been detected in the area nearby
Complexity	Location has existing infrastructure, but owner's interest needs to be determined
COST ESTIMATE \$555,300	





Figure 142. Potential area for a barge pumpout near Eastsound (Source: Stephen Matera)



Figure 143. Recommended location for new pumpout near Eastsound on Orcas Island Location markers are not to scale

JONES ISLAND MARINE STATE PARK AREA

This popular marine park with anchorages and campsites, was ranked 5th in boat moorage¹. There are also a number of mooring buoys and anchorages in the area on Orcas, Shaw, and San Juan Islands. Boaters also requested pumpout improvements to marine state parks in the survey, specifically adding a pumpout at Jones Island (see "Appendix A. Survey Data" on page A-1).

Its remote, boat-only access makes it similar to Sucia Island, suggesting a barge-based pumpout would be required. Although not as critical since the nearby pumpout at Deer Harbor (3.5 Nm) is able to handle some demand, this location is a priority. The north cove is an ideal location for a pumpout barge as it contains all seven moorage buoys. The area is reasonably well-protected from waves, and a floating dock already exists (with 128 LF of moorage), which is seasonally removed in the offseason. The pumpout barge could be integrated into this existing infrastructure, likely positioned near the dock area

CRITERIA EVALUATION

Service Gap	This location has a pumpout located nearby
Water Quality	No water quality issues have been detected in or near this location
Complexity	Location has no existing infrastructure
COST ESTIMATE	
\$555,300	



1 WA State Parks visitation data, 2000-2023



Figure 144. Potential location for a barge pumpout at the Jones Island Marine State Park (Source: Stephen Matera)



Figure 145. Recommended location for new pumpout at the Jones Island Marine State Park Location markers are not to scale

SAN JUANS: LOPEZ ISLAND

NORTHEAST AREA

The northeast portion of Lopez Island has many popular destinations, including multiple mooring buoys and anchorages as well as Spencer Spit State Park. There are no public pumpouts in this area and the closest pumpout is located on the north side of Shaw Island. Spencer's Landing Marina, located on the north end of Lopez Island, has a pumpout but it is not open for public use.

While there's no existing dock or infrastructure to build from, the area near Spencer Spit State Park could be a great location to add a barge-based pumpout. This park has 11 moorage buoys and many boats anchor overnight, creating consistent demand for moorage and pumpout service during the boating season. This area was also mentioned as needing a pumpout in the boater survey.¹

A floating barge-style pumpout would be required in this location, with seasonal removal and regular service to empty the holding tank. This site is also moderately exposed to weather and ferry wakes, making it critical for the barge to be securely fastened to driven piles for stability. Potential challenges at this location are a lack of existing dock or marine infrastructure as well as potential visual aesthetic concerns over barge placement.

"Boater Survey" on page A-2



Figure 146. Potential area near Spencer Spit for a barge pumpout (Source: Stephen Matera)







Figure 147. Recommended location for new pumpout on the northeast portion of Lopez Island Location markers are not to scale

SAN JUANS: LOPEZ ISLAND

SOUTHEAST AREA

The southeast portion of Lopez Island and southern edge of Decatur Island is a popular area with a multitude of mooring buoys and anchorages and direct access to the Strait of Juan de Fuca. Despite this, there are no pumpouts in this area to serve the primarily transient recreational vessels. There is no existing dock or infrastructure to build from, and its remote, boat-only access lends itself to a barge-based pumpout.

Barlow Bay on the south side, and Hunter and Mud Bays on the southeast side of Lopez Island are very well protected from prevailing winds and wave action. Barlow Bay has some existing infrastructure, including a boat ramp and floating dock, which could support boater access to a pumpout facility and land access. The area between Hunter Bay and Decatur Island is also a great option. There is a county dock and boat ramp at Hunter Bay which could also support boater access.

Either location presents logistical challenges that need further research. These challenges include maintenance access and the need for a holding tank or barge, or another alternative wastewater management solution.









Figure 148. Potential area between Hunter and Mud Bay on Lopez Island for a barge pumpout (Source: Stephen Matera)



Figure 149. Recommended location for new pumpout on the southeast portion of Lopez Island Location markers are not to scale

WEST: COAST

WESTPORT AREA

The Westport area is in a high-traffic destination that has a few pumpouts in the region. The Westport Marina is the largest commercial fishing marina in Washington State that also serves recreational vessels. This marina has an existing pumpout that was recently upgraded in 2023. However, given the marina's high number of slips and significant activity levels, an additional pumpout could help meet demand.

This new pumpout could be located on the existing fuel dock along Westhaven Drive. This pumpout would likely connect to the municipal sewer system (Grays Harbor County sewer services) which would help reduce challenges to installation. Marina interest is yet to be determined.



Service Gap	Location lacking nearby pumpouts and is a popular boating destination
Water Quality	Declining seagrass, fecal bacteria, and dissolved oxygen detected
Complexity	Location has existing infrastructure
COST ESTIMATE \$176,300	



KEY MAP

Figure 151. Recommended location for new pumpout in Westport Location markers are not to scale



Figure 150. Recommended location at the Westport Harbor Marina (Source: Stephen Matera)

NON-OPERATIONAL PUMPOUTS

PUGET SOUND: CENTRAL SOUND

BLAKE ISLAND MARINA

Blake Island is a marine state park in the central/south Puget Sound and was ranked as the second most popular moorage location according to Parks data¹. It was also a mentioned frequently in the boater survey as a priority to address (see "Appendix A. Survey Data" on page A-1. The current pumpout is non-functional due to a broken pipe connecting the pumpout barge to the land-based receiving infrastructure that also appears to have known issues (infrastructure and issues to be determined).

Despite the evident need for pumpout services, there has been limited interest in replacing the system. Blake Island is served by free mobile pumpout services on weekends, however, it's unclear if the mobile services have the capacity to offload this pumpout, especially during the peak season. A potential project would likely involve either replacing upland connecting infrastructure piping/septic and holding tank, or removal of existing infrastructure and replacement with a self-contained pumpout barge unit. The latter would be more cost effective with less impact overall.

WA State Parks visitation data, 2000-2023







Figure 152. Blake Island Marina pumpout (Source: Stephen Matera)



Figure 153. Non-operational pumpout on Blake Island Location markers are not to scale

NON-OPERATIONAL PUMPOUTS

PUGET SOUND: NORTH SOUND

LANGLEY MARINA

The existing pumpout at the Langley Marina on Whidbey Island is owned by the Port of South Whidbey and has been out of service for years, however its proximity to busy boating routes and peak summer traffic makes Langley a critical location for pumpout services. The existing pumpout is a self-contained pile-supported barge/dock and it is likely feasible to reuse the existing piles and replace the pumpout barge. The connection with city sewer services and infrastructure make it feasible to restore the pumpout with fewer logistical challenges then more remote locations. The Port is interested in replacing the pumpout making this pumpout a good candidate for further review.

CRITERIA EVALUATION







Figure 155. Langley Marina pumpout (Source: Stephen Matera)



Figure 154. Non-operational pumpout on Whidbey Island Location markers are not to scale
PUGET SOUND: CENTRAL SOUND

ARABELLA'S LANDING MARINA

The Gig Harbor area is a moderately popular area for boating with a few existing marinas. The pumpout at Maritime Pier is open year-round while the pumpout at the Jerisich Dock is open seasonally.

The pumpout at Arabella's Landing Marina is in a challenging location near the shore on their guest dock making it inaccessible to many boats, especially during low tides. In addition to the location issues, this pumpout has broken parts. More research is needed to determine the level of interest in repairing and restoring this pumpout to operational status.



Existing pumpout



Figure 156. Arabella's Landing Marina Pumpout (Source: Stephen Matera)

Figure 157. Non-operational pumpout at Arabella's Landing Location markers are not to scale

APPENDIX C. PROJECT COST ESTIMATES





TECHNICAL MEMORANDUM

Date:	February 12, 2025
To:	Makers Architects
Cc:	
From:	Facet Consulting
Project Name:	WASHINGTON RECREATIONAL PUMPOUT FACILITY ASSESSMENT

Summary of Work:

As part of our role in supporting the Washington State Marine Pump-Out Infrastructure Study, FACET conducted an analysis to assess current statewide pump-out conditions, identify infrastructure needs, and develop recommendations for future investments. Our work started with a thorough review of background reports and existing inventory of marine pump-out infrastructure across the state. We assessed the current condition and operational status of these facilities to establish a baseline for further evaluation.

We then analyzed survey results from both facility operators and recreational boaters, along with Washington State Parks visitation data, to determine service gaps and prioritize locations for new pump-out installations targeting primarily recreational users. This data-driven approach allowed us to identify geographic regions in need of improved infrastructure and compile a list of proposed projects aimed at addressing boater needs and enhancing service availability in underserved areas. Our selection criteria for future needs prioritized sites with existing marina infrastructure and moorage facilities lacking pump-outs, as well as high-use recreational moorage locations in remote areas where overnight boaters typically require pump-out services.

To further refine our recommendations, we evaluated site-specific conditions to determine the most appropriate pump-out systems for each location. Our considerations included periodically serviced pump-outs connected to existing floating docks via HDPE force main piping, self-contained floating pump-out barges secured to piles for remote locations without dock infrastructure, and low-cost pump-out carts for smaller, lower-demand locations.

In addition to defining infrastructure needs, we developed preliminary cost estimates for both new and replacement pump-out projects. These estimates are conservative by design intended to capture key design criteria line items and site-specific infrastructure constraints along with aerial maps and descriptions to support funding applications and implementation planning.

During the future needs assessment and facility planning process, we also engaged with pump out industry equipment suppliers such as KECO and Sani Sailor to gain insight into installation procedures and cost estimates. Furthermore, we conducted direct outreach to facility operators to fill data gaps, gauge interest in future projects, and gather local insights on pump-out infrastructure challenges.

Our hope is that this work will assist in identifying and prioritizing investments in marine pump-out infrastructure, supporting actionable funding recommendations for the legislature. This work aims to ensure that Washington State's recreational boating community has access to reliable and well-maintained pump-out facilities for years to come.



BOSTON HARBOR ARE	4					
TYPE OF DOCK: FLOATING		# OF SLIPS:		102		
MARINA PUI		ATERIAL& LAB	OR C	OSTS		
COST ITEM	QTY	UNIT		VALUE	тот	ſAL
MOBILIZATION (25% OF SUBTOTAL)	1	LS	\$	39,046.88	\$	39,046.88
PUMPOUT UNIT AND STANTIONS (KECO PERISTALTIC PUMP M55)	1	LS	\$	40,000.00	\$	40,000.00
3" HDPE SEWER FORCE MAIN LINE & FITTINGS	620	LF	\$	60.00	\$	37,200.00
SUCTION FLEXHOSE & ADAPTORS, AND NOZZLES	25	LF	\$	60.00	\$	1,500.00
SEWER CONNECTION	1	LS	\$	10,000.00	\$	10,000.00
EXCAVATION, UPLAND PIPING, & GROUND RESTORATION	145	LF	\$	250.00	\$	36,250.00
ELECTRICAL WIRING/HOOKUPS	1	LS	\$	31,237.50	\$	31,237.50
	PROJEC	CT TOTALS				
		CONSTRUC		I SUBTOTAL	\$	195,234.38
C	ONSTRUC	TION CONTIG	NECY	7 TOTAL 25%	\$	48,808.59
DE	SIGN CON	SULTING AND	PERI	MITTING 25%	\$	48,808.59
	WASHI	NGTON STATE	SAL	ES TAX 8.8%	\$	17,180.63
TOTAL		ATED PRC	JEC	CT COST	\$	310,032.19
Puget Sound Pump Out				47.13984121122 Boston Harbor Mar	90554 na 3° H	DPE 620LF
Google Earth				600		

HOPE ISLAND - MARINE STATE	PARK					
TYPE OF DOCK: PROPOSED PILE SUPPORTED	PUMPOUT B	ARGE				
PILE SUPPORTED PUM	POUT BAR	GE MATERIA	AL&	LABOR COS	STS	
COST ITEM	QTY	UNIT		VALUE	TOTAL	
MOBILIZATION (50% OF SUBTOTAL)	1	LS	\$	107,187.50	\$	107,187.50
PUMPOUT UNIT AND STANTIONS Sanisailor xc 50 GMP Peristaltic Pump	1	LS	\$	30,000.00	\$	30,000.00
SUPPLY AND INSTALL 24" DIAMETER GUIDE PILES	100	LF	\$	300.00	\$	30,000.00
SUCTION FLEXHOSE & ADAPTORS, AND NOZZLES	25	LF	\$	60.00	\$	1,500.00
ONSITE HOLDING TANK 1000 GAL	1000	GAL	\$	10.00	\$	10,000.00
FLOATING BARGE KEKO OR EQUIVALENT	1	LS	\$	100,000.00	\$	100,000.00
ELECTRICAL WIRING/HOOKUPS SOLAR/BATTERY , ETC.	1	LS	\$	42,875.00	\$	42,875.00
	PROJECT T	OTALS				
	С	ONSTRUCT	ION	SUBTOTAL	\$	321,562.50
CON	STRUCTION		ECY	TOTAL 25%	\$	80,390.63
DESIG		TING AND PI	ERM	ITTING 25%	\$	80,390.63
	WASHINGT	ON STATE S	SALE	S TAX 8.8%	\$	28,297.50
IOTALE	SIMAI	=D PROJ	EC	I COST	\$ 51	0,641.25
PROPOSED FLOATING PUMPOUT BARGE	WEST MOORIN	IG CAMPSITE ARE	A			
Google Earth	CAROLYN HOA MARI (PRIVATE)	BEACH		SOUTH N ZONE (2) BUOY	nooring s	A N

LAKEBAY MARINA						
TYPE OF DOCK: FLOATING		# OF SLIPS:		10		
MARINA PUM		ERIAL& LAB	OR C	OSTS		
COST ITEM	QTY	UNIT		VALUE	TO	TAL
MOBILIZATION (25% OF SUBTOTAL)) 1	LS	\$	20,786.25	\$	20,786.25
PUMPOUT UNIT AND STANTIONS	³ 1	LS	\$	30.000.00	\$	30.000.00
Sanisailor xc 50 GMP Peristaltic Pump)		Ŧ		Ŧ	,
5 TIDFE SEWER FORCE MAIN LINE &	405	LF	\$	60.00	\$	24,300.00
SUCTION FLEXHOSE & ADAPTORS, AND) 25	١F	\$	60.00	\$	1 500 00
	1000		Ψ Φ	10.00	¢	10,000,00
	_ 1000	GAL	\$	10.00	\$	10,000.00
& GROUND RESTORATION	, 65	LF	\$	100.00	\$	6,500.00
ELECTRICAL WIRING/HOOKUPS	5 1	LS	\$	10,845.00	\$	10,845.00
	PROJECT	TOTALS		- -	·	
	(CONSTRUCT	ION	SUBTOTAL	\$	103,931.25
CO	NSTRUCTIO	N CONTIGNI	ECY	TOTAL 25%	\$	25,982.81
DESI	GN CONSUL	TING AND P	ERM	ITTING 25%	\$	25,982.81
	WASHINGT	ON STATE S	SALE	S TAX 8.8%	\$	9,145.95
TOTAL	ESTIMAT	ED PROJ	JEC	T COST	\$	165,042.83
Lakebay Marina Puget Sound Pumpout Puget Sound Pumpout	65 LF EXCA AND CONNE TO ON SITE STORAGE T	1258018 122 756007 Lak PPE OL 405 LF, 3" H FORCE MA VATION CTION ANK	ecuy Marr	ED PUMP TION	75600 und Hk	17 Lakebay Marina olding tank

