DEPARTMENT OF ECOLOGY
State of Washington

Small Business Economic Impact Analysis

Boatyard General Permit

National Pollutant Discharge Elimination System
and State Waste Discharge Permit

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Small Business Economic Impact Analysis

Boatyard General Permit

National Pollutant Discharge Elimination System and State Waste Discharge General Permit

by

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for the

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Washington State Department of Ecology

Olympia, Washington

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List of Acronyms

AKART	All known, available, and reasonable methods of prevention, control, and treatment
BMP	Best Management Practices
EIA	Economic impact analysis
EPA	United State Environmental Protection Agency
MSD	Marine sanitation device
NMTA	Northwest Marine Trade Association
NPDES	National Pollutant Discharge Elimination System
O&M	Operation and maintenance
PCHB	Pollution Control Hearings Board
POTW	Publicly owned treatment works
PSA	Puget Soundkeeper Alliance
RCW	Revised Code of Washington
SBEIA	Small Business Economic Impact Analysis
SPECP	Spill prevention and emergency cleanup plan
SWPPP	Stormwater pollution prevention plan
TMDL	Total maximum daily load
WAC	Washington Administrative Code

Executive Summary

This Small Business Economic Impact Analysis (SBEIA) estimates the costs of complying with the Boatyard General Permit ("permit"). It compares the costs of complying with the permit for small businesses to the costs of complying for the largest 10 percent of businesses, to determine whether the permit disproportionately impacts small businesses. This analysis is required by state rule in Washington Administrative Code (WAC) 173-226-120, which directs Ecology to determine if the permit imposes disproportionate burden on small businesses, and if it does, to mitigate the disproportion to the extent that is legal and feasible.

The type of work done in boatyards (build, repair, and paint boats) releases pollutants that may be carried by stormwater or wastewater into ground water and surface waters. This stormwater and process wastewater contains pollutants, which are very harmful to the environment. The Boatyard General Permit regulates stormwater and wastewater discharges from boatyards to groundwater and surface water bodies.

A boatyard, as defined for the purposes of this permit, is a commercial business engaged in the construction, repair, and maintenance of small vessels, 85 percent of which are 65 feet or less in length, or revenues from which constitute more than 85 percent of gross receipts. This definition includes mobile boatyards.

Services typically provided in a boatyard include, but are not limited to:

- Pressure washing hulls
- Painting and coating
- Engine and propulsion systems repair and replacement
- Hull repair
- Joinery
- Bilge cleaning
- Fuel and lubrication systems repair and replacement
- Welding and grinding of hulls
- Buffing and waxing
- Marine sanitation device (MSD) repair and replacement
- Other activities necessary to maintain a vessel

The costs for boatyards to comply with the draft general permit depend on the size of the boatyard. While it seems appropriate to assume that boatyards that are smaller in geographic size will be those with fewer employees, from comments received on previous versions of the permit, this is not always the case. In this chapter, Ecology estimated ranges of costs for most requirements - a low cost and a high cost. The low cost estimate is for small boatyards and the high cost estimate is for large boatyards. Some requirements have the same cost for small and large boatyards, while other costs are presented as a range.

The table below presents the total costs of compliance for boatyards under the draft General Permit for Boatyards.

Table i: Total Compliance Costs

Requirements	Small Boatyards		Large Boatyards	
	Low	High	Low	High
STORMWATER TREATMENT TECHNOLOGY	$23,161	$62,079	$46,322	$124,162
MONITORING				
Stormwater- Copper, Zinc Lead	$2,465	$2,465	$4,928	$4,928
Stormwater- Visual Monitoring	$1,200	$1,200	$2,400	$2,400
BEST MANAGEMENT PRACTICES				
Vacuum sander	$3,261	$3,261	$3,261	$3,261
Tidal grids	$0	$0	$0	$0
In-water vessel maintenance repair	$69	$344	$172	$1,374
Upland vessel maintenance repair	$69	$344	$172	$1,374
Solids management	$2,526	$5,618	$5,618	$21,080
Paint and solvent use	$69	$344	$172	$1,374
Oils and bilge water management	$109	$109	$438	$438
Sacrificial anode (zincs) management	$55	$55	$109	$109
Chemical management	$172	$172	$172	$172
Wash pad decontamination	$37	$3,425	$77	$6,839
Sewage and gray water discharges	$0	$0	$0	$0
REPORTING				
Stormwater	$138	$138	$138	$138
ANNUALIZED TOTALS	$33,330	$79,553	$63,979	$167,652

Table ii below, shows the cost range per employee for small and large businesses.

Table ii: Cost per Employee for Small and Large Businesses

Estimate	Small Businesses	Large Businesses
Average number of employees	9.1	150
Low Estimate	$3,663	$427
High Estimate	$8,742	$1,118

While the capital costs are based on geographic scale of the boatyard, which is not universally associated with the number of employees, it is likely that the costs of compliance with the draft permit are disproportional.

In general, the impact of the draft general permit on small boatyards cannot be mitigated significantly. Because most boatyards are small businesses, the economic impact of the draft general permit on small boatyards cannot be reduced without reducing the effectiveness of the permit in controlling water pollution

Ecology has determined there is no opportunity to significantly reduce the costs of this permit to small businesses.

