

FACT SHEET FOR NPDES GENERAL PERMIT FOR BOATYARDS

SUMMARY

This fact sheet is a companion document to the National Pollutant Discharge Elimination System (NPDES) General Permit for Boat Building and Repair Facilities. It explains the nature of the proposed discharge, Ecology's decisions on limiting the pollutants in the wastewater, and the regulatory and technical basis for those decisions. Public involvement information is contained in Appendix A.

The State of Washington Department of Ecology (Ecology) has tentatively determined to reissue a general permit to the boatyard industry operating in the State of Washington for the discharge of wastewater resulting from the building and repair of boats less than 65 feet in length. Commercial in-water hull cleaning will also be included. This general permit has been developed to provide coverage to control wastewater from pressure washing and stormwater runoff.

The three primary proposed changes from the initial issuance of the general permit are (1) increase in stormwater monitoring from one per year to four per year, (2) requiring commercial in-water hull cleaners to obtain coverage and follow Best Management Practices (3) eliminating the direct discharge of pressure wash wastewater to surface waters of the state. The proposed terms, limitations and conditions contained herein are tentative and may be changed as a result of comments and public hearings.

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INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System of permits (NPDES permits), which is administered by the Environmental Protection Agency (EPA). The EPA has delegated responsibility to administer the NPDES permit program to the State of Washington on the basis of Chapter 90.48 RCW which defines the Department of Ecology's authority and obligations in administering the wastewater discharge permit program.

The regulations adopted by the State include procedures for issuing general permits (Chapter 173-226 WAC), water quality criteria for surface and ground waters (Chapters 173-201A and 200 WAC), and sediment management standards (Chapter 173-204 WAC). These regulations require that a permit be issued before discharge of wastewater to waters of the state is allowed. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the permit. One of the requirements (WAC 173-226-110) for issuing a general permit under the NPDES permit program is the preparation of a draft permit and an accompanying fact sheet. Public notice of the availability of the draft permit is required at least thirty days before the permit is issued (WAC 173-226-130). The fact sheet and draft permit are available for review (see Appendix A--Public Involvement of the fact sheet for more detail on the Public Notice procedures).

After the public comment period has closed, the Department of Ecology (Department) will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. Comments and the resultant changes to the permit will be summarized in Appendix C-Response to Comments.

The goals of this permit are to be achieved primarily through prohibition of all pressure wash wastewater discharges to surface water and "Best Management Practices" (BMPs) designed to minimize or eliminate the discharge of pollutants.

BACKGROUND INFORMATION

DESCRIPTION OF THE INDUSTRY

HISTORY

Under P-20 of the Puget Sound Water Quality Authority Plan Ecology was directed to carry out a program for detection and identification of unpermitted discharge sources. One of the significant point source unpermitted discharge groups found by the Elliott Bay and Lake Union Urban Bay Action Teams was the boatyard industry.

Ecology signed a Memorandum of Agreement with the United States Environmental Protection Agency (EPA) for development and issuance of a general permit for small shipyards. During the development of this permit it was decided to describe facilities in this segment of the Ship and Boat Building and Repairing industry as boatyards. There are presently 130 boatyards under permit in Washington State.

INDUSTRY PROCESS

The applicable Standard Industrial Classifications, SIC, are:

SIC No. 3731 Ship Building and Repairing: "Establishments primarily engaged in building and repairing all types of ships, barges, and lighters, whether propelled by sail or motor power or towed by other craft. This industry also includes the conversion and alteration of ships."

SIC No. 3732 Boat Building and Repairing: "Establishments primarily engaged in building and repairing all types of boats."

A boatyard, defined for purposes of this permit, is a service business primarily engaged in new construction and repair of small vessels 65 feet or less in length. Services provided may include, but are not limited to: pressure washing, bottom and top side painting; engine, prop, shaft, and rudder repair and replacement; hull repair, joinery, bilge cleaning, fuel and lubrication system repair or replacement, welding and grinding on the hull, buffing and waxing, top-side cleaning, MSD (marine sanitation device) repair or replacement, and other activities necessary to maintain a vessel.