	# OF SLIPS	S:	50		
POUT MATE	RIAL& LAE	BOR	COSTS		
QTY	UNIT		VALUE	TOTAL	-
1	LS	\$	21,468.75	\$	21,468.75
1	LS	\$	30,000.00	\$	30,000.00
			,	·	,
370	LF	\$	60.00	\$	22,200.00
25	LF	\$	60.00	\$	1 500 00
1000		¢	10.00	¢	10,000,00
50	GAL	¢ ⊅	100.00	φ Φ	5 000 00
1		ф Ф	17 175 00	ф Ф	5,000.00
PROJECT		φ	17,175.00	φ	17,175.00
C(NSTRUCT	ION	SUBTOTAL	\$	107 343 75
STRUCTION	CONTIGNE	ECY	TOTAL 25%	- ¥ - \$	26 835 94
		FRM	TTING 25%	- ¥ - \$	26,835,94
VASHINGTO	N STATE S	SALE	S TAX 8.8%	\$	9 446 25
STIMATE	D PROJ	EC.	T COST	\$	170,461.88
SCHARGE NINECTION TO ISITE SEPTIC NK	47 5 Ex 6 Co 7	209431 iscavation ngbrand nsite Un placen in 47 209431	exovement Club vitz 754328 Lon derground Holding	gbranch imp Tank MP F, 3" HDR E MAIN	PE
	POUT MATE QTY 1 1 370 25 1000 50 1 PROJECT 1 CO STRUCTION CONSULTI VASHINGTO STIMATE	# OF SLIPS QTY UNIT 1 LS 1 LS 370 LF 25 LF 1000 GAL 50 LF 1 LS PROJECT TOTALS CONSTRUCT STRUCTION CONTIGNI CONSULTING AND P VASHINGTON STATE S STIMATED PROJECT STIMATED TOTALS SCHARGE SCHARGE SCHARGE	# OF SLIPS: POUT MATERIAL& LABOR QTY UNIT 1 LS \$ 1 LS \$ 370 LF \$ 370 LF \$ 1000 GAL \$ 50 LF \$ 1000 GAL \$ 50 LF \$ 1 LS \$ PROJECT TOTALS CONSTRUCTION STRUCTION CONTIGNECY CONSULTING AND PERMING VASHINGTON STATE SALE STIMATED PROJECT STIMATED PROJECT \$ Consite Un \$ Construction \$ Construction \$ Stimate Difference \$ Construction \$ Construction	# OF SLIPS: 50 POUT MATERIAL& LABOR COSTS QTY UNIT VALUE 1 LS \$ 21,468.75 1 LS \$ 30,000.00 370 LF \$ 60.00 25 LF \$ 60.00 1000 GAL \$ 10.00 50 LF \$ 100.00 1 LS \$ 17,175.00 PROJECT TOTALS CONSTRUCTION SUBTOTAL STRUCTION CONTIGNECY TOTAL 25% CONSULTING AND PERMITTING 25% VASHINGTON STATE SALES TAX 8.8% STIMATED PROJECT COST STIMATED PROJECT COST COST 200311 -122.754328 Lon 200431 -122.754328 Lon 200511 -122.754328 Lon 200431	# OF SLIPS: 50 POUT MATERIAL& LABOR COSTS QTY UNIT VALUE TOTAL 1 LS \$ 21,468.75 \$ 1 LS \$ 30,000.00 \$ 370 LF \$ 60.00 \$ 1000 GAL \$ 10.00 \$ 50 LF \$ 100.00 \$ 1 LS \$ 17,175.00 \$ PROJECT TOTALS \$ \$ \$ CONSTRUCTION SUBTOTAL \$ \$ STRUCTION CONTIGNECY TOTAL 25% \$ \$ VASHINGTON STATE SALES TAX 8.8% \$ \$ STIMATED PROJECT COST \$ \$ CONSULTING AND PERMITTING 25% \$ Consult 1000000000000000000000000000000000000

KIRKLAND AREA						
TYPE OF DOCK: FLOATING		# OF SLIPS:		82		
MARINA PU		ATERIAL& LAE	BOR C	OSTS		
COST ITEM	QTY	UNIT		VALUE	тот	AL
MOBILIZATION (10% OF SUBTOTAL)	1	LS	\$	21,787.50	\$	21,787.50
PUMPOUT UNIT AND STANTIONS (KECO PERISTALTIC PUMP M55)	1	LS	\$	40,000.00	\$	40,000.00
3" HDPE SEWER FORCE MAIN LINE & FITTINGS	380	LF	\$	60.00	\$	22,800.00
SUCTION FLEXHOSE & ADAPTORS, AND NOZZLES	25	LF	\$	60.00	\$	1,500.00
SEWER CONNECTION	1	LS	\$	10,000.00	\$	10,000.00
EXCAVATION AND UPLAND PIPING	200	LF	\$	500.00	\$	100,000.00
ELECTRICAL WIRING/HOOKUPS	1	LS	\$	43,575.00	\$	43,575.00
	PROJEC				•	
	ONOTOUO			SUBIUIAL	\$	239,662.50
			DEDN	101AL 25%	\$ •	59,915.63
DE				STAY 2 2%	- - -	59,915.63
ΤΟΤΑΙ					\$ \$	21,090.30
IUIAL		AIEDPRU	JJEC	1 0031	P	300,304.05
KIRKLAND CITY DOCK (PUBLIC)		KIRKLAND HOMEPORT MA (PRIVATE)				OULF TRENCHED ISCHARGE AT ITY MANHOLE
Google Earth State		PROPOSED PUN STATION @ 2ND KIRKLAND CITY (PUBLIC)	AVE DOCK			

SOUTH SEATTLE AREA						
TYPE OF DOCK: FLOATING		# OF SLIPS:		122		
MARINA PUM		TERIAL& LA	BOR	COSTS		
COST ITEM	QTY	UNIT		VALUE	τοτ	ΓAL
MOBILIZATION (10% OF SUBTOTAL)	1	LS	\$	8,287.50	\$	8,787.50
PUMPOUT UNIT AND STANTIONS (KECO PERISTALTIC PUMP M55)	1	LS	\$	40,000.00	\$	40,000.00
3" HDPE SEWER FORCE MAIN LINE & FITTINGS	230	LF	\$	60.00	\$	13,800.00
SUCTION FLEXHOSE & ADAPTORS, AND NOZZLES	25	LF	\$	60.00	\$	1,500.00
SEWER CONNECTION (EX PUMP & MAINLINE AT OHLER'S ISLAND)	1	LS	\$	10,000.00	\$	10,000.00
EXCAVATION AND UPLAND PIPING	10	LF	\$	500.00	\$	5,000.00
ELECTRICAL WIRING/HOOKUPS	1	LS	\$	17,575.00	\$	17,575.00
	PROJEC	T TOTALS				
		CONSTRUC		N SUBTOTAL	\$	96,662.50
CO	NSTRUCT	ION CONTIG	NECY	(TOTAL 25%	\$	24,165.63
DESI	GN CONSI	JLTING AND	PERI	MITTING 25%	\$	24,165.63
	WASHING	GTON STATE	SAL	ES TAX 8.8%	\$	8,506.30
TOTAL I	ESTIMA	TED PRO	JEO	CT COST	\$	153,500.05
Puget Sound Pumpout		DISCHARGE CONNECTION EXISTING SEV MAIN UNDER	230 L FORC	F, 3" HDPE E MAIN	HDPE	230 LF sod Moorage

TYPE OF DOCK: FLOATING & Dry Dock		# OF SLIPS:	120	0 (dry dock slips	;)	
MARINA PU	MPOUT	MATERIAL&	LAB	OR COSTS		
COST ITEM	QTY	UNIT		VALUE	то	TAL
MOBILIZATION (25% OF SUBTOTAL)	1	LS	\$	26,718.75	\$	26,718.75
PUMPOUT UNIT AND STANTIONS (KECO PERISTALTIC PUMP M55)	1	LS	\$	40,000.00	\$	40,000.00
3" HDPE SEWER FORCE MAIN LINE & FITTINGS	150	LF	\$	60.00	\$	9,000.00
SUCTION FLEXHOSE & ADAPTORS, AND NOZZLES	25	LF	\$	60.00	\$	1,500.00
SEWER CONNECTION	1	LS	\$	10,000.00	\$	10,000.00
EXCAVATION AND UPLAND PIPING	50	LF	\$	500.00	\$	25,000.00
ELECTRICAL WIRING/HOOKUPS	1	LS	\$	21,375.00	\$	21,375.00
	PROJ	ECT TOTALS	S			
		CONSTRU	СТІС	N SUBTOTAL	\$	133,593.75
CON	STRUCT	ION CONTIG	NEC	Y TOTAL 25%	\$	33,398.44
DESIG		ULTING AND	PEF	RMITTING 25%	\$	33,398.44
	WASHIN	GTON STATE	E SA	LES TAX 8.8%	\$	11,756.25
TOTAL E	STIMA	TED PRO)JE	CT COST	\$	212,146.88
Puget Sound Pumpout			「「「「「「」	48.011766, -12 HDPE 230 LF	2 178 1	Degmar Menne

SEADECK AREA						
TYPE OF DOCK: FLOATING	# OF \$	SLIPS: 92-1	00			
	JT MATE	RIAL& LABO	R CO	STS	-	
COST ITEM	QTY	UNIT	T	VALUE		TOTAL
MOBILIZATION (25% OF SUBTOTAL)	1	LS	\$	18,178.13	\$	45,968.75
PUMPOUT UNIT AND STANTIONS (KECO PERISTALTIC PUMP M55)	1	LS	\$	40,000.00	\$	40,000.00
3" HDPE SEWER FORCE MAIN LINE &	885	LF	\$	60.00	\$	53,100.00
SUCTION FLEXHOSE & ADAPTORS, AND	25	LF	\$	60.00	\$	1,500.00
UPLAND SEWER CONNECTION	1	LS	\$	10,000.00	\$	10,000.00
EXCAVATION AND UPLAND PIPING	85	LF	\$	500.00	\$	42,500.00
ELECTRICAL WIRING/HOOKUPS	1	LS	\$	36,775.00	\$	36,775.00
PR		OTALS				
		CONSTRUCT	ΓΙΟΝ	SUBTOTAL	\$	229,843.75
	CONS	TRUCTION CO	ONTI	GNECY 25%	\$	57,460.94
DES	IGN CON	SULTING & P	ERM	ITTING 25%	\$	57,460.94
W	ASHING	TON STATE S	SALE	S TAX 8.8%	\$	20,226.25
TOTAL ES	STIMA	TED PRO	JEC	T COST	\$	364,991.88
PROPOSED PUMPOUT STATION B85 LF, 3" HDPE FORCE MAIN		Y	DISC	Olympic View Marin		PE 885LF
85 LF EXCAVATION AND CONNECTION TO SEWER MAIN		4	-	and a state		5

TYPE OF DOCK: FLOATING						
		# OF SLIPS	:	44		
MARINA PUI	MPOUT MATE	ERIAL& LAE	BOR	COSTS		
COST ITEM	QTY	UNIT		VALUE	ТО	TAL
MOBILIZATION (50% OF SUBTOTAL) 1	LS	\$	52,812.50	\$	52,812.50
PUMPOUT UNIT AND STANTIONS	1	LS	\$	30,000.00	\$	30,000.00
3" HDPE SEWER FORCE MAIN LINE &)					
FITTINGS	300	LF	\$	60.00	\$	18,000.00
SUCTION FLEXHOSE & ADAPTORS, AND	25	LF	\$	60.00	\$	1,500.00
NOZZLES ONSITE HOLDING TANK 1000 GAL	, 1000	GAL	\$	10 00	\$	10,000,00
EXCAVATION AND UPLAND PIPING	50	I F	Ψ \$	500.00	Ψ \$	25 000 00
	, 33 5 1	IS	\$	21.125.00	\$	21,000.00
	PROJECT	TOTALS	Ψ	21,120.00	Ψ	21,120.00
	(CONSTRUC	TION	SUBTOTAL	\$	158,437.50
CC	NSTRUCTIO		IECY	TOTAL 25%	\$	39,609.38
DES	IGN CONSUL	TING AND I	PERM	IITTING 25%	\$	39,609.38
	WASHINGT	ON STATE	SALE	ES TAX 8.8%	\$	13,942.50
TOTAL	ESTIMAT	ED PRO	JEC	T COST	\$	251,598.75
Puget Sound Pump Out		F			Blakley	y Island Path 370LF

CLARK ISLAND MARINE ST	ATE PAF	SK				
TYPE OF DOCK: PROPOSED PILE SUPPORTED	PUMPOUT BA	ARGE			_	
PILE SUPPORTED PUN		GE MATE	RIA	L& LABOR	COSTS	
	QTY	UNIT		VALUE	TOTAL	
MOBILIZATION (50% OF SUBIDIAL)	1	LS	\$ 1	125,937.50	\$	125,937.50
PUMPOUT UNIT AND STANTIONS Sanisailor xc 50 GMP Peristaltic Pump	1	LS	\$	30,000.00	\$	30,000.00
SUPPLY AND INSTALL 24" DIAMETER	000		*	222.00	*	22,222,02
GUIDE PILES	200	LF	\$	300.00	\$	60,000.00
SUCTION FLEXHOSE & ADAPTORS, AND	25	LF	\$	60.00	\$	1,500.00
ONSITE HOLDING TANK 1000 GAL	1000	GAL	\$	10.00	\$	10,000.00
FLOATING PUMPOUT BARGE	1	LS	\$:	100,000.00	\$	100,000.00
ELECTRICAL WIRING/HOOKUPS	1	15	¢	50 275 00	¢	50 375 00
SOLAR/BATTERY , ETC.		LJ	φ	50,375.00	Φ	50,575.00
	PROJECT	TOTALS			-	
001077	CON	STRUCIN		SUBTOTAL	\$ •	377,812.50
				OTAL 25%	\$ •	94,453.13
					\$ •	94,453.13
	SHINGIUN a	51 A I E 34	ALE3	5 I AX 0.0%	, \$	33,247.50
			-01	TOOOT	A	E00 000 0E
TOTAL EST	IMATED	PROJE	ECI	r COST	\$	599,966.25
TOTAL EST PROPOSED PROPOSED PLOATING PUMPOUT BARGE	IMATED	PROJE			\$	599,966.25

ź

L

2000 ft

mage © 2025 Airbus Data SIO, NOAA, U.S. Navy, NGA, GEBCO

EASTSOUND (ORCAS IS.) TYPE OF DOCK: PROPOSED PILE SUPPORTED PUMPOUT BARGE PILE SUPPORTED PUMPOUT BARGE MATERIAL& LABOR COSTS **COST ITEM** QTY UNIT VALUE TOTAL MOBILIZATION (50% OF SUBTOTAL) 1 LS \$ 116,562.50 \$ 116,562.50 PUMPOUT UNIT AND STANTIONS 1 LS \$ 30,000.00 \$ 30,000.00 Sanisailor xc 50 GMP Peristaltic Pump SUPPLY AND INSTALL 24" DIAMETER 150 LF \$ 300.00 \$ 45,000.00 **GUIDE PILES** SUCTION FLEXHOSE & ADAPTORS, AND \$ 25 LF 60.00 \$ 1,500.00 NOZZLES **ONSITE HOLDING TANK 1000 GAL** 1000 GAL \$ 10.00 \$ 10,000.00 FLOATING BARGE 1 LS \$ 100,000.00 \$ 100,000.00 (KEKO OR EQUIVALENT) **ELECTRICAL WIRING/HOOKUPS** 1 46,625.00 46.625.00 LS \$ \$ SOLAR/BATTERY, ETC. **PROJECT TOTALS** CONSTRUCTION SUBTOTAL \$ 349,687.50 **CONSTRUCTION CONTIGNECY TOTAL 25%** 87,421.88 \$ **DESIGN CONSULTING AND PERMITTING 25%** \$ 87,421.88 WASHINGTON STATE SALES TAX 8.8% \$ 30,772.50 TOTAL ESTIMATED 555,303.75 PROJECT COST S TOWN OF EASTSOUND ORCAS IS.)