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Chapter 1: Introduction to the Economic Impact Analysis

This Small Business Economic Impact Analysis (SBEIA) estimates the costs of complying with the Boatyard General Permit ("permit"). It compares the costs of complying with the permit for small businesses to the costs of complying for the largest 10 percent of businesses, to determine whether the permit disproportionately impacts small businesses. This analysis is required by state rule in Washington Administrative Code (WAC) 173-226-120, which directs Ecology to determine if the permit imposes disproportionate burden on small businesses, and if it does, to mitigate the disproportion to the extent that is legal and feasible.

1.1 Scope

WAC 173-226-120 requires the SBEIA to include:

- A brief description of the compliance requirements of the general permit.
- The estimated costs of complying with the permit, based on existing data for businesses intended to be covered under the general permit, including:
    - The minimum technology based treatment requirements identified as necessary under WAC 173-226-070.
    - The monitoring requirements contained in the general permit.
    - The reporting and recordkeeping requirements.
    - Plan submittal requirements.
    - Equipment.
    - Supplies.
    - Labor.
    - Increased administrative costs.
- A comparison, to the greatest extent possible, of the cost of compliance for small businesses with the cost of compliance for the largest ten percent of businesses intended to be covered under the permit.
- A summary of how the permit provides mitigation to reduce the effect on small businesses (if a disproportionate impact is expected), without compromising the mandated intent of the permit.

1.2 Definitions of small and large businesses

For the purposes of the SBEIA, a small business is an independent entity with 50 or fewer employees. Government enterprises are excluded. Employment is typically based on the highest available level of ownership data.

1.3 Permit Coverage

The type of work done in boatyards (build, repair, and paint boats) releases pollutants that may be carried by stormwater or wastewater into ground water and surface waters. This stormwater and process wastewater contains pollutants which are very harmful to the environment. The Boatyard General Permit regulates stormwater and wastewater discharges from boatyards to groundwater and surface water bodies.

A boatyard, as defined for the purposes of this permit, is a commercial business engaged in the construction, repair, and maintenance of small vessels, 85 percent of which are 65 feet or less in length, or revenues from which constitute more than 85 percent of gross receipts. This definition includes mobile boatyards.

Services typically provided in a boatyard include, but are not limited to:

- Pressure washing hulls
- Painting and coating
- Engine and propulsion systems repair and replacement
- Hull repair
- Joinery
- Bilge cleaning
- Fuel and lubrication systems repair and replacement
- Welding and grinding of hulls
- Buffing and waxing
- Marine sanitation device (MSD) repair and replacement
- Other activities necessary to maintain a vessel

There are currently, in Washington State, about 63 boatyard facilities covered by the boatyard general permit.

1.3.1 History of the permit

Task P-20 of the Puget Sound Water Quality Authority Plan, directed Ecology to carry out a program to detect and identify unpermitted discharge sources. Under this program, the Elliott Bay and Lake Union Urban Bay Action Teams found a significant unpermitted point source discharge - the boatyard industry.

Memorandum of Agreement with the Environmental Protection Agency
In 1990, Ecology signed a Memorandum of Agreement with the Environmental Protection Agency (EPA) agreeing to develop and issue a general permit for small shipyards. During the development of the permit, Ecology decided to describe facilities in this segment of the Ship and Boat Building and Repairing industry as boatyards. Shipyards receive individual permits. A

general permit for boatyards was issued in 1992, reissued in 1997, 2005, 2011, and 2016 (current permit). The 2005 permit was modified in 2006 to correct an error.

Appeal of 2005 and 2006 permit modification
The Northwest Marine Trade Association (NMTA) and the Puget Soundkeeper Alliance (PSA) appealed the 2005 permit and 2006 permit modification. The Pollution Control Hearings Board (PCHB) heard the appeal in July 2006, and they issued a decision in January 2007. The NMTA and PSA then appealed the PCHB decision to Superior Court.

Draft permit submitted by NMTA and PSA
In 2008, environmental consultants ARCADIS performed a general economic analysis to estimate the cost of installing the treatment devices. In August 2008, the NMTA and PSA sent a draft permit to Ecology that they said was mutually acceptable. The draft permit was released for public comment in November 2008. The draft contained benchmarks for copper and zinc that were based on the pilot study performance of multimedia filtration in the treatment of boatyard stormwater. Ecology believes the benchmarks in the 2008 draft permit were achievable only with stormwater treatment.

2011 Permit Revisions
In the period since the release of the 2008 draft, several boatyards have installed multimedia filtration stormwater treatment devices. The data from these were combined with the pilot test data from the boatyards and Pacific Fishermen pilot test to derive new benchmarks.[1] The data are presented in Appendix C of the April 21, 2010, fact sheet, which is available on the Ecology boatyard web site.[2] The benchmarks were calculated in the same manner as the effluent limit derivation presented in the U.S. EPA Technical Support Document.[3] The copper data were not normally distributed, so they were transformed by the log normal transformation to derive benchmarks. The zinc data were normally distributed after removal of the outliers. Since lead in treated effluent was typically at or below a measureable concentration, no benchmarks were calculated. The 2011 permit did continue to require monitoring for lead in boatyards that discharge stormwater to unimpaired waterbodies.

