

APPENDIX G

**DETAILED COSTS ASSOCIATED
WITH RECOMMENDATIONS
OF THE U.S. COMMISSION
ON OCEAN POLICY**

Detailed Costs Associated with Recommendations of the U.S. Commission on Ocean Policy

Listed below are the estimated new costs, in millions of dollars, required to implement each recommendation in this report. In some cases, all or part of the cost of a recommendation is included under another recommendation (indicated with an asterisk). For example, the costs of new research efforts called for throughout the report are all included in recommendation 25–1. In addition, some recommendations (indicated with a pound sign) include costs that are beyond the scope of the proposed Ocean Policy Trust Fund. These are typically high cost actions of broad national concern that do not apply exclusively to ocean and coastal issues. An example of this type of activity is the modernization of the nationwide wastewater and drinking water infrastructure.

Rec.		1st Year Costs	Ongoing Annual Costs	Comments
Chapter 01: Recognizing Ocean Assets and Challenges				
	no recommendations	N/A	N/A	
Chapter 02: Understanding the Past to Shape a New National Ocean Policy				
	no recommendations	N/A	N/A	
Chapter 03: Setting the Nation's Sights				
	no recommendations	N/A	N/A	
Chapter 04: Enhancing Ocean Leadership and Coordination				
4–1	create the National Ocean Council, the Assistant to the President (1 FTE), and the President's Council of Advisors on Ocean Policy (travel)	\$0.162	\$0.324	
4–2	define duties for the National Ocean Council	min	min	
4–3	promote ecosystem-based management approaches	min	min	
4–4	define duties for the Assistant to the President	min	min	
4–5	define duties for the President's Council of Advisors on Ocean Policy	min	min	
4–6	create the Office of Ocean Policy (10 FTEs and budget)	\$0.900	\$1.800	
4–7	create a Committee on Ocean Science, Education, Technology, and Operations	min	min	
4–8	create a Committee on Ocean Resource Management	min	min	
4–9	review ocean-related councils and commissions	min	min	
	Chapter 4 Total	\$1.062	\$2.124	
Chapter 05: Advancing a Regional Approach				
5–1	design and apply a regional ocean council process	\$3.000	\$12.000	\$1M per region
5–2	improve federal agency regional coordination	min	min	
5–3	adopt common federal regions	TBD	TBD	cost will depend on the nature and timing of the transition
5–4	establish regional ocean information programs	\$9.000	\$36.000	\$3M per region
5–5	conduct regional assessments	\$0.750	\$0.750	\$250K per assessment on a four year rotation among regions
5–6	revise NEPA guidelines to incorporate regional ecosystem assessments	min	min	
	Chapter 5 Total	\$12.750	\$48.750	

"TBD" to be determined, indicates that future funds are likely to be required, but the amount can only be determined after further review
 "min" indicates that the cost is either zero or small enough to be absorbed within existing budgets
 * indicates that some or all of the costs are included in another recommendation
 # indicates that some or all of the costs are of national scope and not included in the U.S. Commission on Ocean Policy total
 (\$xx) numbers in parentheses are not included in totals

Detailed Costs Associated with Recommendations of the U.S. Commission on Ocean Policy (continued)

