

**Calendar No. 573**

111TH CONGRESS }  
2d Session }

SENATE

{ REPORT  
111-296

OCEANS AND HUMAN HEALTH  
REAUTHORIZATION ACT OF 2010

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R E P O R T

OF THE

COMMITTEE ON COMMERCE, SCIENCE, AND  
TRANSPORTATION

ON

S. 1252



SEPTEMBER 20, 2010.—Ordered to be printed

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SENATE COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION

ONE HUNDRED ELEVENTH CONGRESS

SECOND SESSION

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### OCEANS AND HUMAN HEALTH REAUTHORIZATION ACT OF 2010

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Mr. ROCKEFELLER, from the Committee on Commerce, Science, and  
Transportation, submitted the following

### REPORT

[To accompany S. 1252]

The Committee on Commerce, Science, and Transportation, to which was referred the bill (S. 1252) to promote oceans and human health and for other purposes, having considered the same, reports favorably thereon with an amendment (in the nature of a substitute) and recommends that the bill (as amended) do pass.

#### PURPOSE OF THE BILL

The purpose of S. 1252, the Oceans and Human Health Reauthorization Act of 2010, is to promote interagency research to improve our understanding of the role of oceans, coasts, and Great Lakes in human health and to deliver information, products, and services to assist the nation in reducing public health risks and enhancing health benefits from the ocean.

#### BACKGROUND AND NEEDS

Over the last several decades, ocean, coastal, and Great Lakes waters have become conduits for environmental threats to human health. Infectious disease, harmful toxins from algae, and chemical pollutants endanger humans through contact with contaminated seafood, polluted drinking water, and dirty beaches. At the same time, there exists significant and largely unrealized potential for marine plants, animals, and microbes to provide products that benefit human health, such as anti-cancer, anti-inflammatory, and antibiotic medicines. The interactions between oceans, coasts, and Great Lakes and human health are inextricably linked. It is there-

fore important to understand the relationship between environmental stressors, coastal conditions, and human health.

The majority of the world's population lives in coastal areas, and is exposed to potential hazards associated with the marine environment. Humans are vulnerable to health risks in the form of viral, bacterial, protozoal agents and algal toxins in marine ecosystems primarily through the ingestion of contaminated seafood, direct contact with seawater, and sea spray containing toxins. These agents can move through the marine system in several ways. Estuarine, coastal, and ocean basin circulation, tides, and temperatures can affect the distribution and proliferation of disease-causing organisms and their vectors. Human activities contribute to the problem through sewage disposal, nutrient runoff from agriculture and other land uses (sources of Hepatitis A., poliovirus, E.coli, and salmonella in the marine environment), and the transfer of organisms via ballast water (e.g. the marine pathogenic bacteria *Vibrio cholera*). Climate and weather systems can rapidly spread disease through short, dramatic events such as tsunamis, storm surges, and heavy rains and winds. These systems can also contribute to long-term oceanic and climatic trends such as El Nino and Pacific Decadal Oscillation.

Diseases are being detected more frequently in marine organisms, and these species can often be used as indicators of the status of contaminants in the marine environment. Algal toxins, viral epizootics, and other toxins can impact marine mammals and cause increased mortality, reproductive failure, and depression of the immune system. These impacts can be useful indicators of marine ecological health as a whole. The mechanisms of disease within these organisms may also be studied and evaluated to determine similar mechanisms in humans, and to develop potential treatments.

The rich biodiversity in the marine environment represents an important biomedical resource, a promising source of novel compounds with therapeutic potential, and a potentially significant contribution to the national economy. Virtually every type of life that exists on this planet is found in the sea and many types of plants and animals are exclusively found in the marine environment. While the oceans are a repository for much of our biodiversity, little of it has been catalogued or studied. We have only begun to explore the potential of marine organisms to produce chemicals for treating diseases. Historically, microorganisms are the most prolific sources for new drugs and the marine environment is a major, untapped resource for bacteria and other microorganisms. Some studies of marine organisms have sparked new areas of investigation in cancer research, immunology, inflammatory joint diseases, kidney physiology, and neurochemistry. Currently, at least two anticancer drugs produced by marine microbes are in clinical trials for the treatment of various forms of cancer. Considering the growth in drug-resistant infectious diseases, marine bacteria and fungi may be the next great source of new antibiotics to control human infectious diseases. All of these facts strongly suggest that there is a need for more research in this area.