1.3.2 Discharge limitations in the draft permit

Discharging pressure wash wastewater to delegated or non-delegated publicly owned treatment works
Boatyards may discharge treated pressure wash wastewater to a municipal sanitary sewer, in accordance with effluent limitations and a monitoring schedule and upon acceptance of the municipality. The boatyard cannot introduce into the publicly owned treatment works (POTW)

[1] CH2M Hill, 2008.
[2] https://ecology.wa.gov/Regulations-Permits/Permits-certifications/Boatyard-general-permit
[3] U.S. EPA, 1991.

any pollutant(s), which cause Pass Through, Upset or Interference.[4] Boatyards cannot dilute the wastewater discharge with stormwater or attempt to dilute an effluent as a substitute for adequate treatment.

Discharging stormwater to a non-delegated publicly owned treatment works
Boatyards may discharge stormwater to a non-delegated POTW only with special approval from Ecology. They must also demonstrate:

- There is no other feasible option.
- The POTW has excess wet season hydraulic capacity.
- The POTW is willing to accept the discharge.
- How the hydraulic loading to the POTW will be reduced by eliminating clean water.
- All applicable Best Management Practices (BMPs) are practiced routinely.

Discharge limits and monitoring requirements are the same for stormwater as for pressure wash wastewater, unless the POTW has more stringent monitoring requirements.

Discharging treated pressure wash wastewater or stormwater to a delegated POTW
Boatyards may discharge pressure wash wastewater or stormwater to a sanitary sewer system operated by a municipality with a delegated pretreatment program provided they receive discharge authorization from the municipality. The municipality will determine limitations, monitoring and reporting requirements, which are expected to be at least as stringent as the requirements of the draft permit. Boatyards must also comply with any applicable sewer use ordinances adopted by the municipality.

Discharging stormwater to waters of the state
All boatyards must manage stormwater discharges to prevent:

- The discharge of synthetic, natural, or processed oil.
- The discharge of floating materials.
- A visible change in turbidity or color in the receiving water.
- The discharge of process wastewater.

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[4] **Pass Through**- A discharge to a POTW which exits the POTW into waters in quantities or concentrations in violations of the POTW's permit.
Upset- An incident where there is an unintentional and temporary noncompliance with technology based effluent limitations because of factors beyond the reasonable control of the boatyard.
Interference- A discharge which inhibits or disrupts the POTW and is therefore a cause of a violation of any requirement of the POTW's permit or of the prevention of sewage sludge use or disposal.

Boatyards have specific limitations and/or benchmarks listed in the draft permit depending on location or status. They are:

- Boatyards discharging stormwater to other fresh and marine waters.
- Boatyards discharging stormwater to an infiltration basin lined with absorptive media.
- New and existing dischargers discharging stormwater to 303(d)-listed impaired waters before a total maximum daily load (TMDL) study and allocation.

Some of these limitations for surface discharges are more stringent than the current permit. The specific limitations are discussed below in the monitoring section.

Boatyards must comply with:

- Washington State surface water quality standards (Chapter 173-201A WAC)
- Sediment management standards (Chapter 173-204 WAC)
- Ground water quality standards (Chapter 173-200 WAC)
- Human health-based water quality criteria in the National Toxics Rule (40 CFR 131.36)

1.3.3 Mandatory best management practices

Boatyards must ensure that all individuals at the facility implement the following mandatory best management practices (BMPs) as well as any BMPs included in the boatyard's stormwater pollution prevention plan (SWPPP). Specific requirements for the mandatory BMP's can be found in S3 of the Permit. The mandatory BMPs include:

- Use of vacuum sander and grinders
- Tidal grid restriction
- In-water vessel maintenance repair
- Upland vessel maintenance and repair
- Solids Management
- Paint and solvent use
- Oils and bilge water management
- Sacrificial anode (zincs) management
- Chemical management
- Wash pad decontamination
- Sewage and gray water discharges
- Dry Dock and Graving Dock use

1.3.4 Monitoring and sampling requirements

The monitoring requirements outlined in the table below are similar to the current permit. Samples must be collected from location(s) affected by boatyard related activities.

Table 1: Monitoring and Sampling Requirements

Category	Parameter	Minimum Sampling Frequency
Pressure washer wastewater or stormwater runoff to non-delegated POTWs	Total copper, zinc, lead, and pH	One time in each of the months of June, July, August, and September
Stormwater discharges from areas with industrial activity to surface waters	Turbidity, pH, Oil Sheen, Petroleum Hydrocarbon, Total copper, and zinc	Once in each of the months of October, November, January, March, April, and May
	Visual monitoring	Once a week
Stormwater discharges from areas with industrial activity to Ground waters	Total Copper and Zinc	Once in each of the months of October, November, January, March, April, and May
Stormwater discharges from areas with industrial activity to 303(d) listed surface waters	pH, total suspended solids, total copper, lead, and zinc	Once in each of the months of October, November, January, March, April and May

Boatyards must sample stormwater according to the permit instructions unless Ecology approves an alternative plan. The boatyard must follow the sampling requirements below but is not required to sample outside regular business hours or when it is unsafe.

