ALASKA LEGISLATURE COMMITTEE FILES, 1989-1990

8672

6585 SENATE RESOURCES

989

HB 578

DATE: 5/1/90 FURTHER: Finance

DATE TURNED INTO OFFICE: 5-6-90

Resources Committee considered CSHB 578 (Finance) am

Citizens' oversight council on oil and other hazardous substances; authorizing funding of the council through the oil and hazardous substance release response fund.

and recommended:

[✓] replace with 5 CS CSHB 578 (Res) [✓] same title
[ ] or adopt _____ CS _____ [ ] new title
[ ] technical title change (HB only)

[ ] attached amendment(s)
[ ] _____ letter of intent adopted

[✓] do pass

[ ] do not pass

[ ] no recommendation

[ ] individual recommendations

[ ] further referral to _____

ATTACHES NEW FISCAL NOTE(S): Dept/Date:

[ ] fiscal note(s) _____

[ ] zero fiscal note(s) _____

[ ] appropriation-no fiscal note

APPROVES PREVIOUS: Dept/Date:

[✓] fiscal note(s) Leg Council

[ ] zero fiscal note(s) _____

[ ] Governor's bill w/fiscal note

SIGNING DO PASS:

OTHER RECOMMENDATIONS:

Chair: Signature and Recommendation

OIL AND OTHER HAZARDOUS SUBSTANCES.

STATE OF ALASKA
1990 LEGISLATIVE SESSION

BILL VERSION CSHB 578(Fin)
PUBLISH DATE

FISCAL NOTE

REQUEST:
Revision Date:
Title: "An Act creating a citizen's over-sight council on oil & other hazardous...
Sponsor: H. Resources
Requestor: H. Finance

Affected Agency: Legislative Affairs Agency
BRU: Legislative Council
Components: Council & Subcommittees

EXPENDITURES/REVENUES: (THOUSANDS OF DOLLARS)

OPERATING	FY91	FY92	FY93	FY94	FY95	FY96
Personal Services	96.5	96.5	96.5	96.5	96.5	96.5
Travel	18.9	18.9	18.9	18.9	18.9	18.9
Contractual	108.6	108.6	108.6	108.6	108.6	108.6
Supplies	2.0	2.0	2.0	2.0	2.0	2.0
Equipment	10.7	0	0	0	0	0
Land & Structures						
Grants, Claims						
Miscellaneous						
TOTAL OPERATING	236.7	226.0	226.0	226.0	226.0	226.0
CAPITAL	0	0	0	0	0	0
REVENUE	0	0	0	0	0	0

FUNDING: (THOUSANDS OF DOLLARS)

General Fund						
Federal Fund						
Other	236.7	226.0	226.0	226.0	226.0	226.0
TOTAL	236.7	226.0	226.0	226.0	226.0	226.0

POSITIONS:

Full-Time	2	2	2	2	2	2
Part-Time	0	0	0	0	0	0
Temporary	0	0	0	0	0	0

ANALYSIS: (ATTACH A SEPARATE PAGE IF NECESSARY)

CSHB 578(Res) establishes a Citizen's Oversight Council on Oil and Other Hazardous Substances. Funding will be from the Oil & Hazardous Release Response Fund. The following is requested to adequately support the Council:

Prepared By: Pamela A. Stoops, Director — Phone: 465-3850
Division: Administrative Services — Date: 4/20/90

Approved By: Warren Endicott, Executive Director
Agency: Legislative Affairs Agency — Date: 4/20/90

DISTRIBUTION (BY PREPARER)
LEGISLATIVE FINANCE
LEGISLATIVE SPONSOR

REQUESTOR
OFFICE OF MANAGEMENT & BUDGET
AGENCY (IES)

PERSONAL SERVICES

Staff is requested as follows to assist the Citizens Oversight Council on Oil & Other Hazardous Substances:

Administrative Officer - Range 21A		
$3,831 x 12 months =	$45,972	
$45,972 x 36% benefits =	$16,550	
	$62,522	62.5
Secretary - Range 12A		
$2,082 x 12 months =	$24,984	
$24,984 x 36% benefits =	$8,994	
	$33,978	34.0
		96.5

TRAVEL

It is anticipated there will be 6 meetings of the Council.

6 meetings x 5 members at 3 days each		
airfare - 6 meetings x 5 members = 30 airfares		
30 airfares x $390 =	$11,700	
per diem - 6 meetings x 5 members = 30		
30 x 3 days per diem = 90		
90 x $80 =	$7,200	
	$18,900	18.9

CONTRACTUAL

Professional services for contracts to investigate compliance with environmental laws and regulations relating to production, transport and storage of oil and other hazardous substances - $75,000	75.0
Lease office space - 1,000 sq. ft x $2.00 sq. ft. = $2,000; $2,000 x 12 months = $24,000	24.0
Phones & postage - $800 a month x 12 months = $9,600	9.6

SUPPLIES

Office supplies - paper, stationery, etc. - $2,000	2.0

EQUIPMENT

Initial office setup - 2 desks, 2 chairs, 1 computer, 1 printer, phones, filing cabinets, bookcases - $10,700	10.7

Q. WHY CREATE A CITIZEN'S COUNCIL?

>ONE OF THE HIGHEST RECOMMENDATIONS BY THE ALASKA OIL SPILL COMMISSION WAS THE CREATION OF A CITIZEN'S COUNCIL.

>NO AGENCY OF STATE OR FEDERAL GOVERNMENT HAS, AS ITS SOLE RESPONSIBILITY, THE SAFE TRANSPORTATION AND HANDLING OF OIL AND HAZARDOUS SUBSTANCES.

>ONLY AN INDEPENDENT CITIZEN'S GROUP CAN PROVIDE CONTINUING VIGILANCE OVER STATE AND FEDERAL AGENCIES.

Q. WHY PUT THIS CITIZEN'S COUNCIL IN THE LEGISLATURE?

>THE LEGISLATURE, BEST REPRESENTS A WIDE DIVERSITY OF INTERESTS AND CONCERNS IN THE STATE.

>THE LEGISLATIVE COUNCIL MEETS YEAR AROUND AND SO CITIZEN'S COUNCIL SEATS COMING OPEN DURING THE INTERIM CAN BE EASILY FILLED.

>LODGING THE CITIZEN'S COUNCIL IN THE LEGISLATIVE COUNCIL WILL BEST INSULATE IT FROM WIDE POLITICAL SWINGS THAT MIGHT RESULT FROM LOCATING IT IN THE ADMINISTRATION.

>WALT PARKER AND ESTHER WUNNICKE OF THE ALASKA OIL SPILL COMMISSION SUPPORT PUTTING THE CITIZEN'S COUNCIL IN THE LEGISLATURE

Q. WHY EXCLUDE INDUSTRY MEMBERS FROM THIS PANEL?

>SAFE TRANSPORTATION AND HANDLING OF OIL AND HAZARDOUS SUBSTANCES IS A TRIANGLE OF INTERESTS, INDUSTRY--GOVERNMENT--CITIZENS. THIS COUNCIL WILL BE RESPONSIBLE FOR INSURING CITIZEN INPUT AND ADVICE TO THE OTHER TWO ENTITIES.

>INDUSTRY AND GOVERNMENT MEMBERS WILL BE ON ADVISORY PANELS THE COUNCIL MAY ESTABLISH.

Q. WHY ARE THE TERMS SO LONG?

>THE MEMBERS WILL BE FOLKS WITH A VESTED INTEREST IN PREVENTING OIL SPILLS, BUT WILL GENERALLY NOT BE TECHNICAL EXPERTS. LONG TERMS WILL ALLOW TIME TO BECOME FAMILIAR WITH THE ISSUES AND HELP PRESERVE INSTITUTIONAL MEMORY.

>A 4 YEAR TERM SERVES TO UNDERSCORE THE SERIOUSNESS OF THE COMMITMENT.

Q. CAN WE AFFORD ANOTHER COMMISSION?

>THE COST OF THE CITIZEN'S COUNCIL AMOUNTS TO TWO (2) DAYS OF THE "470" FUND.

>ALASKA PRODUCES 25% OF THE US DAILY PRODUCTION OF OIL. IS A CITIZEN'S COUNCIL TO OVERSEE THIS MAMMOTH TRANSPORTATION TASK TOO MUCH TO ASK?

>THE SYSTEM IN PLACE A YEAR AGO CLEARLY DIDN'T WORK. THE OIL SPILL COMMISSION BELIEVES THIS WILL.

Q. CAN WE REALLY PREVENT OIL SPILLS?

>THE OIL SPILL COMMISSION FOUND THAT WITH PRE-SPILL PREVENTION SYSTEMS WE COULD EXPECT AN EXXON-VALDEZ SPILL EVERY 13 YEARS.

>WITH ALL OF THE ALASKA OIL SPILL COMMISSION RECOMMENDATIONS IN PLACE, WE CAN EXPECT AN EXXON-VALDEZ SPILL EVERY 56 YEARS.

>THE CITIZEN'S COUNCIL IS AN INTEGRAL PART OF THE OIL SPILL COMMISSION RECOMMENDATIONS. (SEE OIL SPILL COMMISSION HANDOUT)

Q. ISN'T AN ALASKA CITIZEN'S COUNCIL REDUNDANT?

>NO! EVEN SENATOR STEVENS IN A LETTER TO THE HOUSE RESOURCES COMMITTEE STATED THAT THE STATE'S CITIZEN'S COUNCIL WILL COMPLEMENT ANY FEDERAL LEGISLATION

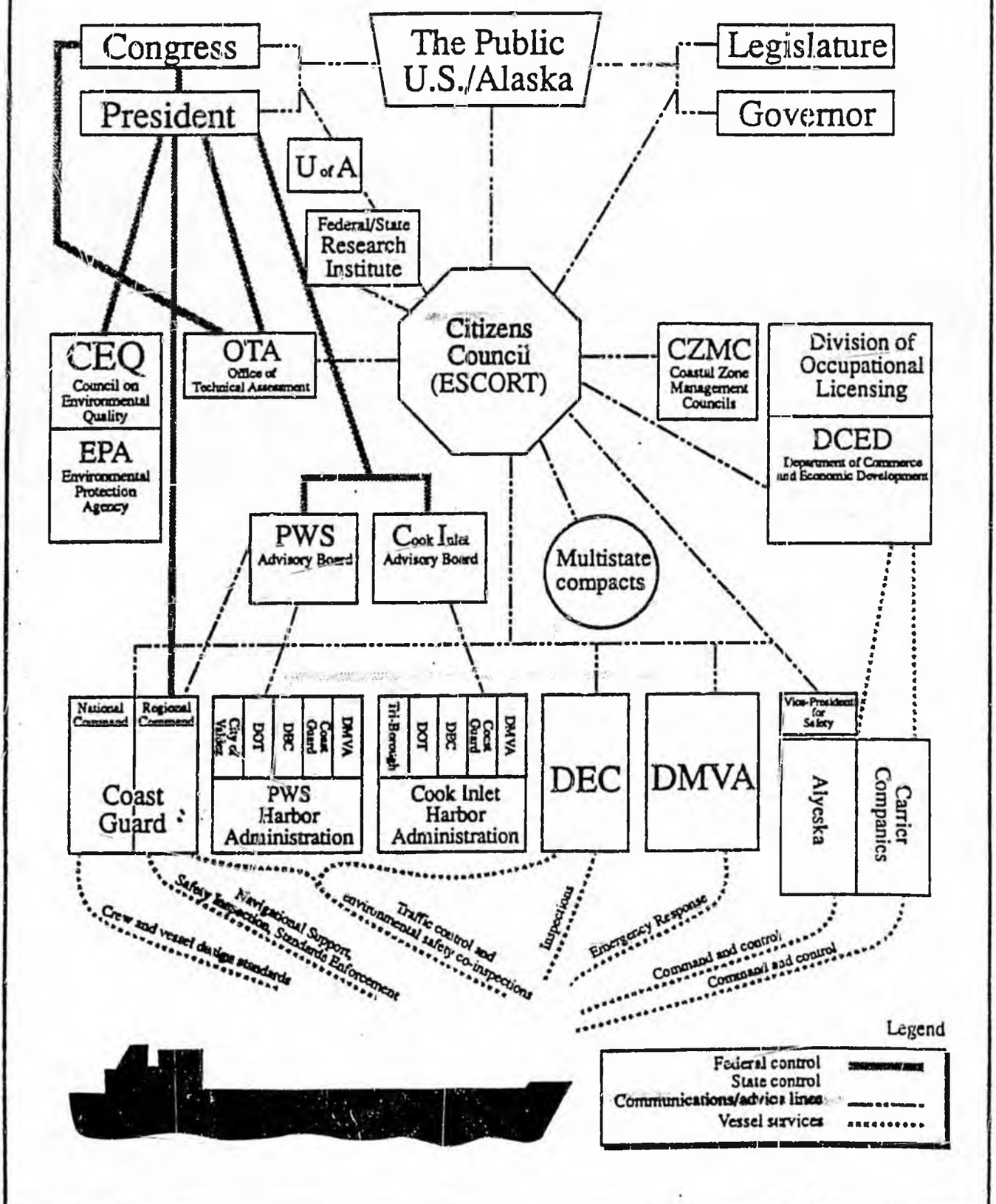
>THE STATE SHOULD NOT RELY ON INDUSTRY OR THE FEDERAL GOVERNMENT TO KEEP ITS HOUSE IN ORDER.

THE CITIZEN'S COMMISSION WILL BE ABLE TO ENCOURAGE INTERSTATE COMPACTS !!!!!!!!!!!!!!!!

Rep. Cliff Davidson

Alaska Oil Spill Commission
Final Report

Proposed oversight/regulation of oil transportation



Jay

Recommendation 3
Citizen knowledge of risk

Because many individuals and communities are placed at risk by modern oil transportation systems, citizens should be involved in oversight arrangements at every level of government.

Shipping oil involves inherent risk. The risk cannot be eliminated, only reduced. Citizens deserve to know and make informed social judgments about what constitutes an acceptable level of risk. Reducing the risk involves costs, both public and private. Citizens may or may not be willing to pay the incremental costs of reducing particular risks, but to make informed choices they should be made aware of the tradeoffs involved. Present federal committees for oversight and policymaking are made up of industry and government representatives. There are no equivalent state committees.

Recommendation 4
Regulatory vigilance

The nation and the state need strong, alert regulatory agencies fully funded to scrutinize and safeguard the shipment of oil.

The notion that safety can be insured in the shipping industry through self-regulation has proved false and should be abandoned as a premise for policy. Alert regulatory agencies, subject to continuous public oversight, are needed to enforce laws governing the safe shipment of oil.

National and state agencies formally vested with responsibility for overseeing the environmental safety of oil transportation frequently have been complacent. Regulatory authority has been weak, and there has been a dramatic decline in vigilance since 1981. State authority has been further impaired by conflict with federal authority. Funding ordinarily furnished to protection agencies has left broad areas of concern without oversight. Between disasters, appropriations have tended to decline. As federal administrations have changed, funding and commitment have fluctuated as well. Missions have been attenuated by the addition of further responsibilities without further funds, as in the case of the U.S. Coast Guard, whose duties have greatly expanded without a commensurate increase in budget.

In such an environment the nation's maritime oil transportation system becomes more, not less, prone to risk of accident. The nation's regulatory agencies must be committed to the safe shipment of oil and other hazardous substances, and they must be encouraged by the regular oversight of citizens who have the greatest stake in the relevant environments. Without such an an invigoration of these agencies, accidents such as the *Exxon Valdez* are bound to increase.

state presence in the oversight of oil industry affairs and demoralize state personnel engaged in such activity.

In the absence of the state presence, the already weak federal regulatory presence declined further. In 1990 Congress is likely to adopt legislation that would eliminate any presumption of federal preemption in actions taken by the state with respect to safety and response. Thus, the way is open for the state to reassert its historic role in resource protection.

Recommendation 12
Oversight council

A citizens advisory council should be established in the Office of the Governor and given responsibility for overseeing the safe transportation of oil, gas and other hazardous substances.

No state agency has as its primary mission oversight of environmentally safe transportation of Alaska's resources. Regulatory authority over such transportation is spread among several agencies that do not always coordinate information or resources. The only overall view of the system is exercised by the governor, but he has no single designated officer or council to provide information or maintain consistent oversight.

The state should establish a citizens advisory council, supported by a full-time executive director and small staff, to provide focus to state oversight. Members should be chosen from among the general public, selected for their concern for environmental safety. The council should have power to subpoena information and witnesses, to inspect facilities, to conduct investigations, and to collect information and statistics on safety.

The council's duties should be to:

- Advise the governor and legislature on the environmental safety of the transportation of Alaska oil, gas and other substances posing environmental risks;

- Advise on potential initiatives in state and federal regulations and at the governor's request, represent the state's interests in the development of multistate compacts and national and international policy;

- Identify unmet needs and recommend priorities, strategies and obstacles to achieving them;

- Encourage coordination of spill prevention and response programs currently spread among several agencies that cumulatively deserve high priority;

- Make budget and resource allocation recommendations;
- Evaluate programs and recommend elimination of marginal activities;
- Recommend changes based on new technologies and scientific impacts;
- Designate advisory panels, if deemed necessary, including appropriate representation, ex-officio, of appropriate departments of the state and municipalities, regional oil spill authorities, representatives of fishing and environmental groups, and shippers, owners and residential groups on the pipeline route; and
- Issue an annual report and safety assessment. Reports to the governor should include regular statistical and special reports on accidents and near-misses, the status of major risks, the performance of state and federal agencies, and long-term options for improving safety.

Recommendation 13
Enhanced regulatory strength

The state should expand and exercise its regulatory authority over environmental safety. Measures voluntarily adopted by industry should be backed up by state regulation. Federal technical standards and safety requirements should not preclude more stringent state standards.

The State of Alaska currently does not exercise its full power under the U.S. Constitution to regulate environmental safety. Recent congressional enactments and judicial decisions make it clear that Congress does not intend that states should hesitate to protect local environments with greater stringency than the minimums established under federal law. The state should have the power, for example, to prohibit vessels from entering or departing Alaska ports and waters under unsafe circumstances.

Regulatory effectiveness also should be improved through assessment of administrative and civil penalties to encourage prevention, no preenforcement review of compliance orders, environmental audits, stronger criminal penalties, and statutory provision for citizen lawsuits. Private voluntary prevention measures, though commendable, are often ignored as memories fade unless backed up by state regulations.

Recommendation 14
Strengthened state inspections

The state should renew and strengthen its authority to conduct inspections and spill response drills on vessels calling at Alaska ports and marine terminals.

The Valdez tanker fleet, built in the 1970s is approaching obsolescence. Structural weaknesses, technical malfunctions and other equipment problems can be expected to increase in frequency and seriousness.

March 20, 1990

Senate Conferees
Senate Bill 686
U.S. Senate
Washington, D.C. 20510

Dear Senate Conferee,

The Alaska State Legislature is currently working on legislation to create a Citizen's Oversight Council on Oil and Hazardous Substances. In testimony before the House Resources Committee there has been some discussion that this legislation may duplicate provisions in Title 8 of HR 1465/S 686. We do not believe this to be the case. In fact, we believe that federal and state legislation will complement each other to provide the highest degree of citizen oversight possible.

House Bill 578 was introduced in the Alaska State Legislature at the request of the Alaska Oil Spill Commission. After eight months work, the Commission identified citizen oversight as an essential component of any oil spill prevention program. Our legislation creates a five member state council primarily to oversee and monitor state and federal regulatory agencies. As currently written, the Citizen's Oversight Council will be an arm of the Alaska State Legislature.

The role of the Council will be to ensure vigilance on the part of government. As a statewide entity, it will also have a role in coordinating among any regional citizen councils created by state federal or local governments.

Both the federal and the state government have a compelling interest in ensuring that a disaster such as the Exxon Valdez never again occurs. We encourage you to continue with your efforts to create strong regional citizen's groups in Cook Inlet and Prince William Sound.

Thank you for your efforts.

Sincerely,

Representative Cliff Davidson
Co-Chair

Representative Curt Menard
Co-Chair

United States Senate
COMMITTEE ON APPROPRIATIONS
WASHINGTON, DC 20510-6025

April 05, 1990

The Honorable Curt Menard
The Honorable Cliff Davidson
Co-Chairs
House Resources Committee
Alaska State Legislature
P.O. Box V
Juneau, Alaska 99811

Dear Curt and Cliff:

Thanks for your letter explaining the State Legislature's proposed legislation to create a Citizens' Oversight Council on Oil and Hazardous Substances. I support provisions in the federal oil spill legislation that would create citizen advisory groups.

It would seem that the Alaska State Legislature's proposed legislation would not duplicate the federal provisions. Rather, it would act more as a watch dog to state and federal agencies, not to the industry which is the purpose of the federal legislation.

I agree that a combination of the federal and state legislation would create the ultimate level of citizen involvement to ensure that every step is taken to protect against another tragedy like The Exxon Valdez.

Thanks again for writing.

With best wishes,

Cordially,

TED STEVENS

OIL REFORM ALLIANCE BRIEFING PAPER ON HB 578

PURPOSE OF BILL: To combat institutional complacency and maintain proper vigilance over handling of oil and hazardous substances.

WHY IS THIS BILL IMPORTANT?
"Because many individuals and communities are placed at risk by modern oil transportation systems, citizens should be involved in oversight arrangements at every level of government."
Recommendation #3, Alaska Oil Spill Commission.

