Marine Plastic Debris
ACTION PLAN
for Washington State

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Marine Plastic Debris Task Force

October 1988

WASHINGTON STATE DEPARTMENT OF
Natural Resources
Brian Boyle - Commissioner of Public Lands
Art Stearns - Supervisor

COASTAL ZONE INFORMATION CENTER

ACKNOWLEDGEMENTS

Marine Plastic Debris Task Force

Members

AGENCY / ORGANIZATION	REPRESENTATIVE
FEDERAL	
Department of Commerce National Oceanic and Atmospheric Administration	**Alan Bunn, LCDR**
Department of Interior Fish and Wildlife National Park Service	 **Don Kane** **Chuck Janda**
Department of Transportation 13th Coast Guard District	**Stephen D.Heath, LCDR**
Environmental Protection Agency, Region X	**Michael Rylko**
STATE	
Department of Community Development	**Sandi Benbrook** **George Turnbull, Jr.**
Department of Ecology	**Mikel DeBuse** **Brad Everson** **Rhonda Hunter** **Dennis Johnson** **Pam Miller** **Leighton Pratt**
Department of Fisheries	**Sally Hicks** **Phil Kauzloric** **Sandra O'Neill**
Department of Natural Resources	**David G. Bortz** **Margie Reed** **Bob Rose, Chairman** **Glenn Yeary**
Department of Wildlife	**Steve Jeffries**
Office of the Governor	**Gerard (Sid) Sidorowicz**
Puget Sound Water Quality Authority	**Sarah Barton** **Richard Tucker**
State Parks and Recreation Commission	**Nina Carter**
LEGISLATIVE	
Rep. Nancy Rust, House Environmental Affairs Committee	**Ya-Yue J. Van**
Joint Select Committee Marine and Ocean Resources	**Bob Butts**
Senate Environment and Natural Resources Committee	**Laurie Schock**
LOCAL	
Association of Washington Cities	**Andrea Dahl**
Northwest Indian Fisheries	**B. J. Whitener**
Port of Seattle	**Linda Cox**
Washington Public Ports Association	**Eric Johnson** **Darrell Russell**
PRIVATE	
Battelle Marine Research Laboratory	**Betsy Brown**
Dolco Packaging	**Raye Little**
Inter Club Boating Association of Washington	**Ray Nelson**
Marine Digest	**Donna Mooney**

AGENCY / ORGANIZATION	REPRESENTATIVE
Natural Resources Consultants	**Jeff June**
R. W. Beck and Associates	**David E.B. Nightingale**
Society of Plastics Engineer	**Chal B. Rogers**
CITIZEN ORGANIZATIONS	
Adopt-A-Beach, c/o Volunteers for Outdoor Washington	**Ken Pritchard**
The Mountaineers	**Margaret Hansen**
Washington Citizens for Recycling	**Nancy Pearson**
Washington Environmental Council	**Lisa Macchio**
EDUCATIONAL ORGANIZATIONS	
Friday Harbor Laboratories of University of Washington	**Dr. Frederick E. Ellis**
Poulsbo Marine Science Center	**Laurie Dumdie**
Seattle Aquarium	**John McMahon** **Cherie Williams**
University of Washington/Sea Grant	**Xan Augerot** **Jim Humphreys** **Patti Mullin**

Other Participants

American President Lines, Ltd.

Board of Clallam County Commissioners

Board of Grays Harbor County Commissioners

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Board of Pacific County Commissioners

Board of San Juan County Commissioners

Board of Wahkiakum County Commissioners

Marine Resources Company

Northwest Marine Trade Association

Superintendent of Public Instruction

Washington Association of Counties

Project Staff

Department of Natural Resources	**John Bergvall** **Marsha Hixson**
Design	**Jane Grobins**
Editors	**Carol Lind** **Camille Blanchette**
Illustrations	**Gail S. Weir**
Word Processors	**Karen Wood** **Marie Oles** **Jacque Encarnacion**

Photos courtesy of:

Center for Environmental Education	**C.E. O'Clair**
Cynthia Foutch	**Groebel**
Chuck Fowler	**Bill High**
Tom Paul	

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WASHINGTON STATE DEPARTMENT OF
Natural Resources

BRIAN BOYLE
Commissioner of Public Lands

OLYMPIA, WA 98504

October 10, 1988

Dear Commissioner Boyle:

In February, you appointed the Marine Plastic Debris Task Force (MPDTF) to develop a state action plan to address the growing pollution problem in the waters of Washington. Representatives of state agencies and organizations developed the following consensus report for your review and implementation.

In the course of our work, we have discovered a common purpose - a desire to protect the state's aquatic lands from marine debris pollution. The Task Force reviewed current activities and legal authorities. Out of this review and subsequent discussions, we identified the Mission, Goal, Objectives and Policies to guide future state actions. Twenty specific action recommendations were developed from this overall framework.

The Task Force members recognize that these action recommendations will require commitments by agencies and organizations preceeded by independent budget and policy analysis. In order to encourage adoption and implementation of these recommendations, the MPDTF recommends designation of an overall coordinating agency.

Our state has not been affected by the major health problems and economic impacts of plastic medical debris which plagued east coast beaches this past summer. Nor have our beaches been buried under tons of plastic garbage found on Texas beaches. We are in the enviable position of confronting this problem before it reaches a crisis stage. As the first state in the country to develop such an action plan, Washington is setting a national example of stewardship.

It has been our pleasure and privilege to work together on this report. The Marine Plastic Debris Task Forces urges your prompt review, distribution and adoption of the attached Action Plan.

Sincerely,

Bob Rose

Bob Rose, Chairman

Equal Opportunity/Affirmative Action Employer

Marine Plastic Debris
ACTION PLAN
for Washington State

Marine Plastic Debris Task Force

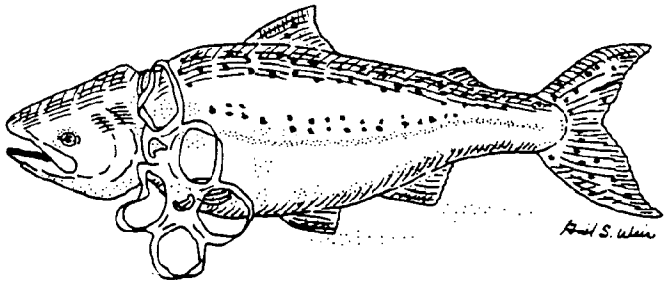
October 1988

WASHINGTON STATE DEPARTMENT OF
Natural Resources
Brian Boyle - Commissioner of Public Lands
Art Stearns - Supervisor

LIST OF ACRONYMS

ALEA - Aquatic Lands Enhancement Account

CCE - Center for Environmental Education
CZM - Coastal Zone Management
CG - Coast Guard



DCD - Department of Community Development
DNR - Department of Natural Resources
DOL - Department of Licensing
DOR - Department of Revenue

EPA - Environmental Protection Agency

G.R.T. - gross registered tonnage

IAC - Interagency Committee for Outdoor Recreation

MARPOL Annex V - International Convention for the Prevention of Pollution from Ships (for "Marine Pollution")
MERP - Marine Entanglement Research Program
MOA - Memorandum of Agreement
MPD - Marine Plastic Debris
MPPRCA - Marine Plastic Pollution Research and Control Act of 1987

NMFS - National Marine Fisheries Service
NOAA - National Oceanic and Atmospheric Administration
NPS - National Park Service

OFM - Office of Financial Management

Parks - State Parks and Recreation Commission
PIE - Public Involvement and Education Fund
P.L.100-220 - Marine Plastic Pollution Research and Control Act of 1987
PSA - Public Service Announcement
PSWQA - Puget Sound Water Quality Authority

SPI - Superintendent of Public Instruction
SEPA - State Environmental Policy Act

U.N. - United Nations
USFWS - United States Fish and Wildlife Service
UTC - Utility and Transportation Commission

WDF - Washington Department of Fisheries
WDOE - Washington Department of Ecology
WEC - Washington Environmental Council
WDW - Washington Department of Wildlife

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PREFACE
Marine Plastic Debris Task Force

In February 1988 Commissioner of Public Lands Brian Boyle appointed a task force of agency and organization representatives to develop a state action plan to address the increasingly important issue of marine plastic debris (MPD). The initiative was inspired by several events including: aggressive beach cleanup efforts in Texas promoted by Land Commissioner Gary Mauro, the recent passage of federal legislation to prevent dumping plastic into the nation's coastal waters, and a recognition that these persistent materials ultimately pollute the aquatic lands of the state.

The following action plan is the result of the task force's efforts over the past six months. The task force recognizes that marine plastic affects fisheries and wildlife resources, endangers boaters and divers, and diminishes aesthetic enjoyment of our 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 MPD materials. In addition, the coordination of present and future clean-up efforts is critical to efficiently use federal, state, local and citizen resources.

Because this issue involves so many agencies and organizations and will involve a commitment of resources over time, the task force recommends designation of an overall coordinating agency. Three organization options are suggested. The task force recommends that the attached recommendations be thoroughly examined by the affected agencies and incorporated into future work plans and budgets.

This report is organized into three major sections and appendices. Part I is an overview of the marine plastic debris problem. The sources of marine plastic debris are reviewed with special attention to the types and quantities generated from merchant, military, commercial and recreational vessels. The effects of marine debris on human activities and wildlife are briefly examined. The scope of activities at the national and state level is also discussed.

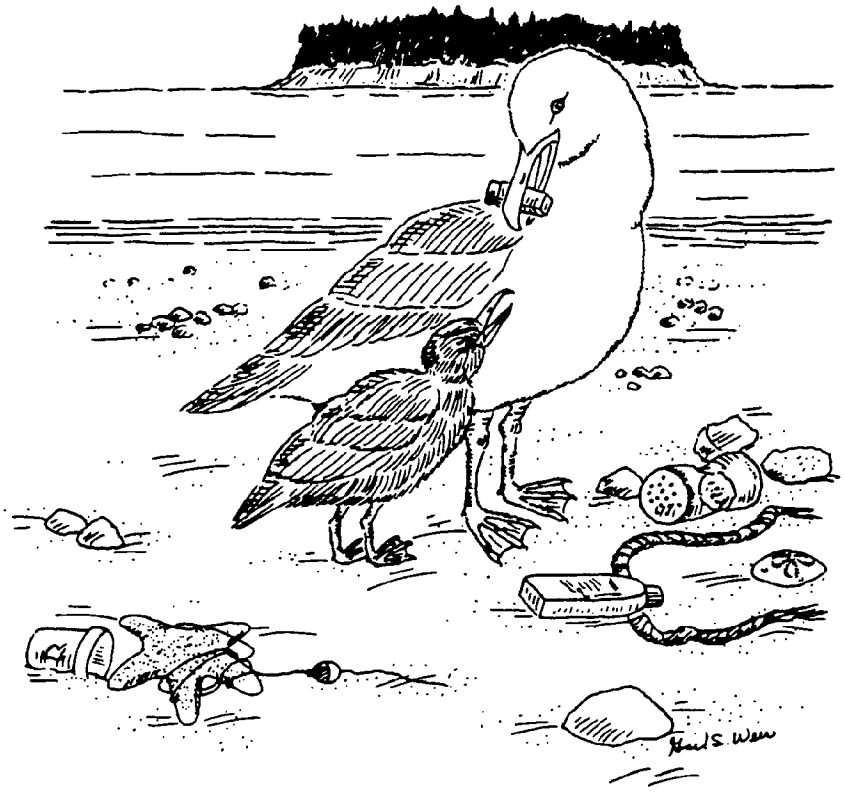
Part II present the mission statement for the Marine Plastic Debris Task Force, followed by the Goal and Objectives for a state action plan. Following 11 policies to guide and coordinate future activities are 20 action recommendations designed to implement the policy statements. These recommendations are divided into three sections: environment, education and government/economic impact.

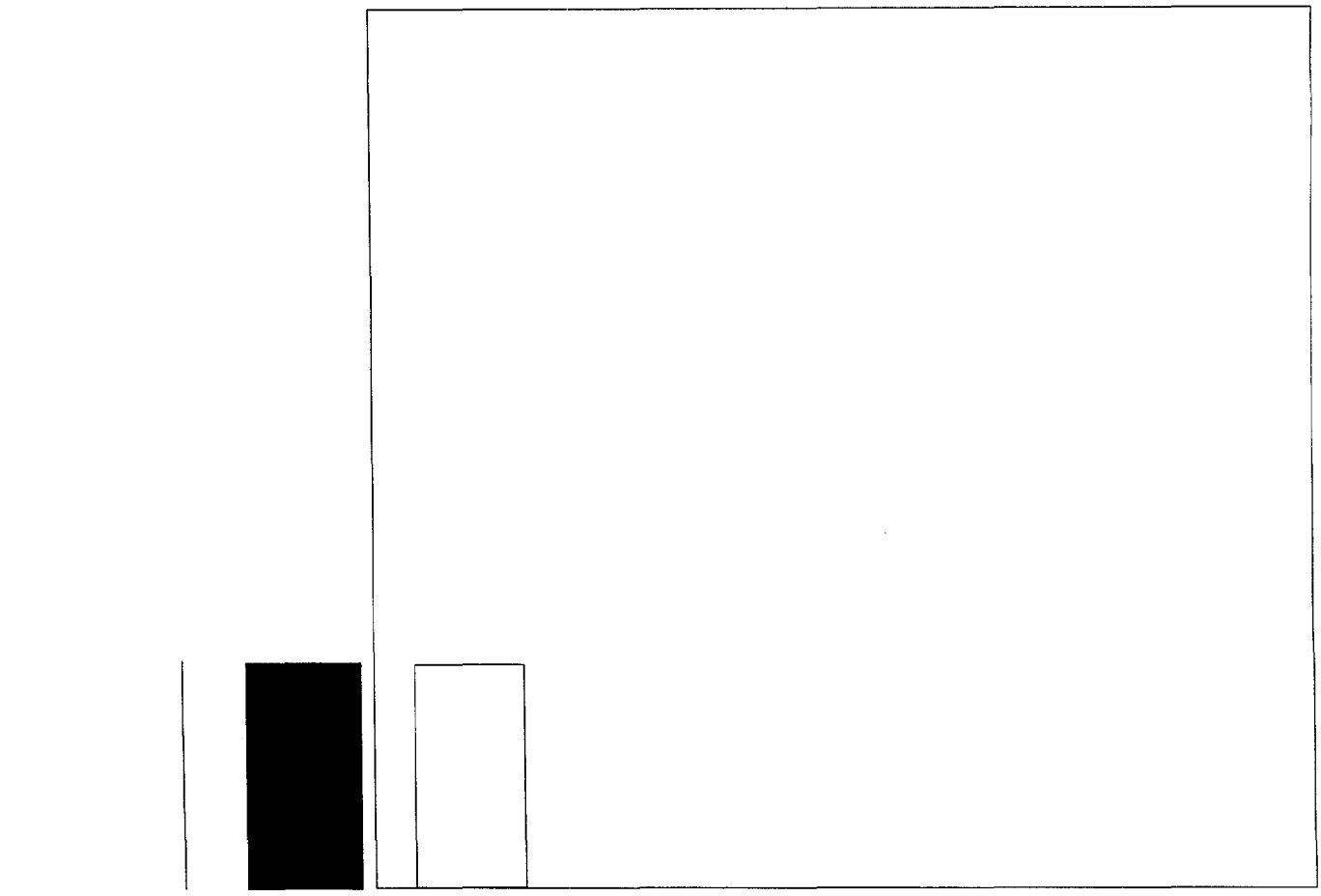
Part III contains the full text for each of the action recommendations, including a short narrative explaining the background of the issue. This section presents the specifics of the State Action Plan including a series of detailed tasks designed to carry out the proposed action. For each action recommendation, 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. The section closes with a matrix that arrays the action recommendations along the top and the affected agencies on the left side. This matrix will allow an agency director or employee to easily determine those issues for which they are the recommended lead or participating agency.

The appendices contain the necessary background for understanding the legal and institutional framework for this issue. Appendix A is a compilation of data sheets outlining the current status (as of September 1988) of agency and organization activities, authorities, current and proposed programs. These narrative sheets are followed by a matrix containing the legal authorities and programs available to each agency for addressing the MPD problem.

Appendix B contains an overview and explanation of the Marine Plastic Pollution Research and Control Act (MPPRCA) of 1987. In addition to clearly displaying (in tabular form) the penalties required by this act, this section also explains the research on recycling and environmental effects to be carried by EPA and NOAA. A brief review of Washington State law completes this section.

Appendix C presents a brief description of how the task force was formed and how it developed its work products.





PART 1

Marine Plastic Debris Defined

PART I
Marine Plastic Debris Defined

INTRODUCTION

Society has long been concerned about pollution of the marine environment. Oil pollution was aggressively addressed in the late 1940s and early 1950s, hazardous wastes were identified as a potential problem in the 1970s, and marine debris recently has been identified as a problem.

MARINE PLASTIC DEBRIS

Marine debris is any manufactured object of wood, metal, glass, rubber, cloth, paper, plastic or other material accidentally or purposely put into the marine environment.

Of all these materials, plastic is considered one of the most serious contaminants. The properties of strength, durability, lightweight and low cost make plastic ideally suited for the manufacture of a growing number of products. These same properties also make plastic potentially harmful to the marine environment. Lightweight plastic floats, becoming widespread at sea and on beaches where it threatens marine mammals and birds by entanglement or ingestion. Other plastic sinks, but still endangers marine life and threatens the safety of divers.

The persistence of plastic presents another problem in the marine environment. Most plastic resists natural decay. Although it may break down smaller and smaller, those particles may affect the marine environment for years or even decades.

SOURCES AND QUANTITIES

Marine debris can be divided into ocean and land-based sources. Major dumping into the oceans comes from ship-generated garbage, litter carried to sea by rivers and municipal drainage systems, and debris left by beach users. Comprehensive data on quantities and sources of marine debris are quite limited. Marine debris varies widely by area, depending on local beach and ocean use, season, weather and public awareness of the problem. Packaging materials, fishing gear and convenience items comprise most of the plastic entering the oceans.

Ocean Sources

A 1975 National Academy of Sciences report estimated that people aboard passenger, merchant, commercial, recreational and military ships disposed 6.4 billion pounds of marine debris into the world's oceans in a single year. Of this, approximately 44.8 million pounds (0.7 percent) was plastic.

MERCHANT VESSELS

The world merchant fleet has increased from 182 million gross registered tonnage (G.R.T.) in 1967 to 425 million G.R.T. in 1982 (U.N. Statistical Report). The 1975 National Academy of Sciences study estimated merchant ships worldwide generated 110,000 metric tons of crew-associated litter and 5.6 million metric tons of additional cargo-associated litter each year. Although containerized shipping has reduced the number of crew members on each vessel, a 1982 study (Horsman, 1982) estimated that crew members aboard the 71,000 merchant vessels operating in 1979 dumped 639,000 plastic containers into the sea each day.

A recent study by R.W. Beck and Associates (D. Nightingale, pers. comm.) for the Port of Seattle estimated a potential of 13,700 pounds of crew and passenger-associated litter would come ashore each day if 90 percent of the 1,302 vessels (expected to call during 1988) dispose of all their garbage ashore. Vessels using Washington ports are expected to import and export over 32 million metric tons of products by 1990. Currently, most vessel-generated litter is dumped at sea and becomes marine debris, some of it drifting in coastal waters or becoming trash on Washington beaches.

A Japanese study conducted in the North Pacific in 1986 (Mio and Takehama, 1987) reported some of the highest concentrations of marine debris, particularly plastic, off the Washington Coast. These high concentrations were attributed to merchant and commercial fishing vessel activity and prevailing eastward currents in the North Pacific between 40 and 50 degrees which concentrate marine debris off the Washington coast.

MILITARY VESSELS

In 1975, the world's military fleets were estimated to have dumped 74,000 metric tons of marine debris into the ocean (National Academy of Sciences, 1975). In 1985, approximately 2.75 million personnel were estimated to be aboard the world's military vessels. This figure included the U.S. Navy, which operated 600 vessels with 285,000 personnel (Jane's Fighting Ships, 1985-1986).

Washington hosts a large U.S. Navy fleet with facilities at Bangor, Bremerton and possibly Everett. U.S. Coast Guard, National Oceanic and Atmospheric Administration, and other research vessels use Washington ports and sail the waters off Washington. Each potentially contributes to local marine debris.

CRUISE SHIPS

Cruise ships generate primarily domestic garbage, part of which is plastic packaging. Currently, 15 cruise ship companies operate out of six major and 32 smaller U.S. ports of call. No accurate estimates exist of the number of passengers or crew members at sea each year, but most ships each carry 200 to 1,000 passengers and crew members. Several cruise lines use incineration and others grind garbage before dumping at sea.

Alaska-bound ferries and cruise ships call at Washington ports, and other passenger lines transit off the coast of Washington—all potentially contribute to marine debris. In 1987 three cruise lines made 21 ship calls at the Port of Seattle alone.

COMMERCIAL FISHING VESSELS

Commercial fishing vessels also contribute to ocean sources of marine debris through disposal of galley wastes and by accidental loss or purposeful disposal of fishing gear. Since the late 1960s, synthetic fishing gear has almost completely replaced natural fiber-based gear. The strength and durability of this fishing gear, lost accidentally or disposed of purposely, continues to entrap marine wildlife and threatens the safety of mariners and divers.

In areas of intensive commercial fishing, such as the North Pacific, fishing equipment represents a large portion of the marine debris found at sea and on beaches (Johnson, 1987). In 1986, Parker and Yang estimated approximately 125,700 commercial fishing vessels with 223,000 crew members operated in the U.S. They estimated each crew member generated 3.04 pounds of solid waste per day, of which 0.01 pound was plastic, for a total of 245 tons of plastic disposed of by the U.S. commercial fishing fleet each year, excluding fishing gear.

Natural Resources Consultants (1986) estimated 11,072 crew members worked aboard 5,747 vessels operating in Washington waters in 1985 and an additional 1,371 Washington-based vessels with 6,088 crew members operating in distant water fisheries outside state waters. Each of these vessels is a potential contributor to marine debris along the waterways of Washington. Gillnetting, trawling, purse seining, longlining, trolling and pot fisheries all operate in Washington waters and contribute lost and discarded fishing gear to the marine environment. Washington's ocean beaches receive lost and discarded fishing gear, primarily gillnets, from foreign fisheries operating in the central North Pacific. Recently, the commercial fishing industry in Washington has taken an active role to reduce their contribution to marine debris and have sponsored seminars and programs to educate those who fish in neighboring states and countries.

RECREATIONAL BOATS

Recreational boaters, including those who fish, contribute by generating and disposing of domestic wastes and lost gear. About 16 million people are recreational boaters in the U.S. (U.S. Coast Guard Statistics, 1987). In 1977 the U.S. Coast Guard estimated that 50.5 million people participated in boating in the U.S., and each generated about 1.5 pounds of garbage per day for a total of over 75 million pounds of garbage.

Washington has one of the largest and most active recreational boating communities in the United States. Nearly 160,000 vessels plied Washington State waters during 1987. Further, Washington has one vessel for every 30 to 40 state residents (U.S. Coast Guard boating statistics, 1987). The Washington Department of Licensing reports 170,000 recreational vessels 16 feet and larger are registered in Washington in 1988 and possibly an additional 100,000 recreational vessels are not. The Washington State Parks and Recreation Commission reported over 45,700 people used overnight moorages in marine parks during 1987. The Washington Department of Fisheries issued over 390,000 sport fishing licenses in 1986 and reported over one million marine angler trips (State of Washington Data Book, 1987). Each recreational vessel potentially contributes to marine debris in Washington State.