Studying the impacts of oceans, coasts, and Great Lakes on human health is a relatively new interdisciplinary research field that brings together oceanographers and biomedical researchers to better understand marine processes, reduce public health risks,

and enhance our biomedical capabilities. Pioneering scientists are needed to tackle marine environmental issues that affect both human and marine life, such as ocean pollution, marine pathogens, and potential drug discoveries. In 2004, the U.S. Commission on Ocean Policy called for a coordinated research effort to understand the intersections between oceans and human health. The same year, the Congress passed the Ocean and Human Health Act as part of the Consolidated Appropriations Act, 2005. It established an interagency program to develop a Federal multidisciplinary research program to advance scientific understanding of the connections between oceans and human health, provide useable information for the prediction of marine-related public health problems, and use of biological potential of the oceans for development of new treatments of human diseases and a greater understanding of human biology.

The Act also established the National Oceanic and Atmospheric Administration (NOAA) Ocean and Human Health Initiative (OHHI) to coordinate and implement the agency's research and activities related to the role of the oceans, the coasts, and the Great Lakes in human health. OHHI has begun to explore potential medicines and other products from the sea, and develop ways to enhance the quality of seafood. Working with other Federal agencies and academic partners, the OHHI has also highlighted current and emerging ocean-related health risks, which are in most cases on the rise, or are changing in frequency, intensity, and distribution.

Research in oceans and human health is challenging due to its interdisciplinary and pioneering nature. However, the need to support this field of research is becoming increasingly clear.

#### SUMMARY OF PROVISIONS

S. 1252 would amend and strengthen the Oceans and Human Health Act of 2004 to enhance scientific research, education, and training on the connections between human health and the oceans, the coasts, and the Great Lakes. The bill would direct the President, working through the National Science and Technology Council (NSTC), to deliver information, products, and services to assist the nation in reducing public health risk, and enhancing health benefits from the ocean, coasts, and Great Lakes.

S. 1252 would require the Director of the Office of Science and Technology Policy (OSTP) to revise and update the 2007 Interagency Oceans and Human Health Research Implementation Plan within two years after the date of enactment and every five years afterwards. The updated Plan would define the roles of Federal agencies and departments in order to avoid duplication of activities and coordinate efforts in support of the Interagency Oceans and Human Health Research Program; establish the goals and priorities for Federal research for a 10-year period, including specific activities required to achieve the goals and priorities; and estimate funding needed for the program. The Plan would build on and complement the ongoing research, surveillance, and outreach activities of NOAA, the National Science Foundation, the National Institutes of Health (including the National Institute of Environmental Health Sciences), the Center for Disease Control and Prevention, and the Environmental Protection Agency.

The bill would focus the scope of the interagency program on (1) supporting interdisciplinary research among the ocean, atmospheric, and medical sciences, and coordinated research and activities to improve understanding of processes within the ocean that may affect human and marine animal health; (2) coordinating Federal agencies' research and activities to ensure that any integrated ocean and coastal observing system provides information necessary to monitor and reduce marine public health problems; (3) developing new technologies and approaches for detecting and reducing hazards to human health from ocean sources through partnerships among Federal agencies, States, academic institutions, or non-profit research organizations; and (4) supporting educational opportunities that encourage an interdisciplinary and international approach to exploring the diversity of life in the oceans.

The Director of OSTP, through the NSTC, would be required to submit a biennial report to the President and Congress that summarizes the achievement of Federal oceans and human health research, provides an analysis of the progress made towards achieving the goals and objects of the implementation research plan, provides a budget summary for oceans and human health activities, and recommends actions, funding needs, or legislation necessary to achieve the purposes of the Act.

S. 1252 would authorize the Secretary of Commerce to establish an Oceans and Human Health Program (OHHP) at NOAA. The Program would be responsible for coordinating and implementing NOAA's research and activities related to the role of the oceans, the coasts, and the Great Lakes in human health. The bill would require the Secretary to coordinate NOAA's OHHP activities with other Federal agencies. It also would direct the Secretary to develop a strategic implementation plan with defined goals and benchmarks for the OHHP, including transitioning research into program operations and applications.

The bill would reauthorize NOAA's competitive extramural research grant program, training, and distinguished scholars programs. The bill would authorize \$60 million for each of fiscal years 2010 through 2014.

#### LEGISLATIVE HISTORY

Senator Rockefeller introduced the Oceans and Human Health Reauthorization Act of 2009 on June 11, 2009. Senators Inouye and Cantwell are cosponsors of the legislation. On June 9, 2009, the Commerce Subcommittee on Oceans, Atmosphere, Fisheries, and the Coast Guard held a hearing entitled "The Blue Economy: The Role of Oceans in our Nation's Economic Future" that addressed the legislation. Witnesses at the hearing discussed the impact of the marine environment on human health and the need for increased research in this field, particularly in the area of marine natural products discovery and commercialization. On March 24, 2010, the Committee met in open executive session and ordered S. 1252 reported with an amendment in the nature of a substitute.