A citizens' advisory council should be established and given responsibility for overseeing the safe transportation of oil, gas, and other hazardous substances. *Recommendation #12, Alaska Oil Spill Commission.*

"Proposed legislation would not duplicate the federal provisions." "I agree that a combination of the federal and state legislation would create the ultimate level of citizen involvement to ensure ... against another tragedy like The Exxon Valdez."
Senator Ted Stevens

WHAT CAN THE COUNCIL DO?
OVERSEE STATE AND FEDERAL AGENCIES responsible for preventing release of oil and hazardous substances to determine whether they are carrying out their duties.

MAKE APPROPRIATE RECOMMENDATIONS to prevent spills, improve regulatory performance, improve environmental safety, and enhance citizen participation.

ASSIST IN DEVELOPMENT OF INTERSTATE COMPACTS.

CONDUCT INVESTIGATIONS AND SUBPOENA WITNESSES necessary to conduct its duties.

WHAT CAN'T THE COUNCIL DO?
CAN'T UNILATERALLY IMPOSE REGULATIONS, POLICIES, OR RULES.

CAN'T INDEPENDENTLY ESTABLISH ADDITIONAL ADVISORY COMMITTEES.

CAN'T BE FINANCED WITH MONEY FROM THE GENERAL FUND; rather the council is financed by the 470 Fund.

TESTIMONY TO THE

HOUSE FINANCE

COMMITTEE

BY

ESTHER WUNNICKE

VICE - CHAIR

ALASKA OIL SPILL COMMISSION

10 APRIL 1990

A fundamental conclusion of the Alaska Oil Spill Commission was that strong prevention regimes at every level are essential to protect oceans and coastlines from oil spills.

Elements of a strong prevention regime cited by the Commission were:

1) a shipping industry devoted to the environmentally safe shipment of oil;
2) alert, strong, fully-funded regulatory agencies, and
3) systematic research on hazards and resources at risk.

The 4th element was:

local, state and interstate watchdog organizations to guard against shipper and regulatory complacency.

Recommendation Number 12 of the Commission addressed this need at the State level by calling for a citizens oversight council for overseeing the safe transportation of oil, gas and other hazardous substances. You have responded in HB578 to meet this need

This is one of the most important prevention recommendations of the Commission and one that can be implemented by the State of Alaska at little cost but with profound benefits for the future.

The Commission found that shippers, federal and state regulators alike had many other objectives and duties than the environmentally safe transport of oil. As funding decreased and other obligations and duties took precedence the necessary oversight, redundancy of

command, attention to navigation guidance and other means by which the Exxon Valdez grounding could have been avoided received less and less attention. General complacency affected almost all those participating as shipper or regulator in shipping oil from the Port of Valdez.

No agency had as its primary mission the environmentally safe transport of oil.

Because many individuals and communities are placed at risk by modern transportation systems, citizens should be involved in oversight arrangements at every level of government. A statewide citizens oversight council will go far toward meeting this recommendation and should not be seen as a duplication of industry supported or federally created citizen groups but rather as a means of coordinating and focusing the attention and concern of those groups at the highest state levels.

As pointed out in testimony submitted to the Senate Finance Committee on SB503 which expands the current Alaska Emergency Response Commission we emphasized that adding citizen members to that planning group of agency representatives was not a substitute for a small public council reporting to the Governor or the Legislature to provide a focused oversight on all aspects of oil and gas transportation.

The Citizens Oversight Council addressed in House Bill No. 578

would give this primary mission to a State council which had no competing program or conflicting duties. Such a council would be the beacon to the Governor, the Legislature and the Citizens of Alaska of the State of oil transport now and in the future.

An ounce of prevention is worth a pound of cure.

The council consists of five members appointed by the Alaska Legislative Council. The Alaska Legislative Council shall notify members of the public throughout the state that nominations for membership are being sought. Members of the council serve without compensation but are entitled to per diem and travel expenses authorized for boards and commissions under AS 39.20.180.

(b) The council shall elect a chair and other officers that the council finds necessary to carry out its responsibilities.

(c) Members of the council serve staggered terms of four years and, upon expiration of their terms, continue to serve until their successors qualify and are appointed. A member may serve no more than two consecutive terms.

(d) [A member of the council may not be employed by the state or by a person engaged in the production, transport, or storage of oil or other hazardous substances, may not be an elected official of the state or of a political subdivision of the state other than those established under AS 14, and may not work as an independent contractor for a person engaged in the production, transport, or storage of oil or other hazardous substances, or for a state agency charged with regulating the production, transport, or storage of oil or other hazardous substances.] The Alaska Legislative Council shall appoin members who have an interest in and commitment to preventing oil and hazardous substance releases in the state.

(e) The council shall make a formal request to the Alaska Legislative Council for funds it considers necessary for the staff, per diem, travel, and contractual expenses [of the council]. Funds distributed to the council are to be disbursed and accounted for under procedures required by the Legislative Affairs Agency. The council chair shall approve all expenditure documents.

6-1969M
Chenoweth/
Gaguine
5/5/90

Original sponsor(s): Resources Committee

IN THE HOUSE BY THE RESOURCES COMMITTEE

SENATE CS FOR CS FOR HOUSE BILL NO. 578 (Resources)

IN THE LEGISLATURE OF THE STATE OF ALASKA

SIXTEENTH LEGISLATURE - SECOND SESSION

A BILL

For an Act entitled: "An Act creating a citizens' oversight council on oil and other hazardous substances; and authorizing funding of the council through the oil and hazardous substance release response fund."

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

* Section 1. LEGISLATIVE FINDINGS. The legislature finds that

(1) a pervasive contributing factor to the Exxon Valdez disaster was the complacency of the oil industry and the federal and state agencies responsible for monitoring the operation of the Valdez oil terminal and oil tanker traffic in Valdez Arm and Prince William Sound;

(2) it is essential to involve local citizens to help ensure compliance with environmental laws and regulations relating to the production, transport, and storage of oil and other hazardous substances in order to overcome this complacency;

(3) a state oversight council will provide a valuable mechanism for citizen participation and an opportunity for citizens to express their concerns to the legislature and the governor about environmental safety in production, transport, and storage of oil and other hazardous substances.

* Sec. 2. AS 24.20 is amended by adding new sections to read:

ARTICLE 4. CITIZENS' OVERSIGHT COUNCIL ON
OIL AND OTHER HAZARDOUS SUBSTANCES.

Sec. 24.20.600. CITIZENS' OVERSIGHT COUNCIL ON OIL AND OTHER HAZARDOUS SUBSTANCES. (a) There is created in the legislature the Citizens' Oversight Council on Oil and Other Hazardous Substances.

The oversight council consists of five members appointed by the Alaska Legislative Council. The Alaska Legislative Council shall notify members of the public throughout the state that nominations for membership are being sought. Members of the oversight council serve without compensation but are entitled to per diem and travel expenses authorized for boards and commissions under AS 39.20.180.

(b) The oversight council shall elect a chair and other officers that the oversight council finds necessary to carry out its responsibilities.

(c) Members of the oversight council serve staggered terms of four years and, upon expiration of their terms, continue to serve until their successors qualify and are appointed. A member may serve no more than two consecutive terms.

(d) The Alaska Legislative Council shall appoint as members of the oversight council persons who have an interest in and commitment to preventing oil and hazardous substance releases in the state.

(e) The oversight council shall make a formal request to the Alaska Legislative Council for money it considers necessary for staff, per diem, travel, and contractual expenses. Money distributed to the oversight council is to be disbursed and accounted for under procedures required by the Legislative Affairs Agency. The chair of the oversight council shall approve all expenditure documents.

Sec. 24.20.610. POWERS AND DUTIES OF THE OVERSIGHT COUNCIL. (a) The oversight council shall

(1) determine whether state and federal agencies responsible for the prevention of the release of oil and other hazardous substances, and for responding to releases, are carrying out their duties in these areas;

(2) recommend to the legislature, the governor, agencies of

the federal government, and private entities appropriate policies and actions to prevent releases of oil and other hazardous substances;

(3) assist the legislature and the governor in the development of interstate compacts and policy recommendations to the federal government regarding the prevention of releases of oil and other hazardous substances;

(4) file an annual report with the legislature and the governor assessing the status of major areas of risk, the performance of state and federal regulatory agencies, and changes in the long-term options for improving environmental safety;

(5) request the attorney general to bring or request the attorney general to move to intervene in legal actions in order to ensure compliance with state laws and regulations regarding the release of oil and other hazardous substances;

(6) make recommendations to the legislature, the governor, and the federal government on the creation, funding, and composition of regional or local advisory committees and on the relationship between the oversight council, local advisory committees, and other citizens' oversight groups on oil and other hazardous substances; and

(7) schedule regular meetings with local and regional advisory committees as they are created to make sure that they complement each other and avoid overlap in oversight and advisory functions.

(b) The oversight council may

(1) hire an administrator and additional administrative staff, and enter into contracts for personal services that the oversight council finds necessary to carry out its responsibilities under this section; all employees of the oversight council are in the exempt service under AS 39.25.110;

(2) subpoena witnesses, administer oaths, take testimony,

and require the production for examination and copying of books or papers relating to matters within the responsibility of the oversight council; and

(3) conduct investigations, studies, and analyses necessary to enable the oversight council to carry out its duties under (a) of this section; and

(4) appoint advisory panels in specialized areas to include representatives of appropriate groups such as state and municipal regulatory agencies, oil spill prevention and response authorities, fishing and environmental groups, residents of areas of risk, scientists, and shippers and owners of oil and other hazardous substances produced or transported in the state.

Sec. 24.20.620. COOPERATION BY STATE AGENCIES. Each agency of the executive branch of state government shall, to the extent permitted by state or federal law, cooperate fully with the oversight council by providing information and assistance, including disclosure of records relating to the agency's enforcement of laws and regulations for the prevention of and response to releases of oil and other hazardous substances.

Sec. 24.20.630. DEFINITIONS. In AS 24.20.600 - 24.20.630,

(1) "hazardous substance" has the meaning given in AS 46.08.900;

(2) "oil" has the meaning given in AS 46.08.900; and

(3) "oversight council" means the Citizens' Oversight Council on Oil and Other Hazardous Substances.

* Sec. 3. AS 46.08.040 is amended by adding a new subsection to read:

(b) Upon a request from the Alaska Legislative Council, the commissioner shall use money from the fund to reimburse the Alaska Legislative Council for expenditures that it makes for the operation

of the Citizens' Oversight Council on Oil and Other Hazardous Substances, established under AS 24.20.600.

* Sec. 4. INITIAL APPOINTMENTS. Notwithstanding AS 24.20.600(c), as enacted by sec. 2 of this Act, one initial member of the Citizens' Oversight Council on Oil and Other Hazardous Substances shall be appointed to a term of one year, one initial member shall be appointed to a term of two years, one initial member shall be appointed to a term of three years, and two initial members shall be appointed to terms of four years. The members appointed to terms of one and two years are eligible to serve two full terms following the completion of their initial shortened terms.

Official Business

COMMITTEE:

SENATE RESOURCES

DATE: 5/5/90

SIGN-IN

Subject of meeting:

HB 578 Citizens' Oversight Council on Oil and Hazardous Substances

PLEASE PRINT!

NAME	ADDRESS (MAILING) & (ZIP)	PHONE	REPRESENTING	DO YOU WANT TO TESTIFY?
Tim Robertson	Box 110 Seldovia	234-7469	RCAC	C
LARRY SMITH	Box 15337 Fritz Creek 9960	235 3 7879	KRI	YES

HCR

5

SENATE COMMITTEE REPORT

FURTHER

DATE TURNED INTO OFFICE 2-8-89

2/7/89
Mr. President:

RES Committee considered CSHCR 5 (RES) am

Encouraging citizen participation in state-wide beach cleanup and anti-dumping efforts

and recommended

[ ] replace with ___ CS_____) [] same title
[ ] or adopt _____ CS_____) [] new title
[] technical title change (HB only)

[ ] attached amendment(s) and

[ ] _____letter of intent adopted

[ ] do pass

[ ] do not pass

[ ] no recommendation

[✓] individual recommendations

[ ] further referral to _____

FISCAL NOTE(S) [✓] zero [ ] fiscal impact [ ] appropriation no FN
[ ] new [ ] updated [✓] previous House CS
[ ] same as previous fiscal note(s) published _____

MEMBERS SIGNING DO PASS

OTHER RECOMMENDATIONS

Chairman signature and recommendation

[ ] Committee Backup attached

BILL: HCR 5
NAME: CSHCR 5(RES) AM
TITLE: Encouraging citizen participation in state-wide beach cleanup and anti-dumping efforts.

PRIME SPONSOR: ULMER
CO-SPONSOR: KOPONEN,ELLIS,NAVARRE

CURRENT STATUS: (S) CALENDAR 2/14 STATUS DATE: 02/13/89

Selection=> _____
PF1 PF2 PF3 PF4 PF5 PF6 PF7 PF8 PF9 PF10 PF11 PF12
HELP EXIT MENU TEXT PRINT BWD FWD FIRST LAST QUIT

HCR 5 Bill/Resolution Floor Action Page 2 of 2

Current Status: (S) CALENDAR 2/14

	Jrn-Date	Jrn-Page		Action
1	01/13/89	90	(H)	READ THE FIRST TIME - REFERRAL(S)
2	01/13/89	90	(H)	RESOURCES
3	02/03/89	234	(H)	RES RPT CS(RES) 8DP
4	02/03/89	234	(H)	ZERO FISCAL NOTE (H. RESOURCES) 2/3/89
5	02/06/89		(H)	RULES TO CALENDAR 2/6/89
6	02/06/89	266	(H)	READ THE SECOND TIME
7	02/06/89	266	(H)	RES CS ADOPTED UNAN CONSENT
8	02/06/89	266	(H)	AMENDMENT NO 1 BY RIEGER
9	02/06/89	267	(H)	AM NO 1 ADOPTED UNAN CONSENT
10	02/06/89	267	(H)	PASSED Y35 N- X4 A1 CSHCR 5(RES) AM
11	02/06/89	271	(H)	TRANSMITTED TO (S)
12	02/07/89	338	(S)	READ THE FIRST TIME - REFERRAL(S)
13	02/07/89	338	(S)	RESOURCES
14	02/09/89	373	(S)	RES RPT 6DP
15	02/09/89	374	(S)	PREVIOUS ZERO FISCAL NOTE (HOUSE)
16	02/13/89	405	(S)	RULES TO CALENDAR 2/14/89

Selection=> _____
PF1 PF2 PF3 PF4 PF5 PF6 PF7 PF8 PF9 PF10 PF11 PF12
HELP EXIT MENU TEXT PRINT BWD FWD CMT/JRNL FIRST LAST QUIT

Alaska State Legislature

Representative Fran Ulmer

P.O. Box V
Juneau, Alaska 99811
(907) 465-4947

HOUSE OF REPRESENTATIVES

M E M O R A N D U M

TO: Senator Fahrenkamp, Chair
Members, Senate Resources Committee

FROM: Rep. Fran Ulmer

DATE: February 8, 1989

RE: CS HCR 5 (RES) AM

CSHCR 5 (RES) AM encourages citizen participation in state-wide beach cleanup and anti-dumping efforts.

In the past few years, the public has become increasingly aware of the damage done by discarded plastic trash. One of the major causes of plastic-related wildlife deaths is entanglement-the trapping, and often slow starvation or strangulation, of marine mammals, birds and sea turtles by lost or discarded fishing nets and other plastic debris. The Defenders of Wildlife, who asked that I sponsor this resolution, estimate that as many as a million sea birds and 100,000 marine mammals may be dying in the North Pacific alone each year after eating plastic or becoming entangled in it.

In 1985, after marine scientists found that plastic net fragments and other plastics were killing large numbers of fur seals in the Pribilof Islands, the National Marine Fisheries Services established an entanglement office within their organization. The Entanglement Network has also been formed. This is a group of over 40 conservation, wildlife and animal welfare organizations which serve as a unified voice of the environmental community on entanglement, incidental take, and plastic debris ingestion. In Oregon, which has a much smaller coastline than Alaska, over 14 tons of litter was collected in a statewide beach cleanup conducted there last year. This resolution asks Alaskans to participate in the cleanup of our beaches in

hopes of saving many of our mammals and sea birds from death in these plastic snares.

CSHCR 5 (RES) AM also encourages people who witness a violation of the anti-dumping laws, to contact the proper authorities. By doing so, they may be able to collect up to one-half of any fine assessed against the violator. This provision of federal law became effective in December of 1988, and we need to make Alaskans aware of this incentive.

Two small changes have been made to the original resolution. In House Resources, the date of the statewide beach cleanup was changed from June to May, when it is actually taking place, and on the floor, the word unpleasing on page one, line 29, was changed to unpleasant.

BSN: 46

ALASKA HOUSE OF REPRESENTATIVES
CSHCR 5(RES) AM

1ST SESSION 16TH LEG

2/ 6/89 11:21 AM

35 YEAS 0 NAYS 4 EXC 1 ABS

Y	BARNES	Y	DONLEY	Y	JACKO	Y	PHILLIPS
Y	BOUCHER	Y	ELLIS	E	KOPONEN	Y	RIEGER
Y	BOYER	Y	FOSTER	Y	LARSON	Y	SHARP
Y	BROWN	Y	FURNACE	Y	LEMAN	Y	SHULTZ
Y	CATO	Y	GOLL	Y	MACLEAN	Y	SPOHNHOLZ
Y	COLLINS	Y	GRUENBERG	Y	MARTIN	Y	SWACKHAMMER
E	COTTEN	Y	GRUSSENDORF	Y	MENARD	Y	TAYLOR
A	DAVIDSON	Y	HANLEY	E	MILLER	Y	ULMER
Y	DAVIS, C.	Y	HOFFMAN	Y	NAVARRE	Y	WALLIS
Y	DAVIS, M.	Y	HUDSON	E	PETTYJOHN	Y	ZAWACKI

+ VOTED FOR
* CHANGED VOTE

HOUSE COMMITTEE REPORT

(9)
Date Referred: January 13, 1989 FURTHER REFERRALS:

Date of Committee Action: 2-1-89

The RESOURCES Committee recommends that:

HOUSE CONCURRENT RESOLUTION NO. 5
[STATE BEACH CLEANUP/ANTI-DUMPING EFFORTS]
Encouraging citizen participation in state-wide beach cleanup and anti-dumping efforts.

[X] be replaced with CS HCR 5 (Res) [X] the same title
[ ] a new title

[ ] have attached amendment(s)

[X] do pass
[ ] do not pass
[ ] no recommendation
[ ] individual recommendations
[ ] additional referral to the _____ Committee

ADOPTS: _____ letter of intent

ATTACHES NEW FISCAL NOTE(s):

[ ] fiscal impact
[X] zero fiscal note
[ ] zero with analysis

APPROVES PREVIOUS:

[ ] fiscal note(s) published:

_____

[ ] zero fiscal notes(s) published:

_____

SIGNING DO PASS:

SIGNING OTHER THAN DO PASS:
(Do Not Pass, No Recommendation, Amend)

Chairman's signature

STATE OF ALASKA
1989 LEGISLATIVE SESSION

BILL VERSION: CS HCR 5 (RES)
PUBLISH DATE: _____

FISCAL NOTE

REQUEST:

Revision Date: _____
Title: State Beach Clean up/Anti dumping efforts
Sponsor: Ulmer, Koponen, Ellis, Navarre
Requester: _____

Agency Affected: None
BRU: _____
Components: _____

EXPENDITURES/REVENUES: (Thousands of Dollars)

OPERATING	FY 89	FY 90	FY 91	FY 92	FY 93	FY 94
PERSONAL SERVICES						
TRAVEL						
CONTRACTUAL						
SUPPLIES						
EQUIPMENT						
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING	0	0	0	0	0	0
CAPITAL	0	0	0	0	0	0
REVENUE	0	0	0	0	0	0

FUNDING: (Thousands of Dollars)

GENERAL FUND						
FEDERAL FUNDS						
OTHER						
TOTAL	0	0	0	0	0	0

POSITIONS:

FULL-TIME	0					
PART-TIME	0					
TEMPORARY	0					

ANALYSIS: (Attach a separate page if necessary)

Representative Cliff Davidson
Co-Chair House Resources Committee

Prepared by: _____ Phone: 465-2487
Division: _____ Date: 2/1/89

Approved by Commissioner: _____ Date: _____
Agency: _____

Distribution (by preparer):
Legislative Finance
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Office of Management and Budget
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TRACKING PLASTIC IN THE PACIFIC

A visit to the westernmost Aleutians proves that a growing scourge is reaching our remotest beaches

Article and photographs by Albert M. Manville II

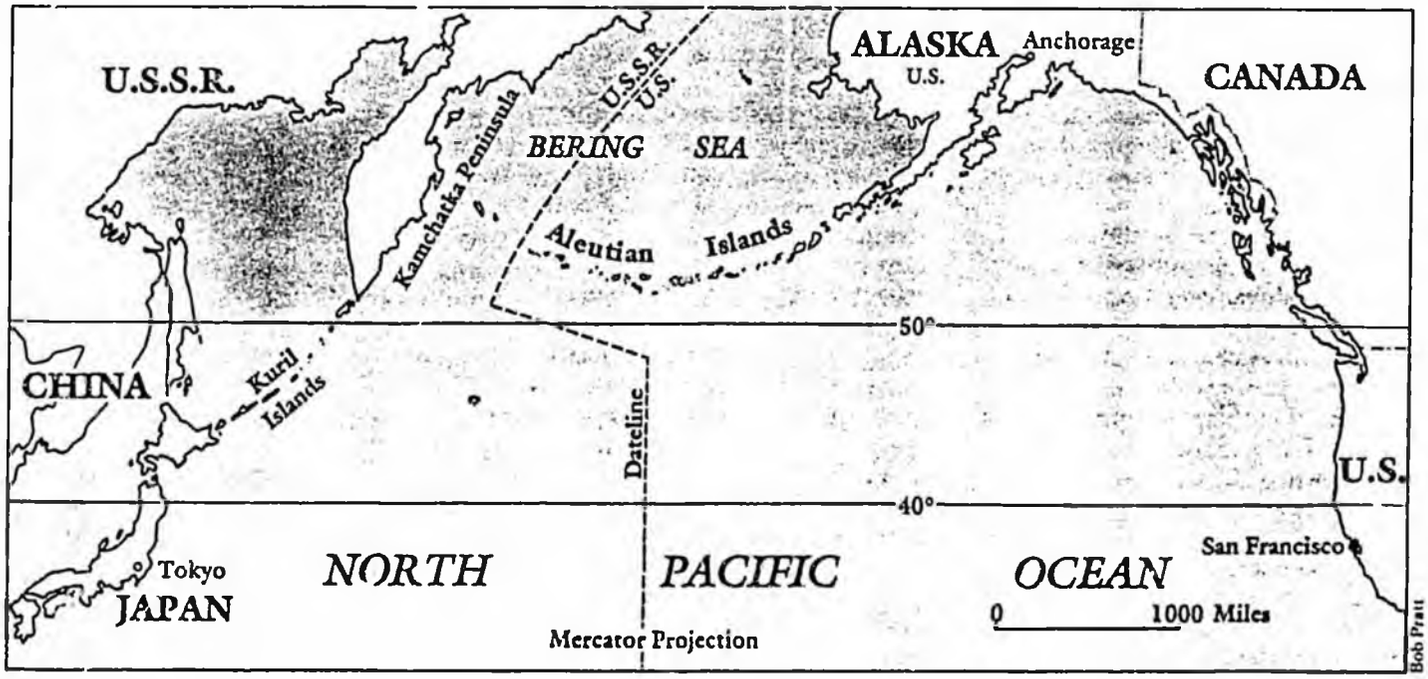
AS THE PUBLIC is beginning to realize, discarded plastic trash is increasingly causing suffering, disfigurement and death among marine animals around the world. One of the chief causes of plastic-related wildlife deaths is entanglement—the trapping, and often slow starvation or strangulation, of seabirds, marine mammals and sea turtles by lost or discarded fishing nets and other plastic debris.