A boatyard may employ one or more of the following to remove or return a vessel to the water: marine railway, drydock, crane, hoist, ramp, or vertical lift. Some yards may build a limited number of custom boats usually constructed of fiberglass or aluminum. Permanent moorage facilities are not usually a feature of a boatyard though a few boatyards do have such facilities.

Those boat repair activities, whether conducted by the vessel's owner or by an agent or contractor hired by the owner, which do not require coverage under this permit include the following:

Engine repair or maintenance conducted within the engine space without vessel haul-out, topsides cleaning, detailing and bright work, electronics servicing and maintenance, MSD servicing and maintenance that does not require haul-out, vessel rigging, minor repairs or modifications to the vessel's superstructure and hull above the waterline which are not extensive (i.e. 25% or less of the vessel's surface area above the waterline).

Historically boat repair has been done outdoors on the waterfront. The vessel was supported in a cradle, on barrels, or in a sling while work was done on the hull. Some facilities are endeavoring to change operations in order to do the boat repair under cover. This will contribute to quality control, reduce or eliminate discharges and improve worker safety.

If all activities are performed indoors, under cover, with no outside activities or exposure except haulout, a permit may not be required.

This document will use the generic terms pressure washing and pressure wash wastewater for all pressure washing activities at boatyards.

This permit does not provide coverage for related, ancillary or related industrial or commercial facilities, such as a repair shop for marine engines. Those facilities may qualify for coverage under the General Industrial Stormwater permit, if necessary.

During the first five year permit cycle divers conducting in-water hull cleaning submitted applications for coverage under the General Boatyard Permit. However, coverage was not granted pending further permit development. The Department issued guidelines in the interim. The proposed reissuance requires all divers conducting commercial in-water hull cleaning to obtain coverage, follow best management practices, maintain a log of activities and to post a sign when cleaning boat bottoms.

WASTEWATER CHARACTERIZATION

Wastes generated by boatyard activities include spent abrasive grits, spent solvent, spent oils, pressure wash wastewater, paint over spray, paint drips, various cleaners and anti-corrosive compounds, paint chips, scrap metal, welding rods, wood, plastic, resins, glass fibers, and miscellaneous trash such as paper and glass. These pollutants may enter the wastewater stream through the application and preparation of paints and the painted surface; the handling, storage and accidental spills of chemicals, leaks or drips of paints, solvents, thinners; the fracturing and breakdown of abrasive grits, and the repair and maintenance of mechanical equipment.

Hull preparation for painting will commonly be by sanding, grinding or scraping and some abrasive blasting. Boatyards are relatively small generators of spent grits, paint chips and particulate debris compared to a shipyard.

The primary source of wastewater is stormwater runoff. Secondary sources are pressure washing, cooling water, pump testing, gray water, sanitary waste, washing down the work area, and engine bilge water. Engine room bilge water and oily wastes are typically collected and disposed of through a licensed contracted disposal company.

PRESSURE WASH WASTEWATER

Pressure wash wastewaters have been sampled by Ecology, local shipyards, boatyards and METRO. The effluent quality has been highly variable and frequently exceeds fresh and marine water quality criteria for copper, lead and zinc. For example, measured copper concentrations exceeded the receiving marine water criteria by 1,000 times. Two prime sources of copper are leaching of copper from anti-fouling paint and wastes from hull maintenance.

A significant achievement of the first issuance is elimination of all direct discharges of pressure wash wastewater. None could meet the effluent limits for direct discharges to fresh or marine water surface water. All boatyards are discharging to the sanitary sewer, recycling or evaporating pressure wash wastewater. The boatyards have achieved compliance with effluent limits for discharges to municipal sanitary sewers during the first permit cycle. This permit will prohibit all direct discharges to surface water.