Town of EASTSOUND ORCASS IS) MADRONA POINT COUNTY DOCK (FIXED PIER, RAMP & FLOAT) FLOATING PUMPOUT BACK POPULAR MOORAGE AREA

JONES ISLAND MARINE ST	ΑΤΕ ΡΑ	RK				
TYPE OF DOCK: PROPOSED PILE SUPPORTED	PUMPOUT E	BARGE				
PILE SUPPORTED PUM	IPOUT BAR	GE MATERI	AL&	LABOR COS	STS	
COST ITEM	QTY	UNIT		VALUE	то	TAL
MOBILIZATION (50% OF SUBTOTAL)	1	LS	\$	116,562.50	\$	116,562.50
PUMPOUT UNIT AND STANTIONS Sanisailor xc 50 GMP Peristaltic Pump	1	LS	\$	30,000.00	\$	30,000.00
SUPPLY AND INSTALL 24" DIAMETER GUIDE PILES	150	LF	\$	300.00	\$	45,000.00
SUCTION FLEXHOSE & ADAPTORS, AND NOZZLES	25	LF	\$	60.00	\$	1,500.00
ONSITE HOLDING TANK 1000 GAL	1000	GAL	\$	10.00	\$	10,000.00
FLOATING BARGE (KEKO OR EQUIVALENT)	1	LS	\$	100,000.00	\$	100,000.00
ELECTRICAL WIRING/HOOKUPS SOLAR/BATTERY , ETC.	1	LS	\$	46,625.00	\$	46,625.00
	PROJECT [·]	TOTALS				
	(CONSTRUCT	ΓΙΟΝ	SUBTOTAL	\$	349,687.50
CON	ISTRUCTIO	N CONTIGN	ECY	TOTAL 25%	\$	87,421.88
DESIG	IN CONSUL	TING AND P	ERM	ITTING 25%	\$	87,421.88
	WASHINGT	ON STATE S	SALE	S TAX 8.8%	\$	30,772.50
TOTAL E	STIMAT	ED PRO	JEC	T COST	\$	555,303.75
DECATUR ISLAND PROPOSED PILE SUMPOUT BARGE WEST COVE, EX EDATING DOCK ADD INCHORAGE AREA	James I	eland	EAST CL	OVE, EX GBUOYS		
				2000	n.	Ň

LOPEZ ISLAND - NORTHEAS	T ARE	4				
TYPE OF DOCK: PROPOSED PILE SUPPORTED F	PUMPOUT B	ARGE				
PILE SUPPORTED PUMF		GE MATERIA	AL&	LABOR COS	TS	
COST ITEM	QTY	UNIT		VALUE	ΤΟΤ	AL
MOBILIZATION (50% OF SUBTOTAL)	1	LS	\$	107,187.50	\$	107,187.50
PUMPOUT UNIT AND STANTIONS Sanisailor xc 50 GMP Peristaltic Pump	1	LS	\$	30,000.00	\$	30,000.00
SUPPLY AND INSTALL 24" DIAMETER GUIDE PILES	100	LF	\$	300.00	\$	30,000.00
SUCTION FLEXHOSE & ADAPTORS, AND NOZZLES	25	LF	\$	60.00	\$	1,500.00
ONSITE HOLDING TANK 1000 GAL	1000	GAL	\$	10.00	\$	10,000.00
FLOATING BARGE	1	LS	\$	100,000.00	\$	100,000.00
ELECTRICAL WIRING/HOOKUPS SOLAR/BATTERY , ETC.	1	LS	\$	42,875.00	\$	42,875.00
F	PROJECT T	OTALS	-		-	
	C	ONSTRUCT	ION	SUBTOTAL	\$	321,562.50
CONS	STRUCTION		ECY	TOTAL 25%	\$	80,390.63
DESIGN		ring and Pi	ERM	ITTING 25%	\$	80,390.63
v	VASHINGT	ON STATE S	SALE	ES TAX 8.8%	\$	28,297.50
TOTAL ES	STIMATI	ED PROJ	EC	T COST	\$	510,641.25
PROPOSED FLOATING PUMPOUT BARGE	Flower Islan	DRTH MOORING				
CAMPSITE AREA	South M ZONE (3) BUOY			Frost.island		

LOPEZ ISLAND - SOUTHEAS	ST ARE	Α				
TYPE OF DOCK: PROPOSED PILE SUPPORTED	PUMPOUT E	BARGE				
PILE SUPPORTED PUM	POUT BAR	GE MATERIA	AL&	LABOR COS	STS	
COST ITEM	QTY	UNIT		VALUE	тот	AL
MOBILIZATION (50% OF SUBTOTAL)	1	LS	\$	107,187.50	\$	107,187.50
Sanisailor xc 50 GMP Peristaltic Pump	1	LS	\$	30,000.00	\$	30,000.00
GUIDE PILES	100	LF	\$	300.00	\$	30,000.00
SUCTION FLEXHOSE & ADAPTORS, AND NOZZLES	25	LF	\$	60.00	\$	1,500.00
ONSITE HOLDING TANK 1000 GAL	1000	GAL	\$	10.00	\$	10,000.00
FLOATING BARGE	1	LS	\$	100,000.00	\$	100,000.00
ELECTRICAL WIRING/HOOKUPS SOLAR/BATTERY , ETC.	1	LS	\$	42,875.00	\$	42,875.00
	PROJECT .	TOTALS				
	(CONSTRUCT	ION	SUBTOTAL	\$	321,562.50
CON	STRUCTIO	N CONTIGNE	ECY	TOTAL 25%	\$	80,390.63
DESIG	N CONSUL	TING AND PI	ERM	ITTING 25%	\$	80,390.63
	WASHINGT	ON STATE S	ALE	S TAX 8.8%	\$	28,297.50
TOTAL E	STIMAT	ED PROJ	EC	T COST	\$	510,641.25
		Mariane Harbor				
Johns Point				EX COUNTY FLOATING D	OCKS PILE ARGE	
STRAIT OF JUAN DE FUCA Google Earth			and I have been a		No was	

WESTPORT AREA

TYPE OF DOCK: FLOATING		# OF SLIPS:	300	+		
MARINA PUI		TERIAL& LAB	OR C	OSTS		
COST ITEM	QTY	UNIT		VALUE	TO	TAL
MOBILIZATION (10% OF SUBTOTAL)	1	LS	\$	10,093.75	\$	10,093.75
PUMPOUT UNIT AND STANTIONS	1	LS	\$	40,000.00	\$	40,000.00
3" HDPE SEWER FORCE MAIN LINE &						
FITTINGS	300	LF	\$	60.00	\$	18,000.00
SUCTION FLEXHOSE & ADAPTORS,	25	LF	\$	60.00	\$	1,500.00
SEWER CONNECTION	1	LS	\$	10.000.00	\$	10.000.00
EXCAVATION, UPLAND PIPING,	15	IE	¢	250.00	¢	11 250 00
& GROUND RESTORATION	40	LI	ψ	230.00	φ	11,250.00
ELECTRICAL WIRING/HOOKUPS			\$	20,187.50	\$	20,187.50
	PROJEC		וחודי		¢	111 021 25
C	ONSTRUC		NEC	TOTAL 25%	φ \$	27 757 81
	SIGN CON		PFR	MITTING 25%	Ψ	27,757.81
	WASHI	NGTON STATE	SAL	ES TAX 8.8%	• \$	9.770.75
ΤΟΤΑΙ	ESTIM	ATED PRC	JE	CT COST	\$	176.317.63
EXISTING PUMP OUT ON FLOATING DOCK INSTALLED 2023	ATION, NG AND			PROPOSED PUMPOUT STATION ON GAS FLOAT		ELECTIONE ELLEH
Google Earth			L		700 ft.	

DLAKE ISLAND - MARINE SI	AILFA					
TYPE OF DOCK: FLOATING		# OF SLIPS	S:	28		
PILE SUPPORTED PU			RIA	L& LABOR	COST	6
COST ITEM	QTY	UNIT		VALUE	ΤΟΤΑ	L
MOBILIZATION (25% OF SUBTOTAL)	1	LS	\$	44,218.75	\$	44,218.75
PUMPOUT UNIT AND STANTIONS Sanisailor xc 50 GMP Peristaltic Pump	1	LS	\$	30,000.00	\$	30,000.00
SUCTION FLEXHOSE & ADAPTORS, AND NOZZLES	25	LF	\$	60.00	\$	1,500.00
ONSITE HOLDING TANK 1000 GAL	1000	GAL	\$	10.00	\$	10,000.00
FLOATING PUMPOUT BARGE	1	LS	\$	100,000.00	\$	100,000.00
ELECTRICAL WIRING/HOOKUPS SOLAR/BATTERY , ETC.	1	LS	\$	35,375.00	\$	35,375.00
	PROJECT	TOTALS				
	CO	NSTRUCTIO	ON S	SUBTOTAL	\$	221,093.75
CONST		ONTIGNE	CYI	TOTAL 25%	\$	55,273.44
DESIGN (CONSULTIN	IG AND PE	RMI	TTING 25%	\$	55,273.44
WA	SHINGTON	STATE SA		S TAX 8.8%	\$	19,456.25
TOTAL ES	TIMATED) PROJE	EC	T COST	\$	351,096.88



LANGLEY MARINA						
TYPE OF DOCK: FLOATING		# OF SLIPS	:	28		
PILE SUPPORTED PUI		RGE MATER	RIAL	& LABOR	COSTS	
COST ITEM	QTY	UNIT		VALUE	TOTAL	
MOBILIZATION (25% OF SUBTOTAL)	1	LS	\$	44,218.75	\$	44,218.75
PUMPOUT UNIT AND STANTIONS Sanisailor xc 50 GMP Peristaltic Pump	1	LS	\$	30,000.00	\$	30,000.00
SUCTION FLEXHOSE & ADAPTORS, AND NOZZLES	25	LF	\$	60.00	\$	1,500.00
ONSITE HOLDING TANK 1000 GAL	1000	GAL	\$	10.00	\$	10,000.00
FLOATING PUMPOUT BARGE	1	LS	\$	100,000.00	\$	100,000.00
ELECTRICAL WIRING/HOOKUPS SOLAR/BATTERY , ETC.	1	LS	\$	35,375.00	\$	35,375.00
	PROJECT	TOTALS				
	CO	NSTRUCTIO	DN S	SUBTOTAL	\$	221,093.75
CONST	RUCTION C	CONTIGNE	CY 1	OTAL 25%	\$	55,273.44
DESIGN CONSULTING AND PERMITTING 25%					\$	55,273.44
WA	SHINGTON	I STATE SA	LES	S TAX 8.8%	\$	19,456.25
TOTAL ES	TIMATE) PROJE	C	T COST	\$	351,096.88



APPENDIX D. BOATING SEWAGE DISPOSAL FACILITY SUPPLY AND DEMAND



Marine Sewage Facility Supply and Demand



February 2025

WASHINGTON RECREATIONAL PUMPOUT FACILITY ASSESSMENT



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1. RECREATIONAL VESSEL FLEET TRENDS

Boating Market Trends

Boat registrations in Washington increased from 256,000 in 2000 to a peak of 273,000 in 2007 and then fell to a low of 225,000 in 2017. After 2017, registrations increased to a peak of 238,000 boats in 2020 and then fell slightly, to 222,000 in 2023.



FIGURE 1-1: PUGET SOUND RECREATIONAL BOAT MARKET BY LENGTH RANGE

Source: BST Associates, Washington Dept. of Licensing

Boating is a discretionary market, and changes in the economy have a major impact on boating expenditures. The impact of the economy on the boating industry was reflected in these recent statistics:

- From 2000 to around 2008, fast economic growth and low interest rates led to significant growth in boat registrations.
- The recession hit in 2008, and this led to a decrease in boat registrations that lasted through 2016. This was a much longer downturn than most other retail goods and services experienced.
- After 2016, boat registrations in Washington started to increase, and peaked in 2020. A major reason for the peak in 2020 was a surge in boat sales during the Covid pandemic.
- The jump in sales was short-lived, and boat registrations in Washington fell slightly in both 2021 and 2022.

In Washington, most boats that are 16 feet or longer and/or have a motor of 10 horsepower or more are required to register through the Department of Licensing. Vessels exempt from registration include:

- Canoes, kayaks, or boats that don't have a motor or sail (strictly human-powered)
- Boats held for sale by a licensed dealer
- Military boats
- Public boats of the United States or the American Red Cross
- State-, county-, or city-owned boats which are used for government purposes
- Tugs with a marine document as a boat of the United States that are primarily engaged in commerce

- Barges with a marine document as a boat of the United States that are primarily engaged in commerce
- Bare boat charters or timeshare boats with a marine document as a boat of the United States that are primarily engaged in commerce
- Boats with propulsion machinery that draw 250 watts or less, propel the boat no faster than 10 miles per hour and are not used on waters subject to the jurisdiction of the United States or the high seas beyond the territorial seas for boats owned in the United States.
- Boats less than 16 feet long with a motor of 10 horsepower or less which are only used on nonfederal waters
- Tenders 10 horsepower or less used for direct transportation between a registered boat and the shore and for no other purpose (i.e. a tender). The tender must display the number of the registered boat followed by the suffix "1".
- Boats 30 ft. or longer purchased by a nonresident that has purchased a use permit
- Boats primarily engaged in commerce and owned by a resident of a country other than the United States¹

Because of these exemptions, there are information gaps for hand powered boats, boats under 16 feet, and charter or time-shared boats, among others. (See description of the database in the appendix.)