Unknown numbers of seabirds, mammals and fish also die after eating plastic particles, either from broken-down finished plastic products or from raw materials used in plastics manufacturing. Still another threat to wildlife is posed by the ingestion of floating plastic bags by hungry sea turtles, which often mistake them for jellyfish. Once swallowed, the bags often lodge in the turtles' stomachs, where they block the digestive tract and produce ulcers and starvation.

The exact extent of wildlife mortality caused by plastics pollution is hard to gauge, since most marine animal deaths occur out of sight of human beings. However, a slightly different but related problem, the incidental taking of non-targeted animals in active salmon driftnets, is easier to measure. This kills an estimated 750,000 seabirds each year in the North Pacific alone. Researchers believe that in addition, 125,000 North Pacific marine mammals die in active driftnets annually. And it is believed that as many as a million seabirds and 100,000 marine mammals may be dying in this region each year after eating plastic or becoming entangled in it.

The United States, with six percent of the world's population, is the source of perhaps a third of the plastic waste found in the oceans of the Northern Hemisphere. In 1985 alone we used some 48 billion pounds of plastics, of which we discarded 1.4 billion pounds into the oceans. In 1987 our national plastics use grew to 53 billion pounds, and a recent report by the Society of the Plastics Industry projects that it will reach 76 billion pounds by the year 2000. Plastics use by other nations also is growing. What will this mean for marine wildlife?

As chair of the Washington, D.C.-based Entanglement Network Coalition, I recently traveled to Alaska to see what discarded plastics may be



doing to the waters surrounding the Aleutian Islands, a region rich in marine life. At the invitation of the U.S. Fish and Wildlife Service, I joined Captain Alvin Bayer and the crew of the new research vessel *Tiglax* on a tour of the westernmost islands in the Aleutian chain, in order to look for plastic trash on 25 of North America's most remote beaches.

Plastic entanglement, especially in trawl net fragments and packing bands, has been well documented as a leading cause of deaths of northern fur seals in the North Pacific, where the seals are declining by four to eight percent annually. Entanglement is blamed for killing perhaps 30,000 to 50,000 a year.

Just outside our 200-mile limit, in this isolated area far from where most Americans live, fishing boats from a number of nations create a special entanglement threat by setting out tens of thousands of miles of driftnet every night during the five-month fishing season. Driftnets get their name from the fact that commercial fishermen do not anchor them but let them drift in the ocean catching fish automatically. This practice virtually guarantees regular losses of plastic netting to the ocean, as well as the deaths of seabirds and marine mammals. Some 700 boats from Japan, Taiwan and South Korea put out an estimated 20,500 miles of driftnet each night in international waters in the North Pacific. The National Marine Fisheries Service estimates that the Japanese alone lose about 12 miles of net per night, or about 639 miles every season. In addition, plastic debris is dumped into the North Pacific by naval and fishing vessels from the bordering nations.

The Aleutians, totaling some 3.9 million acres, extend more than 1,100 miles from Unimak Island west to Attu Island. Of more than 200 named islands, islets and rocks in the chain, most of them treeless, I visited seven of the westernmost, three of them situated in the Near Island group named for its proximity to the Soviet Union. These islands were unlike anything I'd ever imagined. Volcanic in origin, they boast mountains over 4,000 feet in altitude, shorelines that are frequently indented with fjords, and several-thousand-foot cliffs that drop abruptly to the ocean.

Because these islands are a barrier between the Pacific Ocean and the Bering Sea, the waters around them are roiled by ocean upwellings, tidal surges and ever-present tidal rips—places where two currents come together, rich nutrients are brought up and plankton are concentrated, in turn attracting fish and seabirds. Unfortunately, such areas also tend to collect plastic trash that has been discarded elsewhere and carried along by the currents.

Even in July, most of the outer Aleutians were still covered with a patchwork of snowfields, especially in their upper elevations. Frequent fogs and low-lying clouds provided a nearly continuous dampening of the lush vegetation, which consists of tall, herbaceous meadows as well as li-

Some of 28 rope coils and pieces, 13 trawl net sections and other plastic debris at Etienne Cove, Attu Island.

The Tiglax *waits off Little Kiska Island. On North Bight Beach on Buldir Island, expedition members Nancy Norvell, Mike Boylan and Vern Byrd inspect a dead glaucous-winged gull on a piece of trawl net.*

chens, mosses and low alpine plants. This rich environment provides nesting habitats for several million seabirds of 25 different species. It also supports the endangered Aleutian Canada goose, three common raptors and other waterfowl. Arctic foxes and Norway rats were introduced here, the former for fur, the latter by mistake. The foxes especially have had a significant impact on native birds.

Along with sperm, minke, killer and Steineger's beaked whales, the world's largest sea lions are found in the Aleutians. Adult bull Steller's sea lions can weigh nearly a ton. I also saw sea otters, harbor seals, northern fur seals and Dall's porpoises.

My plan for surveying beaches for plastic was simple. First I selected sample sites 100 yards long. Then I counted plastic items found at these sites from the water's edge up through high storm-tide level. I also photographed all the beaches and collected representative plastic samples.

As I soon discovered, there were good reasons why surveys had probably never been done before on many of these beaches. Not only are they remote, but the seas around them are unpredictable and storms come up quickly. Access was mostly by inflatable Zodiak, and the swell of the waves was a formidable hazard. Massive kelp beds around the islands also made Zodiak landings difficult. Then there was the fog: we were in the clear one moment, enshrouded the next. Because of the danger of capsizing in the icy water, we all wore bulky Mustang survival suits and carried two-way radios and other survival equipment as we rode the Zodiaks in to the beaches.

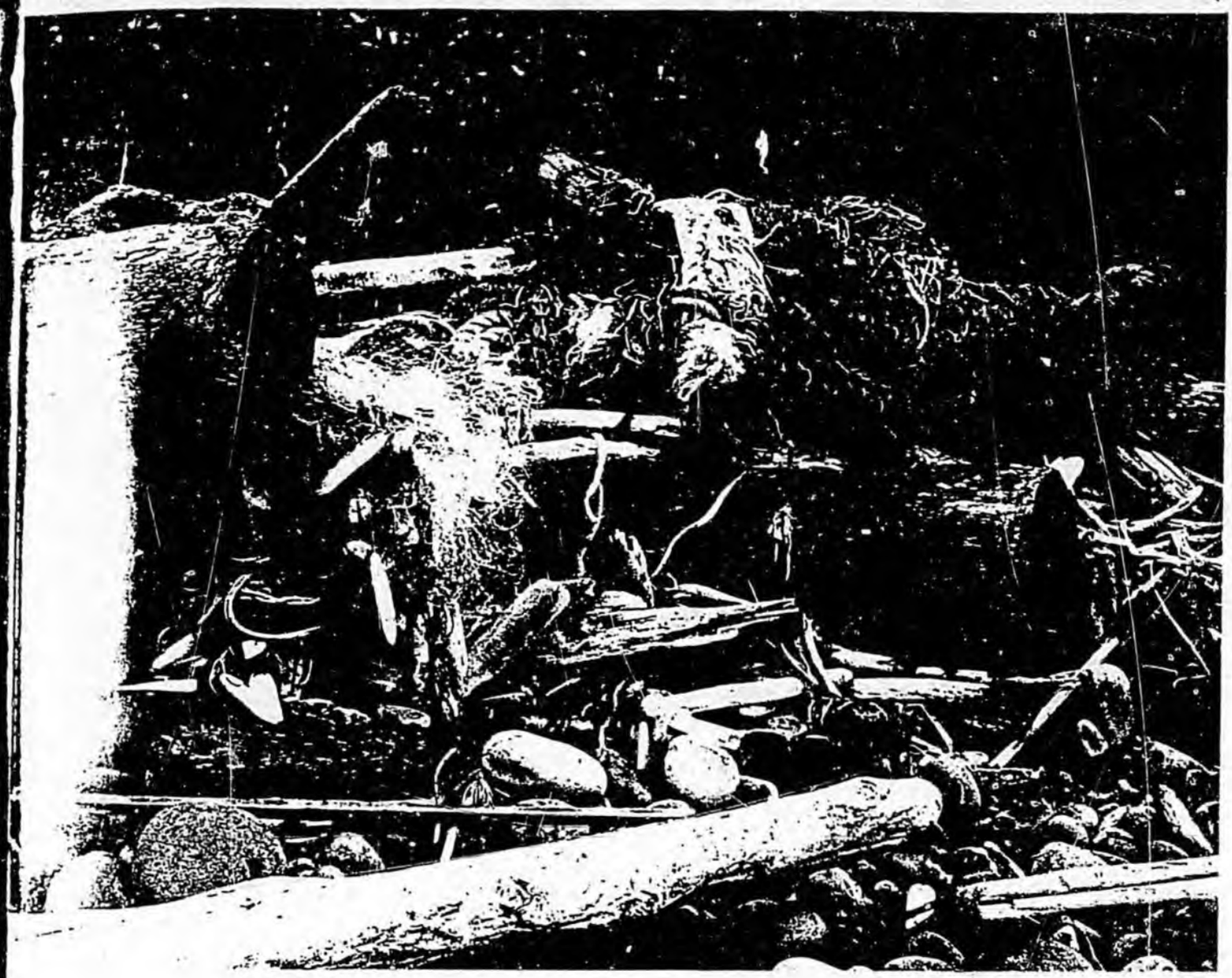
Shielded by their protective harbors from storms and strong currents, the first few beaches I visited on Shemya and Attu islands had only small amounts of plastic. But even the most protected beaches had some debris: at least 15 items were deposited on the cleanest of them.

Then, as the *Tiglax* rounded Wrangell Point on Attu, site of the westernmost beach in North America (it is so far west it is located in the Eastern Hemisphere), I saw in the distance a myriad of colored dots on the shore. They turned out to be plastic floats for trawl nets and crab pots, and the beach was littered with them. After dropping anchor and fighting the usual battle to get the Zodiak through the kelp, we carefully approached the beach without disturbing 13 sleeping bull Steller's sea lions. One had his head on a plastic buoy. Another lay on a plastic trawl net. The sea lions soon awoke and lumbered toward the water, all the while bellowing, growling and barking at us.

My survey of this beach recorded the following array of plastic items: 34 bottles, seven bottle caps and lids, nine fish-sorting baskets, a beer crate, three plates, two hard hats and two beverage coolers. In addition, I found nine strapping bands, nine pieces of polystyrene foam, 47 hard plastic buoys and 80 foam plastic buoys. On the same beach were 110 nets, most of them trawl nets, but also including a few gillnets; and 179 pieces or complete coils of plastic rope. There were even three orange drift cards from a National Marine Fisheries Service study of the forces causing oil to move along the ocean surface. On this one beach I counted 511 items representing 27 varieties of plastic.

As four of us from the *Tiglax* surveyed the beaches on northern Attu for sea lions, another disturbing trend became evident. An FWS count of sea lions here in 1979 turned up 5,705 animals; we sighted only 811. Could plastic trash be one reason for the decline? I found no dead sea lions entangled in plastic, but for unknown reasons the Steller's sea lion population worldwide has dropped 50 percent in the last decade. In the eastern Aleutians, a 50-percent fall-off in the Steller's sea lion population has been observed since 1957. More research is definitely needed to determine whether this decline is linked to plastic entanglement. On Buldir Island I did photograph a bull sea lion with a massive entanglement scar on its neck. It looked as if the plastic were still imbedded in the bull's flesh, but I couldn't get close enough to be sure. I received reports of other sea lions with entanglement scars on Kiska Island.

On the 2.3 miles of beach on seven islands that I covered during the trip, I tallied 3,159 plastic items in 67 different product categories. On the average, each beach yielded 126 different pieces of plastic. But this total



Top, trawl net, monofilament driftnet and other plastic on Buldir Island. Left, Tiglax *first mate Kevin Bell holds a plastic naval ordnance container on Kiska. On Buldir, a Steller's sea lion's neck bears a massive entanglement scar.*

accounts only for what was visible, not for what doubtless lay hidden under debris, sand and rocks. Since Alaska boasts some 36,000 miles of coastline, my survey results undoubtedly represent only a tiny fraction of the state's beach debris problem. The next storm could easily wash this plastic back into the ocean to continue its lethal journey through the marine environment. Or a storm could just as easily reveal additional plastic that has floated in on the water, or plastic nets that have temporarily disappeared beneath the water's surface

This section of trawl net on Buldir Island probably came from a Soviet or Japanese fishing boat. The pink inflatable plastic buoy in the Buldir Steller's sea lion rookery below is from the Alaskan king crab fishery.

because of entangled debris and dead wildlife.

The most prevalent of the 67 different kinds of items I found was plastic rope. Pieces of it, and sometimes complete coils, accounted for 706 of the 3,159 plastic articles I tallied. The next most common type of debris consisted of 535 foam plastic buoys from gillnets. The discarded plastic appeared to come from ships, oil-drilling platforms or land sources and included products from Japan, South Korea, China, Taiwan, the Soviet Union, Norway and the United States.

Most of the plastic lacked convenient identification markings. Previous reports indicated that most beach litter found on Amchitka Island was from Japanese and Soviet fishing vessels. My findings in the outer Aleutians are consistent with earlier researchers' discoveries of enormous quantities of trawl web nets on Amchitka. Trawl nets, large webs dragged along the ocean bottom, are used to harvest salmon, walleye pollock, cod and other fish in this region.

The outer Aleutians appear to be a paradise for birds. Troubling, though, is the possibility that plastics may be taking a heavy toll on their populations. I found hundreds of dead seabirds on the beaches, some wrapped in plastic. Given the decomposition of the carcasses, it usually was impossible to determine the cause of their deaths. But my initial analysis suggests that more research on seabird mortality definitely needs to be conducted in the outer Aleutians. The birds that seem most abundant here are least auklets, estimated to number 1.3 million on Buldir and Kiska islands. In flight, least auklets and crested auklets resembled a large cloud of smoke as we sighted them from a distance while steaming toward their Buldir rookery. Among the common birds in the islands are tufted and horned puffins, thick-billed and common murres, black-legged kittiwakes, red-faced and pelagic cormorants, forked-tailed and Leach's storm petrels and glaucous winged gulls.

What is astounding about many of these birds is their diving prowess. Murres, for example, have been found diving to depths of more than 600 feet, and crested auklets to depths below 120 feet. The tufted puffin can dive at least 450 feet below the ocean's surface in search of fish, squid or other prey. It's worth asking whether this increases the birds' chances of drowning in plastic "ghost nets" and other debris lurking below the surface.

Potential victims of the Pacific's spreading burden of plastic are this mother Pacific harbor seal guarding a concealed pup and the black-legged kittiwakes thronging an oceanside cliff, in both cases on Buldir Island.

What does the future hold for these birds? What entanglement threats may lie ahead of the huge bull Steller's sea lion that I accidentally surprised on one island while changing my film behind a boulder where he was sleeping? Fortunately, 35 nations have now ratified Annex V of the MARPOL (International Marine Pollution) Treaty which bans the disposal of plastic wastes from commercial and other private vessels. The United States ratified the MARPOL Protocol late last year after an extensive public-education campaign by environmentalists, and last December President Reagan signed legislation implementing the treaty and prohibiting plastic dumping by any vessel within our 200-mile Exclusive Economic Zone. The U.S. Navy last June accepted and began implementing recommendations to phase out its plastics dumping over the next five years.

The campaign to make our increasingly plastics-dependent world safe for marine wildlife, however, still has much to accomplish. As we disembarked from the *Tiglax* at the end of our ten-day research voyage, I observed that our trash had been carefully stored on board for proper disposal later. The plastic debris floating in the harbor at Adak Naval Air Station, however, had not been handled so carefully. Perhaps it had been pitched overboard by deckhands on some non-naval vessel still out at sea.

To reduce the plastics threat, conservationists need to work for strict enforcement of the 1987 Marine Plastic Pollution Research and Control Act after it takes effect this December. We must also ensure that the federal government carries out its mandate under the Driftnet Impact Monitoring, Assessment and Control Act to negotiate with foreign nations over reducing and ultimately eliminating the killing of marine life by driftnets and related equipment.

Congress should require use of degradable nets and marking and registration of driftnets, trawl nets and purse seines, as proposed in testimony supported by a majority of the Entanglement Network Coalition in 1987. Finally, it seems clear that significantly larger appropriations are needed to support research on seabird and marine mammal deaths in the outer Aleutians and elsewhere. What we found last July on those 2.3 miles of beaches is surely only a hint of a much larger problem. Many questions remain about entanglement, other impacts of plastic on marine organisms and the decline of wildlife populations in the region. But with the federal government facing a deficit problem and a host of competing claims on its financial resources, conservationists may have to expend some effort to make sure that those questions are answered. □

Albert M. Manville, Defenders' senior staff wildlife biologist, is a member of the Navy's Ad Hoc Advisory Committee on Plastics and has testified about plastic pollution problems before several congressional committees.

TRASHY The Sea Around Us

A disgraceful plastic tide is fouling the oceans—and killing marine animals. The cleanup has barely begun.

by William H. MacKenzie

THE BROAD, sandy beaches of the Oregon coast are a magnet for visitors from all over the country. There you can feel the soft sea foam gently wash your feet in the sand, observe delicate marine life in the haven of a tidal pool, dig for clams, watch graceful pelicans glide near the surface of a bay and luxuriate in the solitude.

And you can watch as each incoming tide brings in a new crop of plastic debris.

Last September, a beach cleanup in Oregon attracted hundreds of volunteers who picked up more than 14 tons of litter that had found its way to shore. Included were chunks of styrofoam larger than baseballs, bands used for strapping boxes, plastic bottles and other containers, six-pack yokes, pieces of synthetic fishing gear, plastic bags and sheets and plastic eating utensils.

Similar artifacts of 20th century civilization wash up onto beaches around the world every day of the year. But much more floats far from shore on the sea's surface or suspended and unseen in the ocean depths, or sinks to the ocean floor.

Some people pay no attention, accepting the plastic tide as part of the landscape. Others get annoyed, but see it mainly as an esthetic irritant. Then there's Jim Coe. He gets angry. "Sometimes I get so intense about it I feel like I ought to go out and get a black hat and a skinny tie and act like I'm on a mission from God," he says. "The whole thing has turned into a crusade of sorts, to try to make people more aware of the consequences of all this persistent debris for the marine environment."