STORMWATER:

Despite the limited number of samples, stormwater sampling indicates that the receiving water in the vicinity of boatyards can be adversely impacted.

| EXISTING BOATYARD EFFLUENT DATA - FIRST PERMIT CYCLE | | | |
|--|----------|---------|---------------------|
| | TSS mg/l | Cu mg/l | Oil and Grease mg/l |
| High | 4,200 | 8.6 | 58.6 |
| Low | <1.1 | <0.002 | <0.5 |
| Mean | 46 | 0.69 | 7.7 |

The EPA and state criteria, WAC 173-201A, for acute toxic effects due to copper in marine water is currently 0.0025 milligram per liter (mg/l) which is 2.5 µg/l and is proposed to be raised to 0.0048 mg/l. The proposed criterion for chronic effects due to copper in marine water is 0.0031 mg/l. The chronic criterion is presumed to be protective if the criterion is not exceeded by the four day average concentration more than once in three years on average and the acute criterion is not exceeded by the one hour average concentration more than once in three years on the average. The fresh water criterion is 0.0086 mg/l and the marine water criterion is 0.0063 mg/l assuming 50 mg/l hardness.

PROPOSED PERMIT LIMITATIONS

Federal and State regulations require that effluent limitations set forth in a NPDES permit must be either technology- or water quality-based. Technology-based limitations are based upon the treatment methods available to treat specific pollutants. Technology-based limitations are set by regulation or developed on a case-by-case basis (40 CFR 125.3, and Chapter 173-220 WAC). Water quality-based limitations are based upon compliance with the Surface Water Quality Standards (Chapter 173-201A WAC), Ground Water Standards (Chapter 173-200 WAC), Sediment Quality Standards (Chapter 173-204 WAC) or the National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992). The more stringent of these two limits must be chosen for each of the parameters of concern. Each of these types of limits is described in more detail below.

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

RCW 90.48.010, 90.52.040 and 90.54.020 require the use of all known, available and reasonable methods (AKART) to prevent and control the pollution of waters of the state. In a similar fashion EPA guidance for stormwater permitting is emphasizing the use of structural controls and Best Management Practices (BMPs) to prevent the discharge of pollutants via stormwater runoff.

Title 40 CFR 122.2 defines BMPs as schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce pollution of "waters of the United States." BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

More specifically, a similar source category is shipyards. The draft EPA "Development Document for Shipbuilding and Repair," EPA 440/1-70/076-b, recommends BMPs as the primary method of controlling waste discharges from shipyards to the waters of the state. BMPs achieve pollution control through careful management of the product streams, segregation of potential pollutants in waste streams, and preventing or minimizing contact between water and waste material.

The Development Document for Shipbuilding and Repair determined that BMPs constitute BPT (Best Practicable Control Technology) for the shipyard industry. Ecology concludes that BMPs constitute BPT for stormwater discharges in the boatyard industry and that collection and treatment of pressure wash wastewaters constitutes BAT (Best Available Technology Economically Achievable). However, the preliminary results of stormwater sampling in the first five year permit cycle indicate stormwater BMPs may not achieve compliance with State water quality standards.

METRO TREATMENT STUDY:

METRO (Municipality of Metropolitan Seattle) received a National Estuary Grant to do a treatment study of Puget Sound shipyard and boatyard wastewater and stormwaters. The study involved sampling of pressure washing wastewater from a number of these facilities, and testing prototype collection and treatment systems to determine what methods can consistently meet state and local water quality standards.

METRO produced an analytical report of their findings and developed a guidance manual which was distributed to shipyards, boatyards and publicly owned treatment works (POTW). The manual includes options for treatment and discharge of pressure wash wastewater, bilge and ballast water and contaminated stormwater to either receiving waters, municipal treatment plants, or off-site treatment facilities.

METRO's work clarified and expanded the list of options for treatment and disposal of boatyard wastewaters. The treatment study project was closely aligned with the initial development of the general NPDES permit for boatyards. The study's project manager and project coordinator made valuable contributions to the general permit development by assisting Ecology in establishing standards for best available technology practices for boatyards.