#### ESTIMATED COSTS

In accordance with paragraph 11(a) of rule XXVI of the Standing Rules of the Senate and section 403 of the Congressional Budget

Act of 1974, the Committee provides the following cost estimate, prepared by the Congressional Budget Office:

APRIL 6, 2010.

Hon. JOHN D. ROCKEFELLER IV,  
*Chairman, Committee on Commerce, Science, and Transportation,*  
*U.S. Senate, Washington, DC.*

DEAR MR. CHAIRMAN: The Congressional Budget Office has prepared the enclosed cost estimate for S. 1252, the Oceans and Human Health Reauthorization Act of 2010.

If you wish further details on this estimate, we will be pleased to provide them. The CBO staff contact is Jeff LaFave.

Sincerely,

DOUGLAS W. ELMENDORF.

Enclosure.

*S. 1252—Oceans and Human Health Reauthorization Act of 2010*

Summary: S. 1252 would authorize the appropriation of \$60 million over the 2010–2014 period for research on oceans and human health issues. Those funds would be used by the National Oceanic and Atmospheric Administration (NOAA) to finance an oceans and human health initiative and a public health information and outreach program.

Assuming appropriation of the authorized amounts, CBO estimates that implementing S. 1252 would cost \$57 million over the 2010–2015 period—of which \$4 million stems from an existing appropriation for 2010—and \$3 million after 2015. Pay-as-you-go procedures do not apply to this legislation because it would not affect direct spending or revenues.

S. 1252 contains no intergovernmental or private-sector mandates as defined in the Unfunded Mandates Reform Act (UMRA) and would impose no costs on state, local, or tribal governments.

Estimated cost to the Federal Government: The estimated budgetary impact of S. 1252 is shown in the following table. The costs of this legislation fall within budget function 300 (environment and natural resources).

	By fiscal year, in millions of dollars—						
	2010	2011	2012	2013	2014	2015	2010–2015
SPENDING SUBJECT TO APPROPRIATION							
Spending Under Current Law: <sup>a</sup>							
Budget Authority .....	4	0	0	0	0	0	4
Estimated Outlays .....	3	1	0	0	0	0	4
Proposed Changes:							
Estimated Authorization Level .....	8	12	12	12	12	0	56
Estimated Outlays .....	1	9	12	13	13	5	53
Estimated Spending Under S. 1252:							
Estimated Authorization Level .....	12	12	12	12	12	0	60
Estimated Outlays .....	4	10	12	13	13	5	57

<sup>a</sup> NOAA's Oceans and Human Health Program has already received an appropriation of \$4 million for 2010.

Basis of estimate: For this estimate, CBO assumes that the authorized funds will be appropriated in equal amounts over the 2010–2014 period and that outlays will follow historical spending patterns for similar NOAA programs.

S. 1252 would authorize the appropriation of \$60 million over the 2010–2014 period for NOAA’s Oceans and Human Health Program. Most of those funds would be used to provide grants to public and private research centers and individuals. An additional portion of those funds would be used to fund the collection and dissemination of research findings and other information on the relationship between oceans and human health. Since 2006, appropriations for activities related to the Oceans and Human Health Program have averaged \$4 million a year, including \$4 million in 2010. Assuming appropriation of the authorized amounts, CBO estimates that implementing the legislation would cost an additional \$53 million over the 2010–2015 period and \$3 million after 2015.

Pay-as-you-go considerations: None.

Intergovernmental and private-sector impact: S. 1252 contains no intergovernmental or private-sector mandates as defined in UMRA and would impose no costs on state, local, or tribal governments.

Estimate prepared by: Federal Costs: Jeff LaFave; Impact on State, Local, and Tribal Governments: Ryan Miller; Impact on the Private Sector: Amy Petz

Estimate approved by: Theresa Gullo, Deputy Assistant Director for Budget Analysis.

#### REGULATORY IMPACT STATEMENT

In accordance with paragraph 11(b) of rule XXVI of the Standing Rules of the Senate, the Committee provides the following evaluation of the regulatory impact of the legislation, as reported:

##### NUMBER OF PERSONS COVERED

S. 1252 would promote interagency research to improve our understanding of the role of oceans, coasts, and Great Lakes in human health and to deliver information, products, and services to assist the nation in reducing public health risks, and enhancing health benefits, from the ocean. It does not authorize any new regulations, and therefore would not subject any individuals or businesses to new regulations.