For this study, the fleet is divided into two main segments based on length, including boats under 26 feet and boats 26 feet long and longer.

Boats Under 26 Feet

Boats under 26 feet in length, account for approximately 89% of the registered fleet. Most of these boats can be trailered, and do not require wet moorage. According to the results of the GMA Research survey, relatively few of these vessels have a marine sanitation device on board (i.e., portable toilet or designated emergency bucket), and these are typically emptied at dump stations or restrooms. (See survey results in the Appendix).

The under-26 fleet can be further differentiated into boats less than 16 feet and those from 16 feet to 25 feet.

Boats Under 16 Feet

The number of boats less than 16 feet long has declined significantly in recent decades, falling from 103,000 in 2000 to 63,000 in 2023, or at an average annual decline of -2.1% per year from 2000 to 2023. Reasons for this drop may include declining fishing opportunities, changes to registration procedures, and other factors. Over the most recent decade (2014 to 2023), this segment of the fleet averaged 66,000 boats.

With limited exceptions, hand powered craft (kayaks, canoes, etc.) are not required to be registered, and are typically less than 16 feet long.

Boats 16 feet to 25 feet

The size of the fleet in this length range has remained relatively steady, ranging between 121,000 boats to 149,000 boats from 2000 to 2023. The average growth rate from 2000 to 2023 was 0.0%. During the most recent ten years (2014 to 2023), this segment of the fleet averaged 129,000 boats.

¹ <u>https://dol.wa.gov/vehicles-and-boats/boats/register-boat</u>

Boats 26 Feet and Longer

For this study, the fleet is divided into two main segments, boats from 26 feet to 39 feet long and boats 40 feet or longer.

Boats 26 Feet to 39 Feet

The size of this fleet has remained relatively steady, ranging from 20,500 boats to 17,600 boats. The average growth rate from 2000 to 2023 was -0.1%. Over the most recent decade (2014 to 2023), this segment of the fleet averaged 18,300 boats, with a growth rate of 0.1%.

Boats Over 40 Feet

600,000

This segment of the fleet has seen growth, increasing from 4,400 in 2000 to 5,500 in 2023. The average growth rate from 2000 to 2023 was 1.0%. Over the most recent decade (2014 to 2023), this segment of the fleet averaged 5,400 boats.





Source: BST Associates, Washington Department of Licensing

Regional Trends

BST Associates reviewed trends by region with Washington State:

- South Puget Sound (SPugSnd): Mason, Pierce, Thurston
- Central Puget Suond (CntrPugSnd): King, Kitsap
- North Puget Sound (NPugSnd): Island, Jefferson, Skagit, Snohomish, Whatcom
- San Juan Islands (San Juans): San Juan
- Coast (Coast): Clallam, Grays Harbor, Pacific
- Lower Columbia (Low Col): Clark, Cowlitz, Lewis, Skamania, Wahkiakum
- Northwest Eastern WA (NWEW): Chelan, Douglas, Okanogan
- Northeast Eastern WA (NEEW): Ferry, Lincoln, Pend Oreille, Spokane, Stevens
- Southeast Eastern WA (SEEW): Adams, Asotin, Benton, Columbia, Frnklin, Garfield, Walla Walla, Whitman
- Southwest Eastern WA (SWEW): Kittitas, Klickitat, Yakima

The decline in smaller boats was much greater in Puget Sound than in other parts of Washington state, where 2023 counts are closer to 2000 counts. Statewide, boats in this length range have accounted for 90% of the recreational fleet. (See Figure 1-3).





Source: BST Associates, wasnington Dept. of Licensing

The number of longer boats grew modestly from 2000 to 2023, at 0.1% per year. The fleet in Central Puget Sound declined and in other regions, the fleet remained steady or increased. (See Figure 1-4).





Statewide the fleet declined, with most of the decline occurring in Puget Sound, primarily as a result of declines in the smallest segment of the fleet (0 to 16 feet). (See Figure 1-5).



FIGURE 1-5: REGISTERED BOATS ALL LENGTHS BY REGION

Boat Forecast

Little growth is projected in the size of the registered boat fleet in Washington. The number of registered boats declined at -0.8% per year between 2000 and 2023 and is projected to grow modestly. The growth rate is projected to average 0.3% per year from 2023 to 2040 under the mid-range forecast, and to average -2.5% per year under the low forecast and 2.7% per year under the high forecast.





The number of registered boats less than 26 feet decline at -0.9% per year between 2000 and 2023. The fleet is projected to grow modestly between 2023 and 2040, at 0.3% per year in the mid forecast (ranging from -2.8% per year under the low forecast and 2.8% per year under the high forecast).



FIGURE 1-7: FLEET HISTORY AND FORECAST 2014 TO 2030 (UNDER 25 FEET)

Source: BST Associates, Washington Dept. of Licensing data

Source: BST Associates, Washington Dept. of Licensing data

The number of registered boats 26 feet and longer grew at 0.1% per year between 2000 and 2023. The fleet is projected to grow modestly between 2023 and 2030, at 0.5% per year in the mid forecast (ranging from -0.5% per year under the low forecast and 1.4% per year under the high forecast).





Source: BST Associates, Washington Dept. of Licensing data

Growth is expected in the number of boats from 25 feet to 29 feet, 40 feet to 49 feet, and 50 feet or longer, but this growth is expected to be offset by a decline in the fleet of boats 30 feet to 39 feet.

Hand-Powered Craft

Paddle sports (kayaking, canoeing, and stand-up paddleboarding) are the fastest-growing segment of boating, and this growth is projected to continue. Kayaks are the most popular product in the paddle sports industry while stand-up paddleboarding (SUP) is the fastest-growing segment in the paddle sports industry and is catching up to kayaking. Canoeing has long been popular and is also projected to continue growing.²

According to the website <u>kayaking.com</u>, kayaking participation in the United States grew by 87% between 2010 and 2021, and nearly 18.6 million U.S. Americans went kayaking at least once in 2021.³

The most recent Washington State Recreation and Conservation Plan confirms the popularity.⁵⁴ This plan, updated every five years by the Recreation and Conservation Office (RCO) and the Recreation and Conservation Funding Board, serves as Washington's Statewide Comprehensive Outdoor Recreation Plan (SCORP). The SCORP is required for use in accessing grant funds from the National Park Service's Land and Water Conservation Fund, and the Federal Highway Administration's Recreational Trails Program, and other sources.

² Website gorp.com. https://gorp.com/paddling-statistics-kayaking-canoeing-paddleboarding/

³ website https://www.kayakscout.com/kayaking-statistics/

⁴ Washington Recreation and Conservation Office. 2023 Recreation and Conservation Plan, March 2023.

The survey asked residents how many times during the previous 12 months they had participated in 88 different activities. These activities were grouped in 10 outdoor recreation categories, including Water-Based Activities:

- Swimming (public pools)
- Swimming (natural settings)
- Motorboats (including water skiing)
- Sailboating
- Paddle Sports (whitewater, canoes, kayaks, stand-up-paddle boards, rowing)
- Personal Watercraft (jet ski, etc.)
- Snorkeling or SCUBA Diving
- Surfing, Windsurfing, or Kiteboarding
- Inner Tubing/Floating

As shown in Table 1-1, paddle sports are in the top 10 activities in terms of participation rate, with 52% of survey respondents reporting that they participated in paddle sports.

Activity	Share
Walking (or using mobility device) on roads/sidewalks	91%
Walking/day hiking (or using mobility device) on trails	90%
Wildlife/Nature Viewing	85%
Scenic Driving (sightseeing)	85%
Hanging Out	70%
Picnic, BBQ, or Cookout	68%
Community Garden or Farmers' Market	66%
Visiting Outdoor Cultural/Historical Facility (includes attending	
cultural events)	62%
Swimming (natural settings)	61%
Paddle Sports (whitewater, canoes, kayaks, stand-up- paddle	
boards, rowing)	52%
Source: Washington SCORP 2023	

TABLE 1-1: PARTICIPATION RATE BY ACTIVITY

2. MARINE SEWAGE FACILITY SUPPLY

A variety of marine sewage facilities are available to boaters in Washington, including stationary and portable pumpouts, pumpout service boats, and dump stations. The current inventory of facilities is listed in Table 2-1: .

The three types of pumpouts are used by boats that have holding tanks installed, while dump stations are used to empty portable marine sanitation devices (e.g. portable toilets).

As discussed elsewhere in this report, holding tanks are primarily found on vessels that are 26 feet or longer, although a small share of the smaller boats also has holding tanks. Portable toilets (or emergency buckets) are mainly used by boats less than 26 feet.

TABLE 2-1: INVENTORY OF MARINE SEWAGE FACILITIES

Туре	Number
Stationary pumpout	167
Portable pumpout	25
Pumpout service boat	21
Dump station	55
	507 · ·

Source: Washington State Parks, BST Associates

Stationary pumpouts and portable pumpouts are located at marinas or docks and are either operated by boaters on a self-serve basis or are operated by employees of the facility. Stationary pumpouts typically have a faster flow rate than portable pumpouts, but portable pumpouts allow more flexibility in where they are used. Portable pumpouts, which are mounted on carts, can also be heavy to move. The fee to use either of these types of pumpouts is usually low or free.

Figure 2-1 shows the locations of pumpouts in Washington, as well as pumpouts on the Oregon side of the Columbia River. On this map, functioning Washington pumpouts are represented by the blue dots, non-functioning Washington pumpouts are red dots, and Oregon pumpouts are purple dots.



FIGURE 2-1: STATIONARY AND PORTABLE PUMPOUT LOCATIONS

Source: BST Associates

Pumpout boats provide the most location flexibility, and can service customers in marinas, at anchor, tied to a buoy, at private home docks, etc. Washington has a variety of pumpout service boat providers, some of which only service the marina at which they are based, and some that service large areas. Pumpout boats charge a higher service fee than stationary or portable pumpouts, in order to cover the higher operating costs.

Dump stations are dedicated locations where portable toilets and buckets can be emptied. These are either stand-alone facilities or located near or in restrooms and typically have running water available for rinsing containers. Dump stations are displayed in Figure 2-2.

In addition to dump stations, boaters can also empty portable devices into toilets, although this option has several drawbacks. These restrooms range from outhouses with pit toilets to plumbed restrooms with flush toilets and sinks. Operators of boating facilities with nicer restrooms tend to not want devices emptied into the flush toilets. However, the use of a restroom to empty portable marine sanitation devices is preferrable to the waste ending up in the water.



FIGURE 2-2: DUMP STATION LOCATIONS

Source: BST Associates

As described above, portable marine sanitation devices are primarily used on trailerable boats, which use launch facilities to access the water. Data on boat launches in Washington shows that approximately 55% of the 631 launch facilities have access to some type of restroom. (see Table 2-2)

	No						
	Bathroom	Bathroom	Total				
City	23	36	63				
County	17	34	51				
Other Non-Profit	0	1	1				
Other Public	3	4	7				
Port	27	14	53				
Private	5	12	24				
Tribal	5	2	8				
USACE	4	23	27				
USFS	6	7	13				
USFWS	0	7	7				
NPS	4	11	18				
Utility	14	11	25				
WA State Parks	7	8	15				
WDFW	227	87	315				
WDNR	2	0	2				
WDOE	0	1	1				
Unknown	<u>1</u>	<u>0</u>	<u>1</u>				
Total	<u>345</u>	<u>258</u>	<u>631</u>				
Share of Total	55%	41%	100%				
Source: 2023 Washington SCORP							

TABLE 2-2: INVENTORY OF LAUNCH FACILITIES

The availability (days, hours of operation) of marine sewage facilities is an important factor in the capacity of the system. A review of available data reveals that most facilities are open year around, especially those located in urban areas. In areas with seasonal use patterns, there are 38 sewage facilities open during the boating season (such as April through October or May through September). The use patterns of 31 facilities that are not known.

Most of the facilities are open all year, 24 hours per day, and seven days per week. Seven are on an appointment-only basis. The remainder are generally open from dawn to dusk as the weather permits.

Open	Pumpout	Portable	Boat (mobile service)	Dump station	Total
Year round	115	10	4	44	173
Partial Year	25	0	4	9	38
NA	16	11	3	1	31
Total	156	21	11	54	242

TABLE 2-3: SEASONAL AVAILABILITY OF OPERATIONAL SEWAGE FACILITIES

Source: Washington State SeaGrant

Washington State Parks requires that recipients of O&M grants from the CVA program send an annual report detailing the marine sewage facility's operation, including total time of operation and gallons pumped per minute. Facility owners that are not using the O&M grant are not required to report.
According to this report for 2023, 290,000 gallons of sewage were disposed of via portable pumpouts and 4.4 million gallons by stationary pumpouts. Additional details on system use are provided below:

- 13 operators with portable pumpouts reported
 - A total of 290,000 gallons disposed of via carts
 - Volumes discharged ranged from 2,100 gallons (low) to 54,000 gallons (high) with an average of 22,300 gallons per device
- 53 operators with pumpouts reported:
 - A total of 4.4 million gallons disposed of via pumpouts
 - Volumes discharged ranged from 1,200 gallons (low) to 396,000 gallons (high) with an average of 83,700 gallons per device.

TABLE 2-4: SEWAGE REPORTED IN 2023 BY FACILITY OPERATORS

	Gallon	<u>s</u>
	Pumpout	Cart
Minimum	1,200	2,100
Maximum	396,000	54,000
Average	83,699	22,362
Median	61,200	18,600
Percentile		
10%	7,680	3,480
20%	23,520	8,400
30%	31,920	10,020
40%	43,680	10,740
50%	61,200	18,600
60%	83,040	23,940
70%	115,200	30,420
80%	141,840	36,900
90%	166,560	48,900

Source: BST Associates using data from Washington State Parks

Statistics of sewage disposed of via mobile boats and dump stations is not available.

3. NEEDS ANALYSIS

This chapter describes the method used to determine where additional marine sewage facilities are needed.

Overview

Guidelines issued pursuant to the Clean Vessel Act for recreational vessels recommend one pumpout station for every 300-600 boats with marine sanitation devices (MSDs).⁵ This has been interpreted to include pumpouts and dump stations. Assuming all boats 26 and longer have MSDs, the 24,100 boats of this size would require a total of 80 pumpouts. Given that Washington currently has more than 190 pumpouts (see Table 2-1:) and 21 mobile service providers, there are sufficient pumpouts available.