Coe is in a better position than most people to carry out his crusade. Since 1985 he's been manager of the Marine Entanglement Research Program of the National Marine Fisheries Service (NMFS). I talked with him in his office overlooking Lake Washington on the east side of Seattle. The building is right in the middle of a wildlife preserve, and the view from his window of geese, ducks, pheasants and even an occasional coyote helps ease the tensions of his job. Coe is no stranger to environmental controversies. In 1971, when he went to work for NMFS in La Jolla, California, he found himself in the midst of a furor over the killing of tens of thousands of porpoises in tuna nets in the Pacific. He first ran an observer program to monitor the tuna fishing operations and later headed the team that designed net modifications and procedures to reduce the toll.

In 1985, after marine scientists established that net fragments and other plastics were killing large numbers of fur seals in Alaska's Pribilof Islands, NMFS set up an entanglement office and asked Coe to head it. He says the dedicated efforts of John Twiss, ex-

José L. Gonzalez Bruce Coleman, Inc.

George Antonelis/NMFS

Beached trash and a dead dolphin in the Canary Islands. A six-pack yoke, later removed, on a California sea lion on an island off Santa Barbara.

ecutive director of the Marine Mammal Commission, were crucial to getting an appropriation from Congress. "The other person who deserves an enormous amount of credit," Coe says, "is Nancy Wallace, who mobilized the environmental community and organized the Entanglement Network. The energy she generated helped focus the public—and congressional—eye on what scientists were learning about harm to wildlife."

With a budget of less than $1 million annually, Coe is overseeing a two-pronged program. One focus is research on the sources, types, distribution and impacts of marine debris, particularly plastics and other long-lasting materials. This part of the program also involves looking at what to do about the problem, including examining technologies to deal with waste generated on vessels at sea and identifying ways to reduce the hazard of persistent waste materials before they enter the marine environment, such as developing plastics that break down in a controlled period or encouraging the use of alternative materials that are less persistent or hazardous.

The second component of Coe's program is public education—making people aware of the extent of the problem and what they can do about it. This is being carried out both at home and in international forums. The international effort already has

resulted in seminars in Japan, Taiwan and South Korea.

Coe has no delusions about the scope of the task ahead of him. Researchers have reported bottles, plastic sheeting and styrofoam cups even on the remote beaches of the Beaufort Sea off arctic Alaska. A plastic Godzilla toy recently was found on a beach on the small island of Laysan 1,000 miles northwest of Honolulu—along with disposable lighters and plastic pellets, the raw material for manufactured products.

The world's merchant fleets alone dump an estimated 450,000 plastic, 4.8 million metal and 300,000 glass containers into the sea every day, along with many thousands of plastic eating utensils, ropes and cargo-strapping bands. Carmen Blondin, a deputy assistant administrator of the National Oceanic and Atmospheric Administration (NOAA), told members of the House Subcommittee on Coast Guard and Navigation at a 1986 hearing that the world's commercial fishing vessels lose or discard up to 135,000 tons of plastic fishing gear each year. Fishing boats have been estimated to be the source of another 340,000 tons of waste annually, including more than 23,000 tons of plastic packaging materials.

Recreational boaters and beach vacationers add their share. The U.S. Coast Guard has estimated that they jettison a pound and a half of trash per person per day into the nation's coastal waters. Los Angeles beachgoers alone are reported to leave behind 75 tons of trash every week. Some of it is collected by cleanup crews, but much is claimed by the tides.

The sheer volume of plastic waste defies any accurate reckoning, but unquestionably it is overwhelming. Ironically, it includes some trash we believe we have disposed of safely. An estimated 9 million tons a year of solid waste generated in the United States end up being dumped at sea, and about 700,000 tons of this are plastic. More is discharged from sewage treatment plants, and combined storm and sanitary sewer systems carry trash to the sea during heavy rainstorms. More is swept seaward from land-based disposal sites along coastal waterways.

Whatever the grand total, it surely is rising steeply. Al Pruter, a specialist in plastics at Natural Resources Consultants of Seattle, says, "With the constant increase in production and use of plastics, it wouldn't surprise me if our annual crop of plastic waste has tripled over the last ten years."

With so much plastic in the marine environment, as in our daily lives, it can be hard to remember how short a time these synthetic materials have been with us. Only in the 1940s did use of long-lasting plastic products become cost-effective and widespread. It didn't take long for manufacturers to warm up to plastic's light weight, adaptability, durability and low cost. But the qualities that made plastic attractive to manufacturers and consumers, particularly its durability and low cost, have made it a menace at sea. Plastic debris kills marine mammals, seabirds, turtles and nontarget fish by the millions each year, and causes untold harm to countless others.

Seabirds and marine mammals all too readily become entangled in debris, particularly abandoned fishing nets known as ghost nets. Because the victims are mostly out of sight of human census-takers, reckonings of the toll are necessarily very rough, but at least 100,000 marine mammals are believed to die annually in nets and debris, either by drowning or from exhaustion and starvation. Young seals play with plastic packing-bands, net fragments and other floating objects that then get caught around their necks and strangle them as they grow. Young Hawaiian monk seals—an endangered species—have become entangled in netting and then snagged on coral reefs.

Great whales are victims, too. In the last six years, 79 whale deaths from entanglement have been reported off the coasts of North America. The true death toll is probably considerably higher. Whales also have been seen ingesting plastic.

Plastic trash is one of the reasons almost all the world's sea turtles are on the endangered list. Ingestion of plastics by leatherback turtles has been documented in New York, New Jersey, French Guiana, South Africa and France. The same is happening to green turtles in the coastal waters of Japan, Central America and Australia, olive ridley turtles off the western coast of Mexico and hawksbills near Costa Rica. The turtles appar-

Michigan Department of Natural Resources

Six-pack holders head the list of plastic packaging products that kill many marine animals, like this gull.

ently mistake floating plastic bags for jellyfish, one of their favorite foods. Sea turtles also become entangled in monofilament fishing line and are unable to feed, swim or surface to breathe.

Seabirds such as shearwaters become trapped in fishing nets at the surface when they see the fish but not the net and dive into the webbing. Murres are trapped when they dive several meters down into a net. Fifty of the 280 species of seabirds in the North and South Atlantic, North and South Pacific and sub-Antarctic are known to have eaten plastics. They suffer blocked passages, ulcerations, toxic accumulations, decreased appetite and strangulation, often fatally. Almost three-fourths of Laysan Island albatross carcasses examined by researchers in a 1966 study were found to have plastic in their stomachs or gizzards. The young birds apparently had been fed plastic pellets their parents picked up at sea.

Efforts to combat the plastic tide are not yet keeping pace with its growth. At the international level, efforts are under way to win U.S. ratification of Annex V to the 1973 Marine Pollution (MARPOL) Convention, which would ban at-sea dumping of all persistent plastics and synthetics. The annex also would require that ports provide facilities for receiving refuse generated by merchant ships. But before it can go into effect, the annex must be ratified by nations representing 50 percent of the gross tonnage of the world's shipping fleet. That goal is proving difficult to achieve. Ratification by the United States, long awaited, would bring the total to about 45 percent, and action by other countries that could be expected to follow suit would probably bring the annex over the top. Observers believe this may come about within the next six months, after which Congress will need to pass legislation enabling the United States to comply.

Jim Coe sees Annex V as a useful step toward cleaning up the seas. "The general freedom of the seas for disposal of trash seems to persist in the minds of many," he says. "It's just a matter of 'out of sight, out of mind.' There's never going to be an enforcement regime that's going to be able to bust everybody who throws stuff overboard. But that doesn't detract from the importance of Annex V and national legislation aimed at the same problem. All the pressures together create greater awareness of the problem and increase people's inclination to behave differently. So Annex V is part of an education effort, because in the end people aren't going to do something about the problem unless they want to."

More economically feasible technologies are available for large vessels such as tankers and cruise liners than for fishing boats and other small vessels, according to Coe. But systems on larger vessels are only as good as the people who operate them. "They're just not all sailor-proof," he says, "so if some dummy walks up and starts punching buttons, the system falls apart or disconnects or blows apart." As for the smaller vessels whose owners can't afford compaction equipment, Coe sees just plain sorting and storage as the likely method of dealing with most refuse. "We're not talking about a really difficult solution here—they can either keep it or they can throw it over the side," he says.

But stowing trash on board will accomplish little unless it is properly handled when the vessels reach port. It will not do, obviously, to repeat an incident reported in the October, 1986, issue of the *Alaska Fisherman's Journal*. In that case a fisherman saved all his plastic garbage for several weeks, deposited it in a dumpster at a cannery in False Pass, Alaska, then that night watched with chagrin as a cannery worker picked up the dumpster with a forklift, drove it out to the end of the dock and dumped the contents into the outgoing tide.

Awaiting action in Congress are seven bills to ban the use of certain nondegradable plastics, assess the impacts of discarded plastics on the environment and particularly on fish and wildlife, develop recommendations on actions to alleviate the problem, and deal with problems caused by driftnets. There is high interest in these measures on Capitol Hill, and hearings are likely this summer.

Volunteer efforts are growing at the state level, witness the spread of Oregon's citizen beach cleanup. Last September there were similar campaigns in 14 other states. But as helpful as these activities are in focusing attention on the problem, new rafts of trash are disgorged on the cleaned-up beaches by the next tides. Al Pruter of Natural Resources Consultants says: "The problem will continue unless steps are taken to reduce the amounts of plastics entering the oceans or to alter the persistent character of plastics."

In Newport, Oregon, the former option is being addressed by people like Fran Recht. She is the director of a one-year NMFS-funded pilot program to limit vessel-generated debris. Jim Coe calls her "a five-foot-tall ball of fire." She approaches her present job with the same dedication that motivated her recent stint as a Peace Corps volunteer in Latin America.

Most of Recht's work is educating people on the consequences of dumping at sea and encouraging all vessels to bring waste back to port, where it can be collected at adequate and convenient facilities. In a ten-foot by 20-foot nondescript building on the waterfront, she drafts plans, designs posters, makes phone calls and figures out ways to draw attention to the problem. Then she walks along the docks greeting fishermen and cajoling them into putting warning signs in their boats about damage done by plastics at sea.

Under Recht's guidance the port of Newport already has done a study of garbage-handling facilities. "That's helped us find out what's in the waste stream, some of which we've found can be sold for recycling," she says. "That could be a potential source of money for other ports to run programs like mine without government grants."

Recht also has worked with shoreside fish processors on several projects, among them supplying more trash receptacles at dockside and attaching messages about the plastics problem to their payment checks to fishermen. She has persuaded the Coast Guard Auxiliary, a volunteer group that teaches boating safety, to put more emphasis on the importance of keeping plastic debris out of the waters, and at her urging the sheriff's department decided to include references to the hazards of marine debris in its talks to school children about law enforcement. Through her efforts, posters and newspaper articles about the problem adorn the walls of a restaurant frequented by high school students. "We really have to get into the education system to effect long-term change if we want this to be more than a one-shot government-funded program," Recht says.

But plastics are proliferating faster than ways are being found to deal with them. A famous scene from the 1967 satirical film "The Graduate" captured the wave of the future nicely. A businessman told Dustin Hoffman at a suburban party, "I just want to say one word to you, one word. Plastics." Hoffman stood for a moment bewildered. Then the man added, "There's a great future in plastics."

He was right. Witness plastic soda bottles, plastic microwaveable frozen food trays, plastic fast-food packaging. Campbell's Soup is testing plastic and cardboard boxes and microwave-ready plastic bowls. Even Army field rations now come in camouflaged, heat-sealed plastic wrappers. In a strange twist, the more short-lived the manufactured goods we buy, the more we are packaging them in indestructible containers. Production has doubled in the last ten years, with the plastics industry now synthesizing and using about 22 million tons of resin annually.

Plastic products are multiplying because manufacturers find they enhance their position in the marketplace, and the consumer is responding. Much of the reason, however, is because disposal and the impact of all these products on the environment are not reflected in the price of the packaged product. "If the environmental costs were factored in and passed on to consumers," says Al Manville, Defenders of Wildlife biologist and chairman of the Entanglement Network, "we'd be generating a lot less trash."

So far, state efforts to create economic incentives against dumping trash are limited to litter taxes and deposits on containers. Washington has a litter tax on the gross proceeds of businesses that make and sell containers. The $2.5 million it yields annually pays for public education and youth programs to clean up litter. California is just beginning a recycling incentive system based on payment by manufacturers of one cent per container. Recycling centers run as private businesses accept the used containers and refund the one cent to consumers out of money paid by processors of the recyclable product, who are reimbursed from the state fund. Deposits will go up annually for the next several years unless at least 65 percent of all containers of each type sold are not redeemed by consumers.

Paolo Koch/Photo Researchers

Neal Maine/Oregon Dept. of Fish and Wildlife

Plastic bottles and other junk off the Bay of Biscay in Spain after a storm. Above, a mallard in northern Oregon that was lucky—it was saved by a beach cleanup volunteer.

Eleven states—Alaska, California, Connecticut, Delaware, Maine, Massachusetts, New Jersey, New York, Oregon, Rhode Island and Vermont—have banned nonbiodegradable six-pack holders and other can-connecting devices. But not all these bans are effective. A recent study by the Oregon liquor control board found a high degree of compliance with the law, but not all the rings were found to decompose within the required 120-day time limit and under all circumstances. In fact, rings placed in water for up to five months simply did not decompose, and they are expected to remain indefinitely in the marine environment.

Yet a recently completed research project of the Research Triangle Institute in North Carolina concluded that technology now available can make plastics that break down on exposure to light and biological organisms. If widely used, this could make some of the plastic debris much less hazardous to marine life. It is effective with polypropylene and polyethylene products such as containers, ropes and the packaging bands frequently implicated in maiming and strangling young seals and sea lions.

For fishing gear, the picture is more complicated. While gear can be made that will degrade within a given time period, there are special problems with

some types of gear. And Defenders' Manville says it would be a mistake to depend on degradability as a total solution to the plastics problem. "For one thing, even if it works, it still takes time," he says. "And some degradable plastics shred up into sharp-edged spikes while they are breaking down, and thus are even more dangerous to wildlife. And there's a big unknown here: we just don't know what the byproducts of plastic degradation are going to do to the environment."

In Oregon, Sara Vickerman of Defenders has persuaded legislators to introduce a bill—one of many legislative proposals in the state aimed at limiting plastic debris—to generate revenue by assessing a fee on the plastic products that harm wildlife in the marine environment, and to educate the public by requiring a warning label on these products. Such a proposal seems more promising than banning a particular product or type of packaging, a suggestion that has generally met with stiff industry opposition as undue interference with the free market. Proposals to ban the use of plastic containers have failed in New Jersey and New York.

Several states are taking a different tack by promoting research on plastics recycling. Michigan awarded $600,000 to a company to develop a system to convert mixed waste plastics into other products, and New Jersey is contributing funds to the Center for Plastics Recycling Research at Rutgers University. Established by the Society of the Plastics Industry, the center receives the bulk of its funds from industry.

There are some hopeful developments in plastics recycling. Some plastics, for example, can be recycled and used as insulation material in buildings. But recycling-research programs are complicated by the thousands of varieties of plastics in use and the fact that some cannot be remelted and formed into new products. Moreover, types of plastic that look alike may require a chemical or burn test to tell them apart. Without being able to separate out large amounts of specific types of plastics, recycling is not likely to be profitable. Federal regulations bar the reuse and recycling of plastics for some food packaging. All this means that recycling is a complicated alternative. Similarly, degradable plastics may lose the very qualities that have made plastics attractive—durability and adaptability.

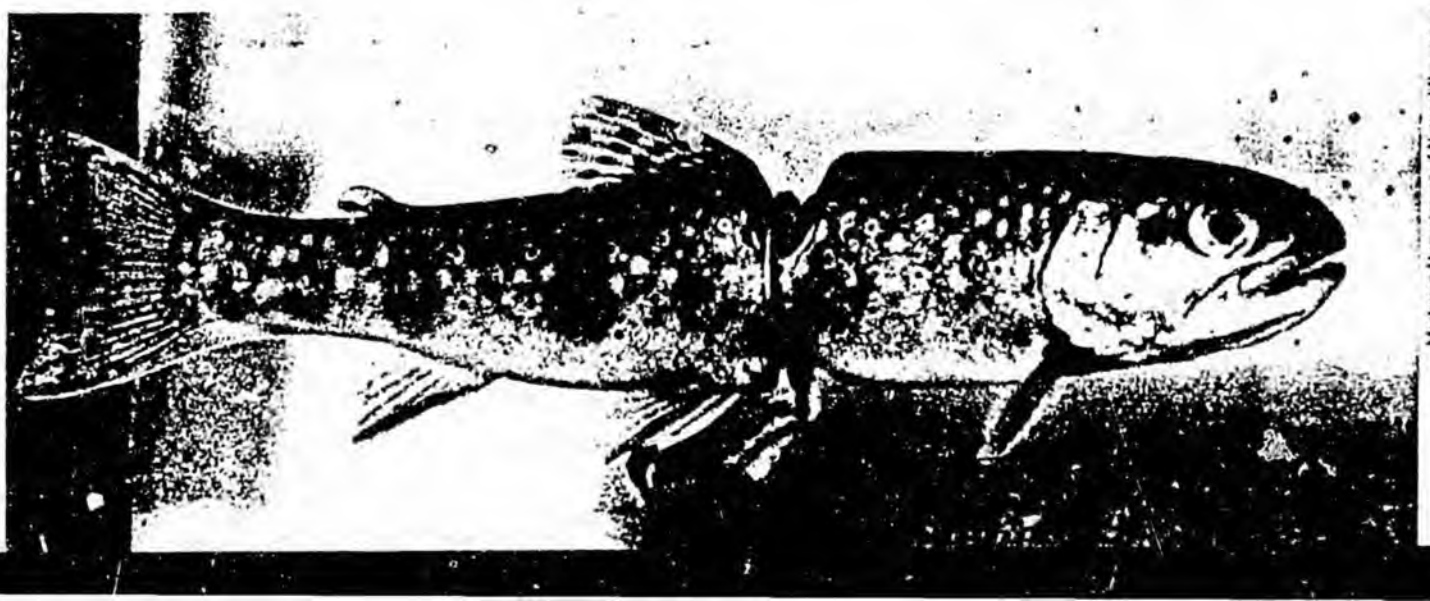
All of these avenues—degradability, recycling, improvements in laws and enforcement on dumping, and cutting down on waste—must be taken to effect any real improvement, according to Defenders' Manville. Waste reduction is the surest and most environmentally sound, he believes, and he thinks the way to achieve it is to pass costs of disposal and cleanup on to consumers. "If every plastic bag cost a dollar or two, we'd be a lot more interested in reusing them," he says. Americans may seem wedded to a throwaway lifestyle, but Manville believes we are capable of change. "Look at how many of us gave up cigarettes," he points out. "I don't think plastic's as addictive as tobacco."

Like Jim Coe, Manville believes most people vastly underestimate the danger of plastics in the marine environment. He also points out that there have been recent reports of humans entangled in plastic: propellers fouled and divers caught in net fragments. "When we realize we're one of the species that suffer from plastic trash," he says, "maybe we'll sit up and take notice." □

Neal Maine/Oregon Dept. of Fish and Wildlife

Gillnetting constricts the head of a luckless California sea lion on one of the Farallon Islands. A bird skeleton gripped by fishnet lies on an Oregon beach. A trout in Michigan grew up in the unyielding embrace of the pull tab from a beverage can.

William H. MacKenzie is a Portland, Oregon, journalist who formerly served as counsel to the House Subcommittee on Fisheries and Wildlife Conservation and the Environment.