##### ECONOMIC IMPACT

The bill would authorize annual appropriations of \$60 million for each of fiscal years 2010 through 2014 for NOAA and require that not less than 50 percent of the amounts appropriated in each fiscal year to carry out the OHHP be used to support the extramural grant, distinguished training, and scholars programs. These funding levels are not expected to have an inflationary impact on the nation’s economy.

##### PRIVACY

The reported bill would not have any adverse impact on the personal privacy of individuals.

##### PAPERWORK

S. 1252 would not increase paperwork requirements for the private sector.



## CONGRESSIONALLY DIRECTED SPENDING

In compliance with paragraph 4(b) of rule XLIV of the Standing Rules of the Senate, the Committee provides that no provisions contained in the bill, as reported, meet the definition of congressionally directed spending items under the rule.

## SECTION-BY-SECTION ANALYSIS

*Section 1. Short Title; Amendment of Oceans and Human Health Act*

This section would designate the short title of the bill the Oceans and Human Health Reauthorization Act of 2010. The section would also clarify that wherever in the Act an amendment of repeal is expressed in terms of an amendment to, or repeal of, a section or other provision, the reference shall be considered to be made to a section or other provision of the Oceans and Human Health Act (33 U.S.C. 3101 et seq.).

*Section 2. Interagency Oceans and Human Health Research Program*

This section would direct the President, working through NSTC, to coordinate a national interagency research program (interagency program) to improve understanding of the roles of oceans, coasts, and Great Lakes in human health and to deliver information, products and services to assist the Nation in reducing public health risks and enhancing health benefits from the ocean, coasts, and Great Lakes. The NSTC would revise and update the 2007 Interagency Oceans and Human Health Research Implementation Plan within two years after the date of enactment of the Act, and every five years thereafter. The updated Plan would define the roles of Federal agencies and departments in order to avoid duplication of activities and coordinate efforts in support of the research program, and build on the ongoing research, surveillance, and outreach activities of NOAA, the National Institutes of Health (including the National Institutes of Environmental Health Sciences), the Centers for Disease Control and Prevention, and the U.S. Environmental Protection Agency.

The updated Plan would (1) establish, for a 10-year period, the goals and priorities for the interagency program; (2) describe activities required to achieve such goals and priorities; (3) identify relevant programs and activities of the Federal agencies and departments that would contribute to the interagency program; (4) identify alternatives for preventing unnecessary duplication of effort among Federal agencies and departments with respect to the program; (5) make recommendations for the coordination of program activities with ocean and human health-related activities of other national and international organizations; and (6) estimate funding needed for research, surveillance, education, and outreach activities to be conducted within and supported by Federal agencies under the program.

This section would define the interagency program's scope to (1) support interdisciplinary research among the ocean, atmospheric, and medical sciences and coordinated research and activities that may affect human and marine animal health and to explore the potential contribution of marine organisms to medicine and research;

(2) coordinate with the appropriate interagency working group(s) of the Joint Subcommittee on Ocean Science and Technology or its successor body, through the NSTC; and (3) develop, through partnerships among Federal agencies, States, academic institutions, or non-profit research organizations, new technologies and approaches for detecting and reducing hazards to human health from ocean sources and to strengthen understanding of the value of marine biodiversity to biomedicine.

This section would require the NSTC to prepare and submit a biennial report on the activities of the interagency program. The biennial report would include: (1) a summary of the achievements of Federal oceans and human health research; (2) an analysis of the progress made toward achieving the goals and objectives of the Implementation Research Plan; (3) a copy of the plan and any changes made in the plan; (4) a summary of agency budgets for oceans and human health activities for the preceding two fiscal years; and (5) any recommendations regarding additional action, funding needs, or legislation that may be required to support the Program.

*Section 3. National Oceanic and Atmospheric Administration  
Oceans and Human Health Program*

This section would direct the Secretary of Commerce to establish the OHHP to coordinate and implement research and activities of NOAA related to the role of the oceans, the coasts, and the Great Lakes in human health. The OHHP would link research programs with operational activities focused on forecasting to provide early warning and prediction of long-term health impacts; surveillance to recognize emerging threats to public health; assessment of risk perception, management, and response; and development of ocean health products and services.

This section would authorize the OHHP to provide support for (1) centralized program and research coordination; (2) an external advisory panel; (3) one or more NOAA national centers of excellence; (4) one or more diagnostic laboratories to provide processing of marine organism samples; (5) transitioning scientific discoveries from research activities into applications; (6) research grants; and (7) distinguished scholars and traineeships.

