

MARINE PLASTIC DEBRIS: WHAT WASHINGTON STATE HAS DONE

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ABSTRACT

This paper describes the formation of an interagency task force in Washington State to address the problem of marine plastic debris along its coast and in its waterways, and the resulting action plan.

INTRODUCTION

Early in 1987, Commissioner of Public Lands for the State of Washington, Brian Boyle, focused his interest on how marine plastic debris was affecting Washington State's coastal and inland waters. In his role as president of the Western States Land Commissioners' Association, he was familiar with efforts in Texas to increase public awareness about marine plastic debris in that state. As the elected official charged with administering the proprietary interests in more than 2 million acres (810,000 ha) of Washington's submerged lands, the commissioner saw this issue as one of major environmental importance as well as a way to focus attention on the stewardship of the state's aquatic lands.

Recent passage of Federal legislation to prevent dumping plastic into the nation's coastal waters, and a recognition that these persistent materials ultimately pollute aquatic lands, meant that this was an issue with immediate and long-term implications for the health of the state's aquatic lands. Persistent marine debris is a highly visible warning for a wide range of environmental contaminants.

BACKGROUND

Late in 1987, the Analysis and Planning Section of the Washington State Department of Natural Resources (DNR) researched the issue. At that time, levels of awareness varied in Washington State government about marine plastic debris and the Marine Entanglement Research Program. No comprehensive analysis of the issue had been done in Washington State, particularly in light of the recent signing by the United States of MARPOL Annex V and the passage of the Marine Plastic Pollution Research and Control Act of 1987. The interjurisdictional nature of the problem required an interagency cooperation with significant information provided by affected private and public and volunteer groups. Other state agencies and

organizations expressed interest and a willingness to participate with the DNR in reaching a mutually agreed course of action to develop a framework for state policy.

In January 1988, the commissioner held a briefing for key principals from affected Federal, state and local agencies, the legislature, private industry and organizations, and other interested parties. At that briefing, participants agreed to select representatives to serve on a task force that would develop a state action plan to address marine plastic debris in Washington's waters and on its shores.

THE WASHINGTON STATE MARINE PLASTICS DEBRIS TASK FORCE

The commissioner appointed a chairman (Robert Rose) and directed DNR staff to support the effort. Each of the 30 active task force members represented an agency or organization (Fig. 1). A steering committee of six worked closely with the chairman and support staff.

The marine plastics debris task force met monthly from February through July 1988. A detailed agenda was prepared for each meeting, which lasted approximately 7 h. Meetings were advertised and open to the public, with a chance for comments scheduled at the close of each meeting. In the course of the first two meetings, the task force adopted a 6-month work program, and agreed upon its mission, goals and objectives, and policies. The task force divided itself into three working groups: environment, education, and government and economic impact. Each group was to identify issue areas and possible actions.

In following meetings, the groups examined the diverse programs and regulations administered by agencies dealing with marine debris. Each agency or organization representative developed a "Status of Marine Debris Program" sheet and presented this material to the group (Fig. 2). Each status sheet gave the name of the agency or organization, the contact person, importance of the issue, legal authority to deal with the issue, additional authorities needed, resources currently available, and a description of the 1988 action plan (Appendix A). From this information, the staff developed a matrix of the existing authorities of agencies to deal with marine plastic debris (Fig. 3).

The steering committee assembled specific issue areas identified by the task force and developed a number of draft action recommendations which conformed to the objectives and policies. With subsequent approval by the group as a whole, the chairman and steering committee then developed a brief narrative statement explaining the issue area and identifying the agencies responsible for each issue. The recommendations and preferred-lead agencies to carry out the actions were collated and organized by staff and presented to the committee. Over the course of the next two meetings, bolstered by telephone conferences and mailed-in comments, the chair and staff clarified the committee's intent. At the sixth meeting, the task force gave its final approval to the text of the report. With agreement on issue areas, lead agencies, and participating agencies, a detailed matrix was prepared so that agency or organization directors and staff could