Land Sources

Much of the litter entering the oceans from land is similar to that coming from ocean sources.

Beach users are the primary source of marine debris in most areas. Over 39 million people visited Washington State coastal parks in 1987. Another 12 million visited state parks with lake or river access. Many other people visited federal, county and private coastal beaches. How much litter visitors to Washington sites left has not been documented or estimated.

Other land-based sources of marine debris include inadvertent release of materials from coastal landfills, roadside litter, illegal deliberate dumping of garbage, and debris associated with run-off from municipal drainage systems shunted from sewage treatment plants during periods of heavy rainfall. Almost no information exists on the quantity of debris from these sources, nationwide or for Washington State.

CLEANUP EFFORTS

Cleanup operations can give an indication of the amount of marine debris accumulating on our beaches. In 1987, 7,132 volunteers collected 306 tons of litter from 154 miles of Texas beaches for an average of 2,000 pounds of debris per mile. Peart (1987) estimates the Padre National Seashore in Texas receives 580 tons of marine debris per year, over 10 tons per mile of beach. Oregon beaches had 142 pounds of debris per mile and California beaches 75 pounds per mile.

In comparison to Texas beaches, Washington's are relatively clean: 1,000 volunteers cleaned six tons of litter from about 100 miles of beach, or about 60 pounds per mile in 1987. The Washington State Parks and Recreation Commission, a joint sponsor of the beach cleanup program with the Department of Ecology for the past 17 years, estimates that 40 percent of the debris collected was plastic and 70 percent of all debris was from ocean sources (Ms. Camille Johnson, pers. comm.).

Volunteers collected 20 cubic yards of floating debris from Elliot Bay during one day in April 1986. A joint project between the City of Seattle and Metro during the summers of 1986 and 1987 collected floating debris from a litter trap installed near the Seattle Aquarium. Ten dump truck loads of marine debris were removed during August and September in 1986 and 30 dump truck loads from June through September in 1987. Processed wood represented 80 percent of the material collected, 10 percent was natural driftwood and 10 percent was other material including plastic.

THE EFFECTS OF MARINE DEBRIS

Plastic marine debris causes damage to commercial and recreational vessels through fouling of steering, propellers, and cooling water intakes. Interviews with those who fish commercially in the Port of Newport, Oregon, reported losses of nearly $1,000 per vessel per year from marine debris-related damage.

Marine debris financially effects seaside communities. These coastal communities spend millions of dollars yearly to maintain clean beaches to attract visitors. When the beaches become fouled, visitors are unwilling to linger. Keeping the beaches clean or not keeping the beaches clean is a financial blow to these recreational communities.

Marine debris can kill. Submerged fishing gear can entangle divers, causing them to drown. Marine wildlife can be injured or killed from ingesting or becoming entangled in marine debris. No one knows how many birds, marine mammals, turtles, fish and invertebrates are killed each year because of marine debris. We do know that individual animals are affected by marine debris. Northern fur seal populations on the Pribilof Islands are declining, and death from entanglement in marine debris, particularly fishing gear and strapping bands, contributed significantly to this decline (Fowler, 1985, 1987). Up to 40,000 northern fur seals a year may die because of marine debris entanglement. Whales, porpoises and otters also become entangled in marine debris, but effects on population level are not known.

Of the 280 worldwide species of sea birds, 50 species are known to have ingested plastic. Other birds become entangled in six-pack yokes, monofilament fishing line and other debris, and die. Sea turtles have been observed eating plastic bags and sheeting, apparently mistaking these for their favorite food—jellyfish.

Lost or discarded fishing nets (often called "ghost nets") lines and crab pots continue to catch and kill fish and invertebrates and endanger lives for days, months or even years. Volunteers for Outdoor Washington report ten fishing nets were found abandoned or lost in Puget Sound during the last year (Ken Pritchard, pers. comm.). When the nets were removed, it was found they were still catching and killing marine wildlife. High (1985) reported a lost gillnet continued fishing in Puget Sound for six years. In contradiction, other studies show that gillnets collapse on themselves reducing their catching effectiveness after only 30 minutes (Gerrodette et al., 1987).

High (1985) also estimated that crabbers lose 10 percent of their crab pots each year, up to 1,200 crab pots annually. Until recently these crab pots were not required to have degradable panels; since most are constructed of metal and synthetic materials, they may continue to fish for years.

Almost no information is available about the effects on the environment of plastic and other marine debris as they slowly degrade while buried in the sediment, lying on beaches or the ocean floor, floating in the water, or buried in land fills. Debris present in the environment today could affect our lives for years.

WHAT IS BEING DONE

FEDERAL PROGRAMS

President Ronald Reagan signed Public Law 100-220, the Marine Plastic Pollution Research and Control Act (MPPRCA) of 1987, on December 30, 1987. This law implements an international agreement among merchant shipping nations to prevent pollution from ships. This act will ban the disposal of all plastic from ships plying U.S. waters. Many other international treaties, U.S. federal laws, and state and local regulations directly or indirectly address the disposal of marine debris.

The U.S. Department of Commerce through the National Marine Fisheries (NMF) Service began the Marine Entanglement Research Program (MERP) in 1985. This program has sponsored education, research and mitigation programs nationwide about marine debris. The U.S. Department of Interior's Mineral Management Service, National Park Service, and U.S. Fish and Wildlife Service have all done research on ocean transport of marine debris, cleanup operations in parks and refuges, and research on the effects of marine debris on wildlife. The Take Pride In America campaign participated in beach and water cleanup projects. The U.S. Coast Guard will develop and enforce federal regulations concerning marine debris. The U.S. Department of Agriculture will be responsible for assuring the prevention of disease from foreign garbage offloaded at U.S. ports. The Environmental Protection Agency is involved with marine debris on a national level in its

toxic substances, water quality, ocean dumping and Superfund programs. The Marine Mammal Commission collects information about the effects of marine debris on marine mammals. The nationwide Sea Grant program has exchanged marine debris information among local programs and is developing local programs of its own. Earlier this year the federal Interagency Task Force on Persistent Marine Debris issued a report which represents a starting point for increased federal interagency cooperation for addressing the problem of persistent marine debris.

STATE PROGRAMS

State programs include an aggressive education and cleanup program in Texas led by Texas Land Commissioner Garry Mauro. Similar programs have begun in New Jersey and Oregon. In Oregon, the Port of Newport conducted a pilot marine debris collection project sponsored by National Marine Fisheries Service. This program included commercial and recreational vessel litter collection, disposal, and recycling, along with public education programs.

WASHINGTON STATE PROGRAMS

The Washington State Legislature passed a memorial resolution in 1987 (House Joint Memorial 4037) encouraging the U.S. Congress to ratify an international treaty prohibiting disposal of plastic at sea (MARPOL Annex V), provide funds to the U.S. Coast Guard to implement the public law ratifying the treaty, and to recognize Washington State marine waters as a special area.

The Department of Ecology and the State Parks and Recreation Commission have sponsored September beach cleanup operations on the coast for the past 17 years.

The Department of Fisheries, in conjunction with NOAA and private volunteer organizations, is developing a program for removing derelict fishing gear. The Washington Department of Ecology supports cleanups, education, and public involvement projects statewide. The Coastal Zone Management program (CZM) administered by WDOE is currently sponsoring a beach survey effort involving volunteers through Adopt-A-Beach. These surveys will provide information on the nature and extent of the marine plastic debris problem in the state.

Sea Grant, with support from the Puget Sound Water Quality Authority, is conducting a pilot port marine debris collection project in Bellingham, Washington.

In February 1988, Washington Commissioner of Public Lands Brian Boyle organized the Washington State Task Force on Marine Plastic Debris to coordinate federal, state, local and private efforts to address marine debris. The attached report contains their recommendations.

PRIVATE INDUSTRY EFFORTS

The members of the Society of the Plastics Industry are active in preventative measures through developing degradable plastic, promoting recycling plastic and providing public education programs about the proper disposal of plastic products.

Fishing industry associations, primarily from Pacific Rim countries, have promoted education programs about marine debris.

NATIONAL PUBLIC INTEREST GROUP EFFORTS

The Center for Environmental Education (CEE) in Washington, D.C. has been designated the nationwide clearinghouse for information about marine debris. CEE has been active in education, research and mitigation activities throughout the coastal states.

The nationwide Entanglement Network is a group of conservation and environmental organizations that exchange information about the effects of marine debris on wildlife.

The Marine Debris Roundtable is a national group of experts from industry, government, and environmental organizations that meet to evaluate strategies for future research and mitigation measures on marine debris.

WASHINGTON STATE PUBLIC INTEREST GROUP EFFORTS

In Washington State public interest groups active in the marine debris issue include: Volunteers for Outdoor Washington sponsors cleanup operations in Puget Sound; the Seattle Aquarium educates the public about marine debris; and numerous recreational clubs participate in cleanup operations and public awareness campaigns. The Four-Wheel Drive Association has participated in the Department of Ecology/Washington State Parks and Recreation Commission-sponsored coastal beach cleanups each year for 13 years.

Individuals participated in organized beach cleanups. Over 26,585 people participated nationwide in beach cleanups during Coastweeks in 1987. The Washington Department of Ecology reported 3,500 volunteers participated in Washington State

during the September 1987 coastal beach cleanup. People attend meetings and seminars to become aware of the problem and then inform their families and friends.

Teachers are developing curriculums for elementary and secondary schools to educate youth about marine debris.

CONCLUSION

Marine debris is part of two larger problems: marine pollution and solid waste management. The ocean environment currently receives pollutants from industrial, agricultural, and urban sources. Cities, counties and states now face serious issues about solid waste management. Certainly, recycling and alternative disposal technologies will have to be addressed. Recent federal and international regulations prohibiting disposal of plastic into the marine environment (MARPOL Annex V and Public Law 100-220) will require mariners to dispose of plastics at marinas and ports, thus adding to land-based solid wastes. This report does not attempt to address the broader issues of marine pollution and solid waste management.

Persistent marine debris causes problems worldwide. The problems differ, depending upon the region, source and type of debris and effects on humans and wildlife. The problem may not yet have reached a crisis level in most areas. Serious decisions need to be made on how best to allocate available resources to protect the environment. By dealing with this issue now through current programs and following the recommendations presented in this report, it should be possible to reduce or eliminate marine debris as a problem for the aquatic environment in Washington.

PART 2

Marine Plastic Debris Task Force Summary Action Plan

PART II
Marine Plastic Debris Task Force

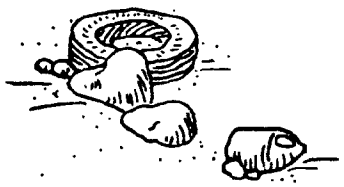
MISSION STATEMENT

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.

Marine Plastic Debris Task Force

GOAL AND OBJECTIVES

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



Objectives:

(1) Identify plastic debris in the aquatic environment as a distinct issue.

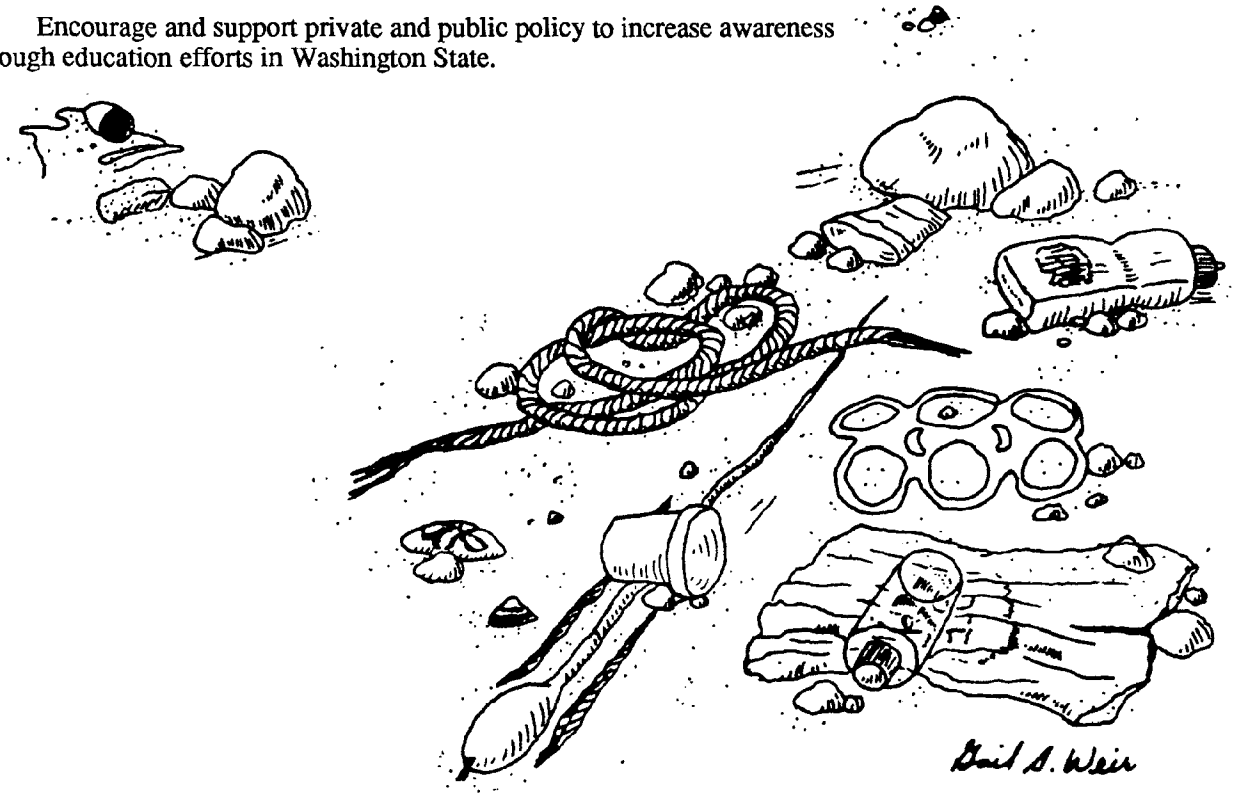
(2) Develop and support mechanisms to reduce or eliminate marine plastic debris.

(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 by agencies and organizations.

(6) Encourage and support private and public policy to increase awareness through education efforts in Washington State.



Marine Plastic Debris Task Force

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 clearing house 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.

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, 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 to include an information packet including legal requirements for marine plastic debris disposal when issuing boat registrations or renewals.

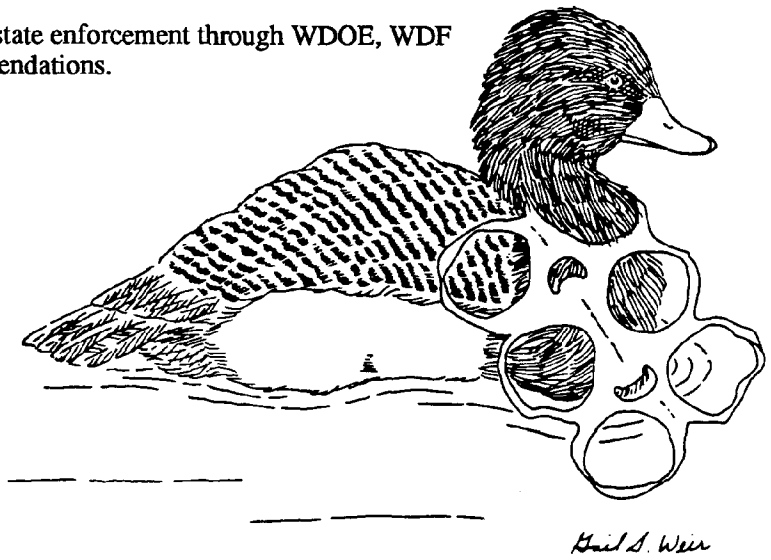
3. Legislation—Support passage of the State Parks legislation for Boater Recreation Fee Account funds to be used for boater environmental education and to provide capital for sewage pump-out facilities and educational signs.

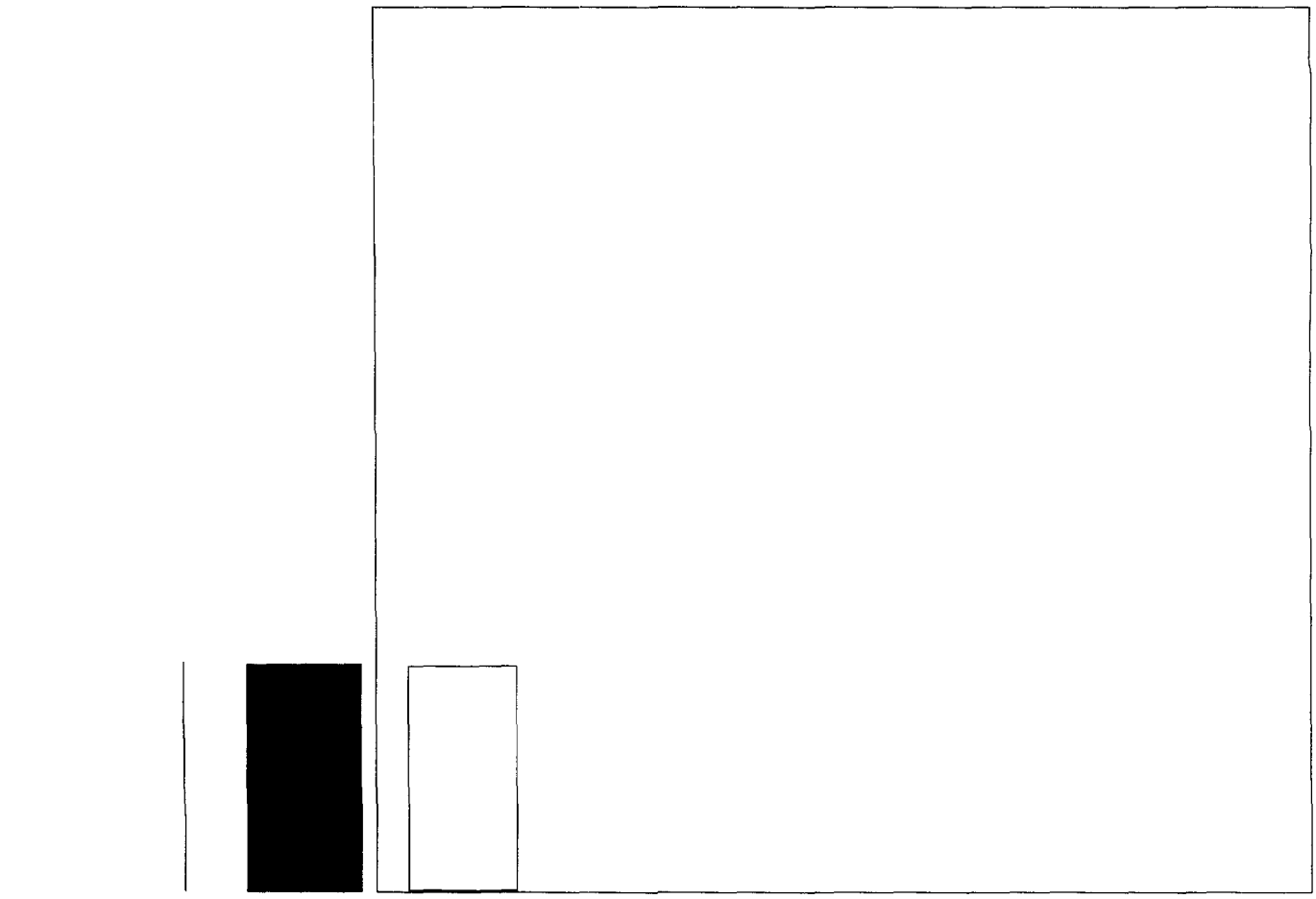
4. Agreement—Formal agreement among DNR, Department of Fisheries, NOAA (and other appropriate agencies) is necessary to assume prompt location and removal of ghost nets.

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.





PART 3

Marine Plastic Debris Action Recommendations

PART III
MARINE PLASTIC DEBRIS TASK FORCE

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.

Agencies now retain data from beach cleanups, ghost net recoveries, seabird entanglement and other marine debris related work. The public usually becomes aware of the marine debris problem through occasional media attention. Citizens, private groups and affected state and federal agencies need a single agency where they can obtain marine debris education materials, deposit materials of their own, receive information about upcoming activities, report derelict fishing equipment and other debris, and report beach litter data.

Effective implementation of the following recommendations will require a continuing organizational and financial commitment. The Task Force recommends a three-step process for carrying out its recommendations. Because of budgetary and organizational implications, three options are suggested for structuring the coordinating agency considerations. The Commissioner of Public Lands, the Director of the Department of Ecology, and the Director of Parks and Recreation Commission should make the decision on the most effective structure for carrying out these recommendations within three months of receiving this report.

- After appropriate review, develop an interagency Memorandum of Agreement (MOA) among the various parties. This MOA will commit the respective parties to carry out the action recommendation contained in this report.

- To ensure agency implementation of these recommendations, agency directors designate staff representatives to serve as an Ad Hoc Working Group.

- Options for the coordinating agency for the State MPD program:

(A) The information clearinghouse and the lead coordinating agency would be two separate and distinct entities linked through a contractual relationship. Under this arrangement, an organization familiar with the marine plastic debris issue (such as Sea Grant or a private consultant) would act as a clearinghouse for information and data collection. Task Force members expressed concern that long-term information coordination and dissemination is typically better done by private or university-related enterprises. WDOE or DNR would take the lead for interagency coordination and incorporation of funding requests to the legislature.

(B) The information clearinghouse and lead coordinating agency would be a single entity, preferably either WDOE or DNR. Funding and coordination would be simplified under this scenario. Concern has been expressed that the profile of the effort might not be sufficiently prominent unless a strong commitment is made by the agency director.

(C) A third option would be to extend step two recommended above (Ad Hoc Working Group) and make this a more permanent structural part of state government. This Action/Management Group would consist of several agencies with various sources of funding.

The Task Force recommends alternative (a) as the most potentially successfully organizational structure. Whichever option is deemed most appropriate by the agency directors, the Task Force recognizes that a stable and sustainable funding source is necessary to carry out the following program elements. Moneys generated from state aquatic land management appear to be an appropriate and related source of funds. The Department of Natural Resources should include a request for such funds in its upcoming budget.

Lead Agency: See options above.

Participating Agencies: State and federal agencies, Indian tribes, colleges and universities, private companies

Implementation Time Frame: 1989-1991

Duration: On-going

ENVIRONMENT

(2) ACTION RECOMMENDATION: Develop an environmental baseline and monitoring system for marine plastic debris in Washington.

Presently, the amount, occurrence, distribution and type of marine plastic debris in Washington waters and on shorelines is reported only on a limited basis. Anecdotal evidence from beach cleanups includes National Park Service/State Parks, National Wildlife Refuges and Adopt-A-Beach information. However, beach cleanups have not used a standardized format for cataloging the materials collected. There is no means for sharing information about environmental effects on wildlife, fisheries and other resources.

The collection of baseline data is useful only if it helps to estimate changing conditions. Statistically valid monitoring programs require that appropriate baseline information is measured so that "before and after" analyses can be conducted. Qualitative and quantitative data upon which to make these assessments can only be obtained by a systematic program of monitoring. Data obtained from monitoring activities (such as beach cleanups), Coast Guard inspections, recreation site maintenance and port disposal activities can then be incorporated into the data base. Measurement of changes in levels of environmental contamination will require a long-term commitment of financial and organizational resources. Some commitments have already been made at the federal level. For instance, the MPPRC requires that beginning in December 1989 the Coast Guard must make a biennial report to Congress on compliance with Annex V. The Coast Guard has contracted with a firm to evaluate information on the quality of waters and will periodically check how the environment is being affected.