Rec.		1st Year Costs	Ongoing Annual Costs	Comments
Chapter 06: Coordinating Management in Federal Waters				
6-1	select a lead agency for each offshore activity	min	min	
6-2	create a coordinated offshore management regime (10 FTEs and budget)	\$0.900	\$1.800	
6-3	design marine protected area guidelines	min	min	
6-4	implement and assess marine protected areas	\$6.000	\$20.000	
	Chapter 6 Total	\$6.900	\$21.800	
Chapter 07: Strengthening the Federal Agency Structure				
7-1	establish an Organic Act for NOAA	min	min	
7-2	review NOAA's budget within OMB's Natural Resources Programs directorate	min	min	
7-3	review ocean and coastal programs and recommend opportunities for consolidation	min	min	
7-4	authorize presidential reorganization authority	min	min	
7-5	consider long-term reorganization of federal resource agencies	min	min	
	Chapter 7 Total	\$0.000	\$0.000	
Chapter 08: Promoting Lifelong Ocean Education				
8-1	create Ocean.ED (small staff and budget)	\$0.900	\$1.800	
8-2	establish the Ocean.ED budget as a line item in NOAA	min	min	NOAA line item would include funds to support Recs. 8-1, 8-4, 8-7, 8-8, 8-9, and 8-17
8-3	strengthen ocean education in NOAA, NSF, NASA, and ONR	\$10.000	\$20.000	
8-4	evaluate K-12 programs (grants and workshops)	\$0.500	\$2.040	
8-5	triple the number of Centers for Ocean Science Education Excellence	\$0.000	\$29.100	\$1.5M per year for existing and new centers
8-6*	increase Sea Grant education efforts	*	*	* funds included in Rec. 25-4
8-7	coordinate K-12 materials to meet existing education standards (grants)	\$0.000	\$1.000	
8-8	establish researcher/educator collaborations (grants)	\$0.000	\$10.000	
8-9	promote ocean experiences outside school (traveling exhibits and grants)	\$11.000	\$3.000	larger first year costs cover the creation of traveling exhibits
8-10	support undergraduate ocean science course development and implementation (grants)	\$0.000	\$5.000	
8-11*	promote development of the ocean workforce	*	*	* funds included in Recs. 8-13, 8-14, and 8-15
8-12	establish an ocean workforce database with regular reporting and convene periodic summit meetings	\$0.500	\$2.000	
8-13	enhance NOAA support for undergraduates, graduate students, and postdoctoral fellows	\$0.000	\$18.000	
8-14	enhance NSF support for undergraduates, graduate students, and postdoctoral fellows	\$0.000	\$18.000	
8-15	reinvigorate ONR support for graduate students	\$0.000	\$10.000	
8-16	promote diversity in the ocean-related workforce (stipends)	\$1.000	\$3.930	
8-17	promote community education (grants)	\$1.250	\$12.500	
	Chapter 8 Total	\$25.150	\$136.370	

"TBD" to be determined, indicates that future funds are likely to be required, but the amount can only be determined after further review
 "min" indicates that the cost is either zero or small enough to be absorbed within existing budgets
 * indicates that some or all of the costs are included in another recommendation
 # indicates that some or all of the costs are of national scope and not included in the U.S. Commission on Ocean Policy total
 (\$xx) numbers in parentheses are not included in totals

Detailed Costs Associated with Recommendations of the U.S. Commission on Ocean Policy (continued)

Rec.		1st Year Costs	Ongoing Annual Costs	Comments
Chapter 09: Managing Coasts and Their Watersheds				
9-1	strengthen the Coastal Zone Management Act	\$35,000	\$95,000	
9-2	consolidate area-based programs	min	min	
9-3	discourage growth in fragile areas	min	min	
9-4	support watershed initiatives	\$20,000	\$60,000	
	Chapter 9 Total	\$55,000	\$155,000	
Chapter 10: Guarding People and Property Against Natural Hazards				
10-1	review and improve the USACE Civil Works Program	TBD	TBD	cost will depend on the nature of the changes
10-2	improve hazards-related data collection	TBD	TBD	costs to be determined after assessment of needs and capabilities
10-3	recommend changes to the National Flood Insurance Program	min	min	
10-4	support state and local hazards mitigation plans	\$2,500	\$10,000	
	Chapter 10 Total	\$2,500	\$10,000	
Chapter 11: Conserving and Restoring Coastal Habitat				
11-1#	increase coastal and estuarine land conservation funds	\$35,000	\$70,000	# these costs do not cover ongoing flagship projects such as restoration of the Florida Everglades, Louisiana coastline, Chesapeake Bay, and other areas of national significance
11-2	set national and regional goals for habitat conservation and restoration	min	min	
11-3	allow discretion in the use of conservation funds	min	min	
11-4	digitize and update the National Wetlands Inventory	\$5,000	\$5,000	
11-5	coordinate a comprehensive wetlands program	TBD	TBD	costs will depend on the extent of programmatic changes needed
	Chapter 11 Total	\$40,000	\$75,000	
Chapter 12: Managing Sediments and Shorelines				
12-1	develop a national sediment management strategy	min	min	
12-2	adopt ecosystem-based management approaches at USACE	min	min	
12-3	ensure cost/benefit analyses for dredging projects	min	min	
12-4	implement a streamlined, ecosystem-based dredging program	min	min	
12-5*	develop and implement improved sediment research, monitoring, assessments, and technology development	\$12,500	\$72,500	* additional funds for monitoring included in Rec. 15-1 and for research in Rec. 25-1
12-6	review USACE project outcomes	min	min	
12-7*	improve contaminated sediment management, assessments, monitoring, and research	TBD	TBD	* funds for monitoring included in Rec. 15-1 and for research in Rec. 25-1. Costs for improved management will depend on the methods available.
	Chapter 12 Total	\$12,500	\$72,500	