ACKNOWLEDGEMENTS

Marine Plastic Debris Task Force

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REPRESENTATIVE

AGENCY / ORGANIZATION

REPRESENTATIVE

FEDERAL

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Nancy Pearson

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Poulsbo Marine Science Center

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Board of Clallam County Commissioners

Board of Grays Harbor County Commissioners

Board of Jefferson County Commissioners

Board of Pacific County Commissioners

Board of San Juan County Commissioners

Board of Wahkiakum County Commissioners

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Figure 1.--Marine Plastic Debris Task Force members.

understanding of the issue. These will, for the most part, be integrated with existing interpretive programs such as guided walks, evening programs and wayside exhibits. Some activities may be appropriate in conjunction with State and Federal programs and we would be pleased to participate in any way possible.

(c) Projected: There are no projections for future activities at this time. However, the park is prepared to initiate or participate in efforts as opportunities arise and/or funds permit.

(d) Cooperative effort: Aside from our interest in continuing to work with the Task Force and State and Federal programs that will eventually be implemented, the park has only one identifiable cooperative program as a possibility. The National Marine Fisheries Service is interested in Olympic as one of four nationwide sites to be surveyed for marine debris accumulation. As stated in the study proposal, the objective would be: "To develop a program of systematic surveys in each region of the coastal United States to assess the types, quantities and sources of debris arriving on these shores, and to identify trends or changes in these parameters." Final site selection is expected within the next few weeks.

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March 17, 1988

MARINE PLASTICS DEBRIS TASK FORCE

1. Agency: National Park Service (Olympic National Park)

2. Why issue is important: Approximately 60 miles of beaches along the open coast of Olympic National Park have become the repository for uncounted tons of plastic debris. The presence of this material is significant in two respects. Aesthetically, the debris creates an ever-present disfigurement of an otherwise all-natural landscape. The bright colors, characteristic shapes and the sheer volume of plastics have visually impacted literally every meter of beach in the park. Of equal importance are the known and unknown, physical and chemical effects this debris has on intertidal organisms, including birds and mammals. The impact of introducing this variety and quantity of plastics into a pristine ecosystem cannot be understated.

3. Authority to deal with the issue: The fact that the National Park Service has exclusive jurisdiction within the park is of minor importance since the debris originates outside park boundaries. One legal recourse that, perhaps, deserves attention is the possibility of invoking the Constitution's property clause. While this is a rarely-used authority within the National Park System, the plastic debris issue, in many key ways, meets the criteria for its implementation, not only at Olympic but also in many National Parks along the Pacific Rim, the Gulf of Mexico and the Atlantic seaboard.

No additional authorities would alleviate the current problem and/or improve our enforcement efforts.

4. Resources available: The park has the authority to allocate operating funds and fee collection revenue to beach cleanup and a wide range of research/inventory/monitoring projects. Consistent with other top priorities and shrinking budgets, FR's can be assigned to in-park and cooperative projects that deal with the plastics issue. The major workload, however, has been and will likely continue to be borne by volunteers.

5. Description of program effort:

(a) Current: The park will continue to operate an annual beach cleanup program. This year's allocation for the project is \$4,500. Most of the labor will be provided by volunteer groups.

(b) Planned: Although specific plans have yet to be developed, the park will be initiating projects aimed at increasing visitor awareness and

Figure 2. ---Sample agency status sheet.