BMPs to collect, and contain wastes and minimize waste generation during vessel repair and maintenance work have been researched, compiled and distributed in Washington by the Department, the Lake Union Association Water Quality Committee and the Puget Sound Shipbuilders Association with funding assistance from the Puget Sound Water Quality Authority.

Many of the sources discussed in the Wastewater Characterization section can be contained, controlled or substantially reduced by the implementation of BMPs. BMPs are an essential component of the proposed general NPDES permit.

BMPs include structural controls including catch basins and drains, berms, dikes and other containment for oils, chemicals and wastes; roofed storage areas and wastewater treatment facilities. Facilities to be covered by the general permit will be required to implement them. The BMPs in the general permit include requirements for:

- Compliance with Best Management Practices
- Education of Employees and Customers
- Yard Cleaning and Sweeping
- Sediment Traps
- Dust and Overspray Control
- Maintenance of Hoses and Piping
- Bilge Water
- Paint and Solvent Use
- Use of Antifouling Paints
- Prohibition on use of Tributyltin
- Cleanup of Debris and Spent Paint
- Chemical Storage
- Waste Disposal
- Dangerous Waste Handling & Reporting
- Recycling of Spilled Chemicals and Rinse Water
- Accidental Oil Discharge
- Oil, Grease, and Fuel Transfers
- In-water hull cleaning
- Zebra Mussels
- Decontamination of the wash pad
- Over water work

Alternatives for treating and disposing of pressure wash wastewater are:

- (1) Recycle and Conservation,
- (2) Collection and discharge (with pretreatment as necessary) the wastewater to the sanitary sewer which may include chemical addition followed by sedimentation and possibly evaporation.

Option 1 - Recycle/conservation

The preferred means of preventing pollution from pressure washing hulls is recycling of pressure wash wastewater. Chemical treatment of the pressure washing wastewaters is common and cost effective. The recycled water does eventually become dirty, requiring disposal or treatment.

For boatyard facilities which have the ability to connect to a POTW (Publicly Owned Treatment Works) recycling, with occasional discharge of dirty recycle water to the POTW, is the best treatment method.

For facilities which are unable to physically connect to a POTW, recycling or evaporation are probably the only economically feasible options. The dirty recycle water must be hauled to a treatment facility for proper treatment and disposal.

The guidance manual developed by METRO gives a more detailed discussion of recycling options for pressure wash wastewaters.

Option 2 - Discharge to POTW

A few boat repair yards have received authorization to discharge a portion of their wastewater, including pressure wash wastewater and some stormwater from a restricted work area, to the local POTW.

The POTW limits in the permit were adopted from METRO's limits. Pretreatment limits established by delegated POTW's have similar limits for discharge into their systems.

PRESSURE WASH WASTEWATER AKART

The primary source of the heavy metals in wastewater is from paint applied to the boat hull. In waste stream sampling to date, copper has exceeded the water quality criteria by several orders of magnitude. The next most common metals, by frequency and in magnitude, in boatyard and shipyard wastewater (or contaminated stormwater) are zinc and lead.

Previous analyses of ship and boat wash down water indicate that heavy metals in the waste stream are concentrated to approximately 1000 times the copper water quality criterion and well over the criterion for lead and zinc. Ecology finds it appropriate to monitor concentrations of heavy metals present in pressure wash wastewater discharged to non-delegated municipal sanitary sewers by boatyards.

Since all boatyards have eliminated direct discharges of pressure wash wastewater to surface water the Department determines AKART for pressure wash wastewater is recycling, evaporation or discharge to the sanitary sewer pursuant to pretreatment requirements that are included in this permit for non-delegated POTWs or determined by delegated POTWs.