Data on occurrence, type and amount of marine plastic debris from beach cleanups should be collected using the standard inventory card (CEE). Data must be recorded on all types of marine debris from various compatible sources. During the next two years, information will be available from the following sources:

- The Coast Guard, through enforcement of Annex V, will generate information on the number of violations, vessel waste data and other information from vessels 65 feet or more in length.

- Olympic National Park has been designated a national survey site by MERP/ NMFS. The park has generated (and will continue to generate) extensive baseline data for ocean beaches.

- USFWS can provide data on amount and types of materials collected in refuge lands.

- State Parks, DNR, and the Departments of Wildlife and Fisheries should develop baseline data along with cleanup efforts at boat launches and recreation sites.

- The Public Ports Association and Washington State Parks will complete a survey during the summer of 1988 on boater awareness and the effects of boat-generated wastes on water quality.

- For two consecutive years, State Parks will survey recreational boaters to determine changes in waste disposal practices. In 1993 a survey will be conducted to measure the success of the Boater Environmental Education Program at State Parks.

- WDF should provide data on the number and location of nets or crab pots lost and/or recovered. WDF biological inventory transect logs may also contain derelict fishing gear data.

- The WDOE Coastal Management Zone Program has funded beach surveys by Adopt-A-Beach. Beginning on September 15, 1988, and continuing through 1989, baseline information will be developed through surveys conducted on the lower Columbia River, Puget Sound and ocean beaches.

- The Port of Seattle has begun efforts to assess the most appropriate methods to collect and dispose of the waste stream generated by commercial shipping. The only available data is 15 years old. Because of the requirements of Annex V of MARPOL, Seattle and other ports need a more accurate data base to plan for disposal facilities. Information will also be developed from Fisherman's Terminal and the Shilshole Marina. Data from Duwamish River beach cleanups could also be used.

- City and county parks and other municipal shoreline facilities could provide useful data.

Suggested Lead Agency: Designated coordinating agency

Participating Agencies: EPA, USFWS, NPS, NOAA, CG, WDOE, WDF, WDW, DNR, Parks and Recreation, local governments, ports, Sea Grant, aquariums, marine labs, private companies, Adopt-A-Beach, colleges and universities, Indian tribes

Implementation Time Frame: 1989-1991

Duration: On-going

(3) ACTION RECOMMENDATION: Coordinate beach cleanup efforts among various agencies.

A significant reduction in adding to the existing debris waste stream in the future is achievable. However, prevention of all future MPD in the aquatic environment is unlikely. Existing levels of MPD can be significantly reduced through efforts such as beach cleanups. Future additions can be minimized by broad public education and involvement. It is generally agreed that periodic cleaning of a beach or other removal activities such as those carried out by the Adopt-A-Beach Program are not a solution to the problem unless the debris entering the aquatic environment is also reduced.

Other remedial-type actions include ghost net haul-out and removal of floating debris by boaters and fishermen.

Volunteer efforts to clean up beaches have been a highly visible part of MPD mitigation and awareness campaigns around the country. In Washington, Olympic National Park and state parks conduct an annual weekend cleanup on the coast beaches in May. The U.S. Fish and Wildlife Service (USFWS) conducts an annual beach clean-up on the Dungeness Wildlife Refuge. The Department of Ecology will organize community cleanup events as part of Coastweeks 88. The Port of Seattle assists in an annual Duwamish River cleanup event. The Swinomish Yacht Club (LaConner) developed a beach cleanup program this summer and an effort was planned for late July on San Juan

The following points should be considered and incorporated into such efforts:

- Cleanup efforts should be linked with a data gathering format to provide crucial information on the amount, type and distribution of marine plastic debris at specific locations.
- Cleanup information should be used to direct future efforts to beaches with high concentrations of marine plastic debris.
- Coordination among beach cleanup efforts should assure that redundant cleanups are not scheduled on the same beach while another beach is overlooked.
- All cleanup efforts should include an education campaign to inform participants about the nature and extent of the marine plastic debris problem.
- A standard safety protocol should be developed for agencies which promote and organize cleanups.

Lead Agency: WDOE

Participating Agencies: NPS, USFWS, WDOE, WDW, WDF, DNR, State Parks, local governments, Adopt-A-Beach, private companies

Implementation Time Frame: 1989-1991

Duration: On-going

(4) ACTION RECOMMENDATION: Conduct additional research about the effects of plastic debris on wildlife and fisheries resources and habitat.

Much of the evidence for the effects of marine plastic debris on wildlife has been developed from research on the northern fur seal, sea turtle and seabird populations. Little scientific evidence is available on effects of marine plastic debris on other types of wildlife or fish populations. It is clear that entanglement or ingestion can lead to drowning, starvation, strangulation or predation of individual animals. There is insufficient information at this time to determine whether or not plastic significantly affects populations as a whole.

Lost or discarded fishing nets pose a hazard to fish, crabs, diving seabirds and other forms of marine life, as well as to divers. These nets can ghost fish for years and often create an attraction for crab to feed on ensnared fish. Crab are then caught and attract other crab and fish to the entangled net.

- WDW and WDF should participate in designing and conducting research activities aimed at documenting and diminishing the effects of marine plastic debris on fish and wildlife populations.

- Appropriate agencies and organizations should encourage and participate in continued research by federal and state agencies on topics such as:

  - effects of plastic ingestion on fish and wildlife
  - effects of entanglement in plastic debris on fish and wildlife
  - alternatives to current plastic net materials and configurations
  - potential toxicity of plastics and their degradation products

- Information about the nature and occurrence of marine plastic debris effects in the aquatic environment should be developed as part of the data base.

Lead Agency: WDW, WDF

Participating Agencies: EPA, USFWS, NOAA/NMFS, WDF, WDW, WDOE, private industry, aquariums, Sea Grant, marine labs

Implementation Time Frame: 1989-1993

Duration: On-going

(5) ACTION RECOMMENDATION: Coordinate information about and removal of ghost nets and other derelict equipment from state waters among DNR, WDF, NOAA and local agencies.

Crab, fish and other marine animals become entangled in abandoned or lost fishing equipment. Boat engines and other equipment are also damaged by floating nets or marine debris, causing thousands of dollars of repair costs or lost fishing time. The lives of divers are threatened when they become entangled in nets and lines. Recent events such as the net located and removed at Port Ludlow are evidence of the need for a coordinated approach to remove this debris. WDF estimates that once located, it takes approximately six personnel days to remove a single ghost net.

- An interagency Memorandum of Understanding among DNR, WDF, NMFS and others should be developed to standardize communications and operational procedures for removal of ghost nets and other derelict equipment.

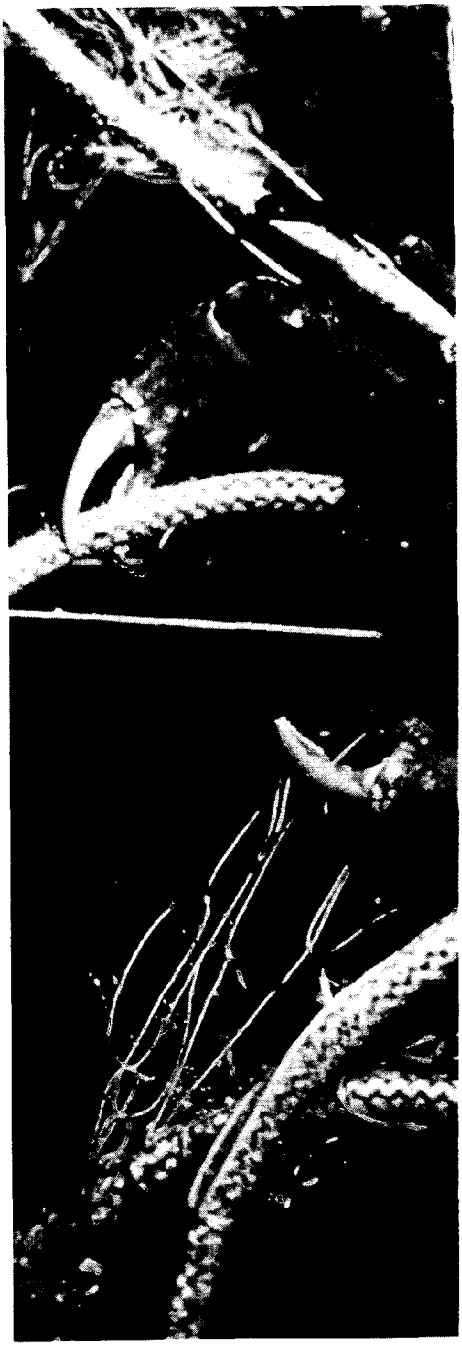
- Raising commercial fishing license fees to cover removal and disposal costs of lost or abandoned fishing equipment should be considered.

- Stress the need for proper net disposal on shore in the education package for the commercial fishing industry (see Education section).

- Provide information about environmental damage from ghost nets and other marine plastic debris and incorporate these into port and DNR lease requirements for marinas and other facilities which serve the boating and fishing communities.

- Communicate with diving groups and dive shops about ghost net dangers. Removal procedures should be developed.

- Require that those who fish commercially notify WDF about all lost fishing gear.



Lead Agency: DNR/WDF

Participating Agencies: NOAA/NMFS, DNR, WDF, WDW, ports, local governments, private dive groups and shops

Implementation Time Frame: 1989-1991

Duration: On-going.

(6) ACTION RECOMMENDATION: Require and promote recyclable or alternative products, when feasible, for use in or near the marine environment.

The stability, buoyancy and relative permanence of manufactured plastic are also some of its least desirable characteristics when it becomes debris in the marine environment. Current plastic formulations are, in most cases, UV degradable but not photo or biologically degradable. Congress has mandated in MPRRCA that EPA, in consultation with NOAA, other agencies and industry, evaluate the feasibility and desirability of substituting alternative products for plastic articles which harm wildlife, disturb habitat or endanger human safety when disposed of improperly.

The governor recently appointed a Task Force on Government Options to Landfill Disposal (GOLD) to prepare recycling and waste reduction strategies for state agencies. When evaluating the increasing costs of sold waste disposal, local governments such as King County have considered eliminating the sale of certain plastic products. The City of Seattle recently passed an ordinance prohibiting city agency use of disposable plastic containers. Educating the public to recycle disposable containers, encouraging industry to use recyclable materials in their manufacture and providing adequate opportunity for the public to recycle may prove to be more environmentally sound than banning of certain materials. Materials to replace plastic may also have long-term effects on the environment.

As public understanding about the marine plastic debris problem increases and local jurisdictions mandate certain products, the plastics industry will have further incentives for encouraging and promoting recycling and proper disposing of plastic debris.

Decisions on alternative product requirements require an environmental/cost-effectiveness analysis. Trade-offs for various alternative choices should be made clear and explicit.

- State government and its associated agencies have opportunities to require their contracting officials or concessionaires to specify certain products. The GOLD Task Force should consider the following recommendations when addressing plastic in the waste stream and marine plastic debris specifically:

  - Require state agencies to use recyclable plastic products and products made from recyclable materials and to promote the collection for recycling these items.

  - The State Ferry system should require using only recyclable beverage cups.

  - Similar provisions should be adopted for State Park concession stands on or near the water.

- When the Department of Natural Resources, ports and local governments lease areas for commercial and recreational marina uses, they should require using only containers made from recyclable material for food service, bait containers, wrapping materials and other uses. Appropriate containers for collection of these recyclables and proper disposal of other materials should be provided at these facilities.

- Education about the advantages of recyclable products should be encouraged and collection facilities promoted as an important part of the state's overall waste reduction program.

Lead Agency: WDOE

Participating Agencies: EPA, NOAA, WDOE, WDF, DNR, Parks and Recreation, private companies, local government

Implementation Time Frame: 1989-1991

Duration: On-going

(7) ACTION RECOMMENDATION: Require recycling and proper disposal of potential marine plastic debris materials for federal, state and local agencies and Indian tribes.

The Task Force recognizes that recycling and degradability requirements for most types of plastic debris are part of a larger problem of waste stream disposal.

MPPRC requires EPA to report to Congress in June 1989 on an evaluation of recycling alternatives, including a degradability evaluation of the fate and effects of the breakdown products of plastic in the marine environment. By September 30, 1988, NOAA must recommend legislation necessary to prohibit, tax or regulate sources of plastic materials which enter the marine environment. The MPPRC has no provision that mandates the installation equipment on vessels for incinerating or compacting debris. In the event that such equipment is installed, the Coast Guard Hazardous Materials Branch is evaluating whether standards will be needed for residues or emissions.

At the state level, WDF has the authority to require and promote alternative fish harvesting equipment. Regulations are on the books requiring biodegradable crab pot lids. WDOE, through its recycling division, is presently reviewing various disposal and recycling options for plastic waste in the total waste stream. State Parks will be submitting legislation creating a Boater Recreation Fee Account; portions of this account are designated for boat waste management. Local governments such as Seattle have begun aggressive recycling efforts.

- Support passage of legislation to create a Boater Recreation Fee Account during the 1989 Washington State Legislature. If passed, this account will provide grant funds through State Parks to public entities for boat waste management planning and boater environmental education. Through such grants, public moneys and other facilities can promote and/or require recycling as one way to properly dispose of boater-generated waste.

- The Joint Select Committee on Solid Waste should pursue legislation to require properly recycling and disposing of marine plastic debris for state, local and other governmental entities.

Suggested Lead Agency: WDOE, state legislature, State Parks, IAC

Participating Agencies: EPA, NOAA, CG, private companies, ports, local governments, Sea Grant, citizen recycling organizations

Implementation Time Frame: 1989-1991

Duration: On-going.

EDUCATION

(8) ACTION RECOMMENDATION: Convene a biennial statewide conference by the designated marine plastic debris coordinating agency.

One of the benefits of the current task force has been the amount of information that has been communicated and circulated among agencies and organizations. Task Force members believe when these recommendations are implemented there will be a continuing need to maintain opportunities to exchange information.

- An appropriate format would be a biennial (every two years) statewide conference open to the public where Task Force members, educators, researchers, local, state, and federal agency representatives, volunteer organizations, industry representatives, those who fish and others can share current information, program successes and experiences on the marine debris issue.

- Conference participants would:

  - Present technical reports, including review of existing data and assess ment of the sources and environmental effects of debris affecting Washington State. Reports should address and assign priorities to pertinent issues and suggest agencies to carry out the proposed tasks.

  - Periodically produce progress reports for subsequent meetings. These updated reports should review implementation strategy and make recommendations about necessary program adjustments. Information should be readily available to interested agencies and organizations from the designated information clearing house.

Lead Agency: Designated coordinating agency

Participating Agencies: All interested parties

Implementation Time Frame: 1991-2001

Duration: On-going

(9) ACTION RECOMMENDATION: Develop and implement a public outreach program using the recommended logo, public service announcements, publications and special events.

Increasing public awareness about marine plastic debris must be a long-term commitment by all concerned agencies and organizations. The educational effort on marine plastic debris will be to increase public knowledge about the current state and federal laws on marine plastic debris disposal.

NOAA has recently produced a 7-minute video entitled "Trashing the Oceans," as well as three 30-second shorts directed at recreational boaters. The WDOE recycling program is adopting these shorts for its own litter control and cleanup campaign. NOAA will also work with the Coast Guard, EPA, DOI and others to carry out the education provisions of MPPRCA. The Coast Guard is presently incorpo-

rating the NOAA video into their Safe Boating training programs. The Port of Seattle issues newsletters to its tenants and has used limited numbers of brochures to inform tenants about Annex V.

In 1988 the Public Involvement and Education Fund (PIE), established by PSWQA to support model public involvement and education, funded a Boater Environmental Education Project. This project, carried out by State Parks, focused on surveying boaters about sewage and boat waste disposal habits. It also distributed information on proper disposal methods and maps showing locations of sewage pumpout facilities.

Interpretative and informative displays are an expected part of the experience at a marina, state park, library or other public setting. Incorporation of information about marine plastic debris in these displays would be an effective way to communicate to the public. For instance, Adopt-A-Beach is currently working with the Hood Canal Coordinating Council on developing display panels for marinas about litter and human waste disposal. State Parks, supported by PSWQA, will construct sewage pump-outs at five Marine State Parks, and install interpretive boards explaining the need to control boat wastes. In conjunction with the Center for Environmental Education (CEE) and NOAA, the plastics industry has been particularly effective in developing brochures on the dangers of marine plastic pollution. Similar materials have been used as display ads in industry publications. The Task Force recognizes the value of such cooperative efforts to address marine plastic debris.

Special events attract citizen and media attention and can be a way to develop interest and awareness in the marine plastic debris problem. Washington, Texas and Oregon have promoted annual beach cleanup days for years. Boat shows, local and regional fairs, and other events provide the opportunity to communicate with many people.

The Task Force also recognized the need for a logo to identify state educational materials and programs regarding marine debris. This will help foster an attitude of stewardship toward marine resources as did Woodsy Owl's "Give a hoot, don't pollute" theme for terrestrial resources.

The following series of action recommendations and specific implementing activities constitute a framework for an aggressive public outreach program:

(A) Develop and adopt a state logo and theme for the MPD issue:

- The Task Force recommends the adoption of the logo developed by the Port of Bellingham Sea Grant Project displayed on the back cover of this report. The slogan, "Get a Grip on Marine Debris," appealed to the Task Force for its simplicity, positive message and effectiveness, particularly in conjunction with the nominated logo. The logo theme should appear on all publications, brochures, posters, video presentations, etc.

(B) Communicate to people of Washington about marine plastic debris using public service announcements (PSAs) and other public outreach tools:

- Washington Sea Grant, through its marine advisory and public education programs, should continue development and dissemination of educational materials about the hazards of marine plastic debris both for the general public and more specialized audiences.

- Sea Grant marine advisory agents communicate to the marine community. They can carry an anti-litter message in their daily activities as well as undertaking occasional special projects. They also act as change agents. For instance, if new technologies for trash disposal or new plastic products are mandated by other authorities, agents can provide information to the user community (e.g., the fishing fleet) and identify local innovators who will help introduce these new products.

- The Department of Wildlife during steelhead season, Parks and Recreation Commission during summer camping season, and Department of Ecology during its Coast week campaign could each add a "tag" onto their media campaign materials.

- Agencies such as WDF have a "hotline" for fishing information and Parks has a 1-800-reservation number. Agencies having dedicated message lines or the ability to convey a message about MPD during "hold" time on incoming calls should make use of such opportunities.

(C) Actively develop and distribute materials for display purposes about marine plastic debris:

- The Departments of Wildlife, Fisheries and Natural Resources all manage public access sites and regional offices where displays would be appropriate. Some ports have already posted informational displays on MPD.

- State ferries, terminals, display areas and highway rest areas could also reach large audiences, as could displays at ports, marinas, the Seattle Aquarium, the Padilla Bay Research Reserve, (Skagit County) and local libraries.

- Through a variety of interpretive techniques NPS can contribute to the public awareness effort. These include conducted walks, evening programs and exhibits to reach about one million visitors annually at the Olympic National Park and other facilities such as San Juan Islands Historical Park.

- The State Parks Boater Environmental Education program should include MPD information in its brochures, maps and flyers for marine park visitors. These printed materials should be available at park entrances, piers, or park offices. The materials should be available at boat shows or other boating related events.

- The Departments of Natural Resources, Wildlife and Fisheries develop MPD informational materials with State Parks for distribution at their boating access sites.

- State Parks should continue displaying their educational materials and showing videos or slide shows. An MPD display to be used at all major boat shows in the state should be developed.

(D) Include articles and materials on MPD efforts in current publications by state agencies and organizations:

- Include information and updates on MPD in the Department of Ecology Shorelands and Coastal Zone Management (CZM) Program's "Coastal Currents," Department of Natural Resource's "Totem", State Parks "Connections" and the Department of Wildlife's annual Washington wildlife calendar. Agencies' employee newsletters should also include MPD materials.

- Articles on MPD could be an important addition to PSWQA publications, including the monthly newsletter "Soundwaves," a series of issue papers dealing with water quality issues in Puget Sound, and a yearly report, "State of the Sound."

The Washington Environmental Council (WEC) "Alert", regional Audubon Society organizations, and various boating clubs publications (such as Interbay and its member organizations) could continue to inform their members of MPD cleanup opportunities and developments.

(E) Develop and use special events to raise public awareness about MPD:

Develop a Washington event (modeled after the American Lung Association "Great American Smokeout") for the purpose of beach and/or plastic litter cleanup "The Great Washington Litter Out." State Parks should maintain and expand its one-day "Boater Information Exchange Days" at selected marinas, gathering data from boaters about the kinds of debris or pollution they generate and finding out how boaters could best be educated.

Provide opportunities at other major boating-oriented events such as Seafair, the Washington State Fair in Puyallup, regional and county fairs and Ballard's Viking Fest for engaging crowds about the problem of plastics in the marine environment.

Coordinate events, when possible, with the annual Coastweeks, sponsored by the Department of Ecology.

Lead Agency: Designated coordinating agency

Participating Agencies: All interested parties

Implementation Time Frame: 1991-2001

Duration: On-going

(10) ACTION RECOMMENDATION: Develop and distribute media materials directed at domestic and foreign maritime communities.

The industrial maritime community is often long at sea and may not encounter informational materials prepared for or available to recreational boaters. Crews on foreign vessels, tugboats, cruise ships, factory fish processing ships and other vessels need MPD educational material developed specifically for their situations, particularly if their vessels lack either disposal or storage space for plastic debris.

- Make available special brochures, video tapes and other targeted materials for operators and crews of commercial and industrial vessels.

- Develop and make available a readable package of information on state MPD regulations for crews and operators of foreign vessels calling at Washington ports.

- The PSWQA draft 1989 plan targets business and industry audiences with particular reference to the fishing and shipping industries. Marine plastics should be included.

Lead Agency: Coast Guard

Participating Agencies: NOAA/NMFS, Washington Public Ports Association, WDOE, colleges and universities

Implementation Time Frame: 1989-1991
Duration: On-going

(11) ACTION RECOMMENDATION: Develop a marine debris curriculum for use at state and private maritime schools training the professional maritime community.

The professional maritime community includes pilots, ferry captains and crews, the merchant marine and masters, mates and pilots of all sea-going vessels, as well as tugboat crews.

The MPRRCA created a new set of legal obligations for vessel operators. Coast Guard licensees are required to operate such vessels. Currently, the Coast Guard includes questions on license exams about oil pollution (as required by the previous version of MPRRCA and MARPOL I and II). The Coast Guard is presently developing information on MPD which will be provided to independently operated license examination preparation courses. Applicants for merchant marine licenses and documents will receive an information handout. Questions regarding MARPOL Annex V will be added to license examinations.

- State licensing exams for Board of Pilotage commissions should include MPD materials, since these pilots are a primary contact with incoming foreign vessels.

- MPD materials should also be included in State Department of Transportation material issued in training ferry skippers and crews.

- WDF should include MPD information in training sessions held for commercial fishing vessel operators.

- This curriculum should be developed along with the commercial maritime education and commercial license packet.