- The boatyard may take:
  - A grab sample.
  - A time-proportionate sample.
  - A flow proportionate sample.
- Boatyards must take all samples when it is reasonable and safe.
- During a given sampling period, permittees must collect samples within the first 12 hours of stormwater discharge events.
- Boatyards collect samples to capture stormwater with the greatest exposure to significant sources of pollution. If offsite discharging points are likely to result in different concentration or types of pollutants, each point must be separately sampled and analyzed. If discharge points do not vary, sampling may occur only at the discharge point with the highest concentration.

- Besides visual monitoring, a boatyard is only required to sample once per month and use its best efforts to achieve the storm event sampling criteria.

1.3.5 Required analytical procedures

Sampling and analytical methods used to meet the water and wastewater monitoring requirements specified in the permit must conform to the latest version of the *Guidelines Establishing Test Procedures for the Analysis of Pollutants* contained in 40 CFR Part 136.

1.3.6 Laboratory accreditation

All monitoring data required by Ecology, in the permit or by order, must be prepared by a laboratory registered or accredited under the provisions of, *Accreditation of Environmental Laboratories*, Chapter 173-50 WAC.

1.3.7 Stormwater Pollution Prevention Plan (SWPPP)

New and existing owners of every boatyard covered by the boatyard general permit must prepare and maintain a Stormwater Pollution Prevention Plan (SWPPP) specifically designed for their boatyard. The SWPPP must be:

- Consistent with permit requirements.
- Fully implemented before operating.
- Updated as necessary to maintain compliance with permit conditions.

The SWPPP must include BMPs necessary to meet the indicated benchmarks.

The SWPPP must document the:

- Technical basis for how stormwater BMPs were selected.
- Pollutant removal performance expected from the BMP selected.
- Technical basis that support the performance claims for the BMPs selected.

The SWPPP must also provide an assessment of how each of the selected BMPs will:

- Comply with state water quality standards.
- Satisfy the state all known, available, and reasonable methods of prevention, control, and treatment (AKART) requirements and the federal technology-based treatment required under 40 CFR Part 125.3.

At minimum, the SWPPP must include:

- Facility assessment
- Monitoring plan
- BMPs
- Measures taken to identify and eliminate illicit discharges

Many BMPs are common to all boatyards and the categories listed below are a minimum set of BMPs that must be included in the SWPPP:

- Operational source control
- Structural source control
- Pollution prevention team
- Good housekeeping
- Preventive maintenance
- Spill prevention and emergency cleanup plan (SPECP)
- Employee training
- Oversight of Do-It-Yourselfers and Independent Contractors
- Notification of vessel owner of prohibited discharges
- Inspections and recordkeeping
- Decontamination documentation
- Illicit discharges
- Vessel deconstruction BMPs

1.3.8 Reporting and recordkeeping

The draft general permit sets requirements for reporting and recordkeeping.

Reporting
Boatyards must:

- Submit monitoring results according to the minimum sampling frequencies specified in the permit.
- Submit all data collected to Ecology. Electronic submittal is strongly encouraged.[5]
- Summarize and report data collected during the previous month or sample period.
- Use the Discharge Monitoring Report form provided by Ecology.

Records retention
Boatyards must retain records of all monitoring information for a minimum of five years. Such records shall include:

1. A copy of this permit.

[5] https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Water-quality-permits-guidance/WQWebPortal-guidance

2. A copy of the permit coverage letter.
3. Records of all sampling information specified in Condition S9.C.
4. Inspection reports including documentation specified in Condition S6. E.
5. Any other documentation of compliance with permit requirements.
6. All equipment calibration records.
7. All BMP maintenance records.
8. All original recordings for continuous sampling instrumentation.
9. Copies of all laboratory reports as described in Condition S6.D.
10. Copies of all reports required by this permit.
11. Records of all data used to complete the application for this permit.

Recording of results
For each measurement or sample taken, the boatyard must record all of the following:

1. Date, exact place, method, and time of sampling.
2. The individual who performed the sampling or measurement.
3. Dates the analysis were performed.
4. Name of the person(s) who performed the analyses.
5. The analytical techniques or methods used.
6. The results of the analysis.

Results from additional monitoring
If the boatyard monitors any pollutant with more frequency than required using test procedures that conform to the latest version of the *Guidelines Establishing Test Procedures for the Analysis of Pollutants* contained in 40 CFR Part 136, then the results must be included in the calculation and data they submit in the discharge monitoring report.

Discharges to a delegated municipal; sanitary sewer system
Boatyards who discharge treated pressure wash wastewater to a delegated municipal sanitary sewer system must maintain records of their contractual agreement with the municipality, including conditions of discharge. These records must be available for inspection.

1.3.9 Bypass

Bypass is the intentional diversion of waste streams from any portion of a treatment facility. It is illegal to use this practice for stormwater events unless it meets the approved design criteria for stormwater management. Ecology may take enforcement action unless one of the following circumstances applies:

1. Bypass for Essential Maintenance without the Potential to Cause Violation of Permit Limits or Conditions. Bypass is authorized if it is for essential maintenance and does not have the potential to cause violations of limits or other conditions of this general permit,

or adversely impact public health as determined by Ecology before the bypass. The Permittee must submit prior notice, if possible, at least 10 days before the date of the bypass.