Pressure wash wastewater monitoring is therefore restricted to discharges to the POTW. The parameters and frequency remain unchanged in the reissued permit.

| LIMITS & MONITORING REQUIREMENTS FOR PRESSURE WASH WASTEWATER DISCHARGE | | | |
|--|---|--------------------|----------------|
| PARAMETER | MINIMUM SAMPLING FREQUENCY | SAMPLE TYPE | TO POTW |
| Flow | 2/Year | Meter or calculate | N/A |
| TR Cu ¹ | 2/Year | Grab | 2.4 mg/L |
| TR Zn | 2/Year | Grab | 3.3 mg/L |
| TR Pb | 2/Year | Grab | 1.2 mg/L |

Note: (1) TR means total recoverable

IN-WATER HULL CLEANING AKART

Divers performing in-water hull cleaning are required to follow best management practices in the permit. Cleaning ablative and sloughing paint under water is prohibited. This shifts the existing recommended BMPs contained in guidance documents to required permit conditions subject to the enforcement provisions of the Chapter 90.48.140 RCW. The Department determines BMPs included as enforceable conditions in the General Boatyard Permit to be AKART. A log of activities is required and must be submitted on January 15, 1999 to assist implementation. Also a sign must be posted when cleaning boat bottoms to provide an enforcement mechanism. The sign will describe the activity and provide the permit number and a contact in case of a suspected violation.

STORMWATER AKART

EPA determined best management practices are Best Practicable Control Technology for stormwater discharges under the General Stormwater Permit and for Shipyards. The Department determines best management practices are AKART for stormwater discharges from boatyards. For the boatyard industry monitoring will be required for copper, TSS, and oil and grease.

Copper was selected as a monitoring parameter because it is often identified as a pollutant of industrial stormwaters. Also, the METRO study demonstrated copper is the most prevalent metal found in boatyard wastewaters. Therefore, it is a prime indicator metal in determining if an individual boatyard has properly instituted BMPs.

Oil and grease monitoring is necessary because of the volume of petroleum products stored and handled at boatyards. For example routine boat maintenance and repair operations include: engine maintenance, fuel, hydraulic, and lube oil transfers.

TSS is a parameter requiring monitoring because of grinding, sanding and sand blasting operations associated with boatyard activities. Without implementation of BMPs, boatyard activities contribute to the presence of TSS in stormwater.

The General Sand and Gravel Permit requires stormwater monitoring for facilities of similar size. Four samples per year are required under the permit. Annual monitoring of stormwater was required in the initial issuance of the Boatyard Permit to verify the effectiveness of best management practices. Compliance with the monitoring requirement was poor. The few discharges sampled at each boatyard failed to provide the feedback necessary to verify the effectiveness of best management practices or to characterize discharges. More than one sample per year is necessary. The Department proposes four samples per year as the minimum feedback needed to evaluate cleanup consistent with the General Sand and Gravel Permit. The Department recommends more frequent monitoring as a mechanism to evaluate BMPs.

Specific test methods are now listed. The proposed permit relaxes the strict protocols contained in the initial issuance of the Boatyard Permit. Sampling is recommended but not required during the first flush. The definition of first flush is also relaxed eliminating the requirement to sample 72 hours after a measurable storm event. First flush is now defined as the first thirty minutes of the formation of a discrete stormwater discharge. Further stormwater sampling guidance is provided in Appendix B.

| PROPOSED MONITORING REQUIREMENTS FOR STORMWATER DISCHARGE | | |
|--|--------------------------|--------------------|
| Parameter | Minimum Frequency | Sample Type |
| Oil & Grease ¹ | May, June, Sept., Dec. | grab |
| TSS | May, June, Sept., Dec. | grab |
| TR Copper | May, June, Sept., Dec. | grab |

Note: (1) Discharges shall not have, nor cause a visible oil sheen in the receiving waters.

The sampling periods are correlated with the heavy work periods when rainfall is likely. Variation in activities and therefore discharges are anticipated between the spring preparation period and fall maintenance seasons. Reporting is required the month following sampling.

IMPLEMENTATION

The METRO treatment study fulfills the need for a general engineering report. Boatyard operators can select a treatment option identified in the engineering report or develop their own individual report.