This section would authorize the Secretary to establish an oceans and human health advisory panel to assist in the development and implementation of the OHHP. It would also reauthorize NOAA's competitive program to support centers of excellence that strengthen NOAA's ability to carry out its oceans and human health programs and activities. The section would clarify that the centers would focus on areas related to the program scope as defined Section 902(c) (33 U.S.C. 3101(c)). Further, this section would reauthorize the OHHP extramural research grants, training program, and distinguished scholarship programs.

The section would authorize the Secretary to execute and perform any contracts, leases, grants, or cooperative agreements that may be necessary to carry out the purposes of the OHHP.

This section would require the OHHP to work with the Integrated Ocean Observing System, the Harmful Algal Blooms and Hypoxia Program, and other NOAA programs to support ocean and human health research.

*Section 4. Public Information and Outreach*

This section would direct the Secretary of Commerce to design and implement a program to disseminate information developed under the OHHP, which will be made available to interested persons and parties.

*Section 5. Authorization of Appropriations*

This section would authorize \$60 million for each of fiscal years 2010 through 2014. This section would require that not less than 50 percent of the amounts appropriated in each fiscal year to carry out the OHHP be used to support the extramural grant, distinguished scholars, and training programs.

*Section 6. Oceans Defined to Include Great Lakes*

This section would amend the Oceans and Human Health Act to include the Great Lakes within the definition of the term “oceans” for purposes of title IX of the Act.

CHANGES IN EXISTING LAW

In compliance with paragraph 12 of rule XXVI of the Standing Rules of the Senate, changes in existing law made by the bill, as reported, are shown as follows (existing law proposed to be omitted is enclosed in black brackets, new material is printed in italic, existing law in which no change is proposed is shown in roman):

OCEANS AND HUMAN HEALTH ACT

**SEC. 902. INTERAGENCY OCEANS AND HUMAN HEALTH RESEARCH PROGRAM.**

[33 U.S.C. 3101]

(a) COORDINATION.—The President, through the National Science and Technology Council, shall coordinate and support a national research program to improve understanding of the role of the [oceans in human health.] *oceans, coasts, and Great Lakes in human health and deliver information, products, and services to assist the Nation in reducing public health risks, and enhancing health benefits, from the ocean.*

[(b) IMPLEMENTATION PLAN.—Within 1 year after the date of enactment of the Act, the National Science and Technology Council, through the Director of the Office of Science and Technology Policy shall develop and submit to the Congress a plan for coordinated Federal activities under the program. Nothing in this subsection is intended to duplicate or supersede the activities of the Inter-Agency Task Force on Harmful Algal Blooms and Hypoxia established under section 603 of the Harmful Algal Bloom and Hypoxia Research and Control Act of 1998 (16 U.S.C. 1451 note). In developing the plan, the Committee will consult with the Inter-Agency Task Force on Harmful Algal Blooms and Hypoxia. Such plan will build on and complement the ongoing activities of the National Oceanic and Atmospheric Administration, the National Science Foundation, and other departments and agencies and shall—]

(b) IMPLEMENTATION PLAN.—*Within 2 years after the date of the enactment of the Oceans and Human Health Reauthorization Act of 2010, and every 5 years thereafter, the National Science and Technology Council, through the Director of the Office of Science and*

*Technology Policy, shall revise and update the 2007 'Interagency Oceans and Human Health Research Implementation Plan' and submit the updated plan to the Congress. The updated Plan shall define the roles of Federal agencies and departments in order to avoid duplication of activities and coordinate efforts in support of the research program. Nothing in this subsection is intended to duplicate or supersede the activities of the Inter-Agency Task Force on Harmful Algal Blooms and Hypoxia established under section 603 of the Harmful Algal Bloom and Hypoxia Research and Control Act of 1998 (16 U.S.C. 1451 note). The updated Plan shall build on and complement the ongoing research, surveillance, and outreach activities of the National Oceanic and Atmospheric Administration, the National Science Foundation, the National Institutes of Health (including the National Institute of Environmental Health Sciences), the Centers for Disease Control and Prevention, the U.S. Environmental Protection Agency, and other Federal departments and agencies, and shall—*

(1) establish, for the 10-year period beginning in the year it is submitted, the goals and priorities for Federal research which most effectively advance scientific understanding of the connections between the oceans and human health, provide usable information for the **prediction** *prediction, surveillance, forecasting, and mitigation* of marine-related public health problems and use the biological *and chemical* potential of the oceans for development of new *products for the prevention and treatments* of human diseases and a greater understanding of human biology;

(2) describe specific activities required to achieve such goals and priorities, including the funding of competitive research grants, ocean and coastal observations, **training and support for scientists, and participation in international research efforts;** *Federal research centers, training, and support for scientists, and participation in national and international research and outreach efforts, including outreach to the medical community and the public;*