"TBD" to be determined, indicates that future funds are likely to be required, but the amount can only be determined after further review
"min" indicates that the cost is either zero or small enough to be absorbed within existing budgets
* indicates that some or all of the costs are included in another recommendation
indicates that some or all of the costs are of national scope and not included in the U.S. Commission on Ocean Policy total
(\$xx) numbers in parentheses are not included in totals

Detailed Costs Associated with Recommendations of the U.S. Commission on Ocean Policy (continued)

Rec.		1st Year Costs	Ongoing Annual Costs	Comments
Chapter 13: Supporting Marine Commerce and Transportation				
13-1	designate DOT as the lead agency for marine transportation	min	min	
13-2	codify the Interagency Committee for the Marine Transportation System	min	min	
13-3#	create a national freight strategy to plan and implement intermodal projects	TBD	TBD	# the new strategy will help determine the extent of intermodal improvements needed. These costs would not be covered by the Ocean Policy Trust Fund.
13-4	analyze and assess short sea shipping	\$1.500	\$0.000	
13-5#	create a national freight flow information collection and analysis program	(\$1M#)	(\$7.05M#)	# these costs are not included in the totals and would not be covered by the Ocean Policy Trust Fund
13-6	incorporate emergency preparedness in the freight flow strategy	min	min	
	Chapter 13 Total	\$1.500	\$0.000	
Chapter 14: Addressing Coastal Water Pollution				
14-1*	require advanced nutrient removal in wastewater and study the impact of chemicals in wastewater	min	min	* additional funds for research included in Rec. 25-1
14-2	provide assistance to improve septic systems	\$0.000	\$2.000	
14-3*	support research and develop best management practices for removal of nutrients and pathogens from agricultural lands	\$0.000	\$2.000	* additional funds for research included in Rec. 25-1
14-4#	maintain and upgrade wastewater and drinking water infrastructure	(\$30B#)	(\$30B#)	# these costs are not included in the totals and would not be covered by the Ocean Policy Trust Fund
14-5	experiment with tradeable credits for nutrients and sediments	min	min	
14-6	modernize the National Pollutant Discharge Elimination System's monitoring and information management and strengthen enforcement (25 new FTEs and budget)	\$2.000	\$4.500	
14-7	coordinate USDA programs aimed at reducing nonpoint source pollution with other agencies	min	min	
14-8	set goals and objectives for reducing nonpoint source pollution	min	min	
14-9	review CZARA section 6217 and CWA section 319 programs and consider consolidation	min	min	
14-10	provide authority for imposing disincentives against programs that degrade water quality	min	min	
14-11	help local governments improve land-use planning to maintain water quality	\$0.000	\$12.500	
14-12*	implement National Pollutant Discharge Elimination System stormwater programs (additional EPA staff plus grants to state and local governments)	\$5.000	\$17.300	* additional funds for monitoring included in Rec. 15-1
14-13	develop regional approaches for reducing atmospheric deposition (EPA staff and grants)	\$3.000	\$12.600	
14-14*	implement international solutions for addressing atmospheric deposition	\$1.000	\$3.000	* additional funds for research included in Rec. 25-1
	Chapter 14 Total	\$11.000	\$53.900	