Lead Agency: Designated lead agency

Participating Agencies: Department of Licensing, State Board of Pilotage Commission, WDF, colleges and universities

Implementation Time Frame: 1989-1993
Duration: On-going

(12) ACTION RECOMMENDATION: Post all boat launch ramps, public access sites, and public and private marinas with 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:

The State Departments of Natural Resources, Wildlife, and Fisheries, and the Parks and Recreation Commission operate boat launch facilities on fresh and saltwater. Many port districts, counties and cities also operate such facilities. The Interagency Committee for Outdoor Recreation (IAC) provides significant capital moneys for these facilities through Referendum 215 (Boating Gas Tax) funds. WDOE's Shorelines and Coastal Zone Management program administers public enhancement moneys from federal CZM 306(A) funds. In addition, DNR recently has been funding projects for public access to the state's shorelines through the Aquatic Lands Enhancement Account (ALEA). The National Park Service also manages boat launch sites. USFWS does not operate launch facilities but their refuges would benefit from "no littering" signs posted near their lands.

- A coordinated approach to signage should be developed among the participating agencies to convey a consistent message about MPD throughout the state. Future renovation and maintenance of existing sites, as well as development of new sites, should incorporate these standardized signs.

All state grants to local and state agencies for marine related purposes such as boat launch sites and public access should require that information about marine plastic debris be made available at the project site.

The shoreline permit and SEPA review process should trigger coordinated signage programs for new and/or expanding boat launches, marinas and public access sites.

Lead Agency: IAC

Participating Agency: NPS, USFWS, DNR, WDW, WDF, WDOE, Parks and Recreation, Ports, local government, DCD

Implementation Time Frame: 1989-1991

Duration: On-going

(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.

- Under Washington's boat registration law (RCW 88.02), all vessels longer than 16 feet in Washington must be registered with the Department of Licensing through county auditor offices. As part of the new or renewing registration packet, the Department of Licensing may include other materials.

As part of its implementation of MPPRCA, the Coast Guard may require that certain vessels will, by December 1989, display a placard notifying mariners of their obligations for proper disposal under the law. This card would be similar in form and content to those currently used for discharge of oil into the marine environment. Plastic debris information will be added to pamphlets distributed by the Coast Guard such as "Federal Regulations Affecting Boating Safety."

- Include marine plastic debris and proper boat waste disposal information in commercial and recreational license and registration packets and training materials issued by the state (in coordination with the Coast Guard).

- Require an MPD plaque or decal be displayed on all vessels, commercial and recreational, registered in the state. Notification and/or distribution could be carried out by the Department of Licensing or through county auditor offices. A required plaque or decal would assure that all users of state waters are made aware of marine plastic debris rules and regulations.

- Add information about marine plastic debris to WDF AND WDW's brochure material. Marine plastic debris information should also be required for inclusion in the licensing packet.

- Registration materials for use of State Park boating sites should also include MPD information.

Lead Agency: Fisheries, Parks, Licensing, county auditors

Participating Agencies: CG, NOAA, EPA, WDF, WDW, Indian tribes, Department of Licensing, Parks and Recreation, county auditors.

Implementation Time Frame: 1981-1993

Duration: On-going

(14) ACTION RECOMMENDATION: Encourage retail and manufacturer cooperation to aid in marine plastic debris public education.

Marine equipment and sporting goods stores, bait and tackle shops, marinas, cafes, and other sporting shoreside facilities serving recreational and commercial boaters provide an excellent opportunity to provide posters, flyers, brochures and other information about MPD. With the adoption of a state logo and theme, every effort should be made to achieve a wide circulation of this message. A yearly campaign, with concentrated efforts just before and during the summer boating and recreation season, could be successful. It should also be coordinated with WDOE's general anti-litter campaign.

- Incorporate into retail product manufacturing information or warnings about proper disposal of marine litter (emphasizing plastic products) and the need for proper net and crab pot disposal.

- Enlist retail outlets serving recreational boaters and those who fish to distribute information about marine plastic debris.

- Encourage publishers of tide tables, cruising guides and maritime oriented publications to include display advertising and other messages about marine plastic debris.

- Place marine plastic debris logo and associated educational materials on plastic bags and other containers provided to grocery distributors, fast food outlets and other retail facilities urging consumers to dispose of plastic properly.

Lead Agency: WDOE

Participating Agencies: NOAA, NMFS, CG, Parks and Recreation, WDF, WDW, private companies, grocery stores, fast-food outlets

Implementation Time Frame: 1989-1991

Duration: On-going

(15) ACTION RECOMMENDATION: Incorporate the marine plastic debris problem into the environmental section of the state's required curriculums for grades K-12 and in other educational material.

One long-term solution for the marine plastic debris problem is to develop an awareness among the young people of our state about their responsibility for reducing the presence of plastic debris in the environment. Incorporating teaching materials into the curriculums, using a state logo and public advertising campaigns directed at the general population and targeted audiences will develop an "aquatic conservative ethic" similar to that achieved by the "Smokey the Bear" campaign. The plastic debris issue can be readily incorporated into existing programs that deal with pollution, water quality, human impact on the marine environment and the state of the Sound.

- Continue use of marine plastic debris material in Project Wild (curriculum package developed by the Superintendent of Public Instruction and Department of Wildlife).

- Include marine plastic debris materials in the environmental education section of the state's required curriculum.

- Include information about marine plastic debris to teachers. In the 87-88 biennium, the PSWQA allocated $50,000 from the PIE fund for teacher training. The draft 1989 plan provides for a program through the Office of Environmental Education/Office of the Superintendent of Public Instruction to train approximately 1,200 K-12 teachers.

- Encourage the Seattle Aquarium to continue disseminating information about marine plastic debris and stewardship of our aquatic resources through its Puget Sound on Wheels program, outdoor trips, outreach programs, on-site education programs and exhibits.

- Incorporate marine plastic debris material into the WDOE "A Way With Waste" school program. This program reaches over 500 teachers yearly with interdisciplinary lessons on waste management issues. It is designed for direct use in the classroom with cost reimbursement to participating schools.

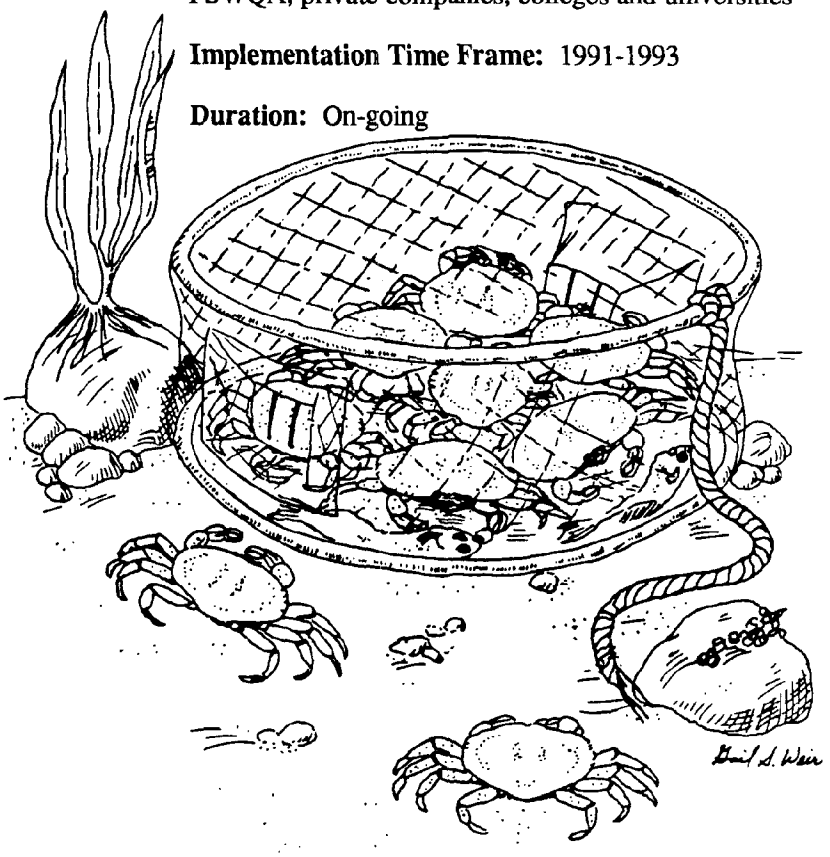
- Offer to high school students as an elective the Boating Safety program sponsored by State Parks. The curriculum should include a discussion about proper boat waste disposal. Passage of the Boater Recreation Fee Account would provide funds for SPI to incorporate MPD information into this program.

Lead Agency: SPI

Participating Agencies: Aquariums, marine laboratories, State Parks, WDW, PSWQA, private companies, colleges and universities

Implementation Time Frame: 1991-1993

Duration: On-going



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:

The fiscal impacts of researching, cleaning up and disposing of marine plastic debris will affect every agency dealing with the issue. Currently, few state agencies have budgeted for marine plastic debris activities. They are conducted as existing time and budget constraints allow. The recommendations of this report will require agency-specific analysis to determine necessary operating and staff expenditures.

At the federal level, EPA and NOAA have significant research and support budgets mandated by Congress. These costs are reflected in federal budget documents. By law, the Coast Guard will track its costs for vessel inspection and port facility enforcement. These costs will be incorporated into further budget authorizations.

Many of the effects of marine plastic debris are based on aesthetic or quality of life concerns. The marine plastic debris issue is an opportunity to develop an awareness of our stewardship obligation for the environment.

- The nonquantifiable environmental costs of MPD need to be incorporated into state policy making considerations.

- A major cost to ports, marinas and local governments will be the increase in materials added to the waste stream for disposal previously not presented in such quantities. The Port of Seattle, working with R.W. Beck, has developed some preliminary information about the types and distribution of debris entering the port on merchant vessels. The port will also be developing information on operating costs for meeting MPRRCA requirements.

- DNR leases should include means to reduce or eliminate MPD at the facility. Department leases should reflect the increased costs for lessees to carry out these requirements. The department's obligation to generate revenue from aquatic land leases could be balanced with environmental protection, public access and enjoyment by offering a reduced rate to reflect increased operating costs.

- WDOE's litter control program has a long history of calculating the fiscal impacts of litter. Such calculations should include marine plastic debris costs, generating useful data on cleanup costs.

- The Olympic National Park will provide, as necessary, reports on the quality-of-life aspects of marine plastic debris, specifically how the debris affects marine organisms and visitor experiences in the National Park.

- Cities and counties responsible for disposal facilities will need to account for changes in the waste stream. Increased enforcement costs should be monitored.

- Incorporate true costs of marine plastic debris (as they become known) into the educational and curriculum materials. See Education section.

Lead Agency: Coordinating agency

Participating Agencies: EPA, USFWS, NPS, WDOE, Parks and Recreation, WDW, WDF, DNR, local governments, environmental groups

Implementation Time Frame: 1989-2001

Duration: On-going

(17) ACTION RECOMMENDATION: Conduct an independent cost/ benefit analysis of MPD compliance and cleanup.

Costs absorbed by the private sector for conforming to new MPD laws and regulations will be immediate and long-term. While such costs may be technically difficult to compute, they will still be helpful to decision-makers. By the end of the year, those involved in fishing and cargo vessel landings at ports will likely have higher costs for disposal of their wastes. On-board compactors, incinerators or other devices to reduce waste will be a significant capital and vessel modification cost. Depending on the size of the vessel and length of voyage, costs could be increased because of reduced storage or cargo space. If containers and packaging shift to other materials besides plastic, increased costs are also likely. An analysis of these costs and their effects on the affected economic sectors should be developed.

Eventually if a shift from current plastic products to either recyclable or degradable products or nonplastic alternatives occurs, jobs might be lost and/or gained in manufacturing, sales and distribution sectors. Recycling and disposal firms will also be affected. Food service and distribution may also incur higher costs if packaging products currently used are no longer available. Recent Seattle prohibitions on use of plastic disposable food containers could create data which will reflect this changing cost. At the national level, the Coast Guard will carry out a NEPA-required cost/benefit analysis of the MARPOL regulations. Beach and water cleanups, derelict equipment removal and other mitigation activities will cost money to organize and conduct.

- Jobs created from private sector cleanup by private organizations will develop a market and may provide useful data.

- The costs of disposal for litter generated by recreational boaters must also be included. This cost may well include an increased boater moorage fee directed toward controlling marine plastic debris. This needs to be analyzed.

- The effects on tourism of maintaining the state's beaches has to be considered, particularly if, in the absence of a marine plastic debris program, business in tourist-oriented communities is affected.

- Vessel repair, towing charges and lost fishing time can cause significant financial impact on an individual vessel owner. Include in a cost/benefit analysis the effects of fishing vessel breakdown from damage caused by marine plastic debris.

- The effect of marine plastic debris regulation on private sector economics need to be included. Available in-state information should also be used. The type of analysis necessary to determine these costs is probably best carried out by private sector economists under a consulting contract agreement.

- Information on costs and contributed volunteer time included to conduct beach cleanups, remove derelict equipment and other MPD mitigation projects.

Lead Agency: Coordinating agency

Participating Agencies: CG, Department of Trade and Economic Development, WDF, DNR, Parks and Recreation, Public Ports Association, private economic consultants

Implementation Time Frame: 1989-1991

Duration: On-going

(18) ACTION RECOMMENDATION: Integrate MPD disposal with comprehensive solid waste planning.

Properly handled MPD will ultimately be deposited or received at a city or county-operated solid waste disposal facility. Ports will likely generate a new waste stream to these facilities. Public awareness might result in proper disposal of greater amounts of material. An inherent part of the disposal problem, especially since existing landfills are limited and the siting of new solid-waste facilities is difficult (landfills, incineration, etc.), is the issue of recycling.

Many counties and municipalities are examining or have developed aggressive recycling programs. As counties update their solid waste comprehensive management plans, marine plastic debris needs to be part of that plan for counties connected to marine waters. Until recently, plastic has not been considered commercially recyclable. The problem is two-fold. At the federal level, EPA is developing disposal method regulations and technological information on plastic recycling. At the industry level, the technology has been developed to recycle a mixed stream of various plastic products. Markets are still developing to meet the potential supply.

- Development of recycled plastic markets in an industrial support base and coordination with local governments may be an appropriate role for the Department of Trade and Economic Development. The Utility and Transportation Commission (UTC) might also play a role in the regulatory arena.

- From a legal and policy perspective, the Joint Select Committee on Solid Waste, the House Environmental Affairs Committee and the Senate Environmental and Natural Resources Committee should play a major role in any changes required in state law to encourage plastic recycling.

- Groups such as the Association of Cities, the Association of Counties, citizens' recycling groups and the recycling industry should play a major role in integrating marine plastic debris into the comprehensive solid waste planning as required by RCW 70.95.

- Efforts at marine plastic debris planning will require an equal commitment to public education and awareness.

Lead Agency: WDOE

Participating Agencies: EPA, OFM, DCD, Environmental Affairs Committees, cities, counties, private companies, citizens for recycling groups

Implementation Time Frame: 1989-2001

Duration: On-going

(19) ACTION RECOMMENDATION: Increase public awareness about the legal consequences for improper MPD disposal.

An important part of the educational effort about marine plastic debris is to increase public knowledge about the current state and federal laws on marine plastic debris disposal.

The Coast Guard can deny ships landing rights if port facilities have not received a certificate of adequacy. The Coast Guard will also communicate their new regulations through programs run by marine safety offices. The Port of Seattle will inform ships at port of the legal ramifications of MARPOL V. Fishing and recreational boats have already been informed.

- Provide educational material at NPS and USFWS informational and interpretative facilities about the laws against the disposal of marine plastics and illegal discharges in marine waters.

- Consider decriminalizing existing regulations (making violations a civil offense) to achieve improved management enforcement. Such a review is currently underway by WDF and should be considered by other enforcement agencies which administer local and municipal marine litter ordinances. Civil penalties would reduce processing costs.

- Fees collected could be used for marine plastic debris education, control and cleanup efforts.

- Inform the Criminal Justice Training Commission about existing and new laws or regulations concerning marine plastic debris so their information can be incorporated into training for enforcement.

- Carry out an overall review of state and local laws regulating solid waste "dumping" and "littering" to determine who is authorized to enforce such laws and identify the penalties involved.

Increase enforcement presence if necessary.

Lead Agency: Coordinating agency

Participating Agencies: USFWS, NPS, NOAA/NMFS, CG, WDF, DNR, WDOE, Parks and Recreation, Energy and Natural Resources Committees, Association of Cities, Association of Counties, Washington Public Ports Association

Implementation Time Frame: 1989-2001

Duration: On-going

(20) ACTION RECOMMENDATION: Develop a framework of financial incentives to encourage proper disposal of MPD.

Any reasonably cost effective measure which reduces plastics in the waste stream, particularly since it affects the aquatic environment is seen as a net gain. To achieve that, various incentive measures have been suggested:

States where recycling plastic has achieved some success are also states which have a state-mandated bottle bill law. Previous attempts at such legislation in Washington have failed. With the emergence of the marine plastic debris issue, it may be time to consider such a measure again. Container deposits create a positive incentive for consumers to recycle materials.

- Reducing marine plastic debris through incentives could be built into lease documents issued by DNR and ports and included in shoreline permits issued by local governments.

- Create a "bounty system" for debris collected on beaches or open water funded by private moneys or a combination of public and private funds.

- Examine these and other incentive systems in the context of other legislatively considered actions, both financial and regulatory. Funds derived from civil penalties could be used for incentive programs.

- Consider collecting disposal fees by port authorities as a portion of the dockage fee from commercial vessels to defray disposal facility costs.

Lead Agency: Legislature

Participating Agencies: OFM, Department of Revenue, WDOE, DNR, Energy and Natural Resources Committees

Implementation Time Frame: 1991-2001

Duration: On-going

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. Decals could be produced and sold through private sector arrangements.

(2) Information for boaters—Require the Department of Licensing to include an information packet including legal requirements for marine plastic debris disposal when issuing boat registrations or renewals.

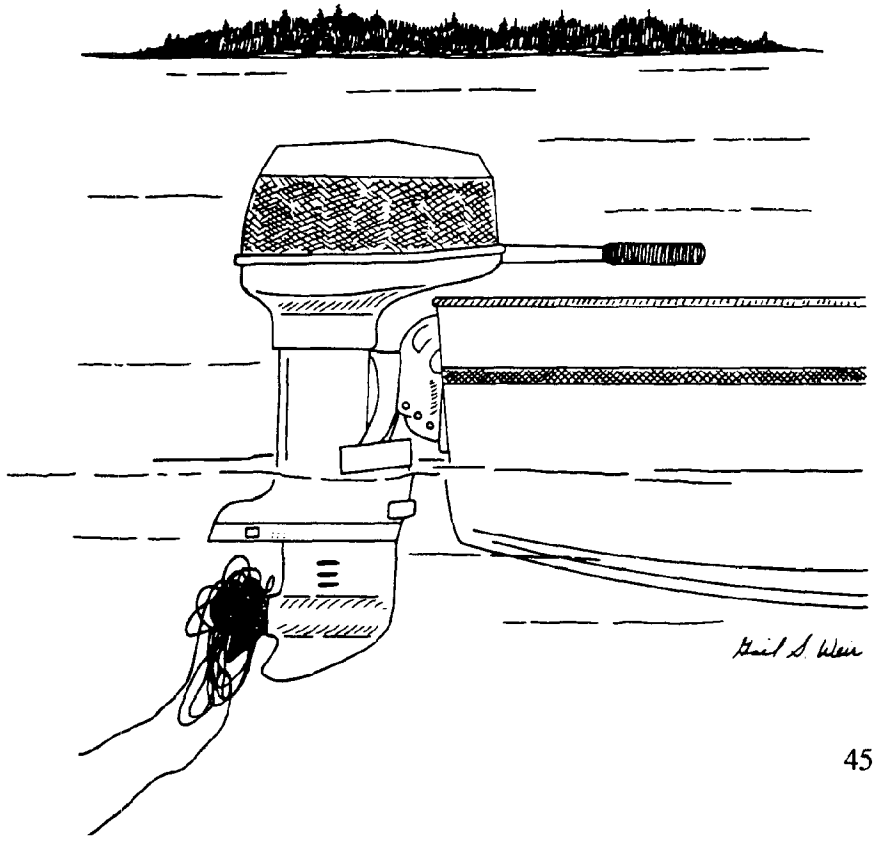
(3) Legislation—Support passage of the State Parks legislation for Boater Recreation Fee Account funds to be used for boater environmental education and to provide capital for sewage pump-out facilities and educational signs.

(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.



BEACH CLEANUP DATA CARD

Thank you for completing this data card. Answer the questions and return to your area coordinator or to the address at the bottom of this card. This information will be used in the Center for Environmental Education's National Marine Debris Data Base and Report to help develop solutions to stopping marine debris.

Name _____ Affiliation _____

Address _____ Occupation _____ Phone (____)_____

City _____ State _____ Zip _____ M ____ F ____ Age: _____

Today's Date: Month _____ Day _____ Year _____ Name of Coordinator _____

Location of beach cleaned _____ Nearest city _____

How did you hear about the cleanup? _____

SAFETY TIPS

1. ***Do not go near any large drums.***
2. **Be careful with sharp objects.**
3. **Wear gloves.**
4. **Stay out of the dune areas.**
5. **Watch out for snakes.**
6. **Don't lift anything too heavy.**

WE WANT YOU TO BE SAFE

Number of people working together on this data card _____ Estimated distance of beach cleaned _____ Number of bags filled _____

SOURCES OF FOREIGN DEBRIS. Please list all items that have foreign labels.

Country	Item Found
Example: Mexico	plastic bottle - "Clarisol"

STRANDED AND/OR ENTANGLED ANIMALS (Please describe type of animal and type of entangling debris. Be as specific as you can.)

_____

_____

_____

What was the most peculiar item you collected? _____

Comments _____

_____

Thank you!