Boatyards covered under this general permit can adopt and implement a general spill control and general solid waste control plan or can develop individual plans. A copy of the plans must be kept on site.

New boatyards are required to develop and implement the treatment system and BMPs as soon as they become operational.

SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will meet established Surface Water Quality Standards. The Washington State Surface Water Quality Standards (Chapter 173-201A WAC) is a state regulation designed to protect the beneficial uses of the surface waters of the state. Surface water quality-based effluent limitations may be based on an individual waste load allocation (WLA) or on a WLA developed during a basin wide total maximum daily loading study (TMDL).

NUMERICAL CRITERIA FOR THE PROTECTION OF AQUATIC LIFE

"Numerical" water quality criteria are numerical values set forth in the State of Washington's Water Quality Standards for Surface Waters (Chapter 173-201A WAC). They specify the levels of pollutants allowed in a receiving water while remaining protective of aquatic life. Numerical criteria set forth in the Water Quality Standards are used along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limitations, they must be used in a permit.

NUMERICAL CRITERIA FOR THE PROTECTION OF HUMAN HEALTH

The U.S. EPA has promulgated 91 numeric water quality criteria for the protection of human health that are applicable to Washington State (EPA 1992). These criteria are designed to protect humans from cancer and other disease and are primarily applicable to fish and shellfish consumption and drinking water from surface waters.

NARRATIVE CRITERIA

In addition to numerical criteria, "narrative" water quality criteria (WAC 173-201A-030) limit toxic, radioactive, or deleterious material concentrations below those which have the potential to adversely affect characteristic water uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health. Narrative criteria protect the specific beneficial uses of all fresh (WAC 173-201A-130) and marine (WAC 173-201A-140) waters in the State of Washington

MIXING ZONES

The Water Quality Standards allow the Department of Ecology to authorize mixing zones around a point of discharge in establishing surface water quality-based effluent limits. Both "acute" and "chronic" mixing zones may be authorized for pollutants that can have a toxic effect on the aquatic environment near the point of discharge. The concentration of pollutants at the boundary of these mixing zones may not exceed the numerical criteria for that type of zone. Mixing zones can only be authorized for discharges that are receiving all known, available, and reasonable methods of prevention, control and treatment (AKART) and in accordance with other mixing zone requirements of WAC 173-201A-100.

The National Toxics Rule (EPA, 1992) allows the chronic mixing zone to be used to meet human health criteria

Since no water quality-based limits have been set in this permit, no mixing zones will be established at this time.

SURFACE WATER QUALITY CRITERIA

Toxic Pollutants--Federal regulations (40 CFR 122.44) require NPDES permits to contain effluent limits for toxic chemicals in an effluent whenever there is a reasonable potential for those chemicals to exceed the surface water quality criteria. This process occurs concurrently with the derivation of technology-based effluent limits. Facilities with technology-based effluent limits defined in regulation are not exempted from meeting the Water Quality Standards for Surface Waters or from having surface water quality-based effluent limits.

There is not sufficient data at this time to make reasonable potential determinations for toxic pollutants in the wastewater from the boatyard industry. This general permit will therefore not set water quality-based permit limits but will establish monitoring requirements so that there will be sufficient data to make these water quality-based determinations when the general permit is renewed.

DESCRIPTION OF RECEIVING WATER

State waters impacted by boatyards are the fresh and marine waters of the state of Washington.

Ecology has published "Lists of Waterbodies Required Under Section 304 (L)," Volume I and Volume II. Some boatyards intended to be covered by this general permit lie in several of the urban receiving waters listed for water quality violations of acute and chronic criteria for heavy metals such as copper, lead and zinc.

Also cited for some receiving waters were other indicators such as high mortality in sediment bioassays, depressed benthic communities, and evidence of bioaccumulation of toxic compounds in some aquatic species. The indicators indirectly measure the impairment of the beneficial uses of the waterway.