"TBD" to be determined, indicates that future funds are likely to be required, but the amount can only be determined after further review
"min" indicates that the cost is either zero or small enough to be absorbed within existing budgets
* indicates that some or all of the costs are included in another recommendation
indicates that some or all of the costs are of national scope and not included in the U.S. Commission on Ocean Policy total
(\$xx) numbers in parentheses are not included in totals

Detailed Costs Associated with Recommendations of the U.S. Commission on Ocean Policy (continued)

Rec.		1st Year Costs	Ongoing Annual Costs	Comments
Chapter 15: Creating a National Monitoring Network				
15-1*#	develop a national monitoring network	\$10.000	\$60.000	* additional funds for infrastructure included in Ch. 27 # these costs only include coastal watershed monitoring; the additional funds needed for nationwide monitoring would not be covered by the Ocean Policy Trust Fund
15-2	coordinate the monitoring network with the IOOS	min	min	
15-3	set goals and design elements for national monitoring network	min	min	
	Chapter 15 Total	\$10.000	\$60.000	
Chapter 16: Limiting Vessel Pollution and Improving Vessel Safety				
16-1	encourage industry to adopt improved voluntary measures	min	min	
16-2#	increase safety and environmental inspections (additional staff and budget)	\$25.000	\$65.000	# these incremental new costs do not include the implementation of existing and planned vessel inspection activities, but only enhance the implementation of environmental considerations within these larger activities
16-3	work with the International Maritime Organization to enhance flag state oversight and enforcement	min	min	
16-4	enhance port state control and international vessel information database	min	min	
16-5	establish a new regime for managing wastewater from passenger vessels	\$1.000	\$1.000	
16-6	review and revise the CWA regulations on marine sanitation devices	\$1.500	\$0.000	
16-7	assess and increase the availability of pumpout facilities	\$10.000	\$10.000	
16-8	develop incentives for voluntary reduction of air emissions	min	min	
16-9	ratify MARPOL Annex VI to adopt stricter air emission standards	min	min	
16-10	conduct risk analysis of all oil transportation systems	\$1.500	\$0.000	
16-11	develop policies and plans for places of refuge	min	min	
16-12	reduce air and water pollution from small vessels	\$1.000	\$2.000	
16-13*	study and reduce impacts of vessel pollution	TBD	TBD	* funds for research included in Rec. 25-1. Costs of improvement will depend on the strategies employed.
16-14#	support ocean and coastal management needs while implementing Maritime Domain Awareness	\$0.000	\$10.000	# these incremental new costs do not include the implementation of existing and planned Maritime Domain Awareness activities, but only enhance the implementation of ocean and coastal management needs within these larger activities
	Chapter 16 Total	\$40.000	\$88.000	

"TBD" to be determined, indicates that future funds are likely to be required, but the amount can only be determined after further review

"min" indicates that the cost is either zero or small enough to be absorbed within existing budgets

* indicates that some or all of the costs are included in another recommendation

indicates that some or all of the costs are of national scope and not included in the U.S. Commission on Ocean Policy total

(\$xx) numbers in parentheses are not included in totals

Detailed Costs Associated with Recommendations of the U.S. Commission on Ocean Policy (continued)