PLEASE RETURN THIS CARD TO YOUR AREA COORDINATOR OR MAIL IT TO:

Center for Environmental Education
1725 DeSales Street, NW
Washington, DC 20036
A Membership Organization

Center for Environmental Education

EPA United States Environmental Protection Agency

NOAA National Oceanic and Atmospheric Administration U.S. Department of Commerce

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ITEMS COLLECTED

You may find it helpful to work with a buddy as you clean the beach, one of you picking up trash and the other taking notes. An easy way to keep track of the items you find is by making tick marks. The box is for total items; see sample below.

egg cartons 𝍸 𝍸 𝍸 | Total 16

cups 𝍸 𝍸 𝍸 𝍸 | Total 22

PLASTIC	Total number of items
bags:	
trash	
salt	
other	
bottles:	
beverage, soda	
bleach, cleaner	
oil, lube	
other	
buckets	
caps, lids	
cups, spoons, forks, straws	
diapers	
disposable lighters	
fishing line	
fishing net:	
longer than 2 feet	
2 feet or shorter	
floats & lures	
hardhats	
light sticks	
milk, water gallon jugs	
pieces	
pipe thread protector	
rope:	
longer than 2 feet	
2 feet or shorter	
sheeting:	
longer than 2 feet	
2 feet or shorter	
6-pack holders	
strapping bands	
syringes	
tampon applicators	
toys	
vegetable sacks	
"write protection" rings	
other (specify)	

GLASS	Total number of items
bottles:	
beverage	
food	
other (specify)	
fluorescent light tubes	
light bulbs	
pieces	
other (specify)	

STYROFOAM® (or other plastic foam)	Total number of items
buoys	
cups	
egg cartons	
fast-food containers	
meat trays	
pieces:	
larger than a baseball	
smaller than a baseball	
other (specify)	

RUBBER	
balloons	
gloves	
tires	
other (specify)	

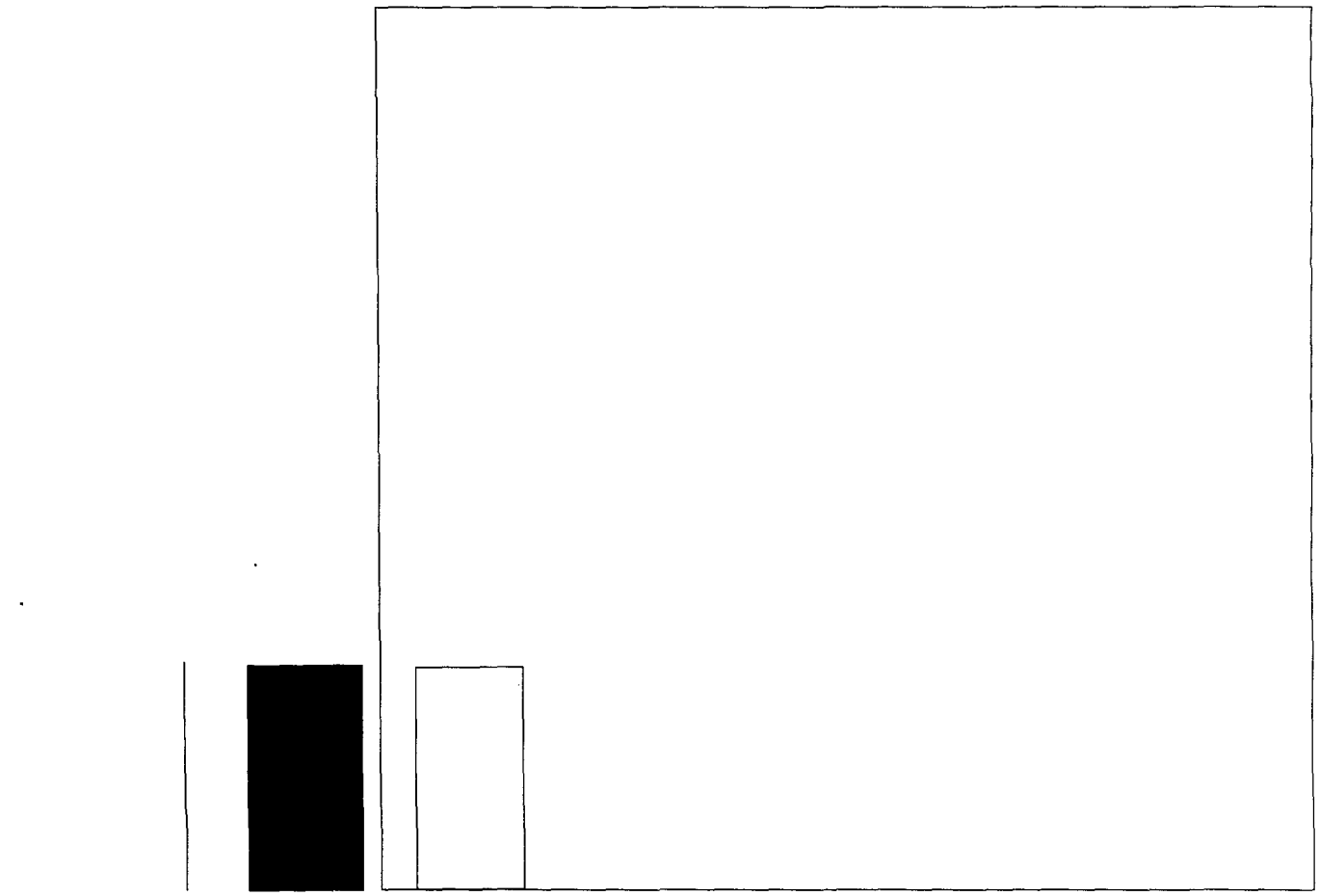
METAL	
bottle caps	
cans:	
aerosol	
beverage	
food	
other	
crab/fish traps	
55 gallon drums	
rusty	
new	
pieces	
pull tabs	
wire	
other (specify)	

PAPER	
bags	
cardboard	
cartons	
cups	
newspaper	
pieces	
other (specify)	

WOOD (leave driftwood on the beach)	
crab/lobster traps	
crates	
pallets	
pieces	
other (specify)	

CLOTH	
clothing/pieces	

(OVER)



PART 4

Marine Plastic Debris

Appendixes

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

Northwest and Alaska Fisheries Center
7600 Sand Point Way N. E. F/NWC
BIN C15700
Seattle, Washington 98115-0070

MARINE PLASTICS DEBRIS TASK FORCE

*** A S S I G N M E N T ***

1. Agency Name: National Oceanic and Atmospheric Administration
Marine Entanglement Research Program

2. Why issue is important: One of the National Oceanic and Atmospheric Administration's (NOAA) main responsibilities is to improve understanding of the oceanic and atmospheric environments. In recent years our ocean environment and its inhabitants have been increasingly affected by the problems related to persistent marine debris. The Department of Commerce, through NOAA, is working with other Federal agencies, universities, state governments, industrial, educational and recreational associations, and environmental groups to address the problems associated with marine debris.

3. Authority: NOAA's responsibilities and concerns relating to persistent marine debris are statutorily derived under the Marine Protection, Research, and Sanctuaries Act, the Marine Mammal Protection Act, the Endangered Species Act, the Magnuson Fishery Conservation and Management Act, and most recently, the Marine Plastic Pollution Research and Control Act of 1987 (Public Law #100-220). Under these statutes, NOAA is charged with protecting, conserving, and managing a wide range of marine species and their habitat. NOAA is in the process of investigating the role of marine debris entanglement and ingestion in the population dynamics of marine organisms.

4. Resources available: In response to growing concerns over the impacts of marine debris on wildlife, Congress appropriated $1,000,000 in Fiscal Year 1985 and $750,000 in 1986, 1987, and 1988 for NOAA's Marine Entanglement Research Program. Impacts and research monitoring has accounted for approximately one half of the funds, while approximately one quarter of the funds are spent on each of the remaining two activities, mitigation and education.

5. Description of program effort:

a. current: The Marine Entanglement Research Program (MERP) within the National Marine Fisheries Service (NMFS) sponsors research into the sources of plastics, such as

pellets, fishing gear, cargo straps, six-pack yokes, bait bags, etc., and into the mortality to wildlife caused by plastics in the marine environment. Some of the work on impacts to wildlife includes research on the northern fur seal, Hawaiian monk seal, northern sea lion, and sea turtles. Research is also being conducted on the high seas gillnet fishery, impact of ingested plastics on sea birds, methods for surveying the distribution and abundance of marine debris, benthic effects of marine debris, floating plastic particulates, and accumulation and disappearance rates of marine litter at sea and along the coastal beaches.

Mitigation studies include methods to reduce disposal of ship-generated refuse into the marine environment, degradability of plastics, the problems of shipboard waste management, port reception facilities, compaction, incineration, and plastics recycling systems.

Education efforts within the program include a number of NOAA sponsored or assisted meetings on marine plastic pollution including the International Workshop on the Fate and Impacts of Marine Debris, held in Honolulu, Hawaii, 1984 (the Second International Workshop is scheduled for April 2-7, 1989); the Sixth International Ocean Disposal Symposium, held in Pacific Grove, California, 1986; Oceans of Plastic conference, held in Portland, Oregon, 1988; and the North Pacific Rim Fishermen's Conference on Marine Debris in Hawaii, 1987. Another education and public awareness component is designed to increase the knowledge of industrial and commercial contributors about the impacts and control of marine debris. Objectives include identifying the most significant non-degradable debris generators and developing means for educating them and convincing key manufacturers of raw materials and finished products to lessen their impacts on the marine environment. Several National Sea Grant Programs have published and distributed a wide variety of materials on the debris problem directed at the general public. MERP has educational contractors in the Pacific, the Atlantic, and the Gulf of Mexico to address specific regional interest groups and sources. The program has also worked with several national public school education programs, including Project Wild, which are developing teaching materials specifically addressing the marine debris issue.

b. planned: The Fiscal Year 1989 MERP steering committee is scheduled to meet June 9-10, 1988 to discuss next year's tasks and studies. Prospective programmatic studies will be critically reviewed. Although enacted, the Marine Plastic

Pollution Research and Control Act of 1987 did not provide funds to NOAA for research or education. Thus the program may or may not be funded for FY 1989. Planning for a level funded FY 1989 program of $750,000 will be carried out. Under P.L. #100-220, NOAA is mandated, with the assistance of the U.S. Coast Guard, and EPA, to commence a three year national education campaign on marine debris.

c. projected: It is difficult to predict the longevity of MERP due to the political and budgetary constraints. Efforts should continue for at least the next three years under the mandate of P.L.#100-220 and the MARPOL ANNEX V international agreement.

d. cooperative efforts: NOAA's MERP has been working with other Federal agencies, international organizations, universities, state governments, industrial, educational and recreational associations, and environmental groups. Most MERP efforts are national in scope and accomplishment, however, cooperative regional efforts which provide nationally important information are also supported. Many MERP reports, brochures, slide shows, videos, posters and other educational materials and findings have been distributed to state and local groups upon request. A more extensive clearing house for information and products is anticipated in FY 1989.

6. Additional information:

A more detailed description and status of tasks in the National Oceanic and Atmospheric Administration's Marine Entanglement Research Program is available in the form of NWAFC Processed Report 87-15 dated July 1987. This report and additional marine debris information is available from:

James M. Coe or Alan R. Bunn
Marine Entanglement Research
NOAA/NMFS
7600 Sand Point Way, N.E.
Seattle, Wa. 98115

U.S. Department of Transportation
United States Coast Guard

Commander
Thirteenth Coast Guard District

915 Second Avenue
Seattle, WA 98174-1067
Staff Symbol:
Phone:

MARINE PLASTICS DEBRIS PROGRAM STATUS REPORT

AGENCY: United States Coast Guard

AUTHORITY: The Coast Guard will have the primary responsibility for enforcing the regulations which will implement Annex V of Marpol 73/78. The regulations which become effective on December 31, 1988, will provide for the prevention of marine pollution by plastics and other garbage as defined in the ANNEX V and the Marine Plastics Pollution Research and Control Act of 1987 (MPPRC), and will apply to all vessels operating on navigable waters under the jurisdiction of the United States.

RESOURCES AVAILABLE:

Enforcement of MARPOL Annex V and the regulations promulgated under MPPRC will be performed in conjunction with other vessel boardings and examinations and facility inspections. Proposals have been made to provide one additional person at Marine Safety Office Puget Sound, but no additional money is expected in the budget.

PROGRAM EFFORT:

CURRENT: The Coast Guard already enforces the provisions of MARPOL Annexes I and II and will have the major responsibility for enforcement of Annex V. Regulations are being proposed and drafted that will require certain vessels to maintain log book entries regarding disposal of debris at sea, develop waste management plans and display debris discharge placards. Proposals will be included to require vessels to separate all plastics from the other debris. In addition the regulations will require adequate facilities within the port for reception of materials from the vessels.

FUTURE: The MPPRC requires that beginning in December 1989 the Coast Guard must make a biennial report to Congress on the compliance with Annex V. To this end the Coast Guard has contracted with a firm to evaluate information on the quality of waters and will periodically look at how the environment is being effected. Plastic debris information will be added to pamphlets distributed by the Coast Guard such as, "Federal Regulations Effecting Boating Safety." Information will be provided to independently operated license examination preparation courses and an information handout is being prepared to give to applicants for merchant marine licenses and documents. Questions regarding MARPOL Annex V will be added to license examinations.

COOPERATIVE EFFORT: Through it's boating safety program, Coast Guard Auxiliary training classes and various news letters and notices to mariners, the Coast Guard will assist NOAA and the EPA in the public education effort called for in the MPPRC.

United States Department of the Interior
NATIONAL PARK SERVICE
OLYMPIC NATIONAL PARK
600 East Park Avenue
Port Angeles, Washington 98362-6798

IN REPLY REFER TO:

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, the 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 plastics 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, FTE'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 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 form 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.

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 SIXTH AVENUE
SEATTLE, WASHINGTON 98101

REPLY TO
ATTN OF:

EPA REGION 10 STATUS REPORT FOR THE WASHINGTON STATE TASK FORCE ON MARINE DEBRIS

IMPORTANCE OF ISSUE TO EPA

A growing body of evidence indicates that when discharged, lost or abandoned in the marine environment, plastic debris adversely affects aquatic ecosystems and their use in a multitude of ways. Environmental impacts include the entanglement of marine animals with potential depletion of stocks, and the ingestion of plastics by both marine organisms and coastal birds. Plastic debris can also cause potential threats to humans when divers, swimmers, or vessels become entangled or fouled in such debris. Further, the depletion of fishery resources, vessel damage, and aesthetic degradation of coastal areas resulting in lost tourism and recreation revenues and/or costly cleanup procedures all contribute to significant economic impacts .

The oncoming laws and existing treaties, while essential steps, are by *themselves inadequate to cope with the enormity of the challenge.* Comprehensive and long term solutions to the problems will require a creative and broad based combination of remedies. Public and industry outreach and intergovernmental coordination will be integral to achieving such solutions.

PRESENT AUTHORITY OF EPA

EPA has a mandate to address the growing problem of persistant marine debris under the Marine Plastic Pollution Research and Control Act of 1987, Subtitle B. Section 2202 of this Act requires EPA to study methods of reducing plastic pollution and Section 2204 requires EPA, along with NOAA and the Department of Transportation, to commence public education efforts as of April 1, 1988.

DESCRIPTION OF EFFORTS

At the Regional level, EPA Region 10 has three objectives for its involvement with the issue of persistent marine debris in Washington State:

- to encourage and assist in coordinating broad public awareness and involvement
- to support an effective assessment of debris distributions and source identification
- to participate in evaluating technical aspects of the persistent marine debris issue

Public Education:
Comprehensive and long term remedies to the problems associated with persistent debris in the marine environment will require a combination of innovative and broad based solutions. Because public and industry support will be integral to achieving such solutions, EPA feels that it is important to encourage public education through involvement. EPA Region 10 will seek to support coastal cleanup efforts through citizen and private industry participation. Programs such as "adopting a beach" represent excellent strategies to this end.

Baseline and Monitoring Information:
EPA Region 10 recognizes the need for quantitative assessment and characterization of the marine debris problem. Such efforts will provide critical information in identifying likely sources of marine debris, monitoring the effectiveness of regulations and policies developed in response to Marpol Annex V, and monitoring how environmental problems associated with persistent marine debris may change over time as a result of public and industry response.

It will be important to establish a consistent and methodical approach to characterizing and monitoring the significance of non-degradable garbage, as opposed to evaluation through fragmented and ad-hoc efforts. To ensure that data generated provides useful information for decision making, Region 10 will encourage and assist other agencies in the development of a coordinated program for the collection and compilation of baseline and monitoring data. It is currently anticipated that such a program will rely heavily on citizen and private industry participation. Monitoring at the state and/or regional levels will contribute to a national effort coordinated through the Center for Environmental Education (CEE) and supported by EPA's Office of Marine and Estuary Protection.

Additional Technical Support:
There are a number of important technical issues which EPA intends to review and evaluate as long term strategies are considered. Region 10 will fully participate in the technical committee proposed by the Washington State Task Force on Ocean Debris. Issues which the Region will propose for committee review and consideration will include:

* Establishing specific and standard definitions for photo-, bio-, and physical-degradability terms.
* Reviewing the potential for toxicity of enhanced degradation by-products and the potential ecological effects due to high localized concentrations of these by-products.
* Reviewing how efforts to reduce aesthetic and entanglement problems may affect ingestion rates by marine and coastal species.

RESOURCES AVAILABLE

a) In FY 1986 and 1987 EPA's Office of Puget Sound provided funding to the Seattle Aquarium for the Adopt-A-Beach Program for similar public education efforts. Currently, staff support has been made available by Region 10 to participate in the Washington State Task Force on Plastic Marine Debris ands for subsequent efforts. Staff also maintains contact with the National Task Force on Plastic Marine Debris.

c) Staff support will continue and future funds may become available as seed money for public outreach and involvement. Technical studies will be considered and reviewed as specific issues are identified.

d) Cooperative agreements are possible at either the state and/or local level.

Contact: Michael Rylko, Office of Puget Sound, 442-4014.

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
2625 Parkmont Lane SW, Bldg B
Olympia, Washington 98502
206/753-9440 FTS 434-9440

August 19, 1988

MARINE PLASTICS DEBRIS TASK FORCE

1. Agency: U.S. Fish and Wildlife Service, Olympia Field Office, Olympia, Washington

2. Why issue is important: Marine plastic debris is of concern to the U.S. Fish and Wildlife Service (Service) for several reasons. Surveys have shown that marine plastics result in physical impacts to Department of the Interior and Service trust resources which include endangered species, migratory birds, anadromous fish, and their habitats. Although not well demonstrated, there is potential for chemical effects from plastic debris. The Service manages National Wildlife Refuges located adjacent to aquatic environments and become a repository for plastic debris. The plastic debris negatively impacts the aesthetics and becomes a management concern.

3. Authority to deal with the issue: The Service has the authority to respond, investigate, and report on the effects of marine plastics on fish and wildlife through:

Fish and Wildlife Coordination Act
Clean Water Act
Endangered Species Act
Migratory Bird Treaty Act
Rivers and Harbors Act of 1899
Anadromous Fish Conservation Act

4. Resources Available: The Service has approximately .1 of a man-year to deal with the issue at the present time.

5. Description of program effort:

(a) Current: The Service conducts annual beach clean-ups on the Dungeness National Wildlife Refuge. This effort is accomplished through the Youth Conservation Corps and Service personnel. The Service has educational materials available to the public on marine plastic debris.

(b) Planned: The Service plans to continue participation on the Marine Debris Task Force and to keep informed about the environmental issues regarding marine plastics.

(c) Projected: There are no long-term projections available on the extent of future Service activities at this time. The Service can provide data from beach clean-up activities.

(d) Cooperative Effort: The Service does not have any state or federal cooperative projects at the present time. However, as opportunities to develop cooperative projects arise, the Service will consider participation as resources and budget permit.

CHUCK CLARKE
Director

STATE OF WASHINGTON

DEPARTMENT OF COMMUNITY DEVELOPMENT

Ninth & Columbia Building, MS/GH-51 • Olympia, Washington 98504-4151 • (206) 753-2200

MARINE PLASTICS DEBRIS TASK FORCE

** A S S I G N M E N T **

Prepared by Nick Turnbull
Local Government Assistance Division

10 August 1988

Current Status of MPD

1. Department name: Washington State Department of Community Development (DCD)

2. Why issue is important: DCD assists local governments with a variety of planning and regulatory problems. Marine plastic debris may emerge as a problem on the local government agenda.

3. Authority to deal with issue: DCD has no authority, statutory or otherwise, relating to this problem.

   a. *additional authorities needed:* N/A

4. Resources available (e.g. FTEs; volunteers, budget authority):

   DCD may provide a partial FTE as a resource towards solving this problem.

5. Description of program effect: N/A

   a. current
   b. planned
   c. projected (with additional funding or resources)
   d. cooperative effort

      1. state
      2. federal
      3. local

6. Additional information: DCD coordinates state and federal assistance to local governments and assists in community planning and development. The issue of marine plastics debris and its solution will likely affect local governments in a variety of ways. The role of DCD is to help minimize any additional burdens on governmental services that this problem is creating.

Christine O. Gregoire
Director

STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

Mail Stop PV-11 • Olympia, Washington 98504-8711 • (206) 459-6000

MARINE PLASTICS DEBRIS TASK FORCE
STATUS OF MAINE DEBRIS PROGRAM

1. Agency Name: Washington Department of Ecology, Recycling and Litter Control Unit

2. Why Issue is Important: Washington State is a Pacific Coast state wrapped around Puget Sound. The growing population of Western Washington results in increasing impacts to the marine environment which is an important state resource. Marine plastic debris is one form of water pollution resulting from improper disposal of wastes. Consequences range from scenic degradation to more serious adverse effects to marine habitat and the organisms who depend on it.

3. Authority to Deal With Issue: The Model Litter Control and Recycling Act of 1971 recognizes that the proliferation and accumulation of litter . . . impairs the fundamental need for a healthful, clean and beautiful environment. This law grants the Department of Ecology the authority to conduct a program to control and remove litter from the state and increase public awareness of the need for recycling and litter control.

4. Resources Available: The Ecology Litter Control Program is funded through the Litter Tax established in the 1971 legislation. Currently, there is a litter staff of two in the Headquarters Office and four in the western regional offices. The annual budget is directed at all litter cleanup of shorelines and waters of the state. Staff is available to coordinate volunteers from regular beach user groups. Marine educational posters are available with the message "Stow It, Don't Throw It."

5. Description of Program Effort:

   A. Current: Ecology promotes an annual summer Don't Splash Your Trash public awareness campaign. The Southwest Regional Office also runs an ocean beach cleanup in the Spring and Fall.

   B. Planned/Projected: No additional efforts are specifically ear marked, but Ecology is interested in expanding educational campaigns and cleanups.

   C. Cooperative Effort: Cooperative efforts with other agencies are expected to emerge from the recommendations of the Marine Plastics Debris Task Force.

CHRISTINE O. GREGOIRE
Director

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Mail Stop PV-11 • Olympia, Washington 98504-8711 • (206) 459-6000

MARINE PLASTICS DEBRIS TASK FORCE

A S S I G N M E N T

Prepared by Pamela Miller
Shorelands and Coastal Management Program

16 March 1988
(updated August 29)

1. Agency Name Washington Department of Ecology
Shorelands and Coastal Zone Management
Program

2. Why issue is important The Shoreline Management Act of 1971 states "...the public's opportunity to enjoy the physical and aesthetic qualities of natural shorelines of the state shall be preserved to the greatest extent feasible consistent with the overall best interest of the state and the people generally. To this end uses will be preferred which are consistent with control of pollution and prevention of damage to the natural environment..."

As the agency designated for coordinating the State's participation in the federal Outer Continental Shelf (OCS) oil and gas leasing program, we are concerned with the possible increase in marine plastics debris contamination that may result from potential offshore oil and gas development.

3. Authority to deal with issue
Shoreline Management Act of 1971 (State)
Coastal Zone Management Act of 1972 (Federal)
Outer Continental Shelf Lands Act of 1978 (Federal)

4. Resources available Staff person working on Outer Continental Shelf issues will participate to the fullest extent necessary in the Marine Plastics Debris Task Force. It is possible that some of the program's federal funds and/or general funds could be used for planning / implementation / public awareness efforts.

5. Description of program effort

a. current -- Task Force participation

b. and c. planned/projected:
1) contract to Adopt-A-Beach for beach survey planning and implementation project involving volunteers in collection of marine plastics debris and beached birds (funded FY '88);
2) Coastal Currents article(s);
3) possible sponsorship or co-sponsorship of special Coastweeks event.

d. cooperative effort -- interested in cooperative funding effort for beach surveys using volunteers (description follows).

6. Additional information

During FY 1988 the Shorelands program is awarding a grant to Adopt-A-Beach (Ken Pritchard) to plan a beach survey effort involving trained volunteers to walk selected beaches to record information on marine debris (i.e. location, type) and beached birds/mammals (i.e. location, species, whether oiled, plastics injestion). This would amass much useful baseline information on distribution and occurrence that could later be used comparatively in the event of offshore oil development. Information collected on marine debris could aid in understanding the nature and extent of the problem and in identification of sources. This project will also promote awareness of ocean issues as they impact the coast. Volunteers could collect much useful information that might otherwise be cost-prohibitive. A study group will be organized to insure the best possible project design. Possible joint-funding efforts to continue this effort on a long-term basis will be sought. The grants officer for this project will be Pamela Miller.