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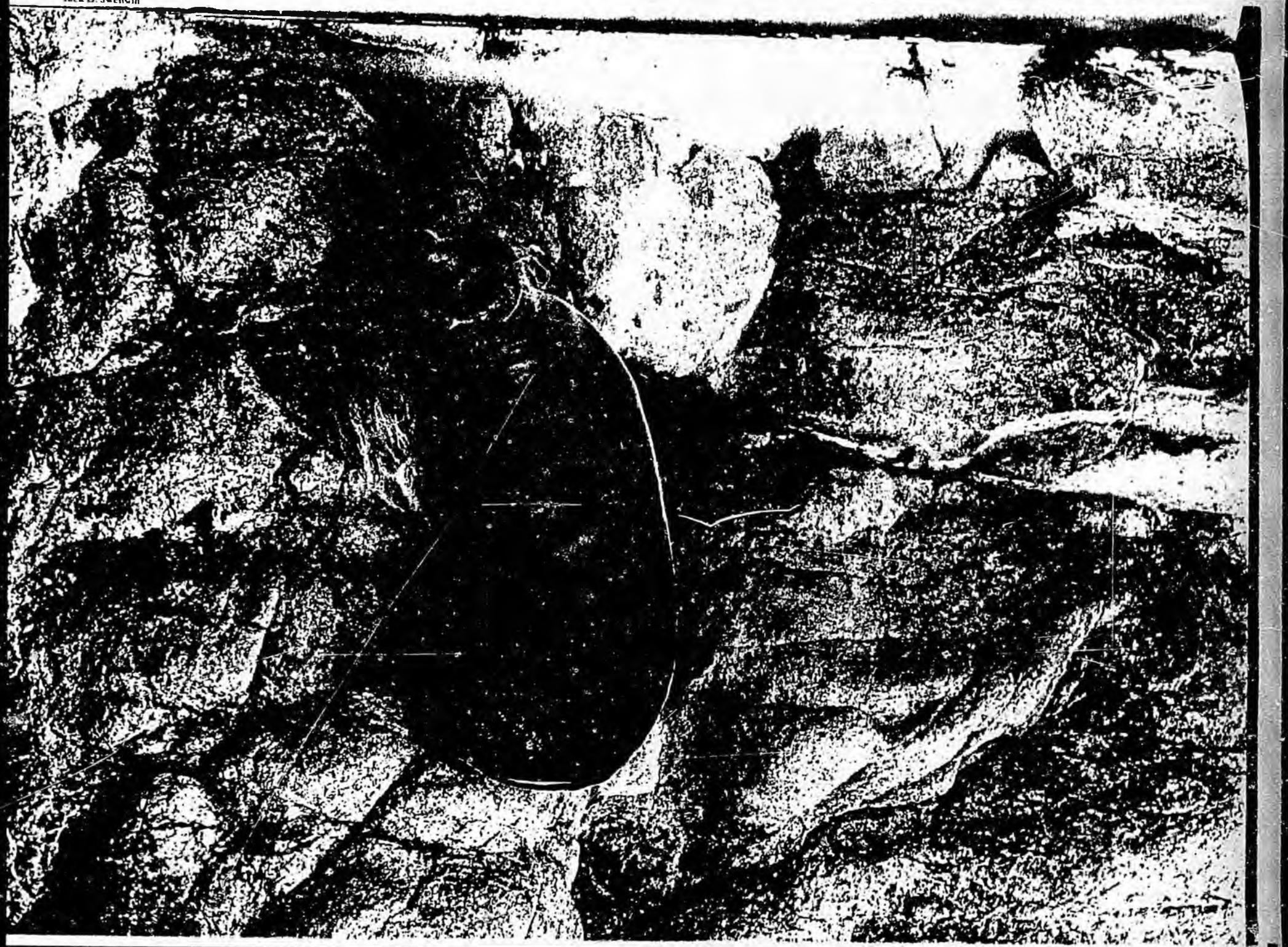
Jack D. Swenson



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September 1986

Serious Reduction of Hazardous Waste

Waste reduction is an economically sensible response to what many people see as a hazardous waste crisis. Several thousand pounds of hazardous waste are generated annually for every person in the Nation. Many thousands of people have lost their drinking water because of contamination by toxic waste. Across the country there are thousands of sites contaminated by hazardous waste that require billions of dollars for cleanup. An increasing number of lawsuits are being brought by people who claim to have suffered adverse health effects from living near toxic waste sites. Also the number of lawsuits being instituted by the government is mounting rapidly. These suits claim that certain waste generators have not complied with regulations and that generators who have used waste management facilities now on the Superfund list must pay for cleanups.

Waste reduction is critical to the prevention of future hazardous waste problems. By reducing the generation of waste, industry can use materials more efficiently and achieve more certain protection for health and the environment. At the same time, industry can lower waste management and regulatory compliance costs, liabilities, and risks.

Although there are many environmental and economic benefits to waste reduction, over 99 percent of Federal and State environmental spending is devoted to controlling pollution after waste is generated. Less than 1 percent is spent to reduce the generation of waste. The current level of national spending for pollution control is about $70 billion. Two-thirds of this is spent by industry. Since many hazardous substances are not yet regulated, annual expenditures will, in all likelihood, continue to increase.

OTA finds that reducing waste to prevent pollution from being generated at its source is now a practical way to complement this costly pollution control regulatory system. Because of sporadic and uneven enforcement, the current regulatory system weakens the incentive to reduce waste. Waste reduction, no matter how far it is taken, cannot eliminate all wastes, but it can help to lower costs for environmental protection as regulations continue to expand.

Current pollution control methods often do little more than move waste around. For example: air and water pollution control devices typically generate solid, hazardous waste that goes to landfills and too often leaches from there into groundwater. Many hazardous wastes, such as most toxic air emissions, are not yet regulated, and regulatory standards for permissible emissions legally sanction the generation of some wastes. Thus, OTA finds that establishing a comprehensive, multimedia approach to reducing wastes going into the air, land, and water is essential.

OTA finds that there is no common definition of waste reduction; there are few or no data on the extent of industrial waste reduction; waste reduction is usually measured incorrectly; and the information that the government collects on waste generation is not useful for waste reduction. If waste reduction is defined to include waste treatment, companies will naturally pay more attention to treatment, which is a familiar activity, than to the reduction of waste. Problems of definition and lack of information should be addressed and ongoing waste reduction efforts should be documented by government, even if decisions to reduce waste remain at the discretion of individual companies.

Despite some claims to the contrary, industry has not taken advantage of all effective waste reduction opportunities that are available. Reducing waste involves more than buying a black box, reading the directions, and plugging it in. Even a simple step toward waste reduction can seem difficult to a company with few technical resources and no obvious place to go for guidance. Reducing waste in an industrial process requires intimate knowledge of all aspects of that specific production process, in contrast to waste treatment, which is essentially an add-on to the end of the process. There are also clear pressures to reduce waste tomorrow, rather than today. The attention and resources given to required pollution control activities limit the amount of thought, time, and money that industry can devote to waste reduction. Some U.S. companies, however, have verified the fact that waste reduction pays for itself relatively quickly, especially when compared to the time needed to comply with regulations, obtain regulatory permits, or site waste management facilities. Some companies are even beginning to sell new products and services that help others to reduce waste.

Waste reduction succeeds when it is part of the everyday consciousness of all workers and managers involved with production—where the waste reduction opportunities are—rather than when it is a job only of those responsible for complying with environmental regulations. A few people with end-of-pipe, pollution control jobs are not in a position to reduce waste by themselves; such efforts must involve upstream workers and facilities.

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Throwing It All Away

By Lonnie Williamson, Editor-at-Large

Plastics have served man for more than 100 years. They are indispensable in today's society. Plastic fishing nets and discarded plastic garbage, however, are killing shocking amounts of fish and wildlife. These mortality factors could become a threat to recreational hunting and fishing for some species.

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Attention was focused on the wildlife plastic-waste problem at a 1983 meeting of the Western Association of State Fish and Wildlife Agencies. Several speakers offered gruesome details on how wildlife was killed and maimed by discarded plastic. Soon after that meeting, Judie Neilson of the Oregon Department of Fisheries and Wildlife organized more than 2,500 volunteers to comb debris from 150 miles of that state's beaches. To the surprise of sportsmen's groups, birdwatchers and others involved, the one-day effort yielded 26 tons of plastic waste.

By 1987, the coast cleanup idea had spread to 19 states. Preliminary tallies of last year's campaign indicate that more than 26,500 volunteers collected nearly 700 tons of debris from 1,800 miles of shoreline. Approximately 60 percent of that trash was plastic.

Commercial plastics reportedly appeared in 1868 when eyeglass frames were first made from cellulos nitrate. World War II brought new technology, and resin production boomed. Currently, U.S. manufacturers make more than 48 billion pounds of the stuff each year—twice the national output of steel, aluminum and copper.

All of that plastic coming through the front door means that a lot is going out the back as garbage. About 133 million tons, or 1,100 pounds per person, are discarded each year. Everything

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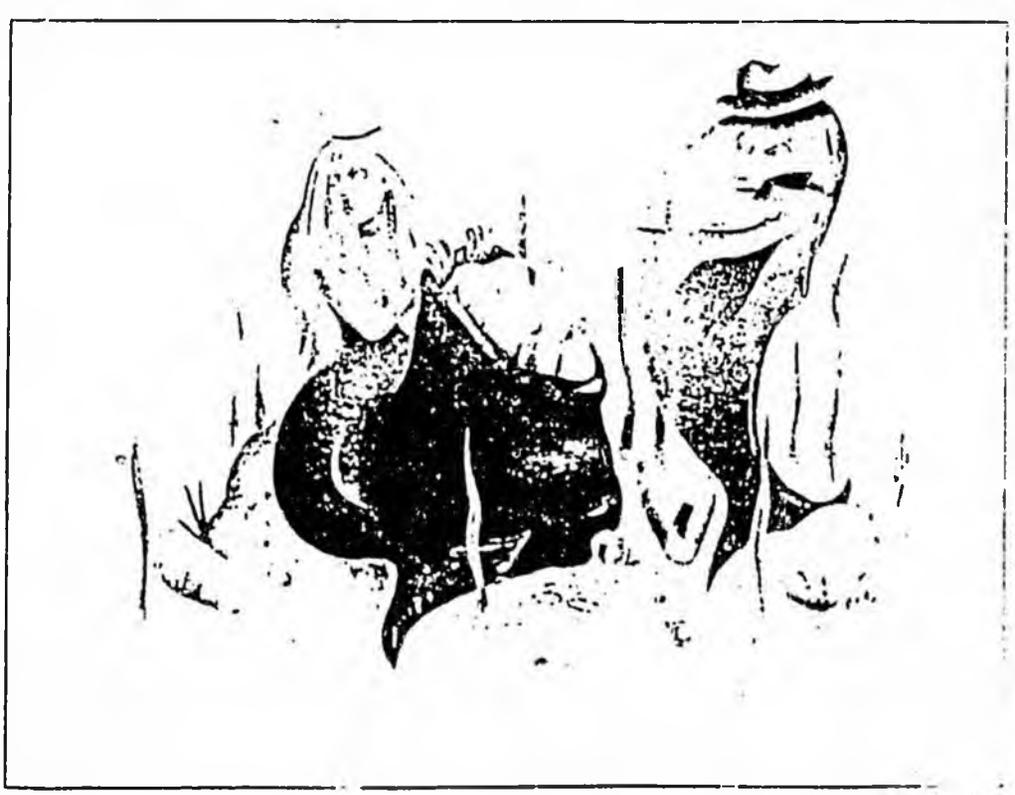

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OTA finds that reducing waste to prevent pollution from being generated at its source is now a practical way to complement this costly pollution control regulatory system. Because of sporadic and uneven enforcement, the current regulatory system weakens the incentive to reduce waste. Waste reduction, no matter how far it is taken, cannot eliminate all wastes, but it can help to lower costs for environmental protection as regulations continue to expand.

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There are five distinct approaches that industry can take to reduce hazardous waste: 1) change the raw materials of production, 2) change production technology and equipment, 3) improve production operations and procedures, 4) recycle waste within the plant, and 5) redesign or reformulate end-products. Among the opportunities that exist for common processes and wastes are: a) using mechanical techniques rather than toxic organic solvents to clean metal surfaces, b) using water-based raw materials instead of materials based on organic solvents, and c) changing plant practices to generate less hazardous wastewater.

So far government has not required waste reduction. OTA finds that it would be extraordinarily difficult for government to set and enforce waste reduction standards for a myriad of industrial processes. The impact on industry, particularly on troubled manufacturing sectors, could be substantial. Alternatively, the United States could move to an economically sensible environmental protection strategy based on both pollution control (waste management) and pollution prevention (waste reduction) with the Federal Government providing leadership and assistance in the following ways.

First, through policy development, education, and oversight, Congress could help industry and the Nation profit from seeing waste reduction not as some unique technology, but as a field ready for innovative engineering and management. These opportunities are embedded in every part of the industrial production system. There is no way to predetermine the amount of waste reduction that is possible; its technical and economic feasibility depend on the characteristics, circumstances, and goals of specific waste generators. Success in reducing waste depends on the ability of organizations to modernize, innovate, and cut costs, thereby increasing profits and reducing long-term liabilities. Thus waste reduction could be used as a measure of performance as energy efficiency and productivity often are.

Second, there are a number of possible legislative actions that could clarify the definition of waste reduction, spur better collection of information on waste reduction, and encourage waste generators to devote more attention to the subject. If the Federal public policy goal is rapid and comprehensive hazardous waste reduction, then a strategy based on government leadership and assistance rather than on prescriptive requirements is likely to be the most effective. For example, Congress could: 1) create an Office of Waste Reduction with an Assistant Administrator within EPA, 2) create a grants program to develop generic or widely transferable technical support for waste reduction, 3) through new comprehensive waste reduction legislation require detailed reporting by industry on past waste reduction actions and plans for future efforts, 4) reward and facilitate waste reduction by offering industry concessions from existing pollution control regulatory requirements, or 5) create and use independent State Waste Reduction Boards to implement programs. Setting a national waste reduction goal of perhaps 10 percent annually could help convert the long stated importance of waste reduction into a true priority and reduce annual environmental spending substantially, ultimately by billions of dollars.

Waste Reduction and National Policy

"The Congress hereby declares it to be the national policy of the United States that, wherever feasible, the generation of hazardous waste is to be reduced or eliminated as expeditiously as possible. Waste nevertheless generated should be treated, stored, or disposed of so as to minimize the present and future threat to human health and the environment."

From the *Resource Conservation and Recovery Act*, as amended by U.S. Congress in November 1984. This policy statement is supported by *waste minimization* provisions also added to the Act.

Definitions Used in This Report

Waste Reduction:

In-plant practices that reduce, avoid, or eliminate the generation of hazardous waste so as to reduce risks to health and environment. Actions taken away from the waste generating activity, including waste recycling or treatment of wastes after they are generated, are not considered waste reduction. Also, an action that merely concentrates the hazardous content of a waste to reduce waste volume or dilutes it to reduce degree of hazard is not considered waste reduction. This definition is meant to be consistent with the goal of preventing the generation of waste at its source rather than controlling, treating, or managing waste after its generation.

Hazardous Waste:

All nonproduct hazardous outputs from an industrial operation into all environmental media, even though they may be within permitted or licensed limits. This is much broader than the legal definition of hazardous solid waste in the Resource Conservation and Recovery Act, its amendments, and subsequent regulations. Hazardous refers to harm to human health or the environment and is broader than the term "toxic." For example, wastes that are hazardous because of their corrosivity, flamability, explosiveness, or infectiousness are not normally considered toxic.

Copies of the OTA report, "Serious Reduction of Hazardous Waste: For Pollution Prevention and Industrial Efficiency," are available from the U.S. Government Printing Office. The GPO stock number is 052-003-01048-8; the price is $12.00. Copies of the report for congressional use are available by calling 4-8996. Summaries of reports are available at no charge from the Office of Technology Assessment.

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ILLUSTRATION BY SC[illegible]

from plastic packaging to broken hula hoops is tossed to the garbage engineer and largely forgotten. Nearly 700,000 tons are dumped at sea.

Durability is a trait that makes plastic ideal for many consumer products. It also makes it tough on fish and wildlife because some of the compounds will last for hundreds of years, whether buried in a landfill or floating in the sea. Essentially, all that has been thrown is still where we threw it.

During the past five years, researchers have taken a look at plastic disposal to get a better idea of its effect on wildlife and to develop potential solutions. A summary of that work was reported by Dr. Albert M. Manville in March at the 53rd North American Wildlife and Natural Resources Conference. According to Manville, who heads a coalition of conservation and environmental groups, plastics alone may kill more marine mammals, sea birds and sea turtles than oil spills or pesticide poisoning. He said that the problem is worldwide, but that the United States is a major contributor, accounting for about one-third of all plastic refuge dumped into northern oceans.

According to Manville, a 1984 study found more than 80 percent of all debris sighted at sea to be plastic, with more than 33 percent being pieces of polystyrene (cups, floats, boxes and so on.) But those observations were limited to floating items, which do not include plastics denser than sea water, such as nylon fishing nets.

Manville reported that plastics kill or injure marine mammals in one of three ways: through active commercial fishing, through passive means or via ingestion. Animals captured in active fishing nets are labeled "incidental take." Scientists at the Point Reyes Bird Observatory in California estimated that more than 29,000 common murres (17 percent of the area's population) were drowned by halibut gill nets in 1983 alone. Regulations subsequently were installed to reduce that mortality, but the California Department of Fish and Game estimated that 6,000 to 8,000 murres succumbed to the nets during 1984-85.

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In the Danish salmon drift-net fishery, which operated off Greenland from 1965-75, Manville said that approximately 500,000 murres were killed annually. More than 350,000 sea birds reportedly were eliminated each year from 1975-77 by Japanese gill netters in the North Pacific and Bering Sea.

These figures may appear excessive to the casual observer, but consider the miles of gill nets set afloat during a single season. Manville notes that at least 111,600 miles of gill nets are carried by foreign fishermen into the North Pacific each year. That's enough to stretch around the world 4½ times. Each day during the five-month fishing season, some 20,500 miles of drift nets are set by more than 700 Japanese, Taiwanese and Korean boats.

Research by the National Marine Fisheries Service shows that the incidental take of marine mammals and sea birds in U.S. waters (200-mile limit) rivals the kill in international zones. For example, up to 750,000 sea birds die each year in salmon drift nets near our shores. In 1984 alone, more than 50,000 short-tailed shearwaters and 20,000 tufted puffins (27 percent of the species) died in Japanese drift nets in U.S. waters. If this array of sea birds is zapped annually by fishing nets, what is happening to diving ducks such as scoters, eiders and scaup that also feed in those waters?

According to the National Marine Fisheries Service's estimates, U.S. shrimp trawlers catch 45,000 sea turtles annually, of which some 12,600 are drowned. Furthermore, the trawlers also destroy a tremendous tonnage of finfish, and that has sportfishing groups on edge. An American Fisheries Society official reported that 10 pounds of fish are →

killed and dumped back into the depths for every pound of shrimp taken.

"Passive" kill of fish and wildlife by plastics includes mortality from entanglement in discarded or lost drift nets, packing bands, six-pack yokes and similar material. The Japanese claim that lost drift nets in the North Pacific is not a problem, but the National Marine Fisheries Service estimates that those fishermen lose about 12 miles of net each night (639 miles per season). This figure, Manville says, does not account for discarded nets or net fragments.

A lost drift net equal in length to the distance between Washington, D.C., and Atlanta can trap and kill a bunch of critters during its interminable existence. Scientists estimate that entanglement in such nets and other debris is a major factor in the North Pacific fur seal's decline. Numbers of that species in recent years have dropped about 8 percent annually, involving the loss of approximately 50,000 valuable fur producers each year. Even the great whales are victimized by these ghost nets. Scientists reported that during the past six years, 79 huge mammals became entangled in plastic netting and drowned off the coasts of North America.

Much remains to be learned about the impact of plastic's passive kill. For example, what is happening to sea otters, walruses, polar bears and other species? How about billfish, tuna, salmon, steelhead and other sporting species? Is man's plastic waste wasting those resources, too?

Ingestion of plastic debris also kills a sizable share of wildlife. Manville reported that more than 50 of the 280 species of sea birds are known to eat plastic debris. A recent study of Laysan albatross in Hawaii revealed that 90 percent of the chicks were fed plastic by their parents, which apparently mistook the substances for food.

Fish also suffer from eating plastic. Eight species of sport and commercial fish off New England were found to have ingested opaque polystyrene pellets that were thrown away by industry and dumped into the Atlantic. Bottom fish such as cod reportedly were most likely to feed on those pellets.

There is growing documentation that sea turtles, some of which are endangered, may be victims of plastic-bag ingestion. The turtles apparently confuse the plastic bags with jellyfish and wind up choking on the indigestible substance.

Although the extent of plastic's impact on fish and wildlife is unknown, enough has surfaced to stimulate remedial action. Congress held extensive hearings during 1986-87 on a number of bills aimed at reducing plastic waste disposal at sea. Finally, President Reagan signed legislation last December that may or may not make a significant change. The new law outlaws plastic dumping by any vessel within 200 miles of the U.S. coastline, to be enforced by the U.S. Coast Guard. It calls for studies on the effects of plastic pollution in oceans and ways to reduce the amount of plastic debris afloat. And it implements an international treaty that encourages all nations to stop dumping plastics in the world's oceans.

States also are getting into the act. Louisiana recently passed a law authorizing its Department of Environmental Quality to control plastic pollution in state waters. Michigan and Pennsylvania have legislation pending that would require plastic items sold there to be biodegradable. Maine and Connecticut have enacted laws requiring that plastic panels on lobster traps be replaced with some sort of degradable substance such as wood. This is not surprising considering that more than one-half million lobster traps have been lost in one year off the New England coast.

Another battle is under way in Congress as conservationists try to amend the Endangered Species Act and require shrimp fishermen to install inexpensive "excluder devices" on their nets. This will eliminate the incidental kill of sea turtles and reduce the incidental destruction of finfish. Thus far, congressmen and senators from shrimping states have prevented passage of that amendment.

Dr. Manville concludes that plastic pollution must be attacked on all fronts. "To deal with this plastic problem," he said, "will require a multifaceted approach including recycling, waste reduction, use of degradable plastics, return to biodegradable nonplastic alternatives, improvement in the laws and enforcement in dumping. Industry and the general public must become more conservation conscious, overturning our current 'use it and discard it' mentality. One recommendation: Take a closer look at Japan's waste management scheme. More than half of all discards are recycled there, with most of the remainder burned for energy recovery. Landfilling is reserved only for treated residues and inert wastes. A few states have begun to take action, including Oregon, Rhode Island and New Jersey, which have all implemented legislation making some recycling mandatory.