2. Bypass which is unavoidable, unanticipated, and results in noncompliance with this general permit. This bypass is permitted only if all three of the following conditions are met:
    a. Bypass is unavoidable to prevent loss of life, personal injury, or severe property damage.
    b. No feasible alternatives to the bypass exist.
    c. Ecology is properly notified of the bypass as required in Condition S9E (Noncompliance Notification).
3. If bypass is anticipated and has the potential to result in noncompliance with this general permit. The Permittee must notify Ecology at least 30 days before the planned date of bypass.

1.3.10 Solid waste management

The boatyard must manage all solid waste materials to prevent release of leachate into waters of the state. Leachate is defined as water or other liquid that has been contaminated by dissolved or suspended materials due to contact with solid waste or gases.

1.3.11 Reporting for zebra/quagga mussel control

Boatyards who identify a vessel as a carrier of zebra/quagga mussels must quarantine the vessel and notify the appropriate Washington Fish and Wildlife Regional Office within 24 hours.[6] The vessel must not be released, re-launched, pressure washed, or have its bilge pumped until it has been cleared by the U.S. Fish and Wildlife Services or the Washington State Department of Fish and Wildlife.

1.4 Excluded costs

This SBEIA does not include the costs of complying with existing laws and rules, as permittees would be required to comply with requirements regardless of whether the permit reiterated or referenced them, or if the permit did not exist. Costs excluded from all SBEIAs include the costs of complying with:

- State ground water quality standards (WAC 173-200).
- State surface water quality standards (WAC 273-201A).
- State sediment management standards (WAC 173-204).

[6] https://wdfw.wa.gov/about/regional-offices

- Wastewater discharge permit fees (WAC 173-224).
- Federal laws and rules, including but not limited to the Clean Water Act and federal National Pollutant Discharge Elimination System (NPDES) regulations if discharging to surface waters.

1.5 Compliance costs included in the SBEIA

According to WAC 173-226-120, the EIA must estimate the costs of the following:

- Minimum treatment technology
- Monitoring
- Reporting
- Recordkeeping
- Plan submittal
- Equipment
- Supplies
- Labor
- Administrative costs

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Chapter 2: Costs of Compliance with the General Permit

The costs for boatyards to comply with the draft general permit depend on the size of the boatyard. While it seems appropriate to assume that boatyards that are smaller in geographic size will be those with fewer employees, from comments received on previous versions of the permit, this is not always the case. In this chapter, Ecology estimated ranges of costs for most requirements - a low cost and a high cost. The low cost estimate is for small boatyards and the high cost estimate is for large boatyards. Some requirements have the same cost for small and large boatyards, while other costs are presented as a range.

Most of the major assumptions used to estimate compliance costs are in this chapter. In particular, assumptions used to estimate capital costs are included. Capital costs and their associated operation and maintenance (O&M) costs are annualized to compare them to the services boatyards provide annually.

It is necessary to annualize costs because some costs are annual (incurred every year), while other costs are capital costs (incurred once). For example, installing a stormwater treatment technology is a one-time capital cost, while recordkeeping includes annual costs that must be incurred every year. In addition, some of the treatment options have different project life expectations and therefore it is necessary to annualize costs to compare them.

2.1 Meeting discharge limits

The draft general permit proposes benchmark/limits for copper, lead, pH, and zinc for stormwater discharges to waters of the state. To meet these benchmarks, each boatyard will need to employ source control BMP's and likely install a stormwater treatment technology.[7] For a detailed discussion of the costs associated with implementing this technology, please see Ecology publication no. 10-10-018.[8]

Ecology estimates the range of annualized costs for installing stormwater treatment technology at $23,161 to $62,079 for small boatyards and $46,332 to $124,162 for large boatyards.[9]

[7] While current permittees will have already installed the necessary technology, these costs are included because potential new permittees will have to incur them in order to comply.

[8] *Economic Impact Analysis AKART Analysis: Draft National Pollutant Discharge Elimination System (NPDES) Wastewater Discharge General Permit for Boatyards* Washington State Department of Ecology, Publication no. 10-10-018. https://fortress.wa.gov/ecy/publications/summarypages/1010018.html

[9] Values taken from Ecology publication no. 10-10-018 and adjusted by inflationary factor of 19.9% for period of 2009 to 2020 based on the GDP deflator.

2.2 Monitoring and analysis costs

Monitoring requirements are specific to the type of stormwater or wastewater treatment and disposal methods used by the permit holder. Samples must be monitored and analyzed according to the general permit. We assume large boatyards will have twice the number of monitoring points that small boatyards have. The draft general permit requires boatyards to monitor:

- Wastewater discharges to a POTW from pressure washing.
- Stormwater discharges to waters of the state.

2.2.1 Wastewater discharged to sanitary sewers from pressure washing

Monitoring pressure washer wastewater discharged to a POTW is a federal pretreatment requirement and therefore is exempt from the analysis of this permit.