However, this high-level analysis does not account for regional variations in the ratio of pumpouts to boats. The analysis can be performed at the county level but using counties as sub-regions is problematic because it does not consider geography. A major issue with geography is that several counties have shorelines on multiple major water bodies. For example, Mason County has shoreline on Hood Canal as well as on Puget Sound, while King Count has shoreline on Puget Sound, Lake Union, and Lake Washington.

Guidance by the State of Washington includes additional terms related to the size of marinas:⁶

"(1) A marina which meets one or more of the following criteria shall be designated by the commission as appropriate for installation of a sewage pumpout or dump unit:

(a) The marina is located in an environmentally sensitive or polluted area; or

(b) The marina has one hundred twenty-five slips or more and there is a lack of sewage pumpout or dump units within a reasonable distance.

(2) In addition to subsection (1) of this section, the commission may at its discretion designate a marina as appropriate for installation of a sewage pumpout or dump unit if there is a demonstrated need for a sewage pumpout or dump unit at the marina based on professionally conducted studies undertaken by federal, state, or local government, or the private sector; and it meets the following criteria:

(a) The marina provides commercial services, such as sales of food, fuel or supplies, or overnight or live-aboard moorage opportunities;

(b) The marina is located at a heavily used boating destination or on a heavily traveled route, as determined by the commission; or

(c) There is a lack of adequate sewage pumpout or dump unit capacity within a reasonable distance.

(3) Exceptions to the designation made under this section may be made by the commission if no sewer, septic, water, or electrical services are available at the marina.

(4) In addition to marinas, the commission may designate boat launches or boater destinations as appropriate for installation of a sewage pumpout or dump unit based on the criteria found in subsections (1) and (2) of this section."

⁵ Clean Vessel Act: Pumpout Station and Dump Station Technical Guidelines, Federal Register, Vol. 59, No. 47, March 10, 1994

⁶ https://apps.leg.wa.gov/rcw/default.aspx?cite=79A.60.530

Summary of Recent Statewide Plans

Washington State prepared a plan for the no discharge zone in Puget Sound in 2012.⁷ Plans were also recently completed in Florida (2024)⁸ and California (2020)⁹. These plans were reviewed to identify methodology, results and to provide additional insights.

Washington

Herrera Environmental Consultants, Inc. prepared an assessment of the adequacy of pumpout devices to meet the requirements of the no discharge zone for the Washington State Department of Ecology in 2012. Key components of this analysis include:

- A survey of boaters at eleven marinas (266 surveys) and 40 surveys at boat shows (Anacortes Trawler Fest and Seattle Boats Afloat).
- Analysis of boater accommodations (marina slips and buoys) developed through discussions with marina operators and through the use of Google Earth.
- Analysis of boat registrations length for each county in Puget Sound. The analysis used boats 21 feet and longer, because the data provided by the Washington State Department of Licensing did separate boats 26 feet and longer.
- Comparison of the boater accommodations and boats registrations with the inventory of pumpout facilities.

This analysis estimated that the ratio of registered boats to pumpouts was:

- Low estimate: 171 boats per pumpout, based on:
 - 43,677 registered boats
 - o 40% peak occupancy rate of registered boats
 - 102 pumpouts
- High estimate: 91 boats per pumpout, based on:
 - o 23,555 moorages
 - 40% peak occupancy rate of moorages
 - 102 pumpouts

The 40% peak occupancy rate was defined in the 1994 CVA Federal guidelines. The purpose of using a peak occupancy rate was to ensure that pumpout facility capacity needs are met during peak boating season. This peak occupancy rate was applied to the estimate of numbers of vessels of each type to further refine pumpout facility needs.¹⁰

California

The 2020 California plan recommended a pumpout ratio of no more than 250 boats sized 25 feet or longer per one pumpout. Previously the ratio was one pumpout/dump station for every 300 boats with Type III Marine Sanitation Devices (MSDs). The report also recommended that there be one pumpout in subregions where there are 50 or more slips sized 25 feet or longer.

⁷ Herrera Environmental Consultants, Inc. Puget Sound No Discharge Zone for Vessel Sewage; Puget Sound Vessel Population and Pumpout Facilities, prepared by. for the Washington state Department of Ecology, April 27, 2012.

⁸ Florida Seagrant Website. <u>https://www.flseagrant.org/publication/florida-clean-vessel-act-resources-and-needs-assessment-2024/</u>

⁹ State of California, Department of Parks and Recreation, Division of Boating and Waterways. California Vessel Waste Disposal Plan, February 2020.

¹⁰ Herrera. April 27, 2012.

The recommendation of 250 boats per pumpout California was based on how many boats per day could be accommodated at each pumpout:

- 30 minutes per boat to pumpout, time to tie up, pumpout, rinse out holding tank, pumpout again, start boat, untie, and depart. This assumes that the boat pumping out is occupying the space needed for any other boat to pumpout.
- 9.5 hours of sunlight per day. This assumes that boats will only be pumped out during daylight hours.
- One pumpout unit can accommodate up to 19 boats per day.
- Pumpout are most commonly used four days per week. This brings the number of boats to 76 per pumpout unit per week.
- On average, boats use a pumpout once every 3 weeks
- Based on this, one pumpout can accommodate 228 boats
- This was rounded up to one pumpout per 250 boats.

<u>Florida</u>

The Florida Plan determined the target ratio should be 1 pumpout for every 500 boats \ge 26'. However, more ambitious ratios such as 1 pumpout for every 300 boats, may be appropriate based on more localized data.

Pumpout Demand Analysis

<u>Regions</u>

BST Associates developed a model for this analysis that calculates the ratio of moorage spaces per pumpout at a regional level. Regions with 300 or fewer moorage spaces per pumpout are considered to have adequate coverage, while regions with more than 300 moorage spaces per pumpout generally need additional coverage.

BST developed regions that were based in part on the results of the boater survey that GMA Research conducted for this project. In the survey, respondents were asked where they keep their boat, where they travel in their boat, and where additional pumpouts were needed (among other questions). The response level was high enough to clearly indicate areas where additional pumpouts are needed.

A map of the regions is presented in Figure 3-1, and a list of regions is presented in Table 3-1: Demand Analysis Sub-Regions. The size of these regions ranges from multi-county areas to sub-county areas. The primary reasons for this are geography and boating patterns.

The initial criterion that was used to define the regions was distinct water bodies. Examples of that include lakes (Lake Chelan, Lake Roosevelt, Lake Washington, Lake Union) and stretches of water (e.g. Snake River, Lower Columbia River, Hood Canal, Coast, South Sound, etc.). A factor in designating these regions is that a number of counties with shorelines on multiple water bodies. For example, Mason County has shoreline on Hood Canal as well as on Puget Sound. Another example is King County, which has shoreline on Puget Sound, Lake Union, and Washington. Based on the results of the survey, each of these waterbodies is in a separate boating region.

The San Juans Islands are a unique case, and the survey was key to defining the regions. In the San Juan Islands, a large share of the moorage is at anchorages or buoys, as opposed to marinas. The survey provided three key things: 1) boaters don't want to leave to find a pumpout once they're at anchor or at a buoy, 2) there are relatively few pumpouts in the San Juan Islands, and 3) the survey clearly defined the popular sub-regions in the San Juans.



FIGURE 3-1: STATEWIDE MAP OF REGIONS

Source: BST Associates

Sub-Region	County	Notes	Sub-Region	County	Notes
Puget Sound			West		
North Sound	Island		Olympic Peninsula	Clallam	
North Sound	Kitsap	Except Hood Canal	Olympic Peninsula	Jefferson	
North Sound	Skagit		Hood Canal	Jefferson	
North Sound	Snohomish		Hood Canal	Kitsap	
North Sound	Whatcom		Hood Canal	Mason	
Constant Council		Except Lake Union and	Creat	Clallana	
Central Sound	King	Lake Washington	Coast	Clallam	
Central Sound	Kitsap		Coast	Grays Harbor	
Central Sound	Pierce		Coast	Pacific	
South Sound	Mason		Lower Columbia	Clark	
South Sound	Pierce		Lower Columbia	Cowlitz	
South Sound	Thurston		Lower Columbia	Pacific	
Lake Union	King		Lower Columbia	Wahkiakum	
Lake Washington	King		Lower Columbia	Skamania	
San Juans			East		
San Juans Decatur	San Juan		Middle Columbia	Benton	
San Juans Lopez East	San Juan		Lake Chelan	Chelan	
San Juans Lopez West	San Juan		Lake Roosevelt	Lincoln	
San Juans Orcas East	San Juan		Lake Roosevelt	Stevens	
San Juans Sucia	San Juan		Snake River	Asotin	
San Juans Other	San Juan		Snake River	Benton	
San Juans Skagit Cunty	Skagit		Snake River	Franklin	
			Snake River	Walla Walla	
			Snake River	Whitman	
			Eastern Other	Grant	

TABLE 3-1: DEMAND ANALYSIS SUB-REGIONS

Source: BST Associates

Moorage Inventory

As described above, this model estimates the number of moorage spaces per pumpout. For the base case estimates, moorage spaces are defined to include marina slips 26 feet or longer, mooring buoys, and anchorages. For the high case estimates (i.e. peak occupancy), moorage slips less than 26 feet were also included.

The inventory of moorage spaces was developed using several sources. The primary source was marina data that was assembled for the 2001 Statewide Boating Study. For that study, BST Associates prepared a list of marinas and other related marine moorage facilities (i.e., State Parks etc.) that supplemented data from a previous Sea Grant survey with information from a number of industry publications. BST Associates also conducted a mail survey to marinas and contacted non-responsive marinas by telephone.

For the current study, BST updated the marina inventory using data provided by selected marinas, web searches, as well as by extensively studying Google Earth imagery.

The inventory of mooring buoys included a database provided by the Washington Department of Natural Resources (DNR) of all mooring buoys with permits from DNR. A list of buoys at Washington State Parks was also added, and double-counted buoys were removed. Because Washington State Parks does not allow more than one boat per buoy (i.e. rafting is not permitted), the model considers each buoy to be moorage for one boat.

Data on common anchorage areas was provided by the publishers of *The Waggoner Cruising Guide*. In this data, common anchorage areas are classified as small, medium or large. The estimated capacity for each category is: small, 1 to 15 boats; medium, 15 to 50 boats; and large, 50 to 100 boats. For the base case estimates, the model used the average capacity for each category, i.e., small - 8 boats, medium – 32 boats, and large – 75 boats. For the high case estimates, the model used the maximum capacity for each category, i.e.: small - 15 boats, medium – 50 boats, and large – 100 boats.

Pumpout Inventory

The pumpout inventory described in the previous chapter was compiled from two lists provided by Washington State Parks, with duplicate records removed. These lists contain records for each CVA-funded pumpout in Washington.

The inventory also includes mobile pumpout boat services. For each marina with service by a mobile pumpout boat, the pumpout boat was included as equivalent to one stationary pumpout.

<u>Seasonality</u>

The methodology used in this model is based on peak utilization of moorage spaces. Boating tends to be a highly seasonal activity in Washington, especially at popular cruising destinations. By assuming peak utilization of moorage spaces, the model seeks to provide enough pumpout capacity during the busiest season.

Data for overnight moorage at Washington State Parks provides an indication of the seasonality in boating. As shown in Figure 3-2, the number of overnight moorage visitors peaks in July and August and falls to minimum levels during the winter.





Source: BST Associates, Washington State Parks

Homeports and Destinations

Another factor to consider is the difference between homeports and destinations. The US EPA recommends a ratio threshold of one pumpout for every 300-600 vessels that have MSDs (in a no discharge zone), and the threshold varies based on type of moorage facility. A homeport harbor is home to mostly unoccupied and unused vessels, where a ratio of 1:600 pumpouts to vessels is adequate. Transient harbors are defined as "destination harbors" with higher use rates, and a recommended ratio of 1:300 pumpouts to vessels.

In Washington, homeports are generally well-served by pumpouts, while destinations have gaps in coverage.

According to the GMA Research survey, 37-52% of respondents travel to locations in the Puget Sound or San Juan Islands. In eastern Washington, most of the boat travel is in Lake Chelan, Lake Roosevelt, and the Columbia River. (See Figure 3-3).



FIGURE 3-3: TRAVEL DESTINATIONS

Source: GMA Research

Model results

As described above, the model estimated the demand for additional pumpout using a base case and a high case scenario.

Under the base case, the regions with demand for additional pumpouts include:

- San Juans Decatur: none currently installed, one needed (or mobile service)
- San Juans Lopez East: none currently installed, one needed (or mobile service)
- San Juans Orcas East: none currently installed, one needed (or mobile service)
- San Juans Sucia: none currently installed, one is being installed
- Hood Canal: slightly exceeds the 300 moorage spaces per pumpout, one additional pumpout needed
- Coast: exceeds 300 moorage spaces per pumpout, but most moorage is used by commercial vessels. May need one additional pumpout.
- South Sound: Need one additional pumpout, and several existing pumpouts have usability issues.

• Lake Union: exceeds 300 moorage spaces per pumpout. Since most is homeport moorage, however, the appropriate ratio is 600 spaces per pumpout. Lake Union meets this threshold and has multiple mobile service providers.

Under the high case, two additional regions need more pumpout capacity.

- North Sound: need one additional pumpout
- Lake Washington: need one additional pumpout needed, although existing mobile services may be able to meet this demand.

This analysis assumes that all pumpouts that are currently not functional are repaired.

Identified Issues With Existing Pumpouts

Lake Union

The Fairview Marinas pumpout no longer exists.

Lake Washington

Parkshore Marina has poor access to the pumpout, and is being moved

A new pumpout is in place at the Newport Yacht Basin

The Carillon Point pumpout has had chronic issues, it's being replaced

Central Sound

Bainbridge needs more.

Bainbridge sewer system is only on the north side of the bay.

Bainbridge City Dock pumpout is always broken.

North Sound

Langley Marina pumpout is broken, no plan to fix

Skyline Marina pumpout is slow, has to pump 1,000 feet

South Sound

Zittel's is a very old cart

West Bay Marina has difficult access

Dockton is only usable at high tide

Quartermaster Marina has difficult access

Harbour Marina has access issues

Day Island Marina can't accommodate larger boats

Carlyon may have an application in for a pumpout

Lakebay/Filucy Bay is planned

Hood Canal

Herb Beck Marina pumpout is being replaced

Olympic Peninsula

Port Ludlow has a pumpout boat

Port Townsend has a pumpout boat

Coast

Port of Peninsula pumpout is non-functional

Lower Columbia

Beacon Rock is a seasonal barge

Tidewater Marina requires boaters to call first

Middle Columbia

Columbia Point Park is seasonal

Walla Walla Yacht Club pumpout is no longer there

Snake River

Ice Harbor Marina pumpout location is silted in, but also has a pumpout boat

Figure 3-4 show the locations of existing pumpouts (blue and purple circles) and potential new locations (yellow and orange circles).