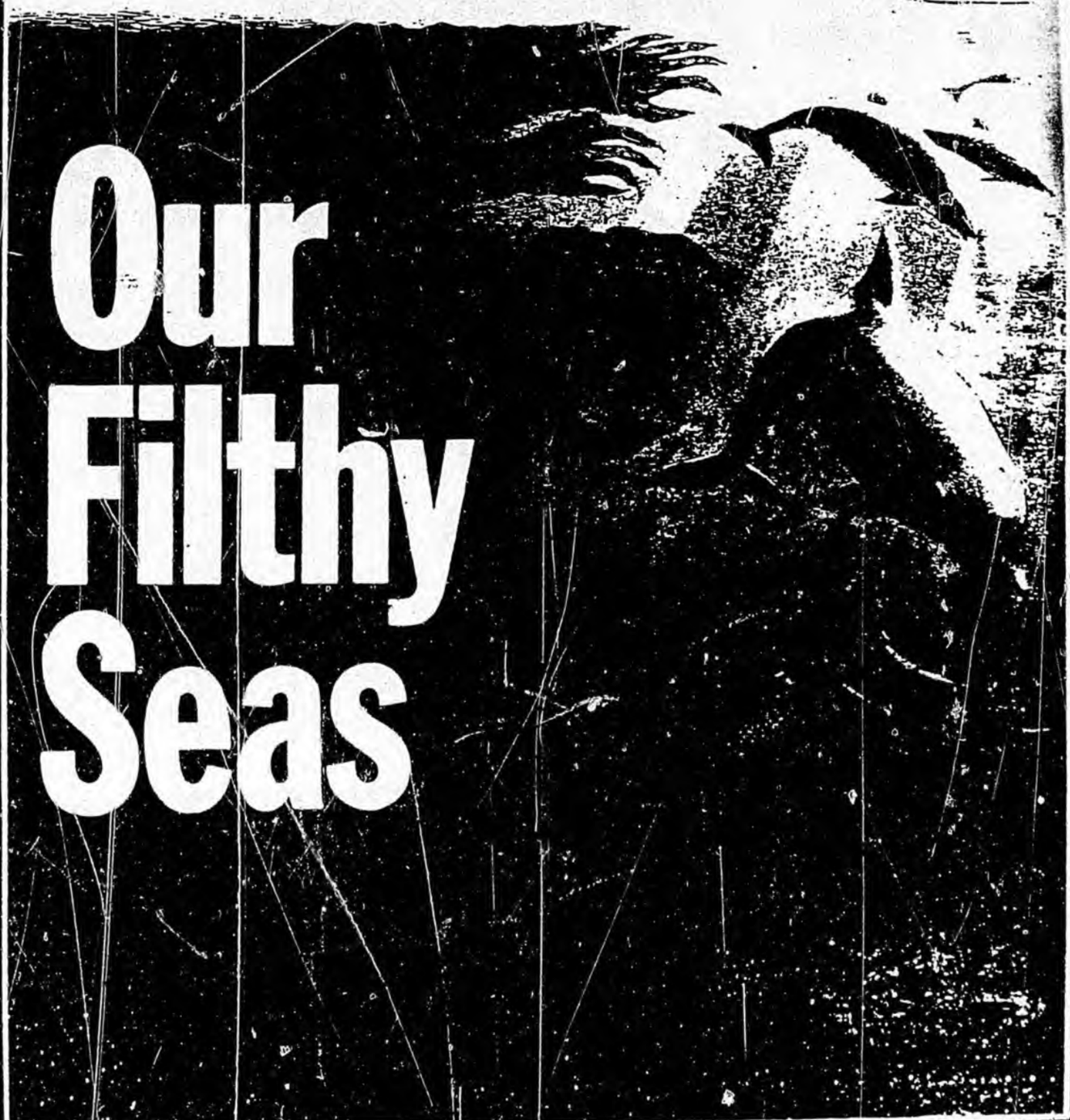
"Solutions will require new technologies, new initiatives and different directions. Although Americans may seem wedded to a throwaway lifestyle, we are capable of change."

Until Dr. Manville's Valhalla is reached and all plastic refuse is handled properly, fish and wildlife scientists had better take a closer look at how plastic pollution may be affecting all oceanic species. To date, most research has been on nongame because they generally are colonial nesters, breeders and feeders, and thus are easier to survey. We need to know how this pollution affects ducks, geese and other species of game and fish.

August 1, 1988

TIME

Khomeini's Surprising Offer

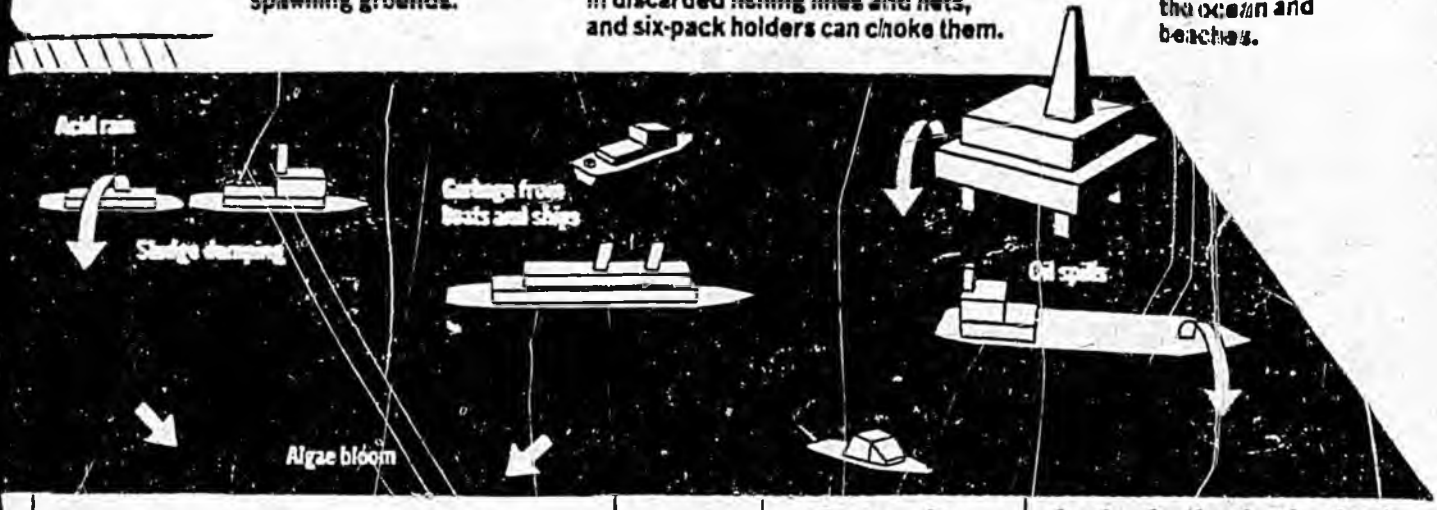


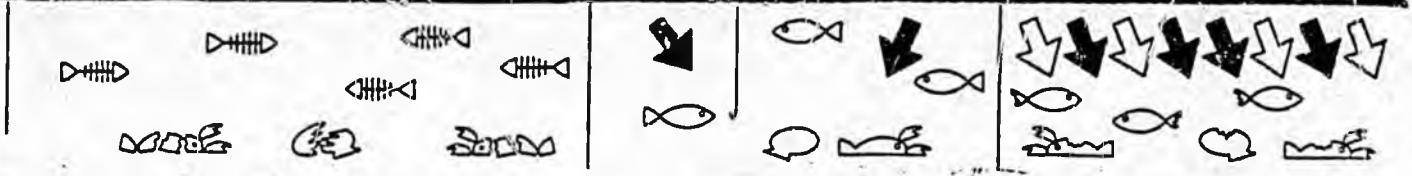
Our Filthy Seas

Acid rain and wind-borne pesticides fall into estuaries and oceans; they may stimulate algae blooms and destroy spawning grounds.

Recreational boaters, fishermen and ocean-going ships dump their garbage overboard. Much of this waste consists of plastics, which kill millions of birds, mammals and other marine creatures every year. They become entangled in discarded fishing lines and nets, and six-pack holders can choke them.

Oil spills from tankers and offshore drilling rigs are short-term hazards to the ocean and beaches.





Algae feed on nitrogen and phosphorus, leading to explosive growths (red and brown tides). These growths, or blooms, block the sunlight to submerged plants and kill them. When the algae decay, they rob the ocean of oxygen, suffocating sea creatures and producing massive fish kills. Toxins from algae can also kill fish.

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U.S. shores are also being inundated by waves of plastic debris. On the sands of the Texas Gulf Coast one day last September, volunteers collected 307 tons of litter, two-thirds of which was plastic, including 31,733 bags, 30,295 bottles and 15,631 six-pack yokes. Plastic trash is being found far out to sea. On a four-day trip from Maryland to Florida that ranged 100 miles offshore, John Hardy, an Oregon State University marine biologist, spotted "Styrofoam and other plastic on the surface, most of the whole cruise."

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Grim caution: a sign on Puget Sound

For five years, at 200 locations around the U.S., the National Oceanic and Atmospheric Administration has been studying mussels, oysters and bottom-dwelling fish, like flounder, that feed on the pollutant-rich sediment. These creatures, like canaries placed in a coal mine to detect toxic gases, serve as reliable indicators of the presence of some 50 contaminants. The news is not good. Coastal areas with dense populations and a long history of industrial discharge show the highest levels of pollution. Among the worst, according to Charles Pautzke of NOAA: Boston Harbor, the Hudson-Raritan estuary on the New Jersey coast, San Diego harbor and Washington's Puget Sound.

CORRECTION

THIS DOCUMENT
HAS BEEN REPHOTOGRAPHED
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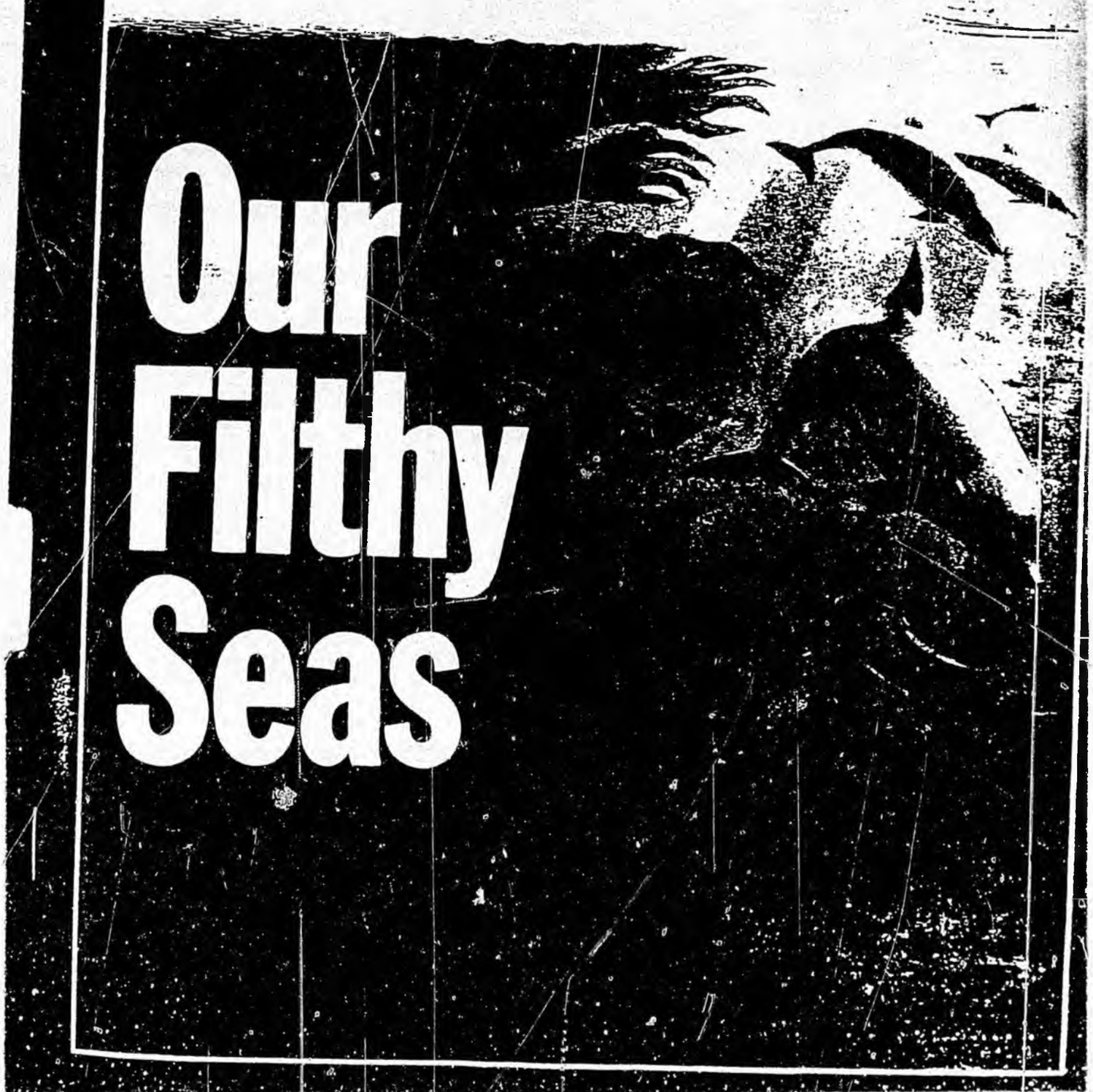

Our Filthy Seas

COVER STORY

The Dirty Seas

Threatened by rising pollution, the oceans are sending out an SOS

The very survival of the human species depends upon the maintenance of an ocean clean and alive, spreading all around the world. The ocean is our planet's life belt.
—Marine Explorer Jacques-Yves Cousteau (1980)

After sweltering through a succession of torrid, hazy and humid days, thousands of New Yorkers sought relief early last month by heading for the area's public beaches. What many found, to their horror and dismay, was an assault on the eyes, the nose and the stomach. From northern New Jersey to Long Island, incoming tides washed up a nauseating array of waste, including plastic tampon applicators and balls of sewage 2 in. thick. Even more alarming was the drug paraphernalia and medical debris that began to litter the beaches: crack vials, needles and syringes, prescription bottles, stained bandages and containers of surgical sutures. There were also dozens of vials of blood, three of which tested positive for hepatitis-B virus and at least six positive for antibodies to the AIDS virus.

To bathers driven from the surf by the floating filth, it was as if something precious—*their* beach, *their* ocean—had been wantonly destroyed, like a mindless graffito defacing a Da Vinci painting. Susan Guglielmo, a New York City housewife who had taken her two toddlers to Robert Moses State Park, was practically in shock: "I was in the water when this stuff was floating around. I'm worried for my children. It's really a disgrace." Said Gabriel Liegey, a veteran lifeguard at the park: "It was scary. In the 19 years I've been a lifeguard, I've never seen stuff like this."

Since the crisis began, more than 50 miles of New York City and Long Island beaches have been declared temporarily off limits to the swimming public because of tidal pollution. Some of the beaches were reopened, but had to be closed again as more sickening debris washed in. And the threat is far from over: last week medical waste was washing up on the beaches of Rhode Island and Massachusetts. "The planet is sending us a message," says Dr. Stephen Joseph, New York City's health commissioner. "We cannot continue to pollute the oceans with impunity."

As federal and state officials tried to locate the source of the beach-defiling materials, an even more mysterious—and perhaps more insidious—process was under way miles off the Northeast coast. Since March 1986, about 10 million tons of wet sludge processed by New York and New Jersey municipal sewage-treatment plants has been moved in huge barges out beyond the continental shelf. There, in an area 106 nautical miles from the entrance to New York harbor, the sewage has been released underwater in great, dark clouds.

The dumping, approved by the Environmental Protection Agency, has stirred noisy protests from commercial and sport fishermen from South Carolina to Maine. Dave Krusa, a Montauk, N.Y., fisherman, regularly hauls up hake and tilefish with ugly red lesions on their bellies and fins that are rotting away. Krusa is among those who believe that contaminants from Dump Site 106 may be borne back toward shore by unpredictable ocean currents. "In the past year, we've seen a big increase of fish in this kind of shape," he says. Who will eat them? New Yorkers, says a Montauk dockmaster. "They're going to get their garbage right back in the fish they're eating."

This summer's pollution of Northeastern beaches and coastal waters is only the latest signal that the planet's life belt, as Cousteau calls the ocean, is rapidly unbuckling. True, there are some farsighted projects here and there to repair the damage, and there was ample evidence in Atlanta last week that the Democrats hope to raise the nation's consciousness about environmental problems. The heightened interest comes not a moment too soon, since marine biologists and environmentalists are convinced that oceanic pollution is reaching epidemic proportions.

The blight is global, from the murky red tides that periodically afflict Japan's Inland Sea to the untreated sewage that befouls the fabled Mediterranean. Pollution threatens the rich, teeming life of the ocean and renders the waters off once famed beaches about as safe to bathe in as an unflushed toilet. By far the greatest, or at least the most visible, damage has been done near land, which means that the savaging of the seas vitally affects human and marine life. Polluted waters and littered beaches can take jobs from fisherfolk as well as food from consumers, recreation from vacationers and business from resorts. In dollars, pollution costs billions; the cost in the quality of life is incalculable.

In broadest terms, the problem for the U.S. stems from rampant development along the Atlantic and Pacific coasts and the Gulf of Mexico. Between 1960 and 1980, the number of Americans living within 50 miles of a seashore increased from 42 million to 89 million—and the total is still mounting. Coastal cities are getting perilously close to reaching their

NEWSDAY—STEPHEN CASTANEDA

Flagged off: no-swimming signals on Long Island

Crimson carpet: an algae bloom in Osaka Bay last May, one of the hundreds of red tides that appear off Japan each year

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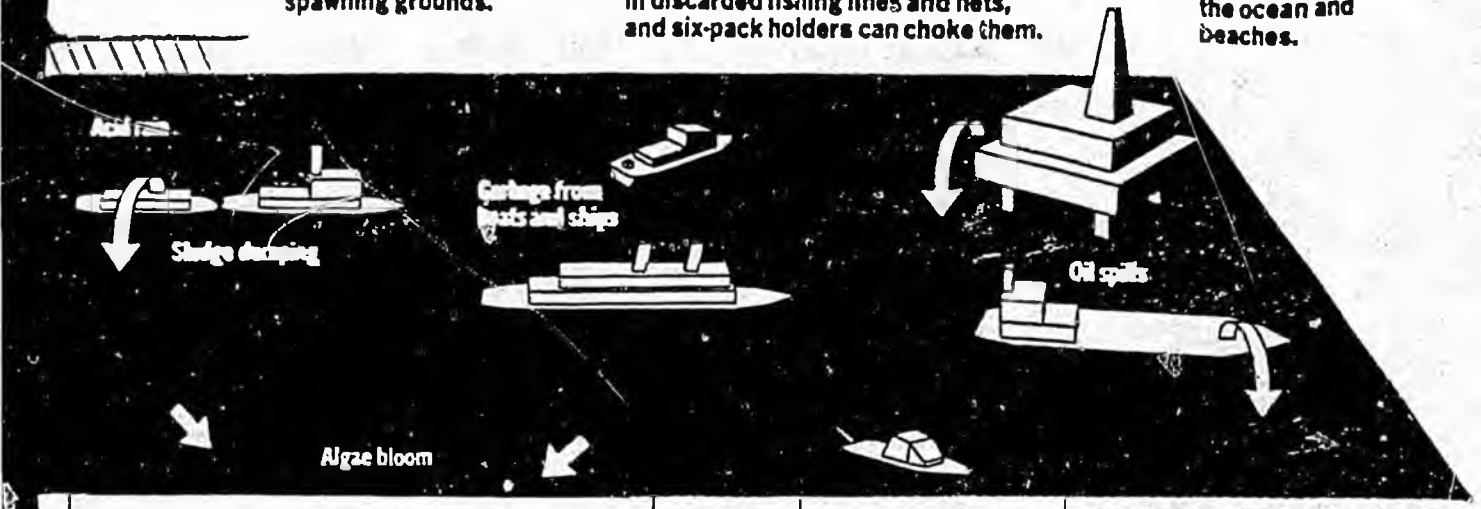

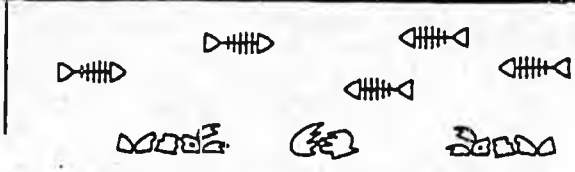

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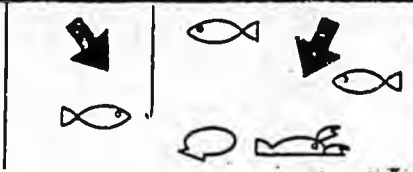

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RICH FRISHMAN—PICTURE GROUP

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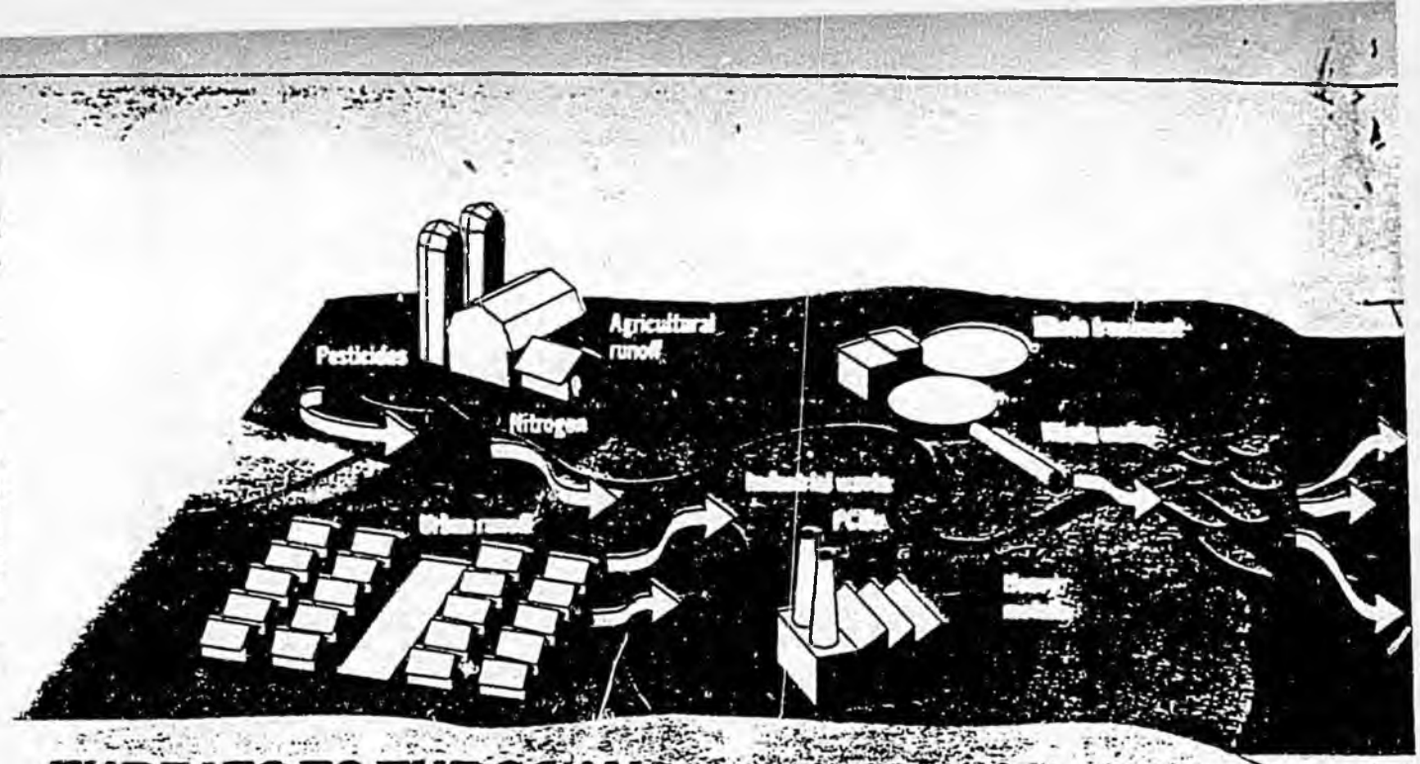


THREATS TO THE OCEAN

The major long-term hazard is chronic land-based pollution. Agricultural runoff of fertilizers, topsoil and pesticides is carried by rivers and streams into estuaries. Waste water from factories and sewage-treatment plants includes such toxic substances as heavy metals and PCBs. Overflowing sewers spill raw sewage into the sea, and sludge from some states is deliberately dumped into the Atlantic.