EXISTING AUTHORITIES AND AGENCIES DEALING WITH MPD

AGENCY	PROGRAM		ENFORCEMENT		STATUTES	FUNDING
	DEVELOPED	POTENTIAL	DEVELOPED	POTENTIAL		
EPA, REGION X	<ul style="list-style-type: none"> ■ National ongoing plastics pollution study ■ 1986-87 Adopt-A-Beach program with Seattle Aquarium; volunteer project hndbk. completed ■ State of the Sound exhibit with Seattle Aquarium 	<ul style="list-style-type: none"> ■ Public Education in cooperation with NOAA and Dept. of Transportation ■ Support establishment of baseline data and monitoring program ■ Additional technical support 			<ul style="list-style-type: none"> ■ Marine Plastics Pollution, Research and Control Act (MPPRCA) (PL 100-220) ■ Clean Water Act, Section 108 	
USFWS	<ul style="list-style-type: none"> ■ Beach cleanup 	<ul style="list-style-type: none"> ■ Cooperative actions ■ Field monitoring ■ Public education materials 			<ul style="list-style-type: none"> ■ Fish and Wildlife Coordination Act ■ Endangered Species Act ■ Migratory Bird Treaty Act ■ Anadromous Fish Conservation Act ■ Rivers and Harbors Act of 1899 ■ Clean Water Act 	
NPS	<ul style="list-style-type: none"> ■ Beach cleanup 	<ul style="list-style-type: none"> ■ Research and monitoring; Olympic Nat'l Park as an accum. monitoring site ■ Cooperative action ■ Visitor information/education 	<ul style="list-style-type: none"> ■ Exclusive jurisdiction in national parks ■ Authority to prosecute 	<ul style="list-style-type: none"> ■ Increased enforcement 	<ul style="list-style-type: none"> ■ Title 16, 18 U.S. Code 	
NMFS	<ul style="list-style-type: none"> ■ Marine entanglement research program 		<ul style="list-style-type: none"> ■ Enforcement personnel available 		<ul style="list-style-type: none"> ■ National Marine Mammal Protection and Control Act 	
COAST GUARD		<ul style="list-style-type: none"> ■ Participation with EPA and NOAA on public education 	<ul style="list-style-type: none"> ■ Fines for vessels ■ Certification of port facilities ■ Developing regulations 	<ul style="list-style-type: none"> ■ Increased enforcement (with increased funds) 	<ul style="list-style-type: none"> ■ MPPRCA 	

Figure 3.--Sample taken from table of existing authorities and agencies.

quickly reference their responsibilities and relationships with other agencies (Fig. 4).

The task force recognized that marine plastic affects fisheries and wildlife resources, endangers boaters and divers, and diminishes aesthetic enjoyment of the state's shorelines. Increasing public awareness and interest about the specific issue of marine plastic debris is a key element of the plan, with a strong emphasis on education. The task force recommendations emphasize recycling and proper disposal of potential marine plastic debris materials. In addition, the coordination of present and future cleanup efforts is critical to use Federal, state, local, and citizen resources efficiently.

The task force wanted its recommendations to be thoroughly examined by the affected agencies and incorporated into future work plans and budgets. Because the issue involves so many agencies and organizations and will involve a commitment of resources over time, the task force recommended designation of an overall coordinating agency.

MARINE PLASTIC DEBRIS: ACTION PLAN

The action plan was completed in October 1988 and presented to the commissioner, the public, and media at a press conference on the Seattle waterfront. The publication of the document was timed to coincide with the last day of Washington State's Coastweeks '88. The Adopt-A-Beach Program, sponsors of Coastweeks (under the auspices of the Washington Department of Ecology), organized the event and collected a representative sampling of debris from the riprapped shore of Elliott Bay.

The 1988 plan is organized into four sections.

Part 1 of the action plan explains how the Marine Plastic Debris Task Force developed a plan to address a major environmental problem: debris in Washington waterways. The floating garbage was not only unsightly but dangerous. How the task force focused on issues and their recommended actions are discussed.

Part 2 of the action plan presents the mission statement for the Marine Plastic Debris Task Force and the goal and objectives for the plan. Policies to guide and coordinate future activities are followed by 20 action recommendations designed to implement the policy statements. These recommendations are divided into three sections: environment, education, and government/economic impact. Part 2 also lists seven required legislative or administrative initiatives. (The mission statement, goal and objectives, and policies of the Marine Plastic Debris Task Force (1988), as documented in the Marine Plastic Debris Action Plan, are found in Appendix A of this paper. A summary of the marine debris action recommendations and the required legislative or administrative initiatives are found in Appendix B of this paper.)