WASHINGTON STATE DEPARTMENT OF
Natural Resources

BRIAN BOYLE
Commissioner of Public Lands

OLYMPIA, WA 98504

Current Status of Marine Plastic Debris Program

Agency 1) Department of Natural Resources (DNR)

Importance 2) The Department manages the aquatic lands of the state as a public trust for the benefit of the public. The legislature has declared that these lands "are a finite resource of great value and an irreplaceable public heritage." These lands extend from the high water line on many state tidelands to three miles off shore from the Washington Coast and also include the bed of Puget Sound and the beds of navigable rivers and lakes. Over two million acres of such lands are managed to provide a balance of public benefits which includes ensuring environmental protection. Marine plastic debris degrades the quality of state-owned aquatic lands. These effects are visible (in the form of plastic litter) as well as invisible in that the ultimate fate of the material is its incorporation into the benthic and pelagic ecology.

Authority 3) The Department is authorized and directed to manage aquatic lands in Chapters 79.90 through 79.96 RCW, the Aquatic Lands statutes. Regulations carrying out this law are contained in Chapter 332-30 WAC. The authority to manage and plan for the multiple use of these lands and other lands (such as trust lands) managed by the department is found in Chapter 79.68 RCW.

The department is also authorized to construct, operate and maintain primitive outdoor recreation and conservation facilities on lands under its jurisdiction which are of primitive character. (43.40.300 RCW). Such developments are reviewed and approved by the Interagency Committee for Outdoor Recreation. Under this authority, the department has developed a number of recreation boating access sites in The San Juan Islands and Puget Sound.

As the proprietary manager of state-owned land, the department has authority to plan for the use of aquatic lands and to lease them for a variety of purposes ranging from marinas to aquaculture sites. Leases can be conditioned to address specific problems, such as disposal of plastics debris.

Revenues derived from aquatic land leases are deposited in the Aquatic Lands Enhancement Account (79.24.580 RCW). These funds are distributed to State and local agencies to, among other things, encourage public access to and use of state-owned aquatic lands. Conditions may be attached to these grants requiring certain types of signing, providing certain types of information, etc.

Equal Opportunity/Affirmative Action Employer

The department also has a direct relationship with the Washington Public Ports which are authorized to manage state-owned aquatic land "abutting or used in conjunction with the contiguous uplands owned, leased, or otherwise managed by a port district, for port purposes (RCW 79.90.475). This transfer of management responsibilities is contained in a Port Management Agreement.

Resources 4) Current staffing levels in The Aquatic Lands Division do not allow more than a cursory interest in this issue. There has been no specific line item in the budget dedicated to MPD. However, with the Commissioner of Public Land's heightened interest in aquatic lands generally and in this issue specifically, this will change. Department staff and resources are currently being made available, at the Commissioner's direction, to support and further the work of the task force. This will include a budget for publishing and distributing the task force report.

Program Effort 5.a) Current - none.

b) Planned - no specific efforts currently.

c) Projected:

Within the departments authority, a number of actions are possible to address MPD problem.

1) Conditioning of leases, particularly for marinas, boatyards and other such facilities, to require such things as trash bins for plastic debris and to provide educational materials.

2) Make MPD awareness a part of all ALEA - funded projects through mechanisms such as signs, brochures and other educational materials.

3) Work closely with Ports through Port Management Agreements to encourage detailed steps they will undertake to comply with PL 100-220 and Marpol Annex V.

4) Provide signage and other information about MPD disposal at boating access recreation sites.

d) Cooperative efforts.

None to date except at the most abstract level. This task force initiates a much more intensive involvement by the department.

JAN TVETEN
Director

STATE OF WASHINGTON
WASHINGTON STATE PARKS AND RECREATION COMMISSION
7150 Cleanwater Lane, KY-11 • Olympia, Washington 98504-5711 • (206) 753-5755

AGENCY NAME: WASHINGTON STATE PARKS AND RECREATION COMMISSION

Boater Environmental Education Program
7150 Cleanwater Lane, KY-11
Olympia, WA 98504-5711

Contact: Nina Carter, Program Manager
(206)586-8592, SCAN 321-8592

WHY IS ISSUE IMPORTANT:

State Parks wishes to control marine debris to prevent unsightly debris from ruining the aesthetic values of our marine parks. It also wants to protect marine mammals and fish from entanglement in non-biodegradable debris. Furthermore, State Parks seeks to prevent boating accidents or engine damage caused by marine debris.

AUTHORITY TO DEAL WITH THE ISSUE:

Ch. 70.93 RCW	Model Litter Control and Recycling Act
Ch. 43.51 RCW	Parks and Recreation Commission
Ch. 82.36.020 and .939 WAC	Volunteers in State Parks
Ch. 352-32-030 352-32-250 352-32-280 352-32-285	Waiving Camping Fees at State Parks for Volunteers
Commission Policy: 82-70-1 82-70-5	Allows State Parks to use volunteers to maintain and clean up parks.

ADDITIONAL AUTHORITIES NEEDED:

Authority to use boater excise tax to educate boaters about proper waste disposal and to install boat sewage waste receptacles. Currently, boater taxes are placed in the state's general fund and are not used specifically for boat related programs.

RESOURCES AVAILABLE:

State Parks has 3.5 project employees until June, 1989, to develop a boater environmental education program. Funding will be sought at the 1989 legislative session to continue this boater environmental education program.

State Parks coordinates two clean-up programs: Ocean Beaches and Green River Gorge. Over 1,000 volunteers are recruited yearly to participate with other state and local agencies in the clean-up programs.

DESCRIBE PROGRAM EFFORT:

Current: 1. Boater Environmental Education Program
2. Two beach clean-ups per year

Planned: Expanded Boater Environmental Education if legislation is successful in January 1989

Projected:

Cooperative Effort:

1. State: Ecology
IAC
DNR
Fisheries
DSHS
PSWQA

2. Federal: NOAA
EPA
USCG and Auxiliaries

3. Local: Counties
Cities
Marina Operators
Northwest Marine Trade Association
South Sound Sailing Association
Interclub Boating Association
Washington Shellfish Growers Assoc.
Marina Managers Assoc.
Sailing Foundation
N.W. Boating Council
N.W. Magazine
Assoc. of Independent Moorages
Marine Sanitation Industry
Crowley Maritime Corporation
Puget Sound Alliance
U.S. Power Squadron
Public Ports Association
Sierra Club
Pierce County Marina Operators Assoc.

JACK S. WAYLAND
Director

STATE OF WASHINGTON

DEPARTMENT OF WILDLIFE

600 North Capitol Way, GJ-11 • Olympia, Washington 98504-0091 • (206) 753-5700

MARINE PLASTICS DEBRIS TASK FORCE

1. AGENCY: DEPARTMENT OF WILDLIFE

2. WHY ISSUE IS IMPORTANT: The issue of marine plastic debris is important to the Department of Wildlife because of the potential impacts on marine wildlife species the Department manages. Data is generally lacking on detrimental effects of plastic debris on marine wildlife in Washington and needs to be gathered.

3. AUTHORITY TO DEAL WITH THIS ISSUE: Various WAC's and RCW's related to protection and management of wildlife. WDW is working to develop cooperative protection and management programs with appropriate Federal agencies for marine birds (USFWS) and marine mammals (NMFS).

4. RESOURCES AVAILABLE: Currently WDW has no field personnel involved directly with the marine plastic debris issue. WDW's Marine Mammal Investigations program does document cases of marine mammal entanglement in net debris through their participation in the Northwest Marine Mammal Stranding Network. The Department also provides curriculum training through Project WILD to educators, Grades K-12.

5. CURRENT PROGRAM EFFORT: WDW's Marine Mammal Investigations program is one of five primary response teams in Washington and Oregon which provides voluntary response coordination for stranded marine mammals. The regional Northwest Marine Mammal Stranding Network is coordinated by NMFS, Regional Office in Seattle (Joe Scordino). Information on entanglement and net samples are provided to NMFS for identification if possible.
   Project WILD is a national interdisciplinary, supplementary environmental and conservation education program for educators of grades K-12. Larry Broder coordinates this education program for WDW. Included in the Project WILD curriculum program is an exercise, "Plastic Jellyfish", dealing with the effects of plastic debris on aquatic wildlife. Also included in the curriculum on plastic debris in the marine environment is information and education materials provided by Jim Coe of NMFS.

6. ADDITIONAL INFORMATION: Example of Project WILD materials, "The Plastic Jellyfish" exercise from the Project WILD Aquatic Education Activity Guide.

Steven Jeffries
THE DEPARTMENT OF WILDLIFE
Marine Mammal Investigations

JOSEPH R. BLUM
Director

STATE OF WASHINGTON

DEPARTMENT OF FISHERIES

115 General Administration Building • Olympia, Washington 98504 • (206) 753-6600

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JUN - 7 1988
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REAL ESTATE

Marine Plastics State Task Force

March 17, 1988

Brief status report of Washington Department of Fisheries' efforts to address marine plastics debris problem:

1. Washington Department of Fisheries.

2. The issue is important because marine plastic debris is detrimental to food fish, shellfish, and their habitats.

3. Authority to deal with the issue derived from RCW 75.08.080.

   WAC 220-52-035 - Requires self destruct crab pot lid hooks.

   WAC 220-56-320 - Requires weighted lines on crab and shrimp pots to avoid props cutting the pot lines.

   WAC 220-020-10 - Unlawful to leave nets unattended.

4. Resources above existing levels are not available.

5. Program Effort

   a. Current - The Department of Fisheries (WDF) staff respond to individual incidents of net loss or entanglement on artificial and natural reefs, and in other areas. WDF scuba divers will spend approximately six man-days to respond to an individual incident.

   b. Planned - None above existing effort.

   c. Projected - If additional funding or resources were available it would be desirable to better define the magnitude and impact of the problem and enhance appropriate enforcement efforts.

   d. Cooperative Efforts - Currently, informal coordination and cooperation exists with other agencies, tribes, and Canada to retrieve lost nets. WDF patrol officers are cross-deputized to enforce National Marine Fisheries Service regulations, and routinely coordinate enforcement with adjoining states, tribes, and federal agencies.

KATHERINE FLETCHER
Chair

STATE OF WASHINGTON
PUGET SOUND WATER QUALITY AUTHORITY
217 Pine Street, Suite 1100 • Seattle, Washington 98101 • (206) 464-7320

MARINE PLASTICS DEBRIS TASK FORCE
CURRENT STATUS OF MPD PROGRAM

PUGET SOUND WATER QUALITY AUTHORITY

WHY ISSUE IS IMPORTANT

As the state agency charged with developing the first comprehensive management plan for Puget Sound, the Puget Sound Water Quality Authority is concerned with all types of pollution affecting Puget Sound basin. The primary focus of the Authority and the Puget Sound Water Quality Management Plan is prevention. The issue of marine plastics debris is related to several existing plan program such as Marinas and Recreational Boating and the Education and Public Involvement programs. The issue is also scheduled to be addressed in the Authority's 1989 plan and in the 1991 plan as a separate program. The plan's focus on prevention also lends itself to the task of eradicating marine plastics debris in Puget Sound.

AUTHORITY

Chapter 90.70 RCW provides for the establishment of the Puget Sound Water Quality Authority and charges it with the responsibility of developing the Puget Sound Water Quality Management Plan. The statute provides that in conducting planning, regulatory, and appeals actions, the state agencies and local governments identified in the plan must evaluate, and incorporate as applicable, the provisions of the plan, including any guidelines, standards, and timetables contained in the plan. This chapter also authorizes state agencies to adopt rules that are applicable on a less than state wide basis to implement the plan provisions. The chapter also provides for a biennial review of plan implementation progress and plan updates.

RESOURCES AVAILABLE

The Authority has a staff of 36 which include a planning section and a public outreach section. Each staff member in the planning and public outreach section is assigned to a plan program. Likewise, the Public Outreach staff acts as the Authority's liaison to each local government in the 12 Puget Sound counties. Funding for the Authority's planning and public outreach efforts comes from a variety of sources. The Authority has committed a staff member to attend the task force meetings and assist in the preparation of the report.

PROGRAM EFFORT

While the PSWQA has only recently become active in the area of marine plastics debris, the following activities have been taken or are proposed :

1) The Authority staff addressed the issue in the Authority's draft 1989 plan as an "Unfinished Agenda" item.

2) The Authority staff is proposing to place an article on this topic in an upcoming issue of the Authority's newsletter- Soundwaves- which has a circulation over 10,000.

3) The Authority staff, if the Authority decides to address the issue further in the 1991 plan, will draft an issue paper on the problem of marine plastics debris as part of its scoping process for the 1991 plan development.

4) Support for the Task Force and its efforts to clean up the Sound of plastic debris.

SPI

DR. FRANK B. BROUILLET — Superintendent of Public Instruction

The Office of Environmental Education of the Superintendent of Public Instruction has a variety of resources that treat the issue of Marine Plastics.

COASTAL ZONE STUDIES is a middle school/jr. high curriculum program with a science emphasis. Along with exploration and activities that focus on coastal zone habitats and ecological communities, there are sections which discuss the pervasive problem of marine plastics.

ENERGY FOOD AND YOU is a K-12th. grade curriculum that investigates the nature and conservation of energy. Several sections give special emphasis to the elimination of the plastics problem by cutting down on the use of the product itself by suggesting alternatives. An interdisciplinary prog.

CLEAN WATER STREAMS AND FISH is a K-12th.grade curriculum program that has a science emphasis with special attention given to populations of anadramous fish. Stream contamination and the role of plastics in a changing environment is discussed.

ASSORTED BROCHURES are distributed through the office that detail the problems of plastics in the environment. The degree of detail may vary.

AWAY WITH WASTE is a Department of Ecology curriculum program that has been developed with the assistance of our office and focuses on the solid waste flow in our society. It offers both understanding of the problem and consideration of alternatives. K-12 grades.

SLEUTH: HOUSE HOLD HAZARDOUS WASTE is a jr. high level curriculum that was developed with our office and Metro of Seattle. Handling waste products is the focus with associated references to plastics.

Old Capitol Building, FG-11, Olympia, Washington 98504

Washington State Legislature

Joint Select Committee on Marine and Ocean Resources

Representative Dean Sutherland, Chairman — 268 HOB — Olympia, WA 98504 — (206) 786-7129

Representative Dean Sutherland, Chairman
Representative Gary Bumgarner
Representative Doug Sayan
Representative Sim Wilson
Senator Brad Owen
Senator Alan Bluechel
Senator Artie DeJarnatt
Senator Jack Metcalf

Marine Plastics Debris Task Force

1. Agency Name: Washington State Legislature
   Joint Select Committee on Marine and Ocean Resources

2. Why Issue is Important: The disposal of plastics in the marine environment is an issue that the Committee will likely address at a meeting in July 1988.

3. Authority to Deal with this Issue: In general, the Legislature can deal with issues that have not been preempted by the federal government and are constitutional. This issue clearly falls within the responsibilities of the Joint Select Committee on Marine and Ocean Resources. However, since it is not a standing committee, proposed legislation would be referred to the Senate Environment and Natural Resources Committee, House Natural Resources Committee, and/or House Environmental Affairs Committee.

4. Resources Available: Robert Butts, Research Analyst for the Committee, will be able to attend Task Force Meetings.

5. Current Program Effort: A work session is scheduled in mid-July to address an assortment of ocean issues. While final decisions have not been made regarding specific agenda topics, marine plastics will likely be included. The committee will likely want to know the results of the Task Force's efforts, and what legislative recommendations, if any, it has.

Washington State Senate

METCALF

Jack Metcalf
10th District

MARINE PLASTICS DEBRIS TASK FORCE

1. Agency name: Washington State Senate
   Environment & Natural Resources Committee

2. Why issue is important: Problems created by plastics in all parts of the environment are being looked at by the committee.

3. Authority to deal with issue: Legislative
   a. other authorities needed: U. S. government as additional authority

4. Resources available: Laurie Schock, Administrative Assistant to Senator Metcalf will be available for Task Force meetings

   Senator Metcalf will be glad to review any legislation proposed by the task Force and possibly prime sponsor

5. Current program effort: SJM 8027 passed this legislative session. The memorial informs Washington, D. C. that Washington State is aware of the MPD issue and calls for strengthening implementation of Annex V of the international convention for the prevention of pollution from ships.

   Planned program: at this time, work with task force and see what possible legislative solutions may come from group

3273 E. Saratoga Road, Langley, WA 98260
(206) 321-5483

Institutions Building, Olympia, WA 98504
(206) 786-7618

Port of Seattle

April 20, 1988

MARINE PLASTICS DEBRIS TASK FORCE

1. Agency: Port of Seattle

2. Why issue is important: Marpol V is a legal requirement. Ships will now bring their refuse to Ports to dispose of, instead of ocean dumping, this will add to Port refuse collection responsibilities and possibly to the cost of operation.

3. Authority to deal with the issue: We have sufficient authority.

4. Resources available: The Port has a full time and temporary employee and a consulting company working on Marpol V's effect to the Port of Seattle. Resources will be made available as needed.

5. Description of program effort:

   (a) Current: The Port will provide information about Marpol V and its ramifications to Fishermen's Terminal(FT) and Shilshole Bay Marina's(SBM) tenants. The fishermen mostly use Alaskan and ocean-side ports for refuse disposal because of its proximity to the fishing areas, so the Port does not need to increase refuse disposal at Fishermen's Terminal. The Port has hired a consulting company to study Marpol's potential impacts on Port operations, excluding FT and SBM. Specifically, they are studying waste characterization and waste quantities of incoming ships and waste disposal options.

   (b) Planned: When the consulting company completes its study, the Port will review the findings and proceed accordingly.

   (c) Projected: Previously mentioned.

   (d) Cooperative effort: Possibly cooperation with other Ports in program implementation. Coordinate with regulating and other agency programs as appropriate.

LC/3154V/klw

P.O. Box 1209
Seattle, WA 98111 U.S.A.
(206) 728-3000
Telex 703433

WASHINGTON PUBLIC PORTS ASSOCIATION

Port of Allyn
Port of Anacortes
Port of Bellingham
Port of Benton
Port of Bremerton
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Port of Camas-Washougal
Port of Centralia
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Executive Director

MARINE PLASTICS DEBRIS TASK FORCE ASSIGNMENT

prepared by Darrell Russell
Assistant Director, Washington Public Ports Association

June 7, 1988

1. Agency Name: Washington Public Ports Association

2. Why issue is important

   The marine plastics issue is important to the public ports of Washington because of the chemical and physical effects upon the marine environment. In addition, public ports will be required by Federal law to provide for the disposal of shipboard plastics which are brought into our ports.

3. Authority to deal with issue

   RCW 53.06 authorizes the Washington Public Ports Association to:

   (1) To initiate and carry on the necessary studies, investigations and surveys required for the proper development and improvement of the commerce and business generally common to all port districts, and to assemble and analyze the data thus obtained and to cooperate with the state of Washington, and other operators of terminal and transportation facilities for this purpose, and to make such expenditures as are necessary for these purposes, including the proper promotion and advertising of all such properties, and utilities and facilities;

   (2) To exchange information related to port construction, maintenance, operation, administration and management;

   (3) To promote and encourage port development along sound economic lines;

   (4) To promote and encourage the development of transportation, commerce and industry;

   (5) To operate as a clearing house for information, public relations and liaison for the port districts of the state and to serve as a channel for cooperation among the various port districts and for the assembly and presentation of information relating to the needs and requirements of port districts to the public.

4. Resources available

   The WPPA has a very small staff; however, we are able to call upon the expertise available from member ports.

5. Description of program effort

   (a) Current - Task force participation

   (b) Planned and projected - Continue working with the task force and other Federal, State and local officials to adopt rules and, if necessary, draft legislation.

P.O. Box 1518 • Olympia, Washington 98507 • (206) 943-0760 • Fax 753-6176 • 1501 Capitol Way • Suite 304

Washington Sea Grant Program
University of Washington
3716 Brooklyn Avenue NE
Seattle, WA 98105-6795
(206) 543-6600
SCAN 323-6600

2. The issue of marine plastic debris is important because:

a.) marine plastics are a threat to wildlife, namely marine mammals, fish, seabirds and, in some regions, sea turtles;

b.) marine plastics such as lost or discarded fishing gear, plastic sheeting or bags can foul propellers and water intakes, causing damage to fishing vessels and potentially endangering lives;

c.) divers occasionally become entangled in lost or discarded fishing gear, including masses of poly line lost by recreational fishermen;

d.) marine plastic debris is an aesthetic problem, which interferes with the tourism potential of many of our shorelines, and

e.) with the Marine Plastic Pollution Research and Control Act (MPPRCA) now in place, marine industries such as fishing, recreational boaters, ports and marinas must be educated in order to comply with forthcoming federal regulations.

The strength, durability and longevity of plastic materials which make them so attractive to industry and the average consumer exacerbate their ill effects in the marine environment. The same piece of scrap netting can kill more than once as it persists for an unknown length of time in the ocean or on our shores.

The issue is an important one to Washington Sea Grant, as one of our primary missions is public education. We perceive the immediate problem to be one of public education regarding appropriate disposal of plastics and possible substitution of other materials, and the provision of information and expertise to industries and individuals affected by the MPPRCA.

3. Our authority to deal with the marine plastic debris issue derives from our broad federal authorizing legislation. The National Sea Grant Program's goal is to facilitate the wise development, use, and conservation of marine resources. We have three primary components: marine advisory services, research, and public education. Marine advisory links marine resource users and managers with the information needed to make wise decisions, which meet local, regional and national needs, and that bring economic and social benefits to people. This is accomplished through the efforts of our field staff and the workshops and publications which they put together.

Status of Marine Plastic Debris Program 7/27/88 Augerot

4. Six people in our advisory service offices, our port specialist, our science writer and the assistant to the director have already been involved in marine debris-related activities, and may continue their involvement in the future. Only one part-time employee is dedicated 100% to this issue, working on the Port of Bellingham/Sea Grant/PSWQA marine debris project.

5. Program effort

Current: 1) PSWQA/SG-funded Port of Bellingham project to demonstrate development of marine .plastic debris reception facilities in a small port; 2) coverage of the issue by "Coastal Fisheries," a newsletter published by our Coast Office in Montesano; 3) publication and distribution of "Plastic in the Ocean: What Are We Doing to Clean It Up?," an eight page document about the MPPRCA, regional activities, and educational materials available. Intended for use by Sea Grant marine advisory agents, marine educators, and local goverment officials around the country.

Planned: 1) involvement with a national Sea Grant network task force for marine advisory activities regarding marine plastic debris; 2) development of educational materials aimed at commercial and recreational boaters (Bellingham advisory office); 3) development of anti-marine litter logo;

Projected: 1) educational materials for marina and small port operators on establishing plastic debris reception facilities; 2) descriptive articles for the local press.

All of our efforts to date have been cooperative:

--participation in this state task force;

--we recently helped to put on a workshop on fisheries-generated marine debris for NOAA and the federal Interagency Task Force on Persistent Marine Debris. We worked closely with NMFS, NOAA, other federal agencies, marine advisory programs in other states, the fishing industry, port operators and other marine-related industries in putting together the program (Oceans of Plastic, 9-11 February, Portland, OR);

--the Port of Bellingham project is funded primarily by the PSWQA, with contributions from both Sea Grant and the Port itself;

--the National Sea Grant Program task force will draw together marine advisory agents from across the country to pool ideas, educational materials, advice and expertise.