TIME Diagram by Joe Lertola

capacity to absorb civilization's wastes.

Today scientists have begun to shift the focus of research away from localized sources of pollution, like oil spills, which they now believe are manageable, short-term problems. Instead, they are concentrating on the less understood dynamics of chronic land-based pollution: the discharge of sewage and industrial waste and—possibly an even greater menace—the runoff from agricultural and urban areas.

Conveyed to the oceans through rivers, drainage ditches and the water table, such pollutants include fertilizers and herbicides washed from farms and lawns, motor oil from highways and parking lots, animal droppings from city streets and other untreated garbage that backs up in sewer systems and spills into the seas. Says Biologist Albert Manville of Defenders of Wildlife, a Washington-based environmental group: "We're running out of time. We cannot continue to use the oceans as a giant garbage dump."

The oceans are broadcasting an increasingly urgent SOS. Since June 1987 at least 750 dolphins have died mysteriously along the Atlantic Coast. In many that washed ashore, the snouts, flippers and tails were pocked with blisters and craters; in others, huge patches of skin had sloughed off. In the Gulf of Maine, harbor seals currently have the highest pesticide level of any U.S. mammals, on land or in water. From Portland to Morehead City, N.C., fishermen have been hauling up lobsters and crabs with gaping holes in their shells and fish with rotted fins and ulcerous lesions. Last year's oyster haul in Chesapeake Bay was the worst ever: the crop was decimated by dermo, a fungal disease, and the baffling syndrome MSX (multinucleate sphere X).

Suffocating and sometimes poisonous blooms of algae—the so-called red and brown tides—regularly blot the nation's coastal bays and gulfs, leaving behind a trail of dying fish and contaminated mollusks and crustaceans. Patches of water that have been almost totally depleted of oxygen, known as dead zones, are proliferating. As many as 1 million fluke and flounder were killed earlier this summer when they became trapped in anoxic water in New Jersey's Raritan Bay. Another huge dead zone, 300 miles long and ten miles wide, is adrift in the Gulf of Mexico.

Shellfish beds in Texas have been closed eleven times in the past 18 months because of pollution. Crab fisheries in Lavaca Bay, south of Galveston, were forced to shut down when dredging work stirred up mercury that had settled in the sediment. In neighboring Louisiana 35% of the state's oyster beds are closed because of sewage contamination. Says Oliver Houck, a professor of environmental law at Tulane: "These waters are nothing more than cocktails of highly toxic substances."

The Pacific coastal waters are generally cleaner than most, but they also contain pockets of dead—and deadly—water. Seattle's Elliott Bay is contaminated with a mix of copper, lead, arsenic, zinc, cadmium and polychlorinated biphenyls (PCBs), chemicals once widely used by the electrical-equipment industry. "The bottom of this bay is a chart of industrial history," says Thomas Hubbard, a water-quality planner for Seattle. "If you took a core sample, you could date the Depression, World War II. You could see when PCBs were first used and when they were banned and when lead was eliminated from gasoline." Commencement Bay, Tacoma's main harbor, is the nation's largest underwater area designated by the Environmental Protection Agency as a Superfund site, meaning that pollution in the bay is so hazardous that the Federal government will supervise its clean-up.

Washington State fisheries [illegible] ing tumors in the livers of [illegible] which dwell on sediment [illegible] warn, BOTTOMFISH, CRAB AND [illegible] MAY BE UNSAFE TO EAT DUE [illegible] TION. Lest anyone fail to get the [illegible] the caution is printed in seven languages: English, Spanish, Vietnamese, Cambodian, Laotian, Chinese and Korean.

San Francisco Bay is also [illegible] ed with copper, nickel, cadmium [illegible]

the Virginia Institute of Marine Science. "It can take a lot of assault. But when it gets out of whack, it declines rapidly."

It is then that the natural growth of sea grass may be ended, as has happened in Chesapeake Bay, or sudden blooms of algae can occur, particularly in stagnant waters. The exact reasons for these spurts of algal growth are unknown. They can be triggered, for example, by extended periods of sunny weather following heavy rains. Scientists believe algal growth is speeded up by the runoff of agricultural fertilizers. The burgeoning algae form a dense layer of vegetation that displaces other plants. As the algae die and decay, they sap enormous amounts of oxygen from the water, asphyxiating fish and other organisms.

Some kinds of algae contain toxic chemicals that are deadly to marine life. When carcasses of more than a dozen whales washed up on Cape Cod last fall, their deaths were attributed to paralytic shellfish poisoning that probably passed up the food chain through tainted mackerel consumed by the whales. Carpets of algae can turn square miles of water red, brown or yellow. Some scientists speculate that the account in *Exodus 7: 20* of the Nile's indefinitely turning red may refer to a red tide.

When such blights occur in coastal areas, the result can be devastating. Last November a red tide off the coast of the Carolinas killed several thousand mullet and all but wiped out the scallop population. Reason: the responsible species, *Ptychodiscus brevis*, contains a poison that causes fish to bleed to death. Brown tides, unknown to Long Island waters before 1985, have occurred every summer since; they pose a constant threat to valuable shellfish beds.

A study of satellite photographs has led scientists to believe that algae can be conveyed around the world on ocean currents. The Carolinas algae, which had previously been confined to the Gulf of Mexico, apparently drifted to Atlantic shores by way of the Gulf Stream. One species that is native to Southern California is thought to have been carried to Spain in the ballast water of freighters.

The effects of man-made pollution on coastal zones can often be easily seen; far less clear is the ultimate impact on open seas. The ocean has essentially two ways of coping with pollutants: it can dilute them or metabolize them. Pollutants can be dispersed over hundreds of square miles of ocean by tides, currents, wave action, huge underwater columns of swirling water called rings, or deep ocean storms caused by earthquakes and volcanoes.

Buried toxins can also be moved around by shrimp and other creatures that dig into the bottom and spread the substances through digestion and excretion. Though ocean sediment generally accumulates at a rate of about one-half inch per thousand years. Biogeochemist John Farrington of the University of Massachusetts at Boston cites discoveries of plutonium from thermonuclear test blasts in the 1950s and 1960s located 12 in. to 20 in. deep in ocean sediment. Thus contaminants can conceivably lie undisturbed in the oceans indefinitely—or resurface at any time.

There is little question that the oceans have an enormous ability to absorb pollutants and even regenerate once damaged waters. For example, some experts feared that the vast 1979 oil spill in the Gulf of Mexico would wipe out the area's shrimp industry. That disaster did not occur, apparently because the ocean has a greater capacity to break down hydrocarbons than scientists thought. But there may be a limit to how much damage a sector of ocean can take. Under assault by heavy concentrations of sludge, for example, the self-cleansing system can be overwhelmed. Just like decaying algae, decomposing sludge robs the water of oxygen, suffocating many forms of marine life. What effect chronic contamination from sludge and other wastes will have on the oceans' restorative powers is still unknown.

Rebuckling the planet's life belt may prove formidable. The federal Clean Water Act of 1972 overlooked runoff pollution in setting standards for water quality. Meanwhile, the nation's coasts are subject to the jurisdiction of a bewildering (and often conflicting) array of governmental bodies. One prime example of this confusion, reports TIME Houston Bureau Chief Richard Woodbury, is found in North Carolina's Albemarle-Pamlico region. There both the federal Food and Drug Administration and a state agency regulate the harvesting of shellfish. A third agency, the state's health department, surveys and samples the water and shellfish. And another state body sets the guidelines for opening or closing shellfish beds. Complains Douglas Rader of the Environmental Defense Fund: "The crazy mix of agencies hurts the prospects for good management."

Lax enforcement of existing clean-water policies is another obstacle. According to Clean Ocean Action, a New Jersey–based watchdog group, 90% of the 1,500 pipelines in the state that are allowed to discharge effluent into the sea do so in violation of regulatory codes. Municipalities flout the rules as well. Even if Massachusetts keeps to a very tight schedule on its plans to upgrade sewage treatment, Boston will not be brought into compliance with the Clean Water Act until 1999—22 years after the law's deadline. Meanwhile, the half a billion gallons of sewage that pour into Boston Harbor every day receive treatment that is rudimentary at best.

Some communities are leading the way in trying to preserve their shores and coastal waters. In March the legislature of Suffolk County on Long Island passed a law

Atlantic agony: a dead dolphin, brought in by the tide, lies rotting near an amusement park on southern New Jersey's beleaguered shore

Last week the EPA added six major estuaries to the half a dozen already on the list of ecologically sensitive coastal areas targeted for long-term study. Estuaries, where rivers meet the sea, are the spawning grounds and nurseries for at least two-thirds of the nation's commercial fisheries, as well as what the EPA calls sources of "irreplaceable recreation and aesthetic enjoyment."

Although the poisoning of coastal waters strongly affects vacationers, homeowners and resort operators, its first (and often most vocal) victims are fishermen. Commercial fishing in the U.S. is a $3.1 billion industry, and it is increasingly threatened. Fisherman Richard Hambley of Swansboro, N.C., recalls that only a few years ago, tons of sturgeon and mullet were pulled out of the White Oak River. "Now that is nonexistent," he says. "There are no trout schools anymore. Crabs used to be like fleas. I'm lucky to get a few bushels." Ken Seigler, who works Swansboro's Queens Creek, has seen his income from clams and oysters drop 50% in seven years; this year he was forced to apply for food stamps. New Jersey Fisherman Ed Maliszewski has used his small boat for only two weeks this year. He is trying to bail out, and so are others.

In the diet-and-wellness '80s, fish has been widely touted as a healthful food. Not only do smaller catches mean ever higher prices, but also the incidence of illnesses from eating contaminated fish—including gastroenteritis, hepatitis A and cholera—is rising around the U.S. Pesticide residues and other chemicals so taint New York marine waters that state officials have warned women of childbearing age and children under 15 against consuming more than half a pound of bluefish a week; they should never eat striped bass caught off Long Island. Says Mike Deland, New England regional administrator for the EPA: "Anyone who eats the liver from a lobster taken from an urban area is living dangerously."

Fish and shellfish that have absorbed toxins can indirectly pass contaminants to humans. Birds migrating between Central America and the Arctic Circle, for example, make a stopover in San Francisco's wetlands, where they feast on clams and mussels that contain high concentrations of cadmium, mercury and lead. Says Biologist Gregory Karras of Citizens for a Better Environment: "The birds become so polluted, there is a risk from eating ducks shot in the South Bay."

Despite the overwhelming evidence of coastal pollution, cleaning up the damage, except in a few scattered communities, has a fairly low political priority. One reason: most people assume that the vast oceans, which cover more than 70% of the world's surface, have an inexhaustible capacity to neutralize contaminants, by either absorbing them or letting them settle harmlessly to the sediment miles below the surface. "People think 'Out of sight, out of mind,' " says Richard Curry, an oceanographer at Florida's Biscayne National Park. The popular assumption that oceans will in effect heal themselves may carry some truth, but scientists warn that this is simply not known. Says Marine Scientist Herbert Windom of Georgia's Skidaway Institute of Oceanography: "We see things that we don't really understand. And we don't really have the ability yet to identify natural and unnatural phenomena." Notes Sharron Stewart of the Texas Environmental Coalition: "We know more about space than the deep ocean."

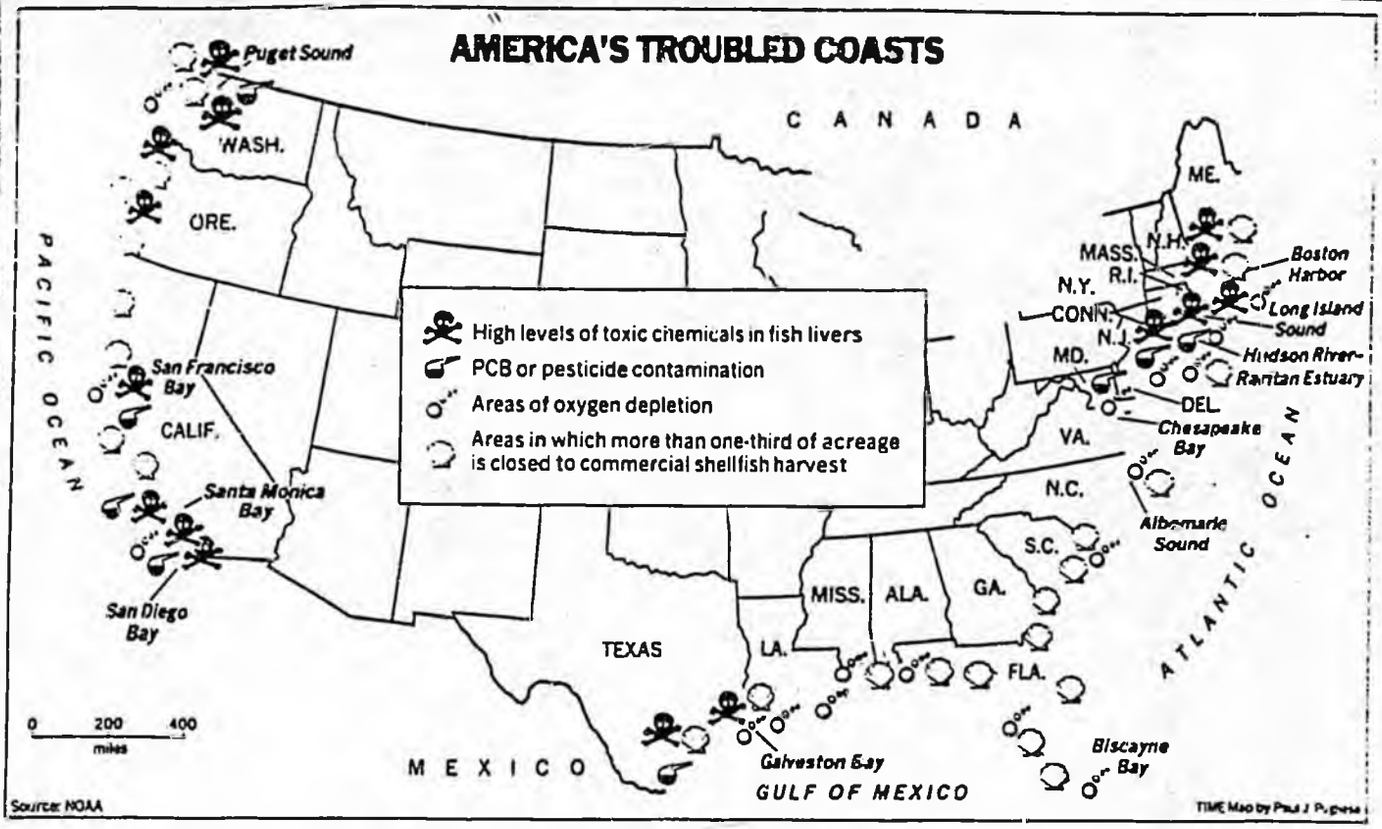
Marine scientists are only now beginning to understand the process by which coastal waters are affected by pollution. The problem, they say, may begin hundreds of miles from the ocean, where nutrients, such as nitrogen and phosphorus, as well as contaminants, enter rivers from a variety of sources. Eventually, these pollutants find their way into tidal waters. For the oceans, the first critical line of defense is that point in estuaries, wetlands and marshes where freshwater meets salt water. Marine biologists call this the zone of maximum turbidity—literally, where the water becomes cloudy from mixing.

There, nutrients and contaminants that have dissolved in freshwater encounter the ionized salts of seawater. The resulting chemical reactions create particles that incorporate the pollutants, which then settle to the bottom. As natural sinks for contaminants, these turbidity zones protect the heart of the estuary and the ocean waters beyond.

But the fragile estuarine systems can be overtaxed in any number of ways. Dredging can stir up the bottom, throwing pollutants back into circulation. The U.S. Navy plans to build a port in Puget Sound for the aircraft carrier USS *Nimitz* and twelve other ships; the project will require displacement of more than 1 million cu. yds. of sediment, with unknown ecological consequences. Similarly, natural events such as hurricanes can destir pollutants from the sediment. The estuarine environment also changes when the balance of freshwater and salt water is disturbed. Upstream dams, for example, diminish the flow of freshwater into estuaries, so do droughts. On the other hand, rainstorms can cause an excess of freshwater runoff from the land.

Whatever the precise cause, trouble begins when the level of pollutants in the water overwhelms the capacity of estuaries to assimilate them. The overtaxed system, unable to absorb any more nutrients or contaminants, simply passes them along toward bays and open seas. "When the system is working," says Maurice Lynch, a biological oceanographer

Pacific pileup: mounds of colorful plastic debris litter the sands of Nihau, an island in the Hawaiian chain



forbidding retail food establishments to use plastic grocery bags, food containers and wrappers beginning next year. Sixteen states have laws requiring that the plastic yokes used to hold six-packs of soda or beer together be photo- or biodegradable. Last December the U.S. became the 29th nation to ratify an amendment to the Marpol (for marine pollution) treaty, which prohibits ships and boats from disposing of plastics—from fishing nets to garbage bags—anywhere in the oceans. The pact goes into effect at the end of this year.

Compliance will not be easy. Merchant fleets dump at least 450,000 plastic containers overboard every day. The U.S. Navy, which accounts for four tons of plastic daily, has canceled a contract for 11 million plastic shopping bags, and is testing a shipboard trash compactor. It is also developing a waste processor that can melt plastics and turn them into bricks. The Navy's projected cost of meeting the treaty provision: at least $1 million a ship. Supporters of the Marpol treaty readily acknowledge that it will not totally eliminate plastic pollution. "If a guy goes out on deck late at night and throws a bag of trash overboard," says James Coe of NOAA's National Marine Fisheries Service in Seattle, "there's no way that anyone will catch him."

Stiff fines and even prison sentences may get the attention of landbound polluters. Under Administrator Mike Deland, the EPA's New England office has acquired a reputation for tough pursuit of violators. In November 1986 the agency filed criminal charges against a Providence boatbuilder for dumping PCBs into Narragansett Bay. The company was fined $600,000 and its owner $75,000; he was put on probation for five years.

Washington is one of the few states with a comprehensive cleanup program. Three years ago, the Puget Sound water-quality authority developed a master plan for cleaning up the heavily polluted, 3,200-sq.-mi. body of water. The state legislature has levied an 8¢-a-pack surtax on cigarettes to help pay the bill; this year the tax will contribute an estimated $25 million to the cleanup. The Puget Sound authority and other state agencies closely monitor discharge of industrial waste and are working with companies on ways to reduce effluent.