FIGURE 3-4: EXISTING AND POTENTIAL PUMPOUT LOCATIONS



Source: BST Associates

Mobile Service

As noted above, a number of operators provide mobile pumpout boat service. These include operators with one boat that only services one marina, as well as operators with multiple boats that service multiple locations.

Mobile pumpout service may be the most cost-effective solution to providing boaters with a way to dispose of their marine sewage. This is especially the case in areas where it is difficult to install a stationary pumpout, such as many areas in the San Juan Islands. In addition, for regions with highly seasonal boating patterns, mobile service may be more practical than fixed facilities.

One of the challenges to operating a successful mobile pumpout service is having a convenient place to offload the waste. The mobile providers typically use marina stationary pumpouts for offloading, but this is not always possible, for several reasons.

One of the reasons is that pumpouts at rural locations, such as State Parks, are connected to a septic system. The amount of waste that the mobile service can offload at one time may exceed the septic system's capacity.

Another issue is that the local wastewater systems may not allow boat sewage waste. This may be due to the extra load on the local waste system, or to the chemical composition of the boat sewage. This is the case in several locations in the San Juan Islands.

The proximity of offload locations limits how many customers can be serviced per day. For pumpout boats that operate in only one marina this is not an issue. For boats that cover a large region, a significant amount of time is spent deadheading to and from offload locations. For example, the operator who covers the South Sound region estimates that each boat may deadhead up to 140 miles per day. This is also a challenge for operations in the San Juan Islands.

Another challenge for mobile operators is seasonality. In dense urban locations, such as Lake Union, operators are able to stay busy throughout the year by servicing live-aboard boats as well as boats in their homeport marinas. As noted above, in the San Juan Islands boating is highly seasonal, which makes the economics challenging for a mobile service provider.

4. APPENDIX

Review of State Plans

This section reviews the factors that determine what constitutes adequate and reasonably available pumpout stations and dump stations in state boating areas.

Federal Guidelines

Guidelines issued pursuant to the Clean Vessel Act for recreational vessels recommend one pumpout station for every 300-600 boats.¹¹ This has been interpreted to include pumpouts and dump stations.

Guidance by the State of Washington includes additional terms related to the size of marinas:12

- 1) "(1) A marina which meets one or more of the following criteria shall be designated by the commission as appropriate for installation of a sewage pumpout or dump unit:
 - (a) The marina is located in an environmentally sensitive or polluted area; or
 - (b) The marina has one hundred twenty-five slips or more and there is a lack of sewage pumpout or dump units within a reasonable distance.
- 2) (2) In addition to subsection (1) of this section, the commission may at its discretion designate a marina as appropriate for installation of a sewage pumpout or dump unit if there is a demonstrated need for a sewage pumpout or dump unit at the marina based on professionally conducted studies undertaken by federal, state, or local government, or the private sector; and it meets the following criteria:
 - (a) The marina provides commercial services, such as sales of food, fuel or supplies, or overnight or live-aboard moorage opportunities;
 - (b) (b) The marina is located at a heavily used boating destination or on a heavily traveled route, as determined by the commission; or
 - (c) (c) There is a lack of adequate sewage pumpout or dump unit capacity within a reasonable distance.
- 3) (3) Exceptions to the designation made under this section may be made by the commission if no sewer, septic, water, or electrical services are available at the marina.
- (4) In addition to marinas, the commission may designate boat launches or boater destinations as appropriate for installation of a sewage pumpout or dump unit based on the criteria found in subsections (1) and (2) of this section."

¹¹ [Clean Vessel Act: Pumpout Station and Dump Station Technical Guidelines, Federal Register, Vol. 59, No. 47, March 10, 1994]

¹² https://apps.leg.wa.gov/rcw/default.aspx?cite=79A.60.530

Summary of recent statewide plans

Washington State prepared a plan for the no discharge zone in Puget Sound in 2012.¹³ The states of Florida (2024)¹⁴ and California (2020)¹⁵ recently completed their CVA plans. These plans were reviewed to identify methodology, results and additional insights.

Pumpouts

<u>Washington</u>

Herrera Environmental Consultants, Inc. prepared an assessment of the adequacy of pumpout devices to meet the requirements of the no discharge zone for the Washington State Department of Ecology, April 27, 2012:

- A survey of boaters at eleven marinas (266 surveys in August 2012) and 40 surveys at the Anacortes Trawler Fest and Seattle Boats Afloat boat shows.
- Analysis of boater accommodations (marina slips and buoys) developed by discussions with marina operators and use of Google earth,
- Analysis of boat registrations by length (21 feet and longer)¹⁶ within each county in Puget Sound,
- Comparison with the inventory of pumpout facilities.

The ratio of boats to pumpouts was estimated at 171 boats per pumpout (low - based on 40% of registered boats at 17,471 divided by 102 pumpouts) to 91 boats per pumpout (high - based on 40% of moorages at 9,422 divided by 102 pumpouts) using the existing inventory of pumpout devices. The difference between the two estimates is based upon an estimated occupancy rate during peak boating season of 40 percent (i.e., 171 times 40% equals 91). "The peak occupancy rate of vessels (the percentage of registered vessels that are occupied during peak periods) was defined in federal guidelines as 40 percent of recreational vessels (CVA 1994). A peak occupancy rate is used rather than an average to ensure that pumpout facility capacity needs are met during peak boating season. This peak occupancy rate was applied to the estimate of numbers of vessels of each type to further refine pumpout facility needs."

<u>Florida</u>

SeaGrant and the University of Florida evaluated the need for pumpouts in Florida in 2024. The analysis was based on:

- A survey of boaters (800+ responses),
- Analysis of boater accommodations (marina slips, anchorages, buoys) and pumpout devices by facility within each county
- Comparison with the inventory of pumpout facilities.

¹⁵ California Vessel Waste Disposal Plan, February 2020, State of California, Department of Parks and Recreation, Division of Boating and Waterways

¹³ Puget Sound No Discharge Zone for Vessel Sewage; Puget Sound Vessel Population and Pumpout Facilities prepared by Herrera Environmental Consultants, Inc. for the Washington state Department of Ecology, April 27, 2012

¹⁴ https://www.flseagrant.org/publication/florida-clean-vessel-act-resources-and-needs-assessment-2024/

¹⁶ The data ranges provided by the Washington State Department of Licensing did not allow an estimate of 26 feet and longer boats.

The analysis evaluated additional pumpouts needed based on target ratios ranging from 1 pumpout to 300 boats to 1 pumpout to 600 boats.

"The Department of the Interior's (DOI) Technical Guidelines suggest "As a general guide, at least one pumpout station and dump station should be provided for every 300 to 600 boats." Because this equipment serves two separate populations of the boating community it was determined for practical programmatic purposes to develop a target ratio specifically for pumpouts. Based on the technical guideline's recommended ratio, existing pumpout ratios for counties, and boater survey feedback it was determined the target ratio should be 1 pumpout for every 500 boats \geq 26'. However, more ambitious ratios such as 1 pumpout for every 300 boats, may be appropriate based on more localized data.

Additionally, the data was analyzed to determine how many pumpouts are needed to meet the target ratio in coastal areas versus inland waterways. This was done because there is both a coastal and inland CVA grant available to states from the federal government.

Finally, the total number of boating facilities and number of boating facilities without a pumpout station was tallied for each county. This can be used as a general indication to help determine if opportunity exists for more pumpouts to be installed at facilities that do no currently have one."

As analysis was done at the county level, the report does not identify the needs of sub-county regions:

"The particularities that exist within a county were beyond the scope of this RNA. Therefore, a county may not show a need for additional pumpouts based on this report, but in reality, may have a great need for additional pumpouts. Additionally, the reverse of this statement may be true, a county that shows a great need for additional pumpouts, may in fact, not need as many as presented."

<u>California</u>

The CVA analysis in California was prepared in part by the San Francisco Estuary Partnership and The Bay Foundation, for the California Department of Parks and Recreation, Division of Boating and Waterways, with funding from the Federal Clean Vessel Act (CVA) Grant from the U.S. Fish and Wildlife Services, Sport Fish Restoration and Boating Trust Fund. The analysis was based on:

- Extensive analysis of boater accommodations (marina slips, anchorages, buoys) and pumpout devices by facility within each county
- Comparison with the inventory of pumpout facilities.

"DBW recommends a new pumpout ratio of no more than 250 boats sized 25 feet or longer per one pumpout (Appendix 2). Previously the ratio was one pumpout/dump station for every 300 boats with Type III Marine Sanitation Devices (MSDs). With the new ratios presented in this Plan, DBW will know where to install a pumpout versus a sewage dump station. The new ratio was developed in part due to feedback from the boating community."

"DBW also recommends that there be one pumpout in subregions where there are 50 or more slips sized 25 feet or longer to accommodate the sewage disposal needs of vessels without providing resources in areas where they will be underutilized."

The California Plan also offers this calculation to support the revised estimate of 250 boats per pumpout:

"On average it takes approximately 30 minutes to pumpout a boat including time to tie up, pumpout, rinse out holding tank, pumpout again, start boat, untie, and depart. It is assumed throughout this process that the boat is occupying the space needed for any other boat to pumpout. The actual pumpout time may be minimal, however the pumpout itself cannot be used to empty another boat's holding tank during this time. This assumes the pumpout is located on a dock that allows for only one boat to be tied up at a time, which is common at many pumpout facilities in California. On average there are 9.5-12 hours of sunlight in California per day. Assuming boats will be pumped out during daylight hours, one pumpout unit can accommodate up to 19 boats per day. In addition, based on automated pumpout monitoring systems, pumpout units are most commonly used four days per week. This brings the number of boats to 76 per pumpout unit per week.

However, boats need pumpouts at different frequencies depending on how often the marine sanitation device is used. Some boats need a pumpout as often as twice a week while others need a pumpout once a month or less. Overall, it was determined based on experience and feedback from mobile pumpout companies that on average boats need a pumpout once every 3 weeks. Given this timeframe, a pumpout can accommodate 228 boats.

30 minutes to pumpout a boat / 9.5 hours (570 minutes) of sunlight per day = 19 boats per pumpout per day

19 boats per pumpout per day X 4 days pumpouts most commonly used per week (Friday, Saturday, Sunday, Monday) = 76 boats per pumpout per week.

76 boats per pumpout per week X 3 weeks (average frequency boats need a pumpout) = 228 boats per pumpout

From the above calculation in addition to experience through education, outreach, and monitoring efforts, DBW establishes a new statewide target of one pumpout station for every 250 boats 25 feet in length or longer. The calculation to determine 228 boats per pumpout was determined based on information collected (i.e. pumpouts most commonly used four days per week and average frequency boats need a pumpout), not actual data collected from a study or survey. Therefore, this number was rounded up to 250 so as not to provide specificity that would be misleading.

DBW also recommends one pumpout in subregions where there are 50 or more boats 25 feet or longer, in order to accommodate the sewage needs of vessels while simultaneously not providing resources in areas where they will be underutilized. This recommendation was determined in part by reviewing the data to identify instances of slips 25 feet or longer and mooring buoys without access to any sewage pumpouts and in part from the knowledge that boat waste is more concentrated than municipal waste in terms of pollutants such as bacteria, nitrogen and phosphorus."

Dump stations

Florida and California prepared a needs assessment for dump stations as was undertaken for pumpouts.

<u>Florida</u>

"The majority of boats sold in the United States are smaller vessels, less than 26 feet. This is no exception in Florida. Based on Florida vessel registration data from 2023, 88% of all recreational vessels are less than 26 feet with only 12% equal to or over 26 feet. With approximately 1 million registered recreational vessels in the state, and an estimated 46% of vessels less than 26 feet likely to have a port-apotty or bucket for sewage (based on boater survey data), that's approximately 400,000 vessels that may utilize a dump station. However, it is worth noting that although a boat may have a bucket or port-apotty onboard, it may be there for emergency situations only and not get used regularly if at all. In fact, a survey response included a comment from a boater with a bucket stating that they have never used it but have it just in case. Additionally, manufacturers of pumpout equipment have developed an attachment called the 'suction wand' that fits onto the pumpout hose and adapts the use of a pumpout for port-apotties or buckets. Finally, boaters that use port-a-potties or buckets can also carry their waste tank into a landside facility for proper disposal in a toilet.¹⁷

Based on survey results, 46% of boats \leq 26' may need a dump station (because they have a port-a-potty or bucket for sewage) compared to only 12% which may need a pumpout (because they have an installed toilet with a holding tank), the remaining 42% do not need any type of sewage disposal resource."

Objective: Determine if and where additional dump stations may be needed.

"These results show that there is a desire among the boating community for the installation of dump stations. However, when talking with the marina operators at the locations of the existing dump stations, they report the equipment rarely or never gets used. Therefore, it is recommended that additional research be conducted regarding the disposal of port-a-potty waste. This can include promotion of the existing dump stations, what they are, where they're located, and how to use them, and then determining if there is an increase in use. Additionally, promotion and distribution of suction wands to adapt the use of a pumpout to a port-a-potty may be considered. These are two possible next steps to implement and then reassess and evaluate before investing in the installation of dump station infrastructure."

California

"To determine the current state of the sewage dump station network, the total number of slips less than 25 feet was divided by the total number of publicly accessible sewage dump stations to develop a dump station ratio. If a dump station ratio exceeds the recommended ratio of 500 boats less than 25 feet per one dump station, the number of dump stations needed to meet the recommended ratio was calculated. All data was analyzed by geographic subregions. In Southern California, subregions correspond to individual coastal harbors and individual lakes. In Northern California, subregions correspond to individual counties."¹⁸

"The California Plan establishes a dump station target ratio of one dump station for 500 trailerable boats less than 25 feet in size. Previously the ratio was one pumpout/dump station for every 300 boats.

The division also recommends one dump station in subregions where there are 50 or more slips less than 25 feet to accommodate the sewage needs of smaller vessels without providing resources in areas where they will be underutilized."

"Port-a-potties and dump stations are much different than installed toilets and pumpouts. Therefore, they require a different type of analysis to determine a dump station ratio. A port-a-potty holding tank physically gets removed from a boat and carried to a facility for proper disposal. The boat may be docked in its slip while the boater properly disposes of holding tank waste. Dump stations are the easiest way to properly dispose of port-a-potty waste due to the equipment and available hose for rinsing the waste tank. Additionally, a landside restroom toilet can be used; however, some facilities discourage or prohibit the use of restrooms for disposal of port-a-potty waste."

 ¹⁷ https://www.flseagrant.org/publication/florida-clean-vessel-act-resources-and-needs-assessment-2024/
¹⁸ California Vessel Waste Disposal Plan, February 2020, State of California, Department of Parks and Recreation, Division of Boating and Waterways

Other Findings

<u>Florida</u>

"Based on survey results and feedback it is clear most boaters are ecologically conscious, care about the waters they recreate in, and want to "do the right thing". However, additional education is needed regarding sewage discharge laws and the locations of available sewage disposal options. Additionally, the availability of more convenient and free sewage pumpouts are needed. ¹⁹

Concern has been expressed regarding sewage discharge from vessels on mooring balls and anchored out. Mobile pumpout vessels are the most convenient sewage disposal option for these boaters. The availability of a mobile pumpout vessel should be considered in areas where vessels anchor out and at managed mooring fields.