2.2.2 Stormwater discharged to waters of the state

Stormwater discharged to waters of the state must be monitored at all boatyards. Samples must be collected from a location or locations affected by boatyard related activities. Based on comments received of the skill level of employees and public yards having to pay the prevailing wage, Ecology assumes a wage rate of $46.15 per hour.[10] The costs for monitoring and analyzing stormwater for large boatyards are assumed to be twice as large as small boatyards. Costs for small boatyards are shown in the following table:

Table 2: Total Costs for Stormwater Monitoring

Category	Parameter	Hours	Minimum Monitoring	Cost of Analysis	Annual Cost
Stormwater	Turbidity, pH, Oil Sheen, Petroleum Hydrocarbon, Total copper, zinc, and lead	5	Once in each of the months of October, November, January, March, April, and May	$180	$2,465
Stormwater	Visual Monitoring	0.5	1/week	$0	$1,200

[10] Washington State Department of Labor & Industries- Prevailing Wage Rates for Public Works Contracts for Shipbuilding & Ship Repair in King County – https://secure.lni.wa.gov/wagelookup/

Category	Parameter	Hours	Minimum Monitoring	Cost of Analysis	Annual Cost
Non Stormwater Misc. Discharges	Copper, Total Zinc, Total	Nobody is currently reporting they have these	1/month		$0
Total Costs	**$3,664**				

Monitoring costs for large boatyards will be twice that of small boatyards or $7,328.

2.3 Stormwater Pollution Prevention Plan

Every boatyard covered by the draft boatyard general permit must prepare a Stormwater Pollution Prevention Plan (SWPPP) specifically designed for their boatyard. Each SWPPP must include the BMPs necessary to meet the benchmarks or limits in the draft general permit. The SWPPP is a requirement of EPA Multisector Stormwater General Permit and therefore exempt from this analysis as a federal requirement. Additionally, the BMPs listed in the EPA's Multisector Stormwater General Permit are exempt from analysis. However, the additional BMPs that are mandatory for all boatyards in Washington but are not required by EPA must be included in this analysis.

2.3.1 Federal BMPs exempt form analysis

1. Pollution prevention team
2. Good housekeeping
3. Preventive maintenance
4. Spill prevention and emergency cleanup
5. Employee training
6. Inspections and recordkeeping

2.3.2 BMPs Included in analysis

1. **Use of a vacuum sander**- Boatyards must use a vacuum sander or rotary tool meeting minimum performance standards for all paint removal where a sander is appropriate. Boatyards may recover the costs of this equipment by renting the units to people refinishing their own boats.

2. **Tidal grids**- Boatyards are allowed to use tidal grids only for emergency repair and marine surveying. They cannot use tidal grids for surface preparation, painting, routine maintenance, or other non-emergency uses. This requirement has zero cost.

3. **In-water vessel maintenance repair**- Boatyards cannot clean, repair, modify, prepare surfaces, or coat a vessel's hull while the vessel is afloat. Repairs, modifications, surface preparation, or coating of topside or superstructure is limited to 25 percent of the topside or superstructure surface. Equipment required: drop cloths, tarpaulins, drapes, shrouding or other protective devices.

4. **Upland vessel maintenance repair**- Boatyards must collect and manage material from maintenance and repair to prevent their release into the environment and entry into waters of the state. Equipment required: drop cloths, tarpaulins, structures, drapes, shrouding or other protective devices.

5. **Solids management**- Boatyards should cleanup debris and paint a minimum of once a day when solid-generating activity is occurring. Boatyards must install sediments traps in all storm drains to intercept and retain solids before being discharged.

6. **Paint and solvent use**- Boatyards should use paints and solvents in a manner that prevents their release into the environment and entry into waters of the state. Equipment required: drip pans, drop cloths, tarpaulins or other protective devices.

7. **Oils and bilge water management**- Boatyards must not discharge Hydraulic fluids, oily wastes and petroleum products in to waters of the state. Bilge water discharges must not cause any visible sheen in waters of the state. Large boatyards typically use an oil water separator,[11] while small boatyards will let bilge water set for separation in a large drum.

8. **Sacrificial anode (zincs) management**- Boatyards must not dispose of Zincs into the water and they must store spent zinc in a covered container.

9. **Chemical management**- Boatyards must store all chemicals under cover on an impervious surface.

10. **Wash pad decontamination**- Before a boatyard discharges any stormwater from pressure wash pads, they must clean the pad. The pad must then be pressure washed into the collection sump and the sump cleaned of all debris. Depending on how busy the boatyard is and the time of year, this may occur as much as daily or as little as twice a year. This requirement is all labor costs. Ecology assumes a wage rate of $40.19 and that it takes 30 minutes. We assume large boatyards do this twice as often.
    - Small boatyards range: twice a year to every other day (183 days a year)
    - Large boatyards range: four times a year to once a day (365 days a year)

[11] Ecology estimates oil water separators cost $5,000 and last about 15 years. The annualized cost using a 3.19% interest rate is about $400 a year.

11. **Sewage and gray water discharges**- Boatyards must not discharge sewage from boats to the Puget Sound (Chapter 173-228 WAC). This is a requirement of existing state and federal law and therefore, the compliance cost is zero.

The cost estimates for some of these BMPs are taken from the analysis from the original permit and brought up to date by applying a 70.57 percent inflationary factor for 1992-2020.[12,13] The following table shows the total costs for BMPs.