6. Contact: Xan Augerot at the Seattle office (206) 543-6600 or Jim Humphreys at the North Sound office (206) 676-6429.

7/27/88 Augerot

ADOPT-A-BEACH PROFILE

PURPOSE
To promote citizen stewardship of watersheds and marine waters.

To develop a corps of volunteers trained in habitat rehabilitation, monitoring and public education.

To increase public involvement in the protection of water quality through the example of citizen run projects.

BACKGROUND
Initiated at the Seattle Aquarium in 1985 as the public outreach program of the State of the Sound Exhibit. Initially Funded by the EPA. Merged with Volunteers for Outdoor Washington in 1987. Currently seeking independent status.

INVOLVEMENT WITH MARINE DEBRIS
Past involvement: Pilot clean-up of the Seattle waterfront with Metro in April 1986. This effort resulted in Metro sponsoring a Seattle waterfront Conservation Corps clean-up for two summers. First Adopt-A-Beach attempt at describing and quantifying debris data.

Developed pilot protocol for beached litter survey in 1986. Sponsored several litter surveys from Bellingham to Olympia.

Sponsored a net removal project from 1986 through 1987. Project included the scouting of submerged derelict nets and their removal.

Future involvement: Coordinating a statewide marine debris survey to start in the summer of 1988. This project is funded by CZM.

Organizing Coastweeks 88 in September/October. This year the Puget Sound Bank has agreed to sponsor a litter clean-up of Puget Sound beaches to coincide with the Four wheeler's Association litter clean-up of ocean beaches.

Area of interest: Marine debris surveys.

FOR FURTHER INFORMATION: Contact Ken Pritchard or Betsy Peabody at (206) 344 2544 or write: Adopt-A-Beach c/o VOW 607 3rd. Avenue Room 210 Seattle, WA 98104

MARINE PLASTICS DEBRIS TASK FORCE

1. Agency: Friday Harbor Labs, University of Washington

2. Why issue is important: We cannot compromise biological diversity and richness with plastic materials which cover the beach areas and intertidal zones with lethal consequences to the organisms which inhabit these areas. See Wash. R.C.W. 28B 20.320 and 28B .20.322 attached. The aesthetic effects are repulsive. Space in the intertidal zones is needed for the micro-organisms upon which larger animals depend.

3. Authority to deal with issue: WAC cited above.

4. Resources available: Students and scientists at the Labs as a pool for information and action.

5. Description of program effort: Awaiting guidance and more specific direction from the Marine Plastics Debris Task Force. Need to cooperative with the plastics industry toward the goal of total elimination of plastics and the substitution of non-toxic mayerials for plastics currently in use. Termination of toxic and environmentally degrading substances is the most straight-forward and simplest means of protecting the environment. If it isn't made, it doesn't have to be cleaned up.
Massive program of public education necessary.

Fred E. Ellis, Representative
Friday Harbor Labs. U of W.
Dennis Willows, Director

the seattle aquarium

Seattle Department of Parks and Recreation

Charles Royer, Mayor
C. M. Girtch, Acting Superintendent
Cynthia A. Shiota, Interim Aquarium Director

MARINE PLASTIC DEBRIS PROGRAM: STATUS REPORT

1. Agency: Seattle Aquarium

2. Why issue is important: Plastic debris is a marine resource issue. The Seattle Aquarium is a regional facility concerned about marine resource issues in Puget Sound and the North Pacific.

The plastic debris issue is the focus of the grade six curriculum of our Puget Sound on Wheels program. This issue can also complement other issues addressed in the State of the Sound exhibit and education programs.

As a facility with more than 600,000 visitors and 100,000 program participants per year, we can get information to a large number of people.

3. Authority to deal with issue: This issue is within the scope of our mission statement. No additional authority is needed.

4. Resources available: State of the Sound exhibit and education programs are in place. Both are supported by current budget. Expansion is dependent on additional, external funding.

5. Description of program effort:

A. Current: The State of the Sound exhibit is an interactive and issues-oriented exhibit, monitoring station, and audio-visual presentation. The State of the Sound education program consists of classes (grades 4-12) at the Aquarium, outreach classes at schools, a Scout program, and teacher workshops.

B. Planned: The plastic debris issue will be incorporated in the 1989 Puget Sound Ecology teacher workshops and included as one of the issues in our State of the Sound education program, both on site and via outreach activities.

The Seattle Aquarium
Pier 59, Waterfront Park
Seattle, Washington 98101
(206) 625-4358

C. Projected: Expansion of outreach and other program activities is dependent on additional, external funding.

D. Cooperative efforts: The development of the State of the Sound exhibit and educational programs was a cooperative effort of local, state and federal agencies. We are receptive to future collaborative efforts.

E. Additional information: Available on request. Contact: John J. McMahon, Manager of Programs and Exhibits, Seattle Aquarium, Pier 59, Waterfront Park, Seattle, WA 98101; (206) 386-4335.

Marine Science Center
17771 Fjord Drive N.E
Poulsbo, Washington 98370
Phone (206) 779-5549

May 16, 1988

MARINE PLASTICS DEBRIS TASK FORCE STATUS REPORT

Agency: Marine Science Center

Why issue is important: The growing problem of MPD has potential effects on the students and people Marine Science Center programs reach.

Authority to deal with issue: This issue is within the educational mission of the Marine Science Center.

Resources available: The education programs of the Marine Science Center reach over 9,000 students and teachers a year. The primary audience of these programs are students within about one hour drive of the Center. These programs are in place and supported by the current budget. Expansion of programs servicing students state wide are dependent on external funding.

Description of program effort:

A. Current: Activities and experiences in the Grade 4 comprehensive program are focused on commercial and recreational uses of the marine environment. *Issues related to these uses, like MPD, are a part of the curriculum* presented. Senior high students have prepared public displays to alert general public visitors to the issue. Marine Science Project: FOR SEA, a marine science curriculum disseminated by the Center, delivers teacher training sessions nationwide, with a focus in WA state. FOR SEA teacher trainings include an examination of existing resources to teach marine related issues, including marine plastic debris.

B. Planned: The Center will house and disseminate the Marine Debris Teaching Kit created by N.A.M.E. members and collated by Holly Foley, a member of the Marine Science Center staff. This kit will be available in the fall of 1988.

The issue of marine plastic debris will continue to be included in educational programs for students, educators, and the general public.

C. Projected: Plans are being discussed for a new facility which will include expansion of exhibit space for general public display and programming. Displays and exhibits highlighting human use and interaction with the marine environment are being considered.

D. Cooperative effort: The Marine Science Center, administrated by Educational Service District 114, is managed as a cooperative of school districts. The education programs delivered to students are for the most part, supported by the fees of the cooperating districts. Marine Science Project: FOR SEA teacher training sessions are supported with federal *grant money.*

Additional Information: Available on request. Contact: Jim Kolb, Director, Marine Science Center, 17771 Fjord Dr. N.E., Poulsbo, WA 98370 (206) 779-5549.

May 16, 1988

Northwest Association of Marine Educators

MARINE DEBRIS TASK FORCE STATUS REPORT

Agency: Northwest Association of Marine Educators (N.A.M.E.)

Why issue is important: At the 1987 summer regional conference, N.A.M.E. members resolved "whereas the amount of plastic debris in the marine environment is increasing, and is thereby creating a threat to fish and wildlife and boater *safety, the membership of N.A.M.E. proposes that N.A.M.E. conduct educational* programs and activities to increase public awareness and knowledge about plastic debris in the marine environment."

Authority to deal with issue: This issue falls within the purposes of the association.

Resources available: The creative energies and activities of the membership are the most valuable resources of the organization. Members have disseminated information on the MPD issue and become actively involved in awareness/action campaigns on a local level.

Members have contributed to the creation and compilation of a MARINE PLASTIC DEBRIS teaching kit, which will be disseminated from the Poulsbo Marine Science Center, available fall, 1988.

Description of program effort:

A. Current: As the theme of the educational efforts of the organization this year, there have been conference sessions, regional meetings, and newsletter articles circulated to the membership disseminating information and teaching ideas and resources. The MARINE PLASTIC DEBRIS teaching kit is being constructed and will be available fall, 1988.

B. Planned: Washington representatives of the membership will be presenting a session at the National Marine Educator's conference in Santa Cruz, CA this summer. A display and presentation is being planned for the National Science Teachers' conference that will be held in Seattle in April, 1989. Many Washington science teachers will be attending.

C. Projected: The MARINE PLASTIC DEBRIS teaching kit constructed will be one of several marine oriented kits developed around a theme by N.A.M.E. members each year. We expect the MARINE PLASTIC DEBRIS kit will be available as long as demand exists.

D. Cooperative effort: N.A.M.E. exists through cooperative efforts on a local, state and federal level.

Additional information: Available on request. Contact: Kathleen Heidenreich, President-elect for 1988-89, Chinook Middle School, 4301 6th Ave. N.E., Lacey, WA 98506 (206) 456-7685.

MARINE PLASTICS DEBRIS TASK FORCE

Washington Environmental Council
4516 University Way Ne
Seattle, Washington 98501
(206) 547-2738

WHY ISSUE IS IMPORTANT:

As the WEC and other voluntary citizens organizations insist on the cleanup and prevention of environmental pollution wherever it may occur, it is especially important that Society not consider the marine environment as the final, and acceptable, depository of our wasteful and contaminating practices on land. Public attention focused on the oceans and estuaries of the world is even more critical today as we attempt to eliminate the dumping of polluting materials in air,land, and inland environments.

AUTHORITY:

The Washington Environmental Council is a not-for-profit, voluntary citizens organizations which has the right and responsibility to impact governmental decisions taken in behalf of the public.

RESOURCES AVAILABLE:

WEC maintains a standing capability to respond to public issues through a variety of means: active resource committees, including a Shorelines Committee and Legal Committee; publication of a monthly newsletter "ALERT"; volunteerism; a professional staff of four people; mailing lists; and regular contacts with governmental and citizen organizations throughout Washington State. As a privately-supported public information clearinghouse, and advocacy group, WEC's ability to network to broad audiences is only restrained by limitations of time and funding.

PROGRAM EFFORT:

WEC will provide high visibility to the Marine Plastics Debris Task Force through its publication "ALERT" and in the discussions and deliberations of its Committees and Board of Directors. In addition, the WEC would be interested in availing itself of any grant-in-aids which may be provided for the purpose of expanding public education on the subject of marine pollution.

WEC is committed to monitoring the implementation of the Coastal Zone Management Act, and such other Federal, State and local statutes which have been enacted to ensure that the marine environment remains a clean and healthy one.

Washington Citizens for Recycling
4224 University Way N.E. Seattle, WA 98105
(206) 633-3366

MARINE PLASTICS DEBRIS TASK FORCE

1. Agency/Organization Name: Washington Citizens for Recycling

2. Why issue important: Plastics in the marine environment is not only hazardous to marine wildlife, but part of a general solid waste problem of plastics proliferation. Increasing use and careless disposal of a material foreign to the natural environment will only cause increasing detrimental effects unless checked.

3. Authority to deal with issue: WCFR's purpose includes helping our members and the general public understand how solid and hazardous wastes affect the natural environment, and working for environmentally preferable changes to our state's disposal practices.

4. Resources available: Volunteers in a statewide network of members
   1 FT director
   1 PT lobbyist
   base of knowledge/info resources on recycling

5. Description of program effort

   a. current - none at this time
   b. planned - none at this time
   c. projected - possible lobbying for legislative proposals
   d. cooperative effort - with other environmental organizations, public and private entities

6. Additional

Nancy Pearson
Lobbyist

Printed on recycled paper

NRC
NATURAL RESOURCES CONSULTANTS

4055 21ST AVENUE WEST
SEATTLE, WASHINGTON 98199, U.S.A.
TELEPHONE: (206) 285-3480
TELEFAX: (206) 283-8263

July 27, 1988

MARINE PLASTICS DEBRIS TASK FORCE

STATUS REPORT

1. Organization:

   Natural Resources Consultants
   (A marine industry consulting firm)

2. Issue Importance:

   The commercial fishing industry has been recognized as a contributor to marine debris. Marine debris threatens the health of the marine environment which is necessary for a productive commercial fishing industry.

3. Authority:

   Natural Resources Consultants is under a one-year contract with the Marine Entanglement Program of the National Marine Fisheries Service to conduct a marine debris education program for the North Pacific. Natural Resources Consultants represents commercial fishing industry associations concerned with the marine debris issue.

4. Resources Available:

   Natural Resources Consultants receives a yearly budget for production and printing of marine debris educational materials and one half-time position.

5. Description of Program Effort:

   Current

   Natural Resources Consultants develops and distributes marine debris educational material targeted primarily at the North Pacific commercial fishing industry, but also addressing the general public. Educational products include marine debris posters and postcards, an instructional video presentation for commercial fishing vessel captains and crew, a marine debris plaque describing a "Fishermen's Pledge for a Clean Ocean," a marine debris pamphlet, general background articles on all aspects of marine debris, and presentations at seminars, meetings, and lectures. Natural Resources Consultants maintains a bibliography on marine debris and assists persons writing marine debris articles.

   Planned

   A second annual International Conference on Marine Debris scheduled for Hawaii in April 1989. Continued participation in the marine debris education program with the activities described above.

   Projected

   Depending upon yearly funding, a greater participation with ports, marinas, and all types of vessels to educate users concerning U.S. Coast Guard regulations associated with MARPOL Annex V.

   Cooperative Effort

   Natural Resources Consultants cooperates with the Center for Environmental Education, its east coast counterpart in the NMFS supported marine debris education program, and state, local, and private organizations to forward marine debris education. Several commercial fishermen's organizations are cooperating with Natural Resources Consultants and are taking an active role in the marine debris issue.

Dolco Packaging

April 18, 1988

STATUS REPORT - MARINE PLASTICS DEBRIS PROBLEM

1. Organization/Name

John H. Pruatt
Vice President/General Manager
Northwest Division
DOLCO PACKAGING CORPORATION

2. The issue of marine debris is important because, although a very small part of the total waste stream, plastics are both durable and highly visible. These unique features make plastic debris esthetically unacceptable and potentially damaging to the environment.

4. Resources available:

Access to industry trade associations with both research and technical facilities.

Raye Little (Dolco Packaging) - to assist on staff.

5. Program effort:

a. New to the task force.

b.- c. We believe we can assist in developing factual information concerning the varied plastic items which might appear in the waste stream - how they might be dealt with (collected, recycled, incinerated, etc). Public education as to the unique properties of plastics and the appropriateness of their disposal should greatly alleviate the problem.

6. Additional information:

Some educational programs have been initiated regarding plastic debris in the marine environment by trade associations of which we are members. We will share this information with the task force so it might be used as appropriate to this project.

3400 - 188th S.W., Suite 204
Lynnwood, Washington 98037
(206) 778-9045

Battelle
Pacific Northwest Division
Marine Research Laboratory
439 West Sequim Bay Road
Sequim, Washington 98382
(206) 683-4151

MARINE PLASTICS DEBRIS TASK FORCE

1. **Organization Name:** Battelle Marine Sciences

2. **Why the Issue is Important:** Marine debris, especially plastic debris, has become an important marine pollution issue of concern both nationally and internationally. In response to growing awareness and concern regarding plastic debris, the U.S. Congress recently passed the Plastic Pollution Research and Control Act of 1987 (P.L. 100-200). This Act is Title II of the U.S. - Japan Fishery Agreement Act of 1987. Relevant contents of Title II are as follows:

   - Implementation of legislation for Annex V of the MARPOL convention.
   - Requirements that EPA and NOAA jointly initiate a program to educate the public about plastic pollution.
   - Requirement that EPA conduct a study and issue a report on methods to reduce plastic pollution.
   - Requirement that EPA develop a plan for restoration of the New York Bight, including conduct of a study and production of a report on problems associated with plastic debris in the Bight.

   The types of plastic debris are numerous and the biological effects of the debris are diverse and depond on factors such as the size and form of the debris, the type of interactions between the organism and the debris, the stage of decomposition of the debris, and/or the location of the debris (in some cases). The issue of marine plastic debris alone is an important one. In addition, it is important to know the important of marine plastic debris relative to other local and national amrine pollution problems (e.g., habitat loss and modificiation, other components in the waste stream, nonpoint sources of pollution, atmospheric deposition of acid rain into the marine marine environment, etc.).

3. **Authority to Deal with the Issue:** No statutory authority. A major focus of research at Battelle is on marine pollution problems. Our scientists are concerned about the issue and will provide expertise where possible.

4. **Resources Available:** Scientists at Battelle have expertise in many areas of marine sciences including benthic ecology, fisheries, marine

R. W. BECK AND ASSOCIATES

ENGINEERS AND CONSULTANTS

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FOURTH & BLANCHARD BUILDING
2121 FOURTH AVENUE
SEATTLE, WASHINGTON 98121
TEL: 206-441-7500

GENERAL OFFICE
SEATTLE, WASHINGTON
Telephone: 206-441-7500
Telex: 4990402 BECKSEA
Seattle, WA Telecopier:
206-441-4962

BRIEF STATUS REPORT FOR WASHINGTON STATE MARINE PLASTICS DEBRIS TASK FORCE

1. **Organization.** R.W. Beck and Associates, an engineering consulting firm.

2. **Why is this issue important ?**
   This issue is important to various port authorities, and federal, state and local solid waste governmental agencies who will be required to comply or interface with the pending USCG regulations. Many of these authorities or agencies are or have been our clients and may require outside consulting expertise to perform their responsibilities under the law and pending regulations.

3. **Authority to deal with the issue.** No direct authority.

4. **Resources Available.**
   Consulting personnel experienced in solid waste on the local to national level in the study, feasibility, design, financing, and planning for all types of waste disposal projects and systems including: the Marpol V commercial ship waste disposal feasibility study for the Port of Seattle, recycling curriculum guide and reference manual for DOE, and many local solid waste management plans and facility designs.
   Also have experts on staff in the areas of marine fisheries, public education and outreach, and recycling and reuse of materials.

5. **Description of program effort.**
   a. Current
   Currently performing a feasibility study for the Port of Seattle to identify the best alternatives for providing the required waste reception and related facilities and services under P.L. 100-220. This includes analysis of the local regulatory environment and requirements, waste generation estimates, shipping traffic projections, shipboard interviews, best alternative system recommendations, investigation and education with private shipping line representatives and organizations, and project cost estimates.
   b. Planned
   Similar work for other port authorities and related work for local, state and federal agencies and private firms with marine facilities.
   c. Projected
   Same as planned above.
   d. Cooperative efforts
   Yes, whenever appropriate.

6. **Additional Information.**
   Currently educating other ports regarding the implications of P.L. 100-220 as it specifically applies to each.

chemistry, aquatic toxicology, physical oceanography, microlayer ecology, and marine policy. The facilities at Battelle Marine Sciences are some of the finest in the Pacific Northwest for conducting both basic and applied research on the marine environment.

5. **Description of Program Effort:** Scientists from both Battelle Marine Sciences and from other components of Battelle have conducted several programs related to plastics in the marine environment. Two of them recently produced a summary of the Workshop on National Marine Pollution Problems and Needs, a working group of which was concerned with marine debris. Others are conducting an assessment of wastewater treatment plants in Boston, Massachusetts as sources for marine plastic debris. These and other Battelle personnel recently completed a report to EPA summarizing plastic pollution in the New York Bight. Other initiatives are in the planning stages and will be coordinated with the on-going efforts nationally and locally.

APPENDIX B

MARINE PLASTIC POLLUTION RESEARCH AND CONTROL ACT

The Marine Plastic Pollution Research and Control Act (MPPRCA) of 1987 amends the Act To Prevent Pollution from Ships to implement Annex V of the International Convention for the Prevention of Pollution from Ships (MARPOL) in the United States. Annex V of MARPOL (for "marine pollution") is an international agreement regulating garbage disposal from ships and other watercraft. Although drafted in 1978, it will become effective on December 31, 1988, when the United States formally becomes a party to the agreement. By ratifying Annex V, the U.S. boosted the list of signatories to over 50 percent of the world's gross registered shipping tonnage (GRT). This tonnage was set as a threshold for the treaty to enter into force.

The current MARPOL Annex V signatories are:

Colombia	Lebanon
Cote d'Ivoire (Ivory Coast)	Norway
Czechoslovakia	Oman
Democratic Peoples Republic of Korea (North Korea)	Panama
Denmark	Peru
Egypt	Poland
Finland	Portugal
France	St. Vincent & Grenadines
Gabon	Sweden
German Democratic Republic (East Germany)	Tunisia
Federal Republic of Germany	Tuvalu
Greece	U.S.S.R.
Hungary	United Kingdom
Italy	United States (as of 12/31/88)
Japan	Uruguay
	Yugoslavia

The MPPRCA will prohibit dumping plastic at sea and will severely restrict the legality of dumping other types of ship-generated garbage, both at sea and in the navigable waters of the United States. Unlike Annexes I and II of MARPOL, which regulate oil and chemical discharges from large commercial vessels only, the Annex V provisions of the MPPRCA apply to all watercraft, including small recreational vessels.

The dumping prohibitions under the new law are listed in Table B-1. Dumping plastic debris is prohibited anywhere in the oceans. Other types of trash may be dumped at specified distances from shore. MARPOL Annex V also allows for creating "special areas," which are currently defined as those needing special protection because of their significance for ecological, oceanographic or scientific reasons and which may be vulnerable due to maritime activities. Because of its

TABLE B-1 MARPOL Annex V: Garbage Disposal Restrictions

GARBAGE	ALL VESSELS EXCEPT OFFSHORE PLATFORMS AND ASSOCIATED VESSELS		OFFSHORE PLATFORMS AND ASSOCIATED VESSELS[1]
	Outside Special Areas	In Special Areas[2]	
Plastics—includes synthetic ropes, fishing nets, and plastic bags	Disposal prohibited	Disposal prohibited	Disposal prohibited
Floating dunnage, lining and packing materials	Disposal prohibited less than 25 miles from nearest land	Disposal prohibited	Disposal prohibited
Paper, rags, glass, metal, bottles, crockery and similar refuse	Disposal prohibited less than 12 miles from nearest land	Disposal prohibited	Disposal prohibited
Paper, rags, glass, etc., comminuted or ground[3]	Disposal prohibited less than 3 miles from nearest land	Disposal prohibited	Disposal prohibited
Food waste not comminuted or ground	Disposal prohibited less than 12 miles from nearest land	Disposal prohibited less than 12 miles from nearest land	Disposal prohibited
Food waste comminuted or ground[3]	Disposal prohibited less than 3 miles from nearest land	Disposal prohibited less than 12 miles from nearest land	Disposal prohibited less than 12 miles from nearest land
Mixed refuse	Varies by component[4]	Varies by component[4]	Varies by component[4]

Adapted from U.S. Federal Register *Advance Notice of Proposed Rulemaking*, June 24, 1988, p. 23887.

[1]Includes all fixed or floating platforms engaged in exploration or exploitation and associated offshore processing of seabed mineral resources, and all vessels alongside or within 500 m (approximately one-third mile) of such platforms.

[2]The Mediterranean, Baltic, Red, and Black seas and the Persian Gulf.

[3]Must be able to pass through a screen with a mesh size no larger than 25 mm.

[4]When substances having different disposal or discharge requirements are mixed, the more stringent disposal requirement shall apply.