Part 3 of the action plan contains the full text for each of the action recommendations including a short narrative explaining the

ACTION RECOMMENDATIONS AND THE LEAD AGENCIES INVOLVED

ACTION RECOMMENDATIONS	ENVIRONMENT								
	1 Designate coordinating and clearing-house agency	2 Develop environmental baseline and monitoring system	3 Coordinate beach cleanups	4 Conduct research on wildlife and fisheries effects	5 Coordinate ghost net removals	6 When feasible, require and promote recycling and alternative products	7 Recycling and disposal	8 Convene biennial statewide conference	9 Develop and implement a public outreach program
ORGANIZATIONS									
Coordinating agency		L						L	L
NOAA/NMFS	P	P		P	P	P	P		P
USFWS	P	P	P	P					P
NPS	P	P	P						P
CG	P	P					P		P
EPA	P	P		P		P	P		P
DOL	P								P
DCD	P								P
DOE	L	P	L			L	L		P
WDF	P	P	P	L	L	P			P
DNR	L	P	P		L	P			P
WDW	P	P	P	L	P				P
OFM									P
Office of Governor	P								P
DOR									P
PSWQA	P								P
State Bd. of Pilotage	P								P
Parks	L	P				P	L		P
SPI	P								P
IAC	P						L		P
Hse Env. Affrs. Com.	P								P
House Energy & Nat. Res. Coms.									P
Joint Select Com. Mar. & Ocean Res.	P								P
Senate Environ. & Nat'l Res. Com.	P								P
State Legislature	P						L		P
Association of Washington Cities		P	P		P	P	P		P
Wa. Assoc. of Counties		P	P		P	P	P		P
Port of Seattle		P	P				P		P
Wa. Pub. Ports Assoc.		P	P		P		P		P
County Auditors									P
Colleges & Universities	P	P	P						P
Private Companies	P	P	P	P		P	P		P
Aquariums		P		P					P
Marine Labs		P		P					P
Adopt-A-Beach		P	P						P
Indian Tribes		P							P
Dive Groups/Shops					P				P
Environ. Groups									P
Citizen Recycling Org.							P		P

L - Lead agency P - Participating agency

Figure 4.--Sample taken from Table 4 of action recommendations.

background of the issue. For each action recommendation, a lead agency is designated as well as a listing of agencies likely to participate in carrying out the action. A suggested time frame for implementation and an estimate of the duration of the action are proposed for each of the 20 action recommendations.

Part 4 of the action plan consists of three appendixes. Appendix A of the plan is a compilation of reports outlining the status (as of September 1988) of agency and organization activities, authorities, and current and proposed programs. Appendix B of the plan contains an overview and explanation of the Marine Plastic Pollution Research and Control Act of 1987. Appendix C of the plan encapsulates various Washington State programs addressing the problem of marine debris.

Copies of the action plan are available from Photo and Map Sales, Department of Natural Resources, 1055 Capitol Way S, AW-11, Olympia, WA 98504, (206) 753-5338.

IMPLEMENTATION

Since presenting the task force report to Commissioner Boyle, a number of steps have been taken to make the action plan a reality.

Designees of the directors of Parks, Ecology, and Natural Resources met in early 1989 to decide which agency should take the lead for coordinating future state marine plastic debris activity. As a result of that meeting, the Department of Natural Resources, having initiated and staffed the planning effort, was designated lead agency. The relationship among the agencies was formalized in a memorandum of understanding. Based on this agreement, the department prepared legislation for the 1989 Legislature. House Bill 1249 was to authorize the DNR to coordinate implementation of the action plan and to develop rules for cleanup and prevention of pollution in state waters. The department is also authorized to enter into intergovernmental agreements with Federal, state, or private parties, and to hire employees necessary to coordinate the plan.

An important conclusion of the task force deliberations was the recognition that a coordinator was necessary to assure that agencies followed through on the tasks contained in the action plan. This legislation provides the authority and funding source to make the plan a success.

At the same time, the Department of Ecology has funded through the coastal zone management program a baseline inventory survey of selective beaches. This will be carried out by the Adopt-A-Beach program using a newly revised inventory form. Beginning on 25 March, a scientific inventory of selected beaches will occur biweekly for a year, thus providing the first baseline information on marine plastic debris occurrence on Washington's shores.