Table 3: Total Costs for Best Management Practices (BMPs)

Best Management Practices (BMP)	Small Boatyards		Large Boatyards	
	Low	High	Low	High
Vacuum sander[14]	$3,261	$3,261	$3,261	$3,261
Tidal grids	$0	$0	$0	$0
In-water vessel maintenance repair	$69	$344	$172	$1,374
Upland vessel maintenance repair	$69	$344	$172	$1,374
Solids management	$2,526	$5,618	$5,618	$21,080
Paint and solvent use	$69	$344	$172	$1,374
Oils and bilge water management	$109	$109	$438	$438
Sacrificial anode (zincs) management	$55	$55	$109	$109
Chemical management	$172	$172	$172	$172
Wash pad decontamination	$37	$3,425	$77	$6,839
Sewage and gray water discharges	$0	$0	$0	$0
Total	$6,367	$13,671	$10,190	$36,023

[12] It is reasonable to expect prices to grow at the same rate as the economy as the technologies needed for the BMPs has not changed drastically and we are not aware of any supply disruptions or significant demand increases in the relevant markets.

[13] U.S. Department of Commerce: Bureau of Economic Analysis. Gross National Product: Implicit Price Deflator. http://research.stlouisfed.org/fred2/data/GNPDEF.txt

[14] See Appendix A of Ecology publication no. 10-10-018 for vacuum sander calculations taken from the 1997 Fact Sheet for NPDES General Permit for Boatyards. Costs were brought up to date by applying a 53.61% inflationary factor for 1997-2020.

2.4 Reporting and recordkeeping costs

2.4.1 Reporting

Boatyards must submit monitoring results in accordance with the minimum sampling frequencies specified in the draft General Permit for Boatyards. All data must be collected and submitted to Ecology. Electronic submission is allowed.

Costs for reporting include labor costs to summarize monitoring results. Ecology assumes that all monitoring done at the same frequency can be reported at the same time. Ecology assumes it takes 30 min at $46.15 per hour wage rate to summarize and prepare the results for reporting. The following table shows the costs for reporting:

Table 4: Total Costs for Monitoring Results Reporting

Type of Monitoring Reported	Hours	Frequency	Annual Cost
Stormwater	0.5	6/year	$138
Total	-	-	$138

2.4.2 Records retention

Boatyards must retain records of all monitoring information for a minimum of five years. The cost of complying with this provision is the cost of storing records. This cost is likely very low or close to zero, particularly as records can be maintained electronically.

2.5 Total compliance costs

This section presents the total costs of compliance for boatyards under the draft General Permit for Boatyards.

Table 5: Total Compliance Costs

Requirements	Small Boatyards		Large Boatyards	
	Low	High	Low	High
STORMWATER TREATMENT TECHNOLOGY	$23,161	$62,079	$46,322	$124,162
MONITORING				
Stormwater- Copper, Zinc Lead	$2,465	$2,465	$4,928	$4,928
Stormwater- Visual Monitoring	$1,200	$1,200	$2,400	$2,400

Requirements	Small Boatyards		Large Boatyards	
	Low	**High**	**Low**	**High**
BEST MANAGEMENT PRACTICES				
Vacuum sander	$3,261	$3,261	$3,261	$3,261
Tidal grids	$0	$0	$0	$0
In-water vessel maintenance repair	$69	$344	$172	$1,374
Upland vessel maintenance repair	$69	$344	$172	$1,374
Solids management	$2,526	$5,618	$5,618	$21,080
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Oils and bilge water management	$109	$109	$438	$438
Sacrificial anode (zincs) management	$55	$55	$109	$109
Chemical management	$172	$172	$172	$172
Wash pad decontamination	$37	$3,425	$77	$6,839
Sewage and gray water discharges	$0	$0	$0	$0
REPORTING				
Stormwater	$138	$138	$138	$138
ANNUALIZED TOTALS	**$33,330**	**$79,553**	**$63,979**	**$167,652**

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Chapter 3: Relative Compliance Costs for Small and Large Businesses

This chapter compares the annual costs of compliance per employee for small businesses to the compliance cost per employee at the largest ten percent of businesses covered by the permit. The governing rule (WAC 173-226-120) allows for this comparison to be made on one of the following bases:

- Cost per employee.
- Cost per hour of labor.
- Cost per one hundred dollars of sales.

We use cost per employee, because this data is readily and most comprehensively available for businesses operating in Washington State.

3.1 Facility size data

RCW 19.85.020(4) defines a small business as any business entity, including a sole proprietorship, corporation, partnership, or other legal entity, that is owned and operated independently from all other businesses, and that has fifty or fewer employees. There are both small and large businesses in the boatyard industry. We were able to find employment information for 57 of the 63 permitted businesses. Small boatyards average 9.1 employees, and the large boatyards average 150 employees.

The following table shows the number of businesses covered under the current boatyard general permit with 50 or fewer employees, and with more than 50 employees.

Table 6: Average number of employees by business size

Employees	Number of Businesses	Average Employees
50 or Fewer	55	9.1
More than 50	2	150

3.2 Relative costs of compliance

Table 7 below, shows the cost range per employee for small and large businesses.