TABLE B-2 Impacts of Marine Plastic Control Legislation, P.L. 100-220

WHO	IMPACT	ENFORCEMENT PROVISIONS
Recreational boaters (all boats, no size or tonnage min.) Commercial fishermen Sport fishermen	Prohibits disposal of untreated galley wastes within 12 miles of shore. May need to install garbage storage facilities or compactor. Commercial fishermen must strive to avoid gear loss in all cases short of life-threatening occurrences.	Coast Guard has enforcement authority in all waters. Will monitor for compliance during routine boardings, and levy civil penalties. States may enact stricter provisions, enforce own laws. Coast Guard may require some vessel types to maintain refuse record books and shipboard waste management plans. May also require that dumping regulations be displayed on placards for crew and passengers. Snitch provision: At the discretion of the courts, an informant may receive up to half of the penalty assessed against a violator of the Act.
Sport fishermen Beach users	No new facilities required under the law. Local jurisdictions may increase level of trash service required.	No federal enforcement provisions. DOC, EPA, and DOT shall conduct a program to encourage the formation of volunteer "citizen pollution patrols" to assist in monitoring, reporting, cleanup, and prevention of ocean and shoreline pollution.
Public vessels (Navy, NOAA, USGS, EPA)	Excluded for 5 years; excluded in wartime.	Agencies must report to Congress by 12/31/92 if unable to comply within 5 years. Congress may modify applicability.
Merchant vessels, other commercial vessels	Must grind galley wastes to dump within 3-12 miles, may dump beyond 12 miles. May need to install compactors or incinerators, or provide storage space to handle plastic trash and mixed plastic trash.	Routine Coast Guard boardings seaside and dockside.
Marinas (public and private)	Must provide trash reception facilities for tenants. May levy a surcharge for service if public does not use facilities.	Little or no Coast Guard presence.
Offshore platforms and associated vessels	Disposal of treated food wastes prohibited within 12 miles. All other disposal prohibited everywhere.	Routine Coast Guard vessel and facility safety inspections.
Ports (small and large) and private terminals	Must provide trash reception facilities. Will need to provide for disposal after receipt, directly or through third party.	Coast Guard may deny entry into ports and terminals that have not provided waste reception facilities.

productive fisheries and array of essential wildlife habitats, the United States may propose that the Gulf of Mexico be designated a special area. This would impose more stringent dumping regulations on vessel traffic and those fishing in the gulf. Due to "loop" currents, the Gulf of Mexico and its beaches become littered from a variety of land and sea-based sources, including Mexico and other parts of the Caribbean.

Table B-2 provides an overview of marine sectors affected by the MPPRCA, probable effects upon these sectors and general enforcement provisions. The U.S. Coast Guard is charged with developing regulations for enforcement and guidelines for compliance. Draft regulations should be published in the Federal Register by Fall, 1988.

In addition to the new waste dumping prohibitions and restrictions, the new law requires that ports and terminals provide waste reception facilities. "Terminal" is intended to cover all private facilities, such as those used by major fish processing communities in Alaska and Washington. The Coast Guard may inspect these facilities and has the authority to close a noncomplying port or terminal to incoming vessel traffic. Ports may provide the new or upgraded facilities themselves, or they may contract with private waste management companies.

The law does not stipulate anything about waste handling or disposition by the ports. This, however, is likely to be the toughest issue facing ports and terminals. They will have to interact increasingly with municipalities and counties to negotiate access to landfills, incinerators and recycling operations. Ports may also face liability issues regarding the incorrect handling of trash such as mixed food wastes from international vessel traffic (regulated by the U.S. Department of Agriculture) or hazardous wastes (regulated by the Environmental Protection Agency (EPA)). The provision of waste reception facilities is likely to be expensive, and costs will probably be passed on to port users.

Some U.S. vessels will be required to maintain waste log books, develop waste management plans and display placards notifying crew and passengers of the new law. These regulations will go into effect December 31, 1989. Since these provisions are not part of the international convention, MARPOL Annex V, the MPPRCA instructs the U.S. Secretary of Transportation to seek an international agreement making these requirements universal.

The enforcement provisions of the MPPRCA comply with customary international law. U.S. flag vessels and foreign vessels of nonB-1 signatories to Annex V face civil penalties in the United States for violations. Foreign flag violators of signatory nations will be referred to their own country for prosecution. This arrangement assures that vessels of nonsignatory nations will not receive less stringent punishment than those of signatory states.

Enforcing the MPPRCA anti-dumping provisions will be difficult, especially with the Coast Guard simultaneously facing increasing duties and budget reductions. For the act to be effective, state and local jurisdictions must enforce their own marine litter laws and promote public awareness at the state and local level. Coast Guard enforcement actions at sea will occur only in concert with other boarding missions, such as safety and fishery law enforcement inspections. The Coast Guard may inspect and certify port facilities, but will have no presence in marinas where large recreational fleets are moored.

The new law may affect crew behavior on all types of vessels. For example, more time may have to be spent sorting plastic wastes from other types of trash, and storage space will need to be designated on vessels which until now have dumped all their wastes overboard. Some vessel operators may choose to equip their vessels with trash compactors. Operators of larger vessels may choose to install incinerators rather than carry the bulk of their trash back to shore.

Because creating a spirit of stewardship toward the ocean and its living resources is essential to success, the MPPRCA mandates a national public education program to be designed jointly by EPA, the National Oceanic and Atmospheric Administration (NOAA) and the Coast Guard. Workshops, public service announcements, and leaflet and poster distribution are among the program elements being developed.

The law also directs the EPA and NOAA to study plastic as a pollution problem. The following information regarding the Congressionally-mandated studies may be useful as an indicator of who is gathering what type of information, and where additional information on specific types of questions can be obtained.

EPA STUDY

This study to be prepared in consultation with NOAA, other agencies and private industry, focuses on land-based sources of plastic debris. The EPA is to present a report to Congress in June 1989. It will include:

1. A list of current improper disposal practices occurring frequently enough to harm wildlife, disturb habitat or endanger human safety.

2. Description of current EPA statutory and regulatory authority and ongoing plastic waste reduction programs.

3. Evaluation of the feasibility and desirability of substituting alternative products for problem articles identified in item 1.

4. Evaluation of the effect of plastics on the solid waste stream and means to reduce its effect, including recycling.

5. Evaluation of recycling by determining:

The need for public and private research on recyclable materials and product markets.

Methods to facilitate recycling, such as standardizing plastic materials, marking similar plastic containers to aid in sorting, etc.

Incentives, including a deposit on plastic containers. The effect of existing tax laws on new plastic manufacturers and distributors versus those for recycled plastics.

Recommendations on incentives and other measures to promote new uses for recycled plastic articles and to encourage or require the manufacturer to consider recyclability in product design, and

6. Evaluation of degradability by determining:

The fate and effects of resulting plastic fragments. The efficiency and variability in degradation time. The benefit/cost ratio of usage of degradable products, given their original purpose.

Additionally, the EPA is mandated to conduct a study of plastic and other pollution problems in the New York Bight.

NOAA STUDY

To be presented to Congress by September 30, 1988, the NOAA study focuses primarily on the fates and effects of plastic debris at sea and methods to mitigate current environmental damage. There are no specific legislative provisions requiring coordination of research with other agencies and organizations.

Specifically, NOAA is to:

1. Identify and quantify harmful effects of plastics on the marine environment.

2. Assess the specific effects of plastic materials on marine living resources.

3. Identify the types and classes of plastic materials which pose the greatest potential hazard to marine living resources.

4. Analyze, in consultation with the Director of the National Bureau of Standards, plastic materials which are claimed to be reducible to benign subunits under normal environmental forces (e.g., bio- or photo-degradation, hydrolysis).

5. Recommend legislation which may be necessary to prohibit, tax or regulate sources of plastic materials which enter the marine environment.

Much of the background work for these studies has been completed in the last year through the efforts of the federal Interagency Task Force on Persistent Marine Debris. The Task Force was formed at the request of the President of the United States as a response to a letter from 30 United States senators regarding the problem of marine plastic debris. It consisted of representatives of NOAA; EPA; U.S. Coast Guard; the Departments of Agriculture, Health and Human Services, and State; the U.S. Navy; Marine Mammal Commission; Council on Environmental Quality; and the Offices of Domestic Policy and Management and Budget. The federal Task Force Report represents a starting point for increased federal interagency cooperation for addressing the problem of persistent marine debris.

Model Litter Control and Recycling Act Washington state law prohibits littering in the water as well as on shore through the Model Litter Control and Recycling Act (RCW 70.93). This law mandates a litter control and recycling program, funded primarily by all container types, toiletries, groceries, newspapers and magazines. All vehicles and watercraft must have litter bags, and public and private piers, beaches and bathing areas must provide and maintain standard waste receptacles.

The Department of Ecology (WDOE) has a clear mandate to conduct public education programs regarding littering and recycling. It is directed to work with private industry (70.93.210) and to coordinate volunteer litter control efforts (70.93.200). The department has addressed marine plastic debris within the litter control program and has recently given the problem greater emphasis.

State patrol officers, wildlife protectors, fire wardens, forest rangers, sheriffs and police officers are empowered to issue citations and, if necessary, to make arrests without a warrant. WDOE may empower its own employees to do the same, although it has not to date. Most local governments have, under guidance from the WDOE, established similar ordinances.

Penalties under the law require clarification. Under RCW 70.93.060, which prohibits littering as a misdemeanor offense, a fine of not less than $50 shall be collected and a minimum of eight hours served on a litter collection crew. However, RCW 70.93.230 states that any violator of the chapter for which a fine is not specified shall be punished by a fine of no more than $50. It is unclear what violations exist under the law other than littering and failing to maintain the proper litter receptacles ($10/day of violation fine). Since the Department of Ecology is unsure which fine to publicize, this discrepancy has created difficulty for them to promote public awareness.

OTHER STATE LAWS

The Department of Ecology may have additional authority to contend with marine plastic pollution under water pollution control (RCW 90.48) and solid waste management law (RCW 70.95). Plastics may qualify as "pollution" under the definition in RCW 90.48.020, since it is a solid waste detrimental to public safety, recreational uses of state waters and to aquatic life. In that case, WDOE has significant enforcement capabilities, with the option of levying up to $10,000/day in civil penalties. This definition of pollution refers primarily to waste streams or flows that continue over a certain period of time, in which case it would apply only to plastic pollution if a violator were generating a large volume of plastic and disposing of it more or less continuously into the waters of the state.

WDOE's powers to provide research in support of plastic recycling and recovery programs (RCW 70.93) is enhanced by the Solid Waste Management, Recovery and Recycling Act (RCW 70.95). The department has the authority to "initiate, conduct and support research, demonstration projects, and investigations, and coordinate research programs pertaining to solid waste management systems." The department is also directed to identify potential markets for recovered resources, study methods to improve recycling systems, and make recommendations on incentives to local governments to upgrade their solid waste handling systems.

Washington State appears to have substantial authority to deal with marine plastic pollution. The Action Recommendations, Part III, starting on page 23, focus on using currently available authorities more effectively as well as developing a more coordinated approach to education and interagency and organization cooperation.

APPENDIX C

DEVELOPMENT OF THE WASHINGTON STATE MARINE PLASTIC DEBRIS TASK FORCE

Early in 1987, Commissioner of Public Lands Brian Boyle focused his interest on the effect of marine plastic debris on Washington State's coastal and inland waters.

In his role as president of the Western States Land Commissioners' Association, he knew the efforts of the state of Texas to increase public awareness and coordinate existing efforts on the marine plastic debris issue in that state.

Boyle selected the Analysis and Planning Section of the Washington State Department of Natural Resources to research the issue. At that time, varying levels of awareness existed about marine plastic debris (MPD) and the Marine Entanglement Research Program (MERP). The issue had not been analyzed in a comprehensive way in Washington State. The solution was larger than any single agency or organization could undertake. The need existed to draw varying entities together and share information. Other state agencies and organizations expressed interest and a willingness to participate with DNR.

In January 1988 the commissioner held a briefing for key representatives from affected federal, state and local agencies, the legislature, private industry and organizations, and other interested parties.

At the briefing, participants agreed to select representatives to serve on a task force. Its purpose was to develop a state action plan which addressed marine plastic debris in Washington. The commissioner appointed the chairperson and directed DNR staff to support the effort. Participants operated on a cooperative, nonpartisan basis. Each of the approximately 30 active task force members served as a representative for their agency or organization. A steering committee of six worked closely with the chairperson and support staff.

The task force met monthly from February through July 1988 at the Federal Way Public Library meeting room. Meetings were open to all with a public comment period scheduled at the close of each meeting. In the course of the first two meetings, the task force adopted a six-month work program, agreed upon its mission, goals and objectives, and policies. The task force divided itself into four working groups—environmental, educational, governmental and economic—to identify issue areas and possible actions.

In the following meetings, the group examined the diverse programs and regulations administered by agencies dealing with marine debris. The task force developed a matrix of existing authorities (Table C-1) of agencies to deal with marine plastic debris. A more detailed matrix (Table C-2) based on the identified issue areas was then prepared. Action recommendations and preferred lead agencies to carry out these actions were prepared by staff and presented to the committee. These recommended new efforts and continuation of existing programs are detailed in this document.

The action plan was completed in Fall 1988 and presented to the Commissioner of Public Lands and other key representatives for their approval and action.

TABLE C-1
EXISTING AUTHORITIES AND AGENCIES DEALING WITH MPD

	PROGRAM		ENFORCEMENT			
AGENCY	DEVELOPED	POTENTIAL	DEVELOPED	POTENTIAL	STATUTES	FUNDING
EPA, REGION X	▮ 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	▮ Public Education in cooperation with NOAA and Dept. of Transportation ▮ Support establishment of baseline data and monitoring program ▮ Additional technical support			▮ Marine Plastics Pollution, Research and Control Act (MPPRCA) (PL 100-220) ▮ Clean Water Act, Section 108	
USFWS	▮ Beach cleanup	▮ Cooperative actions ▮ Field monitoring ▮ Public education materials			▮ 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	▮ Beach cleanup	▮ Research and monitoring; Olympic Nat'l Park as an accum. monitoring site ▮ Cooperative action ▮ Visitor information/education	▮ Exclusive jurisdiction in national parks ▮ Authority to prosecute	▮ Increased enforcement	▮ Title 16, 18 U.S. Code	
NMFS	▮ Marine entanglement research program		▮ Enforcement personnel available		▮ National Marine Mammal Protection and Control Act	
COAST GUARD		▮ Participation with EPA and NOAA on public education	▮ Fines for vessels ▮ Certification of port facilities ▮ Developing regulations	▮ Increased enforcement (with increased funds)	▮ MPPRCA	

TABLE C-1 (cont.)

	PROGRAM		ENFORCEMENT			
AGENCY	DEVELOPED	POTENTIAL	DEVELOPED	POTENTIAL	STATUTES	FUNDING
DOE Shorelands Division Recycling and Litter Control Unit	▮ "Coastal Currents" ▮ Participation in Coastweeks beach cleanup	▮ Cooperative action and beach surveys ▮ Increased monitoring and description of MPD ▮ Annual public awareness campaign	▮ Can provide signing and materials to local government		▮ Shoreline Management Act (1971), Outer Continental Shelf Lands Act, Coastal Zone Management ▮ Model Litter Control and Recycling Act (1971) RCW 70.93 ▮ 90.48 Water Pollution Law	▮ CZM funds ▮ Dedicated Litter Account
FISHERIES	▮ Scuba response to entanglement incidents ▮ Informal coordination with Oregon, Canada, Indian tribes and other agencies to retrieve lost nets	▮ Impact research	▮ Required biodegradable crab pot latches ▮ Weighted lines to minimize prop fouling ▮ Unlawful to leave untended nets ▮ 50 patrol officers statewide ▮ State Fisheries patrol officers deputized to enforce NMFS regulations	▮ Increased enforcement	▮ WAC 220-52-035; WAC 220-56-320; WAC 220-020-10 (restrictions on nets, crab and shrimp pots, and lid hooks) ▮ RCW 75.08.080 (Director's authority)	
DNR		▮ Education through boating access sites ▮ Lease conditioning ▮ Requirements on ALEA grants ▮ Port management agreements		▮ Lease condition monitoring ▮ Proprietary function/stewardship role	▮ RCW 79.90 (aquatic lands in general); RCW 79.96 (aquatic lands - aquaculture uses); RCW 79.68 (multiple use); WAC 332-30 (aquatic land management)	

TABLE C-1 (cont.)

	PROGRAM		ENFORCEMENT			
AGENCY	DEVELOPED	POTENTIAL	DEVELOPED	POTENTIAL	STATUTES	FUNDING
PARKS AND RECREATION COMMISSION	▮ Boater environmental education program ▮ Ocean beach cleanup and Green River Gorge ▮ Storytelling at parks ▮ Interpretive signing ▮ Education centers	▮ Expansion of boater education project ▮ Installation of trash receptacles ▮ Continuation of information and education programs	▮ Park rangers enforce litter control law ▮ Signing available	▮ Strategy for boating law enforcement by 1991 (MB-5, PSWQA)	▮ RCW 79.93 - model litter; 43.51 Parks and Recreation Commission; 82.36.020 - volunteers in parks ▮ WAC 82.70.1; 82.70.5 - volunteers in parks	▮ Depends on passage of legislation to create boater recreation fee (potential account)
WILDLIFE	▮ NW marine mammal stranding network ▮ Investigative research ▮ Project Wild (K-12)	▮ Habitat management areas signing ▮ Regional information and education programs		▮ Impact research ▮ Baseline data trends	▮ RCW 77.12.010 (policy for protecting wildlife) WAC 232-12-25A (discharge litter on wildlife lands)	
DCD		▮ Assist in coordinating action of local government				
PSWQA	▮ Public information in "Soundwaves" ▮ Cooperative effort with other state and local programs	▮ Issue will be addressed in 1989 plan as preparation for 1991 plan ▮ Proposed issue paper as part of plan preparation			▮ RCW 90.70 (authority)	
SENATE ENVIRONMENTAL AND NATURAL RESOURCES COMMITTEE		▮ Senator Metcalf interested in potential legislation if needed ▮ Funding and sponsors ▮ Hearings				
JOINT SELECT COMMITTEE ON MARINE AND OCEAN RESOURCES		▮ Potential topic at July 1988 hearing				

TABLE C-1 (cont.)

	PROGRAM		ENFORCEMENT			
AGENCY	DEVELOPED	POTENTIAL	DEVELOPED	POTENTIAL	STATUTES	FUNDING
PORT OF SEATTLE	▮ Current study of impact of Public Law 100-220 on commercial shipping vessel handling and disposal facilities	▮ Public information at Shilshole and Fisherman's Terminal ▮ Potential cooperation with other ports			▮ PL 100.220	▮ Port of Seattle
SEATTLE AQUARIUM	▮ State of the Sound exhibit ▮ Incorporation of MPD into current education program ▮ Information distribution	▮ Puget Sound on Wheels exhibit ▮ Puget Sound ecology teachers' workshop ▮ Add information to "State of the Sound"				
SEA GRANT (FEDERAL & STATE)	▮ Bellingham Marine Debris project (in conjunction with PSWQA) ▮ Public information (newsletters, TV, radio, etc.) ▮ Public education through marine advisory agencies ▮ Involvement with national Sea Grant network	▮ Continued program development directed toward specific audiences			▮ PL 89.688 National Sea Grant College; Program Act of 1966 ▮ Substantive amendments: PL 94-461; PL 100-200	▮ 1989 Bellingham Program funded
FRIDAY HARBOR MARINE LAB		▮ Research program on MPD in marine environment			▮ RCW 28B.20.320 - Marine Biological Preserve	

TABLE C-1 (cont.)

	PROGRAM		ENFORCEMENT			
AGENCY	DEVELOPED	POTENTIAL	DEVELOPED	POTENTIAL	STATUTES	FUNDING
PAULSBO MARINE SCIENCE CENTER	▮ N.A.M.E. teaching kit ▮ Student displays ▮ Current education programs ▮ Information packet	▮ Permanent public displays in new facility				
NW ASSOC. OF MARITIME EDUCATORS (N.A.M.E.)	▮ MPD theme focus ▮ N.A.M.E. conference, July in Calif. ▮ "Clearing" newsletter ▮ Teaching kit	▮ Science teachers' conference, Seattle, April 1989 ▮ Volunteer power				
ASSOC. OF CITIES					▮ RCW 70.95 Comprehensive Solid Waste Planning	
ASSOC. OF COUNTIES					▮ RCW 70.95	
NATURAL RESOURCES CONSULTANTS	▮ Marine debris education program for N. Pacific region ▮ Cooperative effort	▮ Second annual Fishermen's Conference on Marine Debris ▮ Expansion of educational programs to recreational boaters			▮ Contract with NMFS/NOAA	
ADOPT-A-BEACH	▮ Marine debris surveys 7/88					
BATELLE	▮ Participation with EPA and NOAA related to sources, fates and effects of MPD in marine estuarine environments ▮ Provide expertise in marine sciences and assist with public education efforts	▮ Continued programs on effects of MPD in marine environment and on related marine policy issues				

TABLE C-2 ACTION RECOMMENDATIONS AND THE LEAD AGENCIES INVOLVED

	ENVIRONMENT								
ACTION RECOMMENDATIONS	1 Designate coordinating and clearinghouse 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

TABLE C-2 (cont.)

EDUCATION						GOVERNMENT/ECONOMIC IMPACT				
10 Develop and distribute domestic and foreign media materials	11 Develop maritime training curriculum	12 Information signs should be posted at boat launch ramps, access sites and marinas	13 Require that all state licensed and registered users receive info. materials and display plaque or decal	14 Encourage retail and manufacturing cooperation in public education	15 Incorporate MPD into state's environmental curricula	16 Incorporate an analysis of true costs into policy decisions	17 Conduct independent cost/benefit analysis of compliance and cleanup	18 Integrate MPD disposal with comprehesive solid waste planning	19 Increase public awareness about illegal MPD disposal	20 Develop financial incentives to encourage proper disposal
	L					L	L		L	
P			P	P					P	
		P				P			P	
		P				P			P	
L			P	P			P		P	
			P			P		P		
	P		L							
		P					P	P		
P				L		P		L	P	P
	P	P	L	P		P	P		P	
		P				P	P		P	P
		P		P	P	P				
								P		P
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	P									
		P	L	P	P	P	P		P	
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									P	P
								P		
										L
		P				P		P	P	
		P				P		P	P	
P		P					P		P	
			L							
				P	P		P	P		
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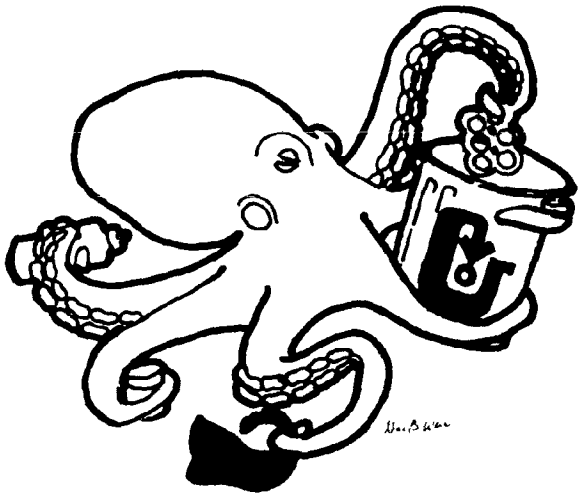

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