Mobile pumpout vessels are so convenient for boaters that once utilized they tend to become dependent on this service for proper waste disposal as anecdotally described by other state CVA programs. Additionally, availability of a successful mobile pumpout program in an area may be utilized by boating facilities as a reason not to install their own sewage disposal infrastructure "we don't need a pumpout, we use the publicly provided mobile service". There is nothing wrong with facilities utilizing available mobile services, however, it is prudent to consider the long-term implementation and funding mechanism available to implement the mobile pumpout program. Additionally, cost analysis may be helpful in determining the most cost-effective sewage disposal option for an area. In-slip sewage pumpouts and mobile pumpout carts do not require boaters to move their vessel for waste disposal. These alternatives offer another convenient option that may be an appropriate alternative to mobile pumpout vessels in certain situations.

Boats with installed toilets and holding tanks require a pumpout for proper waste disposal. Due to the construction of these systems there's no other option than pumping the waste out. Therefore, it's essential to sustain a sufficient pumpout network throughout the state. When considering this network, it's important to reflect on its resiliency in the face of inoperable pumpouts whether due to regular maintenance and repairs, or widespread infrastructure damage due to severe weather such as tropical storms and hurricanes. Mobile pumpout carts with holding tanks can quickly and easily be stored away from wind and flood risks and can quickly be put back into service when it is safe to return to recreational boating, offering added resiliency to the network.

Given that the vast majority of boats (88%) in Florida are less than 26 feet, it's important to also provide convenient waste disposal options for this population of the boating community. Port-a-potty dump stations are one potential convenient waste disposal option for boaters with port-a-potties or buckets and should be investigated further to determine if they will be utilized and if focusing funding for the installation of this infrastructure is a worthwhile use of resources."

<u>California</u>

California also assessed the state of floating restrooms but deferred a recommendation on adding more floating restrooms until additional research was undertaken.²⁰

"Floating restrooms are provided for boaters' use on lakes and reservoirs to prevent sewage from entering our valuable waterways. All types of boaters, including non-motorized boaters such as kayakers and stand-up paddle boarders, use them. Through data collection, it was noted that floating restrooms can be deployed seasonally based on the boating season and/or drought conditions and, based on need, can be

 ¹⁹ https://www.flseagrant.org/publication/florida-clean-vessel-act-resources-and-needs-assessment-2024/
²⁰ California Vessel Waste Disposal Plan, February 2020, State of California, Department of Parks and Recreation, Division of Boating and Waterways

moved to different locations within a lake from one year to the next. Results show a total of 116 publicly accessible floating restrooms throughout the state. Future research will result in a recommended ratio for floating restrooms, similar to the pumpout and dump station ratios discussed previously.

A current issue with floating restrooms is the lack of accessible restrooms for those with disabilities. DBW has developed an accessible restroom and deployment of the new design is occurring in fiscal year 2019-2020. DBW's first priority is to provide replacements to the state and federally run reservoirs. The second priority is to add restrooms to water bodies whose managers request them and demonstrate the need and ability to operate and maintain them."

"DBW will conduct research to make more informed recommendations on where floating restrooms should be installed in California by examining where there is a need for this sewage resource. The need for floating restrooms will be determined by DBW and the local water body manager and will take into consideration several factors including but not limited to lake size, recreational uses, boat usage, boating infrastructure, launch data, water body manager's ability to operate and maintain the floating restroom, and water quality data. Boaters with motorized vessels are the primary users, however individuals who are swimming or traveling by non-motorized vessels like kayaks and stand-up paddleboards can be users of floating restrooms and should be taken into consideration as well. This future research will result in a recommended ratio for floating restrooms, similar to the pumpout and dump station ratios discussed previously."

Survey Results



FIGURE 4-1: WHERE DO YOU STORE YOUR BOAT

Source: GMA Research





Source: GMA Research

TABLE 4-1: HOW OFTEN DO YOU TAKE YOUR BOAT/WATERCRAFT OUT? (SINGLE RESPONSES ONLY)

	1 to 5 times per	6 to 11 times per	1 to 3 times per		1 to 2 times per		
Length Range	year	year	month	Monthly	week	Daily	Total
<26 ft	66	53	71	30	30	2	252
26+ ft	37	84	147	49	45	7	369
Total	103	137	218	79	75	9	621
% of answers							
<26 ft	26%	21%	28%	12%	12%	1%	100%
26+ ft	10%	23%	40%	13%	12%	2%	100%
Total	17%	22%	35%	13%	12%	1%	100%

Length Range	1 to 4 hrs	Full day	1 to 3 days	1 month or longer	1 to 3 weeks per month	Other (please specify)	Total
<26 ft	119	106	28	1	3	4	261
26+ ft	44	53	171	30	84	21	403
Total	163	159	199	31	87	25	664
% of answers							
<26 ft	46%	41%	11%	0%	1%	2%	100%
26+ ft	11%	13%	42%	7%	21%	5%	100%
Total	25%	24%	30%	5%	13%	4%	100%

TABLE 4-2: WHAT IS THE LENGTH OF YOUR TYPICAL TRIP?

Source: GMA Research

TABLE 4-3: WHAT IS THE LENGTH OF YOUR LONGEST TRIP?

				1 month or	1 to 3 weeks per	Other (please	
Length Range	1 to 4 hrs	Full day	1 to 3 days	longer	month	specify)	Total
<26 ft	51	121	54	6	27	2	261
26+ ft	5	20	43	137	173	25	403
Total	56	141	97	143	200	27	664
% of answers							
<26 ft	20%	46%	21%	2%	10%	1%	100%
26+ ft	1%	5%	11%	34%	43%	6%	100%
Total	8%	21%	15%	22%	30%	4%	100%

Length Range	Onboard toilet	Home restroom	Marina restroom	Floating restroom	Portable toilet	Pumpout facility	Dump station	Total
Class A: Under 16 feet in length	1	79	62	5	22	7	9	185
Class 1: From 16 to less than 26 feet	37	107	132	19	55	15	15	380
Class 2: From 26 to less than 40 feet	204	95	273	15	23	138	9	757
Class 3: From 40 to less than 65 feet	154	38	154	6	2	101	7	462
65 feet or more	6	1	5	-	-	4	2	18
Total	402	320	626	45	102	265	42	1,802
% of answers								
Class A: Under 16 feet in length	1%	43%	34%	3%	12%	4%	5%	100%
Class 1: From 16 to less than 26 feet	10%	28%	35%	5%	14%	4%	4%	100%
Class 2: From 26 to less than 40 feet	27%	13%	36%	2%	3%	18%	1%	100%
Class 3: From 40 to less than 65 feet	33%	8%	33%	1%	0%	22%	2%	100%
65 feet or more	33%	6%	28%	0%	0%	22%	11%	100%
Total	22%	18%	35%	2%	6%	15%	2%	100%

TABLE 4-4: WHAT DO YOU USE WHEN IN YOUR HOME PORT? (SELECT ALL THAT APPLY)

Length Range	Installed toilet with a holding tank only	Installed toilet with a treatment system and holding tank	Installed toilet with a treatment system only	Marine composting toilet	None	None, but I have a designated bucket that can be used if needed	Port-a-potty	Total
Class A: Under 16 feet in length	7	4	-	3	91	22	7	134
Class 1: From 16 to less than 26 feet	30	28	7	8	68	43	44	228
Class 2: From 26 to less than 40 feet	266	33	9	13	5	4	5	335
Class 3: From 40 to less than 65 feet	177	23	1	3	1	1	-	206
65 feet or more	4	2	-	1	-	-	-	7
Total	484	90	17	28	165	70	56	910
% of answers								
Class A: Under 16 feet in length	5%	3%	0%	2%	68%	16%	5%	100%
Class 1: From 16 to less than 26 feet	13%	12%	3%	4%	30%	19%	19%	100%
Class 2: From 26 to less than 40 feet	79%	10%	3%	4%	1%	1%	1%	100%
Class 3: From 40 to less than 65 feet	86%	11%	0%	1%	0%	0%	0%	100%
65 feet or more	57%	29%	0%	14%	0%	0%	0%	100%
Total	53%	10%	2%	3%	18%	8%	6%	100%

TABLE 4-5: WHAT TYPE OF WASTE REMOVAL SYSTEM, IF ANY DO YOU HAVE ON BOARD THE LARGEST VESSEL YOU OWN OR RENT?

TABLE 4-6: WHAT DO YOU USE WHEN IN YOUR HOME PORT? (SELECT ALL THAT APPLY)

Length Range	Onboard toilet	Home restroom	Marina restroom	Floating restroom	Portable toilet	Pumpout facility	Dump station	Total
<26 ft	38	186	194	24	77	22	24	565
26+ ft	364	134	432	21	25	243	18	1,237
Total	402	320	626	45	102	265	42	1,802
% of answers								
<26 ft	7%	33%	34%	4%	14%	4%	4%	100%
26+ ft	29%	11%	35%	2%	2%	20%	1%	100%
Total	22%	18%	35%	2%	6%	15%	2%	100%

Length Range	Installed toilet with a holding tank only	Installed toilet with a treatment system and holding tank	Installed toilet with a treatment system only	Marine composting toilet	None	None, but l have a designated bucket that can be used if 	Port-a-potty	Total
<26 ft	37	32	7	11	159	65	51	362
26+ ft	447	58	10	17	6	5	5	548
Total	266	33	9	13	5	4	5	335
% of answers								
<26 ft	10%	9%	2%	3%	44%	18%	14%	100%
26+ ft	82%	11%	2%	3%	1%	1%	1%	100%
Total	79%	10%	3%	4%	1%	1%	1%	100%

TABLE 4-7: WHAT TYPE OF WASTE REMOVAL SYSTEM, IF ANY DO YOU HAVE ON BOARD THE LARGEST VESSEL YOU OWN OR RENT?

Source: GMA Research

TABLE 4-8: WHEN USING THE LARGEST VESSEL YOU OWN/RENT DO YOU USE THE PUMP-OUT SEWAGE SYSTEM AT A PUBLIC OR PRIVATE DOCK, OR A MOBILE PUMP-OUT SERVICE?

Length Range	Yes	No	NR	Total
<26 ft	113	120	198	431
26+ ft	540	30	50	620
Total	653	150	248	1,051
% of answers				
<26 ft	26%	28%	46%	100%
26+ ft	87%	5%	8%	100%
Total	62%	14%	24%	100%

Data Sources

Registered vessel trends by region are presented in the following tables.

TABLE 4-9: FLEET UNDER 26 FEET

	South	Central	North				Northeast	Northwest	Southeast	Southwest			
	Puget	Puget	Puget	San		Lower	Eastern	Eastern	Eastern	Eastern			% of
Year	Sound	Sound	Sound	Juans	Coast	Columbia	WA	WA	WA	WA	Unknown	State	State
2000	39,431	62,756	44,611	1,933	9,277	21,358	18,962	7,702	13,641	12,581	15	232,267	91%
2001	39,895	61,334	44,306	2,007	9,404	21,947	19,440	7,840	13,689	12,953	16	232,831	91%
2002	40,382	59,970	44,067	2,084	9,539	22,573	19,956	7,989	13,789	13,354	19	233,722	91%
2003	40,553	61,342	47,489	2,144	9,193	22,795	20,837	8,041	15,010	13,083	29	240,516	91%
2004	39,587	59,292	45,155	2,059	8,541	22,094	20,687	7,963	14,615	12,553	36	232,582	91%
2005	40,147	58,645	45,827	2,084	8,464	22,243	21,286	8,050	14,719	12,657	36	234,158	91%
2006	42,120	60,706	47,557	2,176	8,813	23,674	22,368	8,429	15,315	13,084	44	244,286	91%
2007	41,834	60,034	48,268	2,194	8,758	23,594	23,318	8,663	15,410	13,481	51	245,605	90%
2008	40,807	58,222	46,919	2,127	8,285	23,068	22,781	8,611	15,316	13,210	49	239,395	90%
2009	41,171	58,231	48,465	2,078	8,596	23,461	23,401	8,910	15,850	13,702	61	243,926	91%
2010	35,108	48,791	41,011	1,764	6,860	19,778	20,767	8,249	14,020	12,123	64	208,535	90%
2011	34,463	48,498	42,247	1,790	7,183	19,820	20,600	8,143	14,438	12,247	82	209,511	90%
2012	32,876	46,433	39,545	1,799	6,633	18,546	19,620	7,826	13,570	11,499	101	198,448	90%
2013	33,565	47,264	41,584	1,870	6,766	18,870	19,942	7,963	13,754	11,640	80	203,298	90%
2014	30,056	44,741	38,438	1,474	5,842	18,161	19,022	7,143	12,920	10,285	1,283	189,365	89%
2015	29,745	43,397	37,384	1,622	5,741	18,059	19,098	7,390	12,711	10,454	260	185,861	89%
2016	29,456	42,104	36,385	1,785	5,646	17,971	19,241	7,655	12,532	10,637	117	183,529	89%
2017	32,489	44,804	39,597	1,937	6,131	18,824	20,605	7,916	13,308	11,489	780	197,880	89%
2018	33,760	44,496	40,224	2,053	6,265	19,238	21,164	8,133	13,370	11,670	1,508	201,881	89%
2019	32,863	42,133	38,653	1,874	6,004	18,597	20,930	7,857	13,134	11,492	3,161	196,698	89%
2020	35,054	43,701	40,695	1,875	6,311	19,696	22,683	8,318	14,131	12,405	2,404	207,273	89%
2021	33,792	41,662	39,186	1,903	6,275	19,077	22,159	8,170	13,674	12,019	2,570	200,487	89%
2022	32,683	39,842	37,865	1,938	6,259	18,538	21,728	8,053	13,278	11,685	2,756	194,625	89%
2023	31,930	38,475	36,970	1,994	6,300	18,197	21,525	8,016	13,020	11,476	2,985	190,888	89%
CAGR													
2000-23	-0.9%	-2.1%	-0.8%	0.1%	-1.7%	-0.7%	0.6%	0.2%	-0.2%	-0.4%	25.9%	-0.8%	89.9%
Source: Washingto	n State Depar	tment of Licen	sing Data										