(3) identify and address, as appropriate, relevant programs and activities of the Federal agencies and departments that would contribute to the program;

(4) identify alternatives for **preventive** *preventing* unnecessary duplication of effort among Federal agencies and departments with respect to the program;

(5) consider and use, as appropriate, reports and studies conducted by Federal agencies and departments, the National Research Council, the Ocean *Resources* Research Advisory Panel, the Commission on Ocean Policy and other expert scientific bodies;

(6) make recommendations for the coordination of program activities with ocean and human health-related activities of other national and international organizations; and

**[(7) estimate Federal funding for research activities to be conducted under the program.]**

*(7) estimate funding needed for research, surveillance, education, and outreach activities to be conducted within and supported by Federal agencies under the program.*

(c) PROGRAM SCOPE.—The program may include the following activities related to the role of oceans in human health:

【(1) Interdisciplinary research among the ocean and medical sciences, and coordinated research and activities to improve understanding of processes within the ocean that may affect human health and to explore the potential contribution of marine organisms to medicine and research, including—

【(A) vector- and water-borne diseases of humans and marine organisms, including marine mammals and fish;

【(B) harmful algal blooms and hypoxia (through the Inter-Agency Task Force on Harmful Algal Blooms and Hypoxia);

【(C) marine-derived pharmaceuticals;

【(D) marine organisms as models for biomedical research and as indicators of marine environmental health;

【(E) marine environmental microbiology;

【(F) bioaccumulative and endocrine-disrupting chemical contaminants; and

【(G) predictive models based on indicators of marine environmental health or public health threats.

【(2) Coordination with the National Ocean Research Leadership Council (10 U.S.C. 7902(a)) to ensure that any integrated ocean and coastal observing system provides information necessary to monitor and reduce marine public health problems including health-related data on biological populations and detection of contaminants in marine waters and seafood.】

*(1) Interdisciplinary research among the ocean, atmospheric, and medical sciences, and coordinated research and activities to improve understanding of processes within the ocean that may affect human health and to explore the potential contribution of marine organisms to medicine and research, including—*

*(A) vector-, water-, and food-borne diseases of humans and marine organisms, including marine mammals, corals, fish, and shellfish;*

*(B) human health effects associated with harmful algal blooms and hypoxia (in collaboration with the Inter-Agency Task Force on Harmful Algal Blooms and Hypoxia);*

*(C) marine-derived pharmaceuticals and other natural products;*

*(D) marine organisms and habitats as models for biomedical research and as indicators of human health and well being and marine environmental health;*

*(E) marine environmental microbiology linked to human health;*

*(F) human health effects associated with legacy and emerging chemicals of concern, including bioaccumulative and endocrine-disrupting chemical contaminants;*

*(G) predictive models based on indicators of marine environmental health or public health threats; and*

*(H) social, economic, and behavioral studies of relationships between the condition of oceans, coasts, and the Great Lakes and human health and well-being.*

*(2) Coordination with appropriate interagency working groups of the Joint Subcommittee on Ocean Science and Technology, or its successor body, through the National Science and*

*Technology Council, to ensure that any integrated ocean and coastal observing system provides information necessary to monitor and reduce marine public health problems, including climate change information, health-related data on biological populations, and detection of toxins and contaminants in marine waters and seafood.*

(3) Development through partnerships among Federal agencies, States, academic institutions, or non-profit research organizations of new technologies and approaches for detecting and reducing hazards to human health from ocean sources and to strengthen understanding of the value of marine biodiversity to biomedicine, including—

(A) **[genomics and proteomics]** *genomics, proteomics, metabolomics, and other related sciences* to develop genetic and immunological detection approaches and predictive tools and to discover new biomedical resources;

(B) biomaterials and bioengineering;

**[(C) in situ and remote sensors used to detect, quantify, and predict the presence and spread of contaminants in marine waters and organisms and to identify new genetic resources for biomedical purposes;]**

(C) *in situ, laboratory, and remote sensors—*

*(i) to detect, quantify, and predict the presence, distribution, concentration, toxicity, or virulence of infectious microbes, harmful algae, toxins, and chemical contaminants in ocean, coastal, and Great Lakes waters, sediments, organisms, and seafood; and*

*(ii) to identify new genetic resources for biomedical purposes;*

(D) techniques for supplying marine resources, including chemical synthesis, culturing and aquaculturing marine organisms, new fermentation methods and recombinant techniques; and

(E) adaptation of **[equipment and technologies]** *equipment, technologies, and methodologies* from human health fields.