In WAC 173-201A-030 State waters are classified as AA (extraordinary), A (excellent), B (good), C (fair), and Lake. The characteristic beneficial uses of state waters are domestic, industrial and agricultural water supply; the spawning, rearing, migration and harvesting of fish; the spawning, rearing, and harvesting of shellfish; wildlife habitat, recreation (primary & secondary contact, sport fishing, boating, aesthetic enjoyment), commerce and navigation. Primary contact recreation, such as swimming, is not a beneficial use of class B or C waters.

ZEBRA MUSSELS

The permit contains reporting and treatment requirements for zebra mussels. Zebra mussels (*dreissena polymorpha*) have spread throughout the Great Lakes and other waterways in 18 states and two Canadian provinces think they were accidentally introduced into Lake Erie and St. Clair in the 1980's. This introduction has been attributed to a discharge of ballast water from a commercial freighter.

Zebra mussels will continue to expand their range as naturally flowing water carries their young, known as veligers, downstream. Commercial and recreational vessels and equipment can also spread zebra mussels when they move from infested waters to uninfested waters. Adult mussels may attach to any hard surface and the veligers may be transported in water.

A list of potential carriers includes:

- * boats, trailers and other equipment
- * live wells
- * scientific equipment
- * raw water
- * Scuba and snorkel gear
- * plants and animals

Placing these items in uninfested waters without following precautions may lead to an accidental introduction of mussels. Any boats or vessels from outside the State of Washington should be carefully examined and all boats or vessels from east of the Rocky Mountains should be considered infected.

Water hotter than 110 degrees F will kill veligers and 140 degrees F will kill adult mussels. Remember, it only takes a few viable adults or some bilge water containing microscopic veligers to start a new colony. Do your part to prevent the spread of mussels while protecting your boat and equipment too.

Therefore the permit contains inspection, reporting and quarantine requirements to minimize the infestation of zebra mussels.

RECOMMENDATION FOR PERMIT ISSUANCE

This proposed general permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to control toxics, protect human health, aquatic life, and the beneficial uses of waters of the State of Washington. The Department proposes that this proposed general permit be issued for 5 years.

REFERENCES

- 1) Aime Ontario Fraser, "Plastic Media," Professional Boatbuilder, October 1990.
- 2) Sven Donaldson, "Alternative Antifouling Systems," Professional Boatbuilder, October 1990.
- 3) Kenneth C. Alexander, "Characterization and Treatability of Hydroblast Wastewater," University of Washington, August 1988.
- 4) "Best Management Practices for Ship and Boat Building and Repair Yards," Puget Sound Shipbuilders Association & Puget Sound Water Quality Authority, May 1990.
- 5) Bengston, et. al., "Best Management Practices Manual for the Shipbuilding and Repair Industry," Commonwealth of Virginia, Virginia Water Control Board, DRAFT August 1989.
- 6) "Development Document for Shipbuilding and Repair," EPA 440/1-70/076-b, 1978.

- 7) John Wiley, "Maritime Industrial Waste Project - Reduction of Toxicant Pollution from the Maritime Industry in Puget Sound" METRO Industrial Waste Program, March 1992

APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to a general permit for water treatment plants. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

Public notice of application was published on (date) and (date) in (name of publication) to inform the public that an application had been submitted and to invite comment on the reissuance of this permit.

The Department will publish a Public Notice of Draft (PNOD) on (date) in (name of publication) to inform the public that a draft permit and fact sheet are available for review. Interested persons are invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

Water Quality Permit Coordinator
Department of Ecology
Northwest Regional Office
Bellevue, WA 98008-5452

The Department will hold a hearing at Marine View Reception and Conference Center formerly known as the Everett Yacht Club.

The Department will consider all comments received within thirty (30) days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone, ??, or by writing to the address listed above.

This permit and fact sheet were written by John Drabek, Paul Stauch and Greg Cloud

APPENDIX B-- SAMPLING GUIDANCE

MANUAL GRAB SAMPLING REQUIRED UNDER THE GENERAL BOATYARD PERMIT

INTRODUCTION

Follow the specific procedures required by your laboratory. As an aid to boatyard operators this appendix describes general procedures for collection of the grab stormwater samples using manual methods.