Table 7: Cost per Employee for Small and Large Businesses

Estimate	Small Businesses	Large Businesses
Low Estimate	$3,663	$427
High Estimate	$8,742	$1,118

While the capital costs are based on geographic scale of the boatyard, which is not universally associated with the number of employees, it is likely that the costs of compliance with the draft permit are disproportional.

Chapter 4: Mitigation of Disproportionate Impacts

The general permit likely imposes disproportionate costs on small businesses. The general permit rule (WAC 173-226-120) requires that disproportionate economic impacts of general permits on small businesses be reduced, when it is both legal and feasible to do so. Ecology has determined that there is no opportunity to significantly reduce the costs of this permit to small businesses.

4.1 Mitigation options under WAC 173-226-120

The governing rule states the following options should be considered to reduce the impact of the permit on small businesses.

- Establishing differing compliance or reporting requirements or timetables for small businesses.
- Clarifying, consolidating, or simplifying the compliance and reporting requirements under the general permit for small businesses.
- Establishing performance rather than design standards.
- Exempting small businesses from parts of the general permit.

4.2 Mitigation actions

Mitigation actions must comply with state and federal requirements. The general permit rule requiring economic impact analysis (WAC 173-226-120) states that mitigation only needs to be undertaken when it is legal and feasible in meeting the stated objectives of the:

- Federal Clean Water Act
- State Water Pollution Act - Chapter 90.48 RCW.

The draft general permit conditions are based on federal law and rule requirements. Significant mitigation of these conditions would be a violation of federal NPDES program rules, which establish effluent standards. Therefore, the compliance costs associated with them cannot be reduced. The draft general permit must contain effluent limits that are at least as strict as federal effluent standards, to mitigate their impact on small businesses.

Ecology also places conditions in general permits to ensure discharges do not violate the state:

- Water quality standards for surface waters of the state (WAC 173-201A)
- Water quality standards for ground waters of the state (WAC 173-200)
- Sediment management standards (WAC 173-204)
- Wastewater discharge fees (WAC 173-224)

These conditions are legal requirements that Ecology cannot allow permittees to violate. Compliance costs associated with these conditions of the draft general permit cannot be mitigated.

The above circumstances severely limit Ecology's ability to reduce cost impacts on small businesses.

4.2.1 Impact of mitigation on effectiveness of general permit

In general, the impact of the draft general permit on small boatyards cannot be mitigated significantly. Because most boatyards are small businesses, the economic impact of the draft general permit on small boatyards cannot be reduced without reducing the effectiveness of the permit in controlling water pollution.

4.2.2 Mitigation

Ecology has determined there is no opportunity to significantly reduce the costs of this permit to small businesses.

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References

RCW 34.05.272 requires Ecology to categorize sources of information used in significant agency actions made in the Water Quality Program.

Independent peer review: Review is overseen by an independent third party.

US Treasury Department, 2020. Fixed rate of return to inflation-indexed I-Bonds. http://www.treasurydirect.gov/indiv/research/indepth/ibonds/res_ibonds_iratesandterms.htm

CH2M Hill. 2008. "Pacific Fishermen Shipyard & Electric, LLC, Stormwater Treatment System and Outfall Diffuser Engineering Report."

Internal peer review: Review by staff internal to Ecology.

N/A

External peer review: Review by persons that are external to and selected by Ecology.

N/A

Open review: Documented open public review process that is not limited to invited organizations or individuals.

WA Department of Ecology (2010) Economic Impact Analysis AKART Analysis: Draft National Pollutant Discharge Elimination System (NPDES) Wastewater Discharge General Permit for Boatyards, Publication no. 10-10-018. https://apps.ecology.wa.gov/publications/summarypages/1010018.html

WA Department of Ecology (2011). Water quality program permit Writer's Manual. Publication no. 92-109.

Legal and policy documents: Documents related to the legal framework for the significant agency action, including but not limited to: federal and state statutes, court and hearings board decisions, federal and state administrative rules and regulations, and policy and regulatory documents adopted by local governments.

40 CFR 122.44 Establishing limitations, standards, and other permit conditions (applicable to State NPDES programs, see § 123.25).

40 CFR 131.36 Toxics criteria for those states not complying with Clean Water Act section 303(c)(2)(B).

Chapter 173-200 WAC Water Quality Standards For Groundwaters Of The State Of Washington

Chapter 173-201A WAC Water Quality Standards For Surface Waters Of The State Of Washington

Chapter 173-204 WAC Sediment Management Standards

Chapter 173-224 WAC Water Quality Permit Fees

Chapter 173-226 WAC Waste Discharge General Permit Program

Data from primary research, monitoring activities, or other sources, but that has not been incorporated as part of documents reviewed under independent, internal, or external peer review.

U.S. Department of Commerce: Bureau of Economic Analysis. Gross National Product: Implicit Price Deflator. http://research.stlouisfed.org/fred2/data/GNPDEF.txt

U.S. Environmental Protection Agency. 1991. "Technical Support Document for Water Quality- Based Toxics Control." EPA/505/2-90-001.

Washington State Department of Labor & Industries- Prevailing Wage Rates for Public Works Contracts for Shipbuilding & Ship Repair in King County https://secure.lni.wa.gov/wagelookup/

Records of the best professional judgment of Ecology employees or other individuals.

N/A

Other: Sources of information that do not fit into other categories.

N/A