(4) Support for scholars, trainees and education opportunities that encourage an interdisciplinary and international approach to exploring the diversity of life in the oceans.

(d) **[ANNUAL] BIENNIAL REPORT.**—**[Beginning with the first year occurring more than 24 months after the date of enactment of the Act, the]** *The National Science and Technology Council, through the Director of the Office of Science and Technology Policy shall prepare and submit to the President and the Congress not later than January 31st of [each year an annual] alternate years a biennial report on the activities conducted pursuant to this title during the preceding fiscal [year,] years, including—*

(1) a summary of the achievements of Federal oceans and human health research, including Federally supported external research, during the preceding **[fiscal year;] 2 fiscal years;**

(2) an analysis of the progress made toward achieving the goals and objectives of the plan developed under subsection (b), including identification of trends and emerging trends;

(3) a copy or summary of the plan and any changes made in the plan;

(4) a summary of agency budgets for oceans and human health activities for **that preceding fiscal year;** *the preceding 2 fiscal years;* and

(5) any recommendations regarding additional **action** *action, funding needs,* or legislation that may be required to assist in achieving the purposes of this title.

**SEC. 903. NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
OCEANS AND HUMAN HEALTH INITIATIVE.**

[33 U.S.C. 3102]

**[(a) ESTABLISHMENT.—**As part of the interagency oceans and human health research program, the Secretary of Commerce is authorized to establish an Oceans and Human Health Initiative to coordinate and implement research and activities of the National Oceanic and Atmospheric Administration related to the role of the oceans, the coasts, and the Great Lakes in human health. In carrying out this section, the Secretary shall consult with other Federal agencies conducting integrated oceans and human health research and research in related areas, including the National Science Foundation. The Oceans and Human Health Initiative is authorized to provide support for—

**[(1) centralized program and research coordination;**

**[(2) an advisory panel;**

**[(3) one or more National Oceanic and Atmospheric Administration national centers of excellence;**

**[(4) research grants; and**

**[(5) distinguished scholars and traineeships.]**

**(a) ESTABLISHMENT.—**

**(1) IN GENERAL.—***As part of the interagency oceans and human health research program, the Secretary of Commerce shall establish an Oceans and Human Health Program to coordinate and implement research and activities of the National Oceanic and Atmospheric Administration related to the role of the oceans, the coasts, and the Great Lakes in human health. The program shall include linking research programs with operational activities focused on—*

*(A) forecasting to provide early warning and prediction of long-term health impacts;*

*(B) surveillance to recognize emerging threats to public health;*

*(C) assessment of risk perception, management, and response; and*

*(D) developing ocean health products and services.*

**(2) COORDINATION WITH OTHER AGENCIES' EFFORTS.—***The Secretary shall consult with other Federal agencies conducting integrated oceans and human health research and disease surveillance activities and research in related areas, including the National Science Foundation, the National Institutes of Health (including the National Institute of Environmental Health Sciences), the Centers for Disease Control and Prevention, the National Institute of Environmental Health Sciences, the U.S. Environmental Protection Agency, and other agencies and departments. NOAA shall develop a strategic implementation plan with defined goals and benchmarks for the program, including—*

(A) performance measurements to evaluate the effectiveness of the program;

(B) plans to transition research into program operations;

(C) ocean and human health indices to quantify and track their changes over time;

(D) coordination of oceans and human health related programs across NOAA and with partner organizations; and

(E) prioritization of research.

(3) SUPPORT FUNCTION.—*The Oceans and Human Health Program shall provide support for—*

(1) centralized program and research coordination;

(2) an external advisory panel;

(3) one or more National Oceanic and Atmospheric Administration national centers of excellence;

(4) one or more diagnostic laboratories to provide processing of marine organism samples;

(5) transitioning scientific discoveries from research activities into applications;

(6) research grants; and

(7) distinguished scholars and training.

(b) ADVISORY PANEL.—The Secretary is authorized to establish an oceans and human health advisory panel to assist in the development and implementation of the Oceans and Human Health Initiative. Membership of the advisory group shall provide for balanced representation of individuals with multi-disciplinary expertise in the marine and biomedical [sciences.] sciences, including public health professionals, veterinarians, and other health professionals. The Federal Advisory Committee Act (5 U.S.C. App.) shall not apply to the oceans and human health advisory panel.

(c) NATIONAL CENTERS.—

(1) The Secretary is authorized to identify and provide financial support through a competitive process to develop, within the National Oceanic and Atmospheric Administration, [for] one or more centers of excellence that strengthen the capabilities of the National Oceanic and Atmospheric Administration to carry out its programs and activities related to the oceans' role in human health.