Washington Recreational Boating Pumpout Facility Assessment

APPENDIX D. BOATING SEWAGE DISPOSAL FACILITY SUPPLY AND DEMAND

TABLE 4-10: FLEET 26 FEET AND LONGER

	South	Central	North				Northeast	Northwest	Southeast	Southwest			
	Puget	Puget	Puget	San		Lower	Eastern	Eastern	Eastern	Eastern			% of
Year	Sound	Sound	Sound	Juans	Coast	Columbia	WA	WA	WA	WA	Unknown	State	State
2000	3,647	9,910	6,743	885	621	626	358	194	334	218	15	23,551	9%
2001	3,662	9,785	6,749	911	621	634	365	189	343	215	13	23,487	9%
2002	3,690	9,667	6,776	943	638	658	398	190	386	232	15	23 <i>,</i> 593	9%
2003	3,746	9,831	6,992	958	640	688	431	192	401	243	24	24,146	9%
2004	3,732	9,514	6,855	947	614	673	442	177	438	259	21	23,672	9%
2005	3,716	9,589	7,068	978	609	705	476	182	431	253	17	24,024	9%
2006	3,865	9,950	7,354	1,012	631	758	487	196	469	266	20	25,008	9%
2007	3,931	10,194	7,639	1,072	665	774	543	192	492	277	17	25,796	10%
2008	3,914	10,036	7,530	1,061	640	751	542	211	480	269	19	25,453	10%
2009	3,914	10,093	7,571	1,064	614	761	530	214	491	283	16	25,551	9%
2010	3,593	9,185	6,861	978	552	658	516	204	461	261	10	23,279	10%
2011	3,757	9,343	6,954	999	577	690	515	209	476	261	15	23,796	10%
2012	3,583	9,022	6,743	955	523	675	492	217	457	247	11	22,925	10%
2013	3,598	9,184	6,922	983	524	719	559	223	482	257	6	23,457	10%
2014	3,293	9,668	6,329	785	498	861	598	210	467	295	408	23,412	11%
2015	3,349	9,329	6,569	847	501	784	574	213	445	254	20	22,885	11%
2016	3,420	9,010	6,895	920	522	735	581	235	463	250	6	23,037	11%
2017	3,632	9,589	7,301	998	522	808	594	259	452	260	64	24,479	11%
2018	3,724	9,613	7,447	1,010	550	816	633	273	450	258	136	24,910	11%
2019	3,501	8,847	6,932	908	515	759	587	263	409	238	253	23,212	11%
2020	3,734	9,206	7,318	929	557	814	639	293	440	263	200	24,393	11%
2021	3,644	8,972	7,174	944	555	811	615	291	427	268	226	23,927	11%
2022	3,600	8,849	7,110	972	558	818	602	291	422	275	258	23,755	11%
2023	3,627	8,927	7,205	1,024	573	852	606	301	428	289	302	24,134	11%
CAGR													
2000-23	0.0%	-0.5%	0.3%	0.6%	-0.3%	1.3%	2.3%	1.9%	1.1%	1.2%	13.9%	0.1%	

Source: Washington State Department of Licensing Data

TABLE 4-11: FLEET ALL LENGTHS

	South	Central	North									
	Puget	Puget	Puget	San		Lower	Northeast	Northwest	Southeast	Southwest		
Year	Sound	Sound	Sound	Juans	Coast	Columbia	Eastern WA	Eastern WA	Eastern WA	Eastern WA	Unknown	State
2000	43,078	72,666	51,354	2,818	9,898	21,984	19,320	7,896	13,975	12,799	30	255,818
2001	43,557	71,119	51,055	2,918	10,025	22,581	19,805	8,029	14,032	13,168	29	256,318
2002	44,072	69,637	50,843	3,027	10,177	23,231	20,354	8,179	14,175	13,586	34	257,315
2003	44,299	71,173	54,481	3,102	9,833	23,483	21,268	8,233	15,411	13,326	53	264,662
2004	43,319	68,806	52,010	3,006	9,155	22,767	21,129	8,140	15,053	12,812	57	256,254
2005	43,863	68,234	52,895	3,062	9,073	22,948	21,762	8,232	15,150	12,910	53	258,182
2006	45,985	70,656	54,911	3,188	9,444	24,432	22,855	8,625	15,784	13,350	64	269,294
2007	45,765	70,228	55 <i>,</i> 907	3,266	9,423	24,368	23,861	8,855	15,902	13,758	68	271,401
2008	44,721	68,258	54,449	3,188	8,925	23,819	23,323	8,822	15,796	13,479	68	264,848
2009	45,085	68,324	56,036	3,142	9,210	24,222	23,931	9,124	16,341	13,985	77	269,477
2010	38,701	57,976	47,872	2,742	7,412	20,436	21,283	8,453	14,481	12,384	74	231,814
2011	38,220	57,841	49,201	2,789	7,760	20,510	21,115	8,352	14,914	12,508	97	233,307
2012	36,459	55,455	46,288	2,754	7,156	19,221	20,112	8,043	14,027	11,746	112	221,373
2013	37,163	56,448	48,506	2,853	7,290	19,589	20,501	8,186	14,236	11,897	86	226,755
2014	33,349	54,409	44,767	2,259	6,340	19,022	19,620	7,353	13,387	10,580	1,691	212,777
2015	33,094	52,726	43 <i>,</i> 953	2,469	6,242	18,843	19,672	7,603	13,156	10,708	280	208,746
2016	32,876	51,114	43,280	2,705	6,168	18,706	19,822	7,890	12,995	10,887	123	206,566
2017	36,121	54,393	46,898	2,935	6,653	19,632	21,199	8,175	13,760	11,749	844	222,359
2018	37,484	54,109	47,671	3,063	6,815	20,054	21,797	8,406	13,820	11,928	1,644	226,791
2019	36,364	50,980	45,585	2,782	6,519	19,356	21,517	8,120	13,543	11,730	3,414	219,910
2020	38,788	52,907	48,013	2,804	6,868	20,510	23,322	8,611	14,571	12,668	2,604	231,666
2021	37,436	50,634	46,360	2,847	6,830	19,888	22,774	8,461	14,101	12,287	2,796	224,414
2022	36,283	48,691	44,975	2,910	6,817	19,356	22,330	8,344	13,700	11,960	3,014	218,380
2023	35,557	47,402	44,175	3,018	6,873	19,049	22,131	8,317	13,448	11,765	3,287	215,022
CAGR												
2000-23	-0.8%	-1.8%	-0.7%	0.3%	-1.6%	-0.6%	0.6%	0.2%	-0.2%	-0.4%	22.7%	-0.8%
Sourco, Washi	naton State D	enartment of I	icensing Data									

Source: Washington State Department of Licensing Data

TABLE 4-12: REGIONS AND COUNTIES

Region	Counties				
South Puget Sound	Mason, Pierce, Thurston				
Central Puget Sound	King, Kitsap				
North Puget Sound	Island, Jefferson, Skagit, Snohomish, Whatcom				
San Juans	San Juan				
Coast	Clallam, Grays Harbor, Pacific				
Lower Columbia	Clark, Cowlitz, Lewis, Skamania, Wahkiakum				
Northeast Eastern WA	Ferry, Lincoln, Pend Oreille, Spokane, Stevens				
Northwest Eastern WA	Chelan, Douglas, Okanogan				
Southeast Eastern WA	Adams, Asotin, Benton, Columbia, Franklin, Garfield, Walla Walla, Whitman				
Southwest Eastern WA	Kittitas, Klickitat, Yakima				
Source: BST Associates					

APPENDIX E. STATE BEST PRACTICE FINDINGS



STATE RESEARCH

This section summarizes research around boater waste disposal systems and programs, with a specific focus on programs in California, Oregon, and Florida.

CALIFORNIA

California's boating waste disposal facility system is managed by the California State Parks Division of Boating and Waterways (DBW).

DEMAND

California identifies the need for pumpout facilities based on demand within sub regions that correspond to individual coastal harbors and lakes in the southern part of the sate, and counties in the northern part of the state where waterways cross several county lines.

The state aims to ensure disposal facilities are adequately available by keeping the number of boats per facility under a threshold of moorage slips to facilities:

- At least one pumpout per 250 boats sized 25 feet or longer and at least one pumpout in subregions where there are 50 or more slips sized 25 feet or longer.
- At least one dump station per 500 boats less than 25 feet in length and one dump station in subregions where there are 50 or more slips less than 25 feet.

PUMPOUT MAINTENANCE

The state does in-person pumpout monitoring via non-profits to ensure proper functioning facilities, foster relationships with managers, and provide technical assistance as an incentive to apply for grant funds.

FLOATING RESTROOMS

California has successfully provided over 100 floating restrooms free of charge to freshwater bodies by connecting grantees with other state funds to meet the 25% matching funds. The state recently deployed a new accessible design for floating restrooms after discovering challenges with accessibility for disabled users and is working to install these throughout the state. The state is working on developing a method to monitor floating restroom maintenance as grantees are required to submit annual reports regarding maintenance.

MOBILE PUMPOUTS

While there has been interest in having CVA-funded mobile pumpouts, they have not yet had success with this endeavor. California's mobile pumpout boats are all privately owned and are able to determine their service fees. Some mobile pumpouts have difficulty finding nearby locations to offload, which can add cost that is passed along to the boaters.

Fast Facts¹

Pumpouts	255
Pumpouts - in-slip	26
Dump stations	61
Floating restrooms	119
Pumpout boats	0

California Vessel Waste Disposal Plan, State of California Department of Parks and Recreation Division of Boating and Waterways, February 2020.



Figure 161. Pumpout at the Berkely Marina in Oakland

EDUCATION AND OUTREACH

Using funds from the federal CVA grant program, California State Parks DBW annually releases the California CVA Pumpout and Dump Station report, a report written in partnership in partnership with The Bay Foundation (TBF), the Santa Monica Bay National Estuary Program (SMBNEP), and San Francisco Estuary Partnership (SFEP), a national estuary program. The report monitors pumpout stations and dump stations from Santa Barbara to San Diego, see Figure 163.

California also has a successful social media presence, with influence ranging between 87-91%. A campaign focused on raising awareness around boating sewage and the water quality impact of illegal dumping was particularly influential.

The state also developed an economic study that shows the financial benefits to marinas that add pumpouts, see Figure 162. They use this study to dispel myths about pumpouts being a financial burden and encourage new marinas to install pumpouts.

ENFORCEMENT

Illegal dumping in California can be reported using the oil discharge phone line, however providing evidence can be challenging, often relying on marine patrols or regional boards to escalate. Many of the state's harbors use dye tabs programs in addition to requiring y-valves to be closed.

ECONOMIC IMPACTS OF SEWAGE PUMPOUT SYSTEMS			
30 JUNE	E 2023		
Prepared f	ior:		
0	California State Parks Division of		
Q	Boating and Waterways		
2	San Francisco Estuary Partnership		
Prepared b	ру:		
~~	Robert D. Niehaus, Inc.		
Funding was p Boating and W Boating Trust	rovided by a Clean Vessel Act grant, administered by California State Parks Division of vaterways and funded by the U.S. Fish and Wildlife Service, Sport Fish Restoration and Fund.		

Figure 162. California's economic study on the benefits of adding a pumpout (Source: CA DBW)



Figure 163. California's annual report on statewide pumpouts and dump stations (Source: CA DBW)

Washington Recreational Boating Pumpout Facility Assessment

OREGON

FACILITIES

Oregon's boating waste disposal facility system is managed by the Oregon chapter of Sea Grant. The majority of boats in Oregon are less than 26 feet and without MSDs, requiring an alternative approach to pumpouts. They also utilize scat machines for river rafters in wild and scenic-designated areas. These machines take sewage containers, dispose of the waste, and return the containers sterilized for a small fee.

Aside from managing the state's boating waste disposal facilities, the Oregon State Marina Board oversees most boating related matters, including assessing demand, developing regulations, and managing waterway use.

PUMPOUT MAINTENANCE

Oregon visits facilities in the coastal, Columbia, and Willamette areas twice a year, and other facilities annually. This frequent monitoring ensures pumpouts are operational and to provide more support to marinas with heavy turnover in ownership.

FLOATING RESTROOMS

Oregon has had a lot of success with their floating restrooms that are located on freshwater bodies and primarily serve fishing boats. They typically provide a 100% funding match for purchase of equipment, except for private marinas that require a 25% match. There are some challenges to add floating restrooms depending on waterway designations, as some areas are federally owned. The biggest challenge is anchoring, especially on freshwater bodies with solid rock bottoms. In one example, they overcame this by anchoring the restroom off of surrounding canyon walls.

Their restroom design has seen minimal damage and no facility failures. Their floating restroom designs are currently being updated to allow ADA accessibility. They could also be made more accessible to smaller human-powered vessels such as kayaks, as current restrooms are situated too far above the water for easy access.

EDUCATION AND OUTREACH

One of Oregon Sea Grant's primary goals is education. In addition to supporting existing facilities, they also regularly attend meetings of the Columbia River Yacht Association to maintain awareness of issues and provide information. Additionally, the Oregon State Marine Board runs education around waterway use and vessel cleaning guidance to avoid invasive species.

HUMAN-POWERED VESSELS

The Oregon State Marina Board manages data on human-powered vessel use. They require all vessels over 10 feet in length to be registered for waterway access, though access permits can be shared within a household. Oregon Sea Grant does not manage any in-water BSDFs on non-motorized waterways.

ENFORCEMENT

The Oregon State Marina Board employs deputies to enforce regulations. Revenue from citations is believed to support enforcement efforts.

Washington Recreational Boating Pumpout Facility Assessment

Fast Facts¹

Pumpouts	46
Dump stations	59
Floating restrooms	23
Pumpout boats	0

Oregon State Marine Board, spring 2019

FLORIDA

FACILITIES

Florida's boating waste disposal facility system is managed by Sea Grant and relies heavily on pumpouts. There are also seven port-a-potty dump stations, however they have been reported to have minimal use which may indicate a need for increased awareness. Florida does not have any floating restrooms due to extreme weather.

Florida Sea Grant regularly maintains CVA-funded facilities, but there are many more waste facilities that are privately owned. A comprehensive list was provided in the 2024 update to the statewide assessment: Florida Clean Vessel Act Resource and Needs Assessment.

Pumpouts are generally operational with only a few occasional non-operational pumpouts. If a marina has not fixed their non-operational pumpout, Florida Sea Grant will remove that pumpout from their active database.

DEMAND

Florida Sea Grant has recommended the required ratio of one pumpout per every 500 boats over 26 feet. This was determined by reviewing counties with a publicly available pumpout and calculating the total number of accommodations for vessels over 26 feet without access to a private pumpout and dividing that by the total number of publicly available pumpouts in the county.

Although the Department of the Interior's technical guidelines state "at least one pumpout station and dump station should be provided for every 300 to 600 boats", no ratio was determined for Florida due to the lack of demand for existing dump stations.

ENFORCEMENT

The biggest challenge areas for illegal dumping in Florida are long-term anchorages or mooring buoys. Citations are managed by local law enforcement, however Sea Grant monitors problem areas and tries to work with local entities to get additional support from mobile pumpout boats to address the issue. They also try to work with marinas in the problem areas to add new pumpout facilities.

Fast Facts

Pumpouts ¹	487
Dump stations	7
Floating restrooms	0
Pumpout boats (CVA-funded)	0

Florida Clean Vessel Act Resource and Needs Assessment, Sea Grant Florida, 2024



Figure 164. Florida's 2024 updated BSDF assessment (Source: Florida Sea Grant)