Rec.		1st Year Costs	Ongoing Annual Costs	Comments
Chapter 17: Preventing the Spread of Invasive Species				
17-1*	improve the national ballast water management program	min	min	* funds for research included in Rec. 25-1
17-2	review and improve ballast water research and demonstration programs	\$1.500	TBD	first year cost covers a review of existing R&D programs which will then determine the extent of changes needed
17-3	employ existing legal authorities to prohibit imports of invasive species	min	min	
17-4*	coordinate public education and outreach efforts	*	*	* funds included in Rec. 8-17
17-5*	implement early detection and notification plans	\$30.000	\$50.000	* additional funds for monitoring included in Rec. 15-1
17-6	coordinate, consolidate, and improve invasive species programs	TBD	TBD	costs of improvement will depend on the strategies employed
17-7	lead international actions to control invasive species	min	min	
17-8*	coordinate interagency research and monitoring to address invasive species	*	*	*funds for monitoring included in Rec. 15-1 and for research in Rec. 25-1
	Chapter 17 Total	\$31.500	\$50.000	
Chapter 18: Reducing Marine Debris				
18-1	establish a marine debris management program in NOAA	\$1.000	\$2.000	
18-2	coordinate and implement expanded marine debris control efforts	\$1.000	\$3.000	
18-3	re-establish an interagency marine debris committee	min	min	
18-4	develop an international plan of action for addressing derelict fishing gear	min	min	
18-5	create incentives to dispose of derelict fishing gear	min	min	
18-6	ensure availability of adequate port reception facilities	min	min	
	Chapter 18 Total	\$2.000	\$5.000	
Chapter 19: Achieving Sustainable Fisheries				
19-1	expand the role of SSCs (SSC stipends)	\$3.600	\$7.200	
19-2	require SSCs to supply needed information	min	min	
19-3	set harvest levels at or below allowable biological catch	min	min	
19-4	ensure peer review of SSC findings	\$0.400	\$1.600	
19-5	set deadline for SSCs to determine allowable biological catch	min	min	
19-6	require that proposed fishery management plans be submitted with enough time for sufficient review	min	min	
19-7	develop and communicate annual RFMC information needs	min	min	
19-8	require licenses for saltwater anglers to improve data collection	min	min	
19-9	expand cooperative fishery research	\$3.000	\$10.000	
19-10	develop new statutory authority to support the Gulf States and Pacific States Fisheries Management Commissions	\$3.000	\$7.500	
19-11	designate lead authorities for interjurisdictional fisheries	min	min	
19-12	require governors to submit a broad slate of candidates for vacant RFMC seats	min	min	

"TBD" to be determined, indicates that future funds are likely to be required, but the amount can only be determined after further review
"min" indicates that the cost is either zero or small enough to be absorbed within existing budgets
* indicates that some or all of the costs are included in another recommendation
indicates that some or all of the costs are of national scope and not included in the U.S. Commission on Ocean Policy total
(\$xx) numbers in parentheses are not included in totals

Detailed Costs Associated with Recommendations of the U.S. Commission on Ocean Policy (continued)

Rec.		1st Year Costs	Ongoing Annual Costs	Comments
Chapter 19 (continued): Achieving Sustainable Fisheries				
19-13	give the NOAA Administrator responsibility for appointing RFMC members	min	min	
19-14	require all new RFMC members to complete a training course (new course developed, course offered 4 times/year, participant travel)	\$0.650	\$0.250	
19-15	authorize RFMC use of dedicated access privileges	min	min	
19-16	repeal programs that encourage overcapitalization of fishing fleets and take steps to permanently reduce fishing capacity	TBD	TBD	costs to permanently reduce fishing capacity will depend on the strategies employed
19-17	increase funding for Joint Enforcement Agreements	\$6.000	\$12.000	
19-18	strengthen cooperative fishery enforcement efforts	\$0.300	\$0.300	
19-19	require Vessel Monitoring Systems on all fishing boats	min	min	
19-20	integrate the Vessel Monitoring System database into the larger maritime operations database	min	min	
19-21*	improve essential fish habitat designations	\$5.000	\$15.000	* additional funds for research included in Rec. 25-1
19-22	develop and implement regional bycatch reduction plans	\$5.000	\$30.000	
19-23	expand the NMFS program in conservation engineering	\$1.000	\$2.000	
19-24	encourage all countries to ratify the Fish Stocks Agreement and the UN FAO Compliance Agreement	min	min	
19-25	review and update regional and bilateral fishery agreements; fully fund U.S. fisheries treaty commitments	\$1.000	\$2.000	
19-26	implement International Plans of Action in the United States	TBD	TBD	costs to implement the U.S. plan will depend on its scope
19-27	improve implementation of international treaties	TBD	TBD	costs of implementation will depend on the strategies employed
Chapter 19 Total		\$28.950	\$87.850	
Chapter 20: Protecting Marine Mammals and Endangered Marine Species				
20-1	require the Marine Mammal Commission to coordinate with the National Ocean Council	min	min	
20-2	place the protection of all marine mammals within the jurisdiction of NOAA	min	min	
20-3	improve coordination between NMFS and USFWS with respect to the Endangered Species Act	min	min	
20-4	expand cooperative agreements with states under Section 6 of the Endangered Species Act	\$1.000	\$4.000	
20-5	clarify Marine Mammal Protection Act permitting	min	min	
20-6	revise the Marine Mammal Protection Act definition of harassment	min	min	
20-7	implement programmatic permitting under the MMPA (6 new FTEs and budget)	\$1.000	\$2.000	
20-8*	examine and mitigate the effects of human activities on marine mammals and endangered species	\$5.000	\$10.000	* additional funds for research included in Rec. 25-1
20-9*	expand research on ocean acoustics and the potential impacts on marine species	(\$10M*)	(\$20M*)	* this entire research budget is included in Rec. 25-1
20-10	improve international efforts	min	min	
Chapter 20 Total		\$7.000	\$16.000	