As a result of widespread publicity about the report, the 1989 and 1990 Department of Transportation's Tide Tables, a popular and necessary document requested by boaters and fishermen along the Washington coast,

contains a special eight-page insert about proper disposal of all marine debris and sewage, with a special emphasis on plastic and other nonbiodegradable materials.

A ghost net task force with representatives from State Departments of Fisheries, Wildlife, and Natural Resources, interested citizens and divers, and the National Marine Fisheries Service, NOAA, is developing an inter-agency memorandum of understanding and protocols for ghost net and crab pot removal.

The Department of Natural Resources will start publishing a marine plastic debris newsletter to bring current activities and opportunities to the attention of boaters, lessees, citizen groups, and others interested in maintaining and improving Washington's aquatic environment.

CONCLUSION

The development and publication of the "Marine Plastic Debris Action Plan for Washington State" was the first and necessary step for addressing the presence and consequences of persistent debris in the state's waters and on its shores. As a result of the plan, institutional arrangements have developed which would not have been possible without the framework proposed by the task force. Positive response by the Washington Legislature portends support for the Department of Natural Resources to develop the necessary educational materials, to create public and private partnerships, and to raise the importance of this issue in the public mind.

REFERENCES

Marine Plastic Debris Task Force.

1988. Marine plastic debris action plan for Washington State.

Marine Plastic Debris Task Force, Washington State Department of Natural Resources, 2d ed., December 1988, var. pag.

Appendix A.--The mission statement, goal and objectives, and policies of the Marine Plastic Debris Task Force (1988).

MISSION STATEMENT

The purpose of the task force is to increase public awareness and interest about marine plastic debris and to develop a framework for coordinating public and private efforts to ensure an effective response. Plastic debris in the aquatic environment has an adverse impact on wildlife, aesthetics, navigation and overall environmental quality. The task force recognizes that this material is part of a larger problem of waste generation and management. The Washington State plan will link private, local, state and federal efforts in managing the plastic waste stream as it affects the shorelines and aquatic environment.

GOAL AND OBJECTIVES

Goal

To develop a state action plan to address the marine plastic debris issue that affects Washington's shorelines and aquatic environment.

Objectives

1. Identify plastic debris in the aquatic environment as a distinct issue.
2. Develop and support mechanisms to reduce or eliminate marine plastic debris.
3. Focus primarily on marine resources affected by plastic debris, with attention to impacts on other aquatic environments in the state.
4. Provide input to and develop steps for emerging private, local, state and federal policies and actions.
5. Develop and implement mechanisms that will coordinate actions performed by agencies and organizations.
6. Encourage and support private and public policy to increase awareness through education efforts in Washington State.

POLICIES

The Marine Plastic Debris Task Force recommends that the state of Washington, acting through its elected officials, and in cooperation with other appropriate agencies, offices, organizations and the private sector, should seek to:

1. Increase public awareness about effects of marine plastic debris.
 2. Designate a lead agency to act as a clearinghouse and coordinator for marine plastic debris activities in Washington.
 3. Designate appropriate agencies to draft, review and support legislation and/or regulations recommended by the task force.
 4. Empower responsible agencies to implement and participate to the fullest extent in actions recommended by the task force and other actions judged necessary.
 5. Encourage funding measures on all levels to facilitate compliance with MARPOL requirements and to implement task force recommendations.
 6. Coordinate, support and encourage continued volunteer efforts and special events related to the marine plastic debris issue.
 7. Encourage and support efforts by all the state's users of the marine environment to reduce and eliminate marine plastic debris.
 8. Support and encourage the plastics industry and other industries to continue research and development of products which are adaptable to recycling and proper disposal.
 9. Maintain and expand baseline data collection and research on sources, quantities, effects and fates of marine plastic debris.
 10. Encourage ports and local governments to collect and dispose of marine plastic debris in an environmentally sound manner.
 11. Support regional, national and international efforts to reduce and eliminate marine plastic debris.
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Appendix B.--Summary of the marine debris action recommendations and the required legislative or administrative initiatives (Marine Plastic Debris Task Force (1988)).