The objectives include the following:

- Characterizing stormwater discharges (e.g., average conditions, variability, ranges, etc.)
- Assessing the effectiveness of BMPs for stormwater control
- Detecting trends in discharge quality over time and between different locations

The basic steps in monitoring are:

SAMPLING METHODS AND EQUIPMENT

Where site conditions allow, collect samples by holding the sample bottle (provided by the analytical laboratory) directly in or under the stormwater flow stream. Direct filling of the sample bottles eliminates the need for sampling equipment and reduces the risk of sample contamination. Therefore always directly fill the sample bottle from the laboratory. The sample container can sometimes be taped to a pole if necessary to reach the sampling point (a simple bracket fashioned from a bicycle pump holder can be used with some bottles). Some sample bottles may contain preservatives (added by the analytical laboratory); so if the flow at a given location is very rapid or turbulent, the bottles could overflow and preservative would be lost.

DEVELOP STORM EVENT SELECTION CRITERIA

Try to monitor a range of different storm conditions (i.e., amounts, durations, antecedent moisture) It is desirable to assess stormwater quality during different sizes of storms, in different seasons, etc. The Department recommends including sample of a first flush of stormwater following a period a dry period.

Catchment areas that have a high proportion of pervious may not produce much runoff from the first storm(s) that follow a long dry period. In this situation, a storm that meets minimum rainfall amount criterion may not produce sufficient runoff for monitoring. Therefore, you may need to consider probable soil moisture and surface water storage (if appropriate) when deciding whether to sample a forthcoming storm event, especially if the storm is expected to be a small one.

MONITORING PROCEDURES

Sample Collection Procedures

To save time during actual sampling events, it is recommended that you obtain the necessary sample bottles well ahead of time and complete the labels insofar as possible before monitoring. Then place the sample bottles for a given monitoring location in a clean, clearly-labeled ice chest.

Sample bottles and labels are usually obtained from the analytical laboratory. Grab samples must be used for the three stormwater parameters and the four parameters for pressure wash water discharges to the sanitary sewer.

The typical procedure for collection of a single grab sample is outlined below:

1. Put on clean latex or nitrile rubber gloves.
2. Fill in the label on the sample bottle. A typical sample label may contain the following information:
 - Project name and number
 - Monitoring location
 - Sample ID (includes sample type, outfall location and number)
 - Name of sampling personnel
 - Analyses to be performed
 - Date and time of collection
3. Collect a grab stormwater sample as follows:
 - (a) Remove the lid from the grab sample bottle, and place the lid top-down on a clean surface (so that inside of the lid does not get dirty).
 - (b) Avoid touching the inside of the sample bottle or lid during sample collection.
 - (c) Immerse the sample bottle directly in the storm water flow holding the bottle so that its opening faces upstream.
 - (d) Try to collect the sample from the horizontal and, if there is enough water depth, the vertical center of flow.
 - (e) Try to avoid stirring up bottom sediments and/or collecting unrepresentative floating material.
 - (f) If the sample bottles contain preservatives, be sure to avoid tilting or overfilling the bottle.
 - (g) Place the filled grab sample bottles into a cooler along with ice. The ice should be in ziplock bags to avoid leaks.
4. Record the time of grab sample collection on a sampling form, chain-of-custody form, or in a log book.
5. Pack the sample bottle(s) with bubble-wrap or other padding. Complete a chain-of-custody form and insert a copy in the cooler containing the sample bottle(s). Deliver or ship the cooler to the laboratory.

Grab Sampling for Oil and Grease

Because oil and grease are often present in stormwater in several different forms (e.g., as a surface film, an emulsion, or in some combined form), it can be difficult to collect a representative sample. The best collection point is at the point of maximum mixing in the conveyance system. Because these substances tend to adhere to surfaces, always collect the discharge directly in the laboratory sample bottle.