An aggressive effort is being made to limit runoff as well. Two counties have passed ordinances that regulate the clearing of land and the installation and inspection of septic tanks. Farmers are now required to fence cattle away from streams. Zoning has become more stringent for construction in a critical watershed area: a single-family house requires at least two acres of land. The number of livestock and poultry per acre is also controlled.

The Puget Sound group has an educational program that teaches area residents everything from the history of the sound to what not to put down the kitchen sink. Controlling pollution is promoted as everyone's task. High school students take water samples, and island dwellers have been trained in what to do if they spot an oil spill. Says Seattle Water-Quality Planner Hubbard: "Bridgetenders are great at calling in with violations. They are up high, and when they see a black scum or a little slick, they let us know about it."

Officials hope the cleanup program will have the same result as a decades-long effort mounted by the Federal Government and four states in the Delaware River estuary, an area ringed by heavy industry and home to almost 6 million people. The Delaware's pollution problems began in Benjamin Franklin's day. By World War II, the river had become so foul that airplane pilots could smell it at 5,000 ft. President Franklin Roosevelt even considered it a threat to national security. In 1941 he ordered an investigation to determine whether gases from the water were causing corrosion at a secret radar installation on the estuary.

Although the Delaware will never regain its precolonial purity, the estuary has been vastly improved. Shad, which disappeared 60 years ago, are back along with 33 other species of fish that had virtually vanished. Estuary Expert Richard Sweet calls the Delaware "one of the premier pollution-control success stories in the U.S."

Such triumphs are still rare, and there is all too little in the way of concerted multinational activity to heal the oceans. That means pollution is bound to get worse. Warns Clifton Curtis, president of the Oceanic Society, a Washington-based environmental organization: "We can expect to see an increase in the contamination of coastal waters and a rise in health advisories and an increase in the closing of shellfish beds and beaches." Those are grim tidings indeed for the world's oceans and the people who live by them. —*By Anastasia Toufexis. Reported by Andrea Dorfman/New York, Eugene Linden/Boston and Edwin M. Reingold/Seattle*

The Entanglement Network

c/o Defenders of Wildlife
244 19th Street, NW
Washington, DC 20036
(202) 659-9510

Sponsored by:
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California Marine Mammal Center
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Center for Environmental Education
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National Audubon Society
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Society for Animal Protection Legislation
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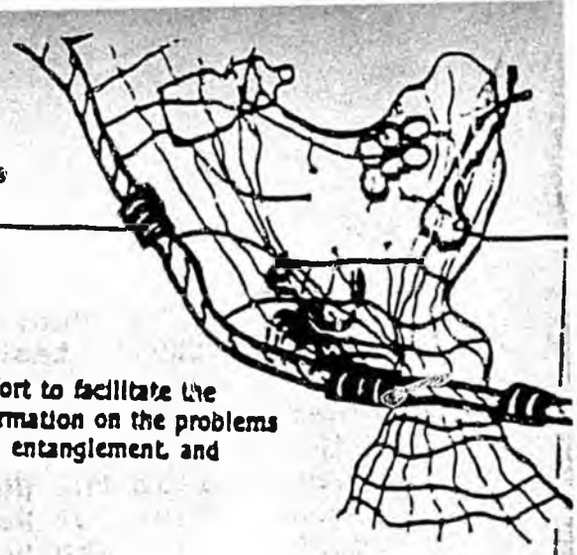

A cooperative effort to facilitate the exchange of information on the problems of marine debris, entanglement and incidental take.

ORAL STATEMENT OF:

Albert M. Manville II, Ph.D
Senior Staff Wildlife Biologist
Defenders of Wildlife, and
Chair, the Entanglement Network Coalition

On Behalf Of 33 Organizations In The
Entanglement Network Coalition
Regarding **Senate Bill 2298**
Requiring The Administrator of the General Services Administration To Encourage The Development And Use of Plastics Derived From Certain Commodities, And To Include Such Products In The General Services Administration Inventory For Supply To Federal Agencies, And For Other Purposes

Before The Senate Committee On Government Affairs

September 20, 1988

Mr. Chairman, Members of the Committee, thank you for the opportunity to testify here today. I am Dr. Albert M. Manville, Senior Staff Wildlife Biologist for Defenders of Wildlife, and Chair of the Entanglement Network Coalition (Network). This testimony is being presented today on behalf of 33 members or participants in the Network [the National Audubon Society and Clean Ocean Action, of New Jersey, have also signed onto our testimony]. The Network is a consortium of over 40 conservation, wildlife, and animal welfare organizations which serves as the unified voice of the environmental community on entanglement, incidental take, and plastic debris ingestion. Combined membership in our respective organizations represents over 10 million American citizens.

I've been asked today to provide our views on:

- growing environmental problems faced by the federal government, states, and localities concerning solid waste management;
- the potential contribution of degradable plastics in meeting this challenge; and
- the role of the federal government in addressing these problems.

Recent cover stories in Time Magazine and Newsweek, as well as on Hugh Downs', "The Poisoning of America" (ABC), rebroadcast last Sunday, portray our solid waste crisis in an alarming fashion, so I don't need to recapitulate. Plastic debris, however, is not just a problem on our popular beaches and resort areas. In both the freshwater and marine environments, it's a problem everywhere -- from pole to pole, in many lakes, and in every ocean.

Last July, I returned from Alaska and the outermost Aleutian Islands while onboard the U.S. Fish and Wildlife Service's research vessel, Tiglax. The purpose of my trip: to conduct plastic beach surveys, 25 undertaken on 7 islands including Attu (our western-most island, some 1,600 miles west of Anchorage), Agattu, Shemya, Buldir, Kiska, Little Kiska, and Adak islands.

The amount of plastic I discovered was truly astounding, with materials identified from Japan, Korea, Mainland China, Taiwan, Russia, Norway, and the United States. As I came ashore in a Zodiak onto our western-most beach in North America, 13 bull Steller's sea lions basked on the rocky beach, one resting its head on a plastic trawl net buoy, another sleeping on a trawl net. My survey of a 100-yard section of this beach resulted in a find of 511 different plastic items of 27 distinct varieties -- bottles, buoys, crates, plates, fishing nets, rope, hard hats, PVC pipe, tooth brushes, coolers, even 3 National Marine Fishery Service drift cards.

One bull Steller's sea lion was photographed with a strapping-band scar around its neck (see page 4). Hundreds of seabirds also were found dead on shore, some wrapped in plastic, possible victims of plastic entanglement. A disturbing steep decline in the sea lion population was also noted in the Western Aleutians. Plastics may indeed be taking their toll.

While we perceive the use of degradable plastic as critical to alleviate the adverse impact of plastics on fish and wildlife, we recognize that degradability is no substitute for proper disposal of plastic waste. While degradability is one part of the overall solution to plastic waste disposal, the problem will only ultimately be solved by a combination of efforts including:

- use and resultant waste reduction;
- recycling;
- degradability;
- use of biodegradable nonplastic alternatives;
- shredding and composting; and
- enforcement of laws and regulations on dumping.

Members of this Committee, as well as Congress, must be cognizant of "quick fixes" and apparent readily available "solutions" to our plastics' waste crisis. While degradability will require considerably more research, we need to immediately work toward recycling and waste reduction efforts.

While preliminary results indicate that agricultural commodity-based plastics can be produced which degrade in the environment under certain conditions, including composting, they break down no faster than everyday nondegradable plastic products when subjected to landfill conditions. Degradables, then, will require more testing, research, and development. In fact, the Bill should call for the establishment of government standards for the testing of all degradable plastics and non-plastic alternatives to make certain they degrade in a safe and ecologically-sound manner.

Ultimately, Congress needs to begin seriously considering placement of a limit on the amount of virgin plastic produced and sold in this country. Since most plastic is made from petroleum -- a resource we may run out of within 30 years -- we must immediately take steps at:

- nationwide recycling;
- nondegradable plastic reduction; and
- use of nonplastic alternatives.

Passage of this Bill will send a further message to the plastics' industry, product users, and the general public that Congress considers degradability a viable option in dealing with our plastics' refuse crisis, and that Congress is especially con-

cerned about the impacts of plastic on fish and wildlife. We in the Entanglement Network Coalition, therefore, strongly endorse this legislation -- along with our suggested changes and additions -- and hope that Members of this Committee will do the same.

Mr. Chairman, that concludes my oral testimony. Thank you for the opportunity to testify here today.

Unique Photos by Dr. Al Manville, Taken on his Recent Trip To the Aleutians.

U.S. Fish & Wildlife Service's Kevin Bell of research vessel Tiglax, *holding plastic ordnance container, standing among rope, trawl net, plastic trawl buoys, and other debris on North Bight Beach, Buldir Island, Aleutians, Alaska (some 1,550 miles WSW of Anchorage). July 1988*

Rope, trawl net, salmon drift fishing net, floats, and other plastic debris on North Bight Beach, Buldir Island, Aleutians, Alaska. July 1988

Bull Steller's sea lion, weighing approximately 2,000 pounds, with strapping-band entanglement scar, Northwest Point Beach, Buldir Island, Aleutians. July 1988

Dead glaucous-winged gull on section of trawl fishing net, North Bight Beach, Buldir Island, Aleutians, Alaska July 1988

HCR

6

STATE OF ALASKA
THE LEGISLATURE

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Mary Van Nimwegen

HCR 6

Joint Senate Res. and International Trade and Tourism 2/3/89

Bill/Resolution History 02:04 PM 05/17/90 Page 1
BILL: HCR 6
NAME: SCS HCR 6(ITT)
TITLE: Supporting the development of coal mining at Wishbone Hill.

PRIME SPONSOR: MENARD
CO-SPONSOR: LARSON,ZAWACKI,GRUENBERG,LEMAN,NAVARRE FOSTER

CURRENT STATUS: LEGIS RESOLVE 37 STATUS DATE: 06/13/89

Selection=>
PF1 PF2 PF3 PF4 PF5 PF6 PF7 PF8 PF9 PF10 PF11 PF12
HELP SUBJ EXIT MENU TEXT PRINT BWD FWD FIRST LAST QUIT
HCR 6 Bill/Resolution Floor Action Page 2 of 3
Current Status: LEGIS RESOLVE 37

	Jrn-Date	Jrn-Page		Action
1	01/20/89	134	(H)	READ THE FIRST TIME - REFERRAL(S)
2	01/20/89	134	(H)	RESOURCES
3	01/25/89	172	(H)	CO-SPONSOR ADDED: LEMAN
4	02/01/89	216	(H)	RES RPT 7DP 1NR
5	02/01/89	216	(H)	ZERO FISCAL NOTE (H.RES) 2/1/89
6	02/01/89	216	(H)	RULES TO CALENDAR 2/1/89
7	02/01/89	224	(H)	READ THE SECOND TIME
8	02/01/89	224	(H)	PASSED Y37 N- X2 A1 HCR 6
9	02/01/89	225	(H)	CO-SPONSOR ADDED: NAVARRE, FOSTER
10	02/01/89	227	(H)	TRANSMITTED TO (S)
11	02/02/89	274	(S)	READ THE FIRST TIME - REFERRAL(S)
12	02/02/89	274	(S)	ITT, THEN RESOURCES, FINANCE
13	02/03/89	313	(S)	REFERRALS REVERSED: RES, THEN ITT, FIN
14	02/03/89	315	(S)	RES WAIVED RULE 23
15	02/06/89	329	(S)	RES RPT 5DP
16	02/06/89	329	(S)	PREVIOUS ZERO FN (H.RES)
17	03/20/89	862	(S)	ITT RPT SCS 3DP 1NR SAME TITLE
18	03/20/89	863	(S)	ZERO FN TO SCS PUBLISHED (H.RES)

Selection=>
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HELP SUBJ EXIT MENU TEXT PRINT BWD FWD CMT/JRNL FIRST LAST QUIT
BASIS Journal Text

02/06/89 SENATE JOURNAL PAGE 0329

HCR 6

The Resources Committee considered HOUSE CONCURRENT RESOLUTION NO. 6 (Supporting the development of coal mining at Wishbone Hill) and a majority of the committee recommended do pass. The report was signed by Senator Fahrenkamp, Chair, and concurred in by Senators Halford, Frank, Eliason and Sturgulewski.

Previous zero fiscal note published in _House Journal_ on 2/1/89 from the House Resources Committee applies to the resolution.

HOUSE CONCURRENT RESOLUTION NO. 6 was referred to the Senate Special Committee on International Trade and Tourism.

Selection=> B005-LAST PAGE
PF1 PF2 PF3 PF4 PF5 PF6 PF7 PF8 PF9 PF10 PF11 PF12
HELP EXIT MENU PRINT BWD FWD FIRST LAST QUIT

J- HCR 6
(Res)

ASCC

ALASKA STATE CHAMBER OF COMMERCE
310 Second Street
Juneau, Alaska 99801
(907) 586-2323

FEB 7 1989

FEB 7 1989

DATE: February 3, 1989

TO: Address List

FROM: George Krusz, President

SUBJECT: Resolution supporting Alaska Minerals Commission Report (and Wishbone Hill development)

Enclosed are resolutions adopted by the Alaska State Chamber regarding the Alaska Minerals Commission report presented to the Governor, January 13, 1989, and Glenn Highway improvements for Wishbone Hill coal development.

ASCC

ALASKA STATE CHAMBER OF COMMERCE
310 Second Street
Juneau, Alaska 99801
(907) 586-2323

Alaska State Chamber of Commerce

Resolution

Whereas, A East Asian Market for Wishbone Hill Coal in the Matanuska Valley has been identified for 1991, and,

Whereas, exploration, feasibility, and permitting work has progressed on schedule to meet this schedule and,

Whereas, Idemitsu Kosan Company has invested in this project to provide 155 jobs in the Matanuska Valley, and to favorably affect the balance of trade between USA and Japan, and,

Whereas, the stumbling block to this project is an 8 mile stretch of road between Palmer and Sutton on the Glenn Highway and,

Whereas, Idemitsu Kosan is willing to compensate the State of Alaska for coal transportation related improvements to this section of road, if the State of Alaska/DOT will upgrade this road.

Be it therefore resolved that the Alaska State Chamber of Commerce strongly supports the timely improvement of the affected portion of the Glenn Highway, in order that the coal may reach market in 1991.

Adopted this 17th day of December, 1988 at Anchorage, Alaska by the Alaska State Chamber Board of Directors.

Dave Heatwole
Chairman of the Board

George Kensz
President

ALASKA STATE CHAMBER OF COMMERCE
310 Second Street
Juneau, Alaska 99801
(907) 586-2323

ALASKA STATE CHAMBER OF COMMERCE

RESOLUTION

Whereas, the Governor and the 15th Alaska State Legislature mandated the Alaska Minerals Commission to recommend policy and legislative initiatives which would strengthen Alaska's mineral industry and,

Whereas, the Alaska Minerals industry has the potential to grow more rapidly than other segments of Alaska's economy and,

Whereas, the Alaska Minerals Commission in its prior two years of existence has diligently pursued its mandate.

Now therefore be it resolved that the Alaska State Chamber of Commerce endorses and supports the recommendations contained in the Alaska Minerals Commission report presented to the Governor and 16th Alaska State Legislature on Friday January 13, 1989.

Dated this 17th day of January 1989

Dave Heatwole
Chairman of the Board

George Krusz
President

f. HCR 6
(Resources)

SENATOR FRED F. ZHAROFF
ALASKA STATE LEGISLATURE

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February 6, 1989

FEB 10 1989

MEMORANDUM

TO: SENATOR JAY KERTULLA

FROM: SENATOR FRED F. ZHAROFF

RE: WISHBONE HILL COAL DEVELOPMENT

I followed the discussion on the Wishbone Hill Coal Development project we held in the Special Committee on International Trade and Tourism very closely last week, especially the option of running a longer rail connection as opposed to upgrading the Glenn Highway. It sounded to me as though several people were quite interested in the railroad option. Considering the profits the Alaska Railroad Corporation is generating (see attached article) I am wondering if the Alaska Railroad may not be interested in supporting the construction of additional track to the Wishbone Hill site themselves or in conjunction with other agency funds.

According to AS 42.40.290, the Railroad Corporation has been organized to prepare long range capital improvement plans. Perhaps this kind of project which, according to testimony we heard from Mr. David Germer representing Idemitsu Kosan, would generate 12 to 14 years worth of activity, should be more closely investigated by the Alaska Railroad Corporation.

I recognize that time is an important factor in this project, however, I hope that we continue to give further thought to the railroad option.

CC: Senators Fahrenkamp and Syzmanski

Railroad's profit at $5.8 million

ADN 4/31/89

A surge in freight revenues and a sharp drop in expenses helped the Alaska Railroad post a $5.8 million profit in 1988.

Nearly 10 percent of the profits — $620,000 — was distributed to employees as year-end bonuses, according to Marvin Yetter.

The railroad's 500 employees had taken pay cuts of 10 percent for seven months of 1987, and deserved to share in 1988's prosperity, said Frank Turpin, the railroad's president, in an earlier interview.

The profits also will help the corporation reduce borrowing and finance major road bed and track improvements, Yetter said.

The profits resulted, in part, from a 14 percent increase in freight revenues. In earlier interviews, railroad officials said oil-field freight, pipe, coal, log and hazardous waste shipments all increased compared to 1987.

But cost-cutting also played a role.

The railroad is owned by the state, which took over operations from the federal government in January 1985. Since then, the railroad has cut $10 million from its annual budget.

Yetter said he expects the railroad's 1989 to be "every bit as good as 1988."

HCR 11

Bill/Resolution History 02:06 PM 05/17/90 Page 1
BILL: HCR 11
NAME:
TITLE: Supporting a land trade between the Seldovia Native Association and the state.

PRIME SPONSOR: NAVARRE
CO-SPONSOR: SWACKHAMMER,LEMAN

CURRENT STATUS: (S) CRA STATUS DATE: 05/06/89

Selection=> _____
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HELP SUBJ EXIT MENU TEXT PRINT BWD FWD FIRST LAST QUIT
BASIS Journal Text

05/04/89 SENATE JOURNAL PAGE 1656
HCR 11

HOUSE CONCURRENT RESOLUTION NO. 11 by Representatives Navarre, Swackhammer and Leman,

Supporting a land trade between the Seldovia Native Association and the state.

was read the first time and referred to the Resources Committee.

Selection=> _____ B005-LAST PAGE
PF1 PF2 PF3 PF4 PF5 PF6 PF7 PF8 PF9 PF10 PF11 PF12
HELP EXIT MENU PRINT BWD FWD FIRST LAST QUIT
BASIS Journal Text

05/05/89 SENATE JOURNAL PAGE 1689
HCR 11

The Resources Committee considered HOUSE CONCURRENT RESOLUTION NO. 11 (Supporting a land trade between the Seldovia Native Association and the state). Senator Fahrenkamp, Chair, and Senator Sturgulewski signed "do pass." Senators Halford, Zharoff and Frank signed "no recommendation."

Previous House zero fiscal note.

HOUSE CONCURRENT RESOLUTION NO. 11 was referred to the Rules Committee.

Selection=> _

STATE OF ALASKA
1989 LEGISLATIVE SESSION

BILL VERSION: HCR 11
PUBLISH DATE: _____

FISCAL NOTE

REQUEST: _____

Revision Date: _____
Title: Land Trade:Seldovia Native Assn & State
Sponsor: Rep. Navarre,Swackhammer
Requestor: House Resources Committee

Agency Affected: DNR
BRU: _____
Component: _____

EXPENDITURES/REVENUES: (Thousands of Dollars)

OPERATING	FY 89	FY 90	FY 91	FY 92	FY 93	FY 94
PERSONAL SERVICES	-0-	-0-	-0-	-0-	-0-	-0-
TRAVEL	-0-	-0-	-0-	-0-	-0-	-0-
CONTRACTUAL	-0-	-0-	-0-	-0-	-0-	-0-
SUPPLIES	-0-	-0-	-0-	-0-	-0-	-0-
EQUIPMENT	-0-	-0-	-0-	-0-	-0-	-0-
LAND & STRUCTURES	-0-	-0-	-0-	-0-	-0-	-0-
GRANTS, CLAIMS	-0-	-0-	-0-	-0-	-0-	-0-
MISCELLANEOUS	-0-	-0-	-0-	-0-	-0-	-0-
TOTAL OPERATING	-0-	-0-	-0-	-0-	-0-	-0-
CAPITAL	-0-	-0-	-0-	-0-	-0-	-0-
REVENUE	-0-	-0-	-0-	-0-	-0-	-0-

FUNDING: (Thousands of Dollars)

GENERAL FUND	-0-	-0-	-0-	-0-	-0-	-0-
FEDERAL FUNDS	-0-	-0-	-0-	-0-	-0-	-0-
OTHER	-0-	-0-	-0-	-0-	-0-	-0-
TOTAL	-0-	-0-	-0-	-0-	-0-	-0-

POSITIONS:

FULL-TIME	-0-	-0-	-0-	-0-	-0-	-0-
PART-TIME	-0-	-0-	-0-	-0-	-0-	-0-
TEMPORARY	-0-	-0-	-0-	-0-	-0-	-0-

ANALYSIS : (Attach a separate page if necessary)

Prepared by: House Resources Committee Phone: 465-4944
Division: Representative Curt Menard, Chairman Date: 4/19/89

Approved by Commissioner: _____ Date: _____
Agency: _____

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