SUMMARY OF ACTION RECOMMENDATIONS

- (1) ACTION RECOMMENDATION: Designate an agency or entity to coordinate activities and serve as a clearinghouse for marine plastic debris data reception and information dissemination.

ENVIRONMENT

- (2) ACTION RECOMMENDATION: Develop an environmental baseline and monitoring system for marine plastic debris in Washington.
- (3) ACTION RECOMMENDATION: Coordinate beach cleanup efforts among various agencies.
- (4) ACTION RECOMMENDATION: Conduct additional research about the effects of plastic debris on wildlife and fisheries resources and habitat.
- (5) ACTION RECOMMENDATION: Coordinate information about and removal of ghost nets and other derelict equipment from state waters among DNR, Department of Fisheries, NOAA, and local agencies.
- (6) ACTION RECOMMENDATION: Require and promote recyclable or alternative products when feasible for use in or near the marine environment.
- (7) ACTION RECOMMENDATION: Require recycling and proper disposal of potential marine plastic debris materials for federal, state and local agencies and Indian tribes.

EDUCATION

- (8) ACTION RECOMMENDATION: Convene a biennial statewide conference by the designated marine plastic debris coordinating agency.
- (9) ACTION RECOMMENDATION: Develop and implement a public outreach program using the recommended logo [Illustration 6], public service announcements, publications and special events.
- (10) ACTION RECOMMENDATION: Develop and distribute media materials directed at domestic and foreign maritime communities.

- (11) ACTION RECOMMENDATION: Develop a marine debris curriculum for use at state and private maritime schools training the professional maritime community.
- (12) ACTION RECOMMENDATION: Post permanent information signs about why MPD and other litter is harmful to water quality, wildlife and fish as well as a threat to boating safety at all boat launch ramps, public access sites and public and private marinas.
- (13) ACTION RECOMMENDATION: Require that all state-licensed and registered users of Washington waters receive MPD information materials and display a plaque or decal about proper disposal of MPD and other litter.
- (14) ACTION RECOMMENDATION: Encourage retail and manufacturer cooperation to aid in marine plastic debris public education.
- (15) ACTION RECOMMENDATION: Incorporate the MPD problem into the environmental section of the state's required curriculums for grades K-12 and in other educational material.

GOVERNMENT/ECONOMIC IMPACT

- (16) ACTION RECOMMENDATION: Incorporate an analysis of the true costs of marine debris, including fiscal impacts and nonquantifiable environmental costs into policy decisions.
- (17) ACTION RECOMMENDATION: Conduct an independent cost/benefit analysis of MPD compliance and cleanup.
- (18) ACTION RECOMMENDATION: Integrate MPD disposal with comprehensive solid waste planning.
- (19) ACTION RECOMMENDATION: Increase public awareness about the legal consequences for improper MPD disposal.
- (20) ACTION RECOMMENDATION: Develop a framework of financial incentives to encourage proper disposal of MPD.

REQUIRED LEGISLATIVE OR ADMINISTRATIVE INITIATIVES

1. Marine Debris decal--Departments of Fisheries and Licensing should require that all Washington-licensed boats have a prominently displayed decal regarding proper disposal of marine plastic debris and other wastes.
2. Information for boaters--Require the Department of Licensing include an information packet containing legal requirements for marine plastic debris disposal when issuing boat registrations or renewals.

3. Legislation--Support passage of the State Parks legislation for Boater Recreation Fee Account funds to be used for boater environmental education and to provide capital for sewage pump-out facilities and educational signs.
4. Agreement--Formal agreement among DNR, Department of Fisheries, NOAA (and other appropriate agencies) is necessary to assume prompt location and removal of ghost nets.
5. Funding--Investigate Ecology's Litter Tax program (Chapter 70.93 RCW) for the possibility of directing funding from that program to the marine debris cleanup issue.
6. Clearinghouse--Develop an appropriate memorandum of understanding for the coordinating agency.
7. Staffing--Consider increased state enforcement through WDOE, WDF personnel to carry out these recommendations.