"TBD" to be determined, indicates that future funds are likely to be required, but the amount can only be determined after further review
"min" indicates that the cost is either zero or small enough to be absorbed within existing budgets
* indicates that some or all of the costs are included in another recommendation
indicates that some or all of the costs are of national scope and not included in the U.S. Commission on Ocean Policy total
(\$xx) numbers in parentheses are not included in totals

Detailed Costs Associated with Recommendations of the U.S. Commission on Ocean Policy (continued)

Rec.		1st Year Costs	Ongoing Annual Costs	Comments
Chapter 21: Preserving Coral Reefs and Other Coral Communities				
21-1*	establish a Coral Protection and Management Act to enhance research, protection, management, and restoration of coral ecosystems	\$5.000	\$20.000	* additional funds for research included in Rec. 25-1
21-2	codify and strengthen the U.S. Coral Reef Task Force	min	min	
21-3*	designate NOAA as the lead agency for managing cold-water corals	\$1.000	\$3.000	* additional funds for research included in Rec. 25-1
21-4	develop standards for the sustainable harvest of coral reef resources	\$1.200	\$2.200	
21-5	develop regional, ecosystem-based research plans	min	min	
	Chapter 21 Total	\$7.200	\$25.200	
Chapter 22: Setting a Course for Sustainable Marine Aquaculture				
22-1	designate NOAA as the lead agency for marine aquaculture and create an Office of Sustainable Marine Aquaculture in NOAA (3 new FTEs and budget)	\$1.000	\$2.000	
22-2	develop a comprehensive aquaculture permitting, leasing, and regulatory program	min	min	
22-3*	expand marine aquaculture research, development, training, extension, and technology transfer	\$2.000	\$5.000	* additional funds for research included in Rec. 25-1
22-4	work with the UN FAO to encourage and facilitate international standards	min	min	
	Chapter 22 Total	\$3.000	\$7.000	
Chapter 23: Connecting the Oceans and Human Health				
23-1*	expand research and development on marine bioproducts	*	*	* included in Rec. 23-4
23-2*	expand research on marine microbiology and virology	*	*	* included in Rec. 23-4
23-3*	support development of technologies to detect pathogens and toxins	*	*	* included in Rec. 23-4
23-4*	establish an expanded Oceans and Human Health Initiative	(\$10M*)	(\$14M*)	* this entire research budget is included in Rec. 25-1
23-5*	fully implement programs to ensure seafood safety and coastal water quality	\$2.000	\$10.000	* cost shown here covers expanded seafood monitoring; costs of improving and monitoring water quality are included in Chapters 14 and 15
	Chapter 23 Total	\$2.000	\$10.000	
Chapter 24: Managing Offshore Energy and Other Mineral Resources				
24-1*	provide a portion of OCS revenues to states for conservation and sustainable development of renewable resources	*	*	* included in Rec. 30-1
24-2*	expand the MMS Environmental Studies Program	(\$12M*)	(\$38M*)	* this entire research budget is included in Rec. 25-1
24-3	include the oil and gas industry as partners in developing and implementing the IOOS	min	min	
24-4	review the status of methane hydrates research and development	TBD	TBD	future investments in methane hydrates research and development will depend on the outcome of the review

"TBD" to be determined, indicates that future funds are likely to be required, but the amount can only be determined after further review

"min" indicates that the cost is either zero or small enough to be absorbed within existing budgets

* indicates that some or all of the costs are included in another recommendation

indicates that some or all of the costs are of national scope and not included in the U.S. Commission on Ocean Policy total

(\$xx) numbers in parentheses are not included in totals

Detailed Costs Associated with Recommendations of the U.S. Commission on Ocean Policy (continued)

Rec.		1st Year Costs	Ongoing Annual Costs	Comments
Chapter 24 (continued): Managing Offshore Energy and Other Mineral Resources				
24-5	enact legislation to manage offshore renewable energy development (additional staff and budget)	\$0.900	\$1.800	
24-6	identify offshore non-energy mineral resources and examine possible uses (additional staff and budget)	\$1.000	\$7.000	
Chapter 24 Total		\$1.900	\$8.800	
Chapter 25: Creating a National Strategy for Increasing Scientific Knowledge				
25-1	double ocean research funding	\$200.000	\$650.000	includes all of Recs. 20-9, 23-4, 24-2, 25-3, 25-4, and 29-6 and parts of other recommendations in Chapters 12, 14, 16, 17, 19, 20, 21, and 22
25-2	develop a national ocean research strategy	min	min	
25-3*	create a national program for social science and economic research	(\$5M*)	(\$10M*)	* this entire research budget is included in Rec. 25-1
25-4*	expand the National Sea Grant College Program	(\$20M*)	(\$60M*)	* this entire budget is included in Rec. 25-1
25-5	improve federal research funding processes	min	min	
25-6*	expand ocean exploration efforts	\$30.000	\$110.000	* additional funds for infrastructure included in Rec. 27-4
25-7	coordinate and complete federal mapping and charting missions and data integration	\$50.000	\$200.000	
25-8#	re-establish the Office of Technology Assessment (build up to 100 FTEs)	(\$4M#)	(\$18M#)	# these costs are not included in the totals and would not be covered by the Ocean Policy Trust Fund
Chapter 25 Total		\$280.000	\$960.000	
Chapter 26: Achieving a Sustained, Integrated Ocean Observing System				
26-1	make the IOOS a NOC priority	min	min	
26-2	designate Ocean.US as the lead for planning and NOAA as the lead for operating the IOOS	min	min	
26-3	codify Ocean.US (small staff and budget)	\$3.000	\$3.000	
26-4	seek input from ocean and coastal stakeholder communities	min	min	
26-5	specify core variables for IOOS	min	min	
26-6	require plans for transitioning research results to operations	min	min	
26-7	coordinate priorities and schedules for satellite missions	min	min	
26-8	transfer the ongoing operation of Earth observing satellites to NOAA	\$40.000	\$150.000	
26-9*	improve satellite data management at NOAA	*	*	* included in Rec. 26-8
26-10*	create information products based on broad user needs	*	*	* included in Recs. 26-11 and 28-2
26-11	implement the IOOS (including ongoing technology development)	\$188.000	\$600.000	current IOOS implementation plans call for a 5 year ramp-up to full operation
26-12	integrate the IOOS into broader Earth observations	min	min	
26-13	promote international coordination and capacity building	min	min	
Chapter 26 Total		\$231.000	\$753.000	
"TBD"	to be determined, indicates that future funds are likely to be required, but the amount can only be determined after further review			
"min"	indicates that the cost is either zero or small enough to be absorbed within existing budgets			
*	indicates that some or all of the costs are included in another recommendation			
#	indicates that some or all of the costs are of national scope and not included in the U.S. Commission on Ocean Policy total			
(\$xx)	numbers in parentheses are not included in totals			

Detailed Costs Associated with Recommendations of the U.S. Commission on Ocean Policy (continued)

Rec.		1st Year Costs	Ongoing Annual Costs	Comments
Chapter 27: Enhancing Ocean Infrastructure and Technology Development				
27-1	develop a national ocean and coastal infrastructure and technology strategy	min	min	
27-2	create an Office of Technology Transfer in NOAA (small staff and grants)	\$0.900	\$16.800	
27-3	conduct periodic assessments of U.S. ocean and coastal infrastructure and technology	min	min	
27-4	improve science-related infrastructure (includes UNOLS fleet renewal@\$445M over 20 yrs., 2 Coast Guard icebreakers@\$1.2B, ocean drilling ship@\$100M, 2 deep submergence vehicles@\$25M, 2 NOAA fisheries research vessels@\$104M, ocean exploration platforms and equipment@\$160M, renewal of NOAA airfleet@\$264M over 20 yrs., and the modernization of laboratories and other facilities, major instruments, and telecommunications)	\$200.000	\$150.000	these costs cover new construction and upgrades to critical science facilities, estimated at around \$3B over the next 20 years. Actual annual spending levels will depend on the scheduling of these major purchases
27-5#	improve operational ocean and coastal infrastructure (includes Coast Guard fleet@\$17B over 20 yrs., other agencies' fleets, operational satellites, monitoring stations, and other federal facilities)	#	#	# these costs are not included in the totals and would not be covered by the Ocean Policy Trust Fund
27-6	establish virtual marine technology centers (five centers)	\$5.000	\$25.000	
	Chapter 27 Total	\$205.900	\$191.800	
Chapter 28: Modernizing Ocean Data and Information Systems				
28-1	create Ocean.IT (small staff and budget)	\$1.000	\$3.000	
28-2	establish a NOAA/Navy ocean and coastal information management and communications partnership	\$5.000	\$20.000	
28-3	improve access to ocean and coastal data by creating software for data discovery and transport	\$8.000	\$1.000	a total of \$34M will be needed over the first five years for the design and implementation of new software, with lower ongoing operational costs
28-4	establish data reporting requirements and deadlines	min	min	
28-5	review and declassify appropriate Navy oceanographic data	min	min	
28-6	plan for an integrated Earth environmental data system	TBD	TBD	costs of implementing the new system will depend on the strategies employed
	Chapter 28 Total	\$14.000	\$24.000	
Chapter 29: Advancing International Ocean Science and Policy				
29-1	accede to the UN Convention on the Law of the Sea	min	min	
29-2	review ocean-related components of the UN Convention on Biological Diversity	min	min	
29-3	establish an interagency committee within the National Ocean Council focused on international ocean policy	min	min	
29-4	assess emerging international ocean-related management challenges	min	min	
29-5	improve the State Department's integration of scientific expertise in ocean-related fields (staff training and borrowed personnel)	\$0.900	\$1.950	

"TBD" to be determined, indicates that future funds are likely to be required, but the amount can only be determined after further review

"min" indicates that the cost is either zero or small enough to be absorbed within existing budgets

* indicates that some or all of the costs are included in another recommendation

indicates that some or all of the costs are of national scope and not included in the U.S. Commission on Ocean Policy total

(\$xx) numbers in parentheses are not included in totals

Detailed Costs Associated with Recommendations of the U.S. Commission on Ocean Policy (continued)

Rec.		1st Year Costs	Ongoing Annual Costs	Comments
Chapter 29 (continued): Advancing International Ocean Science and Policy				
29-6*	participate in international ocean science organizations and programs	*	*	* included in Rec. 25-1
29-7	assist U.S. scientists conducting research in international or foreign waters (5 FTEs and budget)	\$0.360	\$0.900	
29-8	enhance ocean science and management capacity in other nations	\$2.000	\$5.000	
	Chapter 29 Total	\$3.260	\$7.850	
Chapter 30: Funding Needs and Possible Sources				
30-1	a) create the Ocean Policy Trust Fund b) provide support for state, territorial, and tribal ocean and coastal responsibilities	min \$500.000	min \$1,000.000	
30-2	compile biennial ocean budget reports	min	min	
	Chapter 30 Total	\$500.000	\$1,000.000	
GRAND TOTAL		\$1,536.072	\$3,869.944	

"TBD" to be determined, indicates that future funds are likely to be required, but the amount can only be determined after further review

"min" indicates that the cost is either zero or small enough to be absorbed within existing budgets

* indicates that some or all of the costs are included in another recommendation

indicates that some or all of the costs are of national scope and not included in the U.S. Commission on Ocean Policy total

(\$xx) numbers in parentheses are not included in totals