[(2) The centers shall focus on areas related to agency missions, including use of marine organisms as indicators for marine environmental health, ocean pollutants, marine toxins and pathogens, harmful algal blooms, hypoxia, seafood testing, identification of potential marine products, and biology and pathobiology of marine mammals, and on disciplines including marine genomics, marine environmental microbiology, ecological chemistry and conservation medicine.]

(2) *The centers shall focus on areas related to agency missions and the program scope (as defined in section 902(c)).*

(3) In selecting centers for funding, the Secretary will give priority to proposals with strong interdisciplinary scientific merit that encourage educational opportunities and provide for effective partnerships among the Administration, other Federal entities, State, academic, non-profit research organizations, medical, and industry participants.

(d) EXTRAMURAL RESEARCH GRANTS.—



(1) The Secretary is authorized to provide grants of financial assistance to the scientific community for critical research and projects that explore the relationship between the oceans and human health and that complement or strengthen programs and activities of the National Oceanic and Atmospheric Administration related to the ocean's role in human health. Officers and employees of Federal agencies may collaborate with, and participate in, such research and projects to the extent requested by the grant recipient. The Secretary shall consult with the oceans and human health advisory panel established under subsection (b) and may work cooperatively with other agencies participating in the interagency program to establish joint criteria for such research and projects.

(2) Grants under this subsection shall be awarded through a competitive peer-reviewed, merit-based process that may be conducted jointly with other agencies participating in the interagency program.

(3) *Grants under this subsection shall support research and activities within the program scope (as defined in section 902(c)).*

[(e) **TRAINEESHIPS.**—] *(e) TRAINING PROGRAM.*—The Secretary of Commerce is authorized to establish a [program to provide traineeships, training,] *competitive program to provide training, exposure, and experience to pre-doctoral and post-doctoral students and to scientists at the beginning of their careers who are interested in the oceans in human health research conducted under the NOAA [initiative.] Ocean and Human Health Program.*

*(f) DISTINGUISHED SCHOLARS.*—*The Secretary of Commerce is authorized to establish a competitive program to recognize highly distinguished external scientists in any area of oceans and human health research and to involve those scientists in collaborative work with the NOAA Oceans and Human Health Program.*

*(g) COOPERATIVE AGREEMENTS.*—*The Secretary of Commerce may execute and perform such contracts, leases, grants, or cooperative agreements as may be necessary to carry out this section.*

*(h) COORDINATION.*—

*(1) INTEGRATED OCEAN OBSERVING SYSTEM.*—*The Secretary shall ensure that the Oceans and Human Health Program and the Integrated Ocean Observing System work together to develop and deploy instruments for sensing and predicting ocean changes linked to health, develop an early warning system that detect biological and chemical indicators, and to support the data management and analysis functions to develop forecasts for ocean conditions that threaten health.*

*(2) HARMFUL ALGAL BLOOMS AND HYPOXIA.*—*The Secretary shall ensure that the Oceans and Human Health Program and Harmful Algal Blooms and Hypoxia Program work together to avoid duplication of activities and coordinate activities.*

*(3) OTHER PROGRAMS.*—*The Secretary shall ensure that the Program also coordinates its efforts across NOAA to support ocean and human health research and programs.*

*(i) REPORT TO CONGRESS.*—*Within 6 months after the date of enactment of the Oceans and Human Health Reauthorization Act of 2010, the Secretary shall report to the Congress on how NOAA*

plans to implement the recommendations of its Science Advisory Board Working Group on Oceans and Health.

(j) **OPERATIONAL PARAMETERS.**—

(1) **IN GENERAL.**—*The Secretary of Commerce shall operate the NOAA Oceans and Human Health Program as an interdisciplinary research, development, and application program spanning the agency and in partnership with the external scientific and health communities.*

(2) **RESOURCES.**—*To achieve this vision and maximize potential for leveraging appropriations, NOAA may—*

(A) *apply for, accept, use, and spend Federal, State, and private funds and in-kind contributions as necessary to further the mission of the program without regard to section 3302(b) of title 31, United States Code, and without regard to the source or of the period of availability of these funds;*

(B) *apply for and hold patents either solely or in partnership with others and receive royalties from patents or licenses; and*

(C) *share personnel and facilities with public and private partners as well as provide and accept reimbursement for the sharing of such personnel and facilities.*

**SEC. 904. PUBLIC INFORMATION AND OUTREACH.**

(a) **IN GENERAL.**—*The Secretary of Commerce, in consultation with other Federal agencies, and in cooperation with the National Sea Grant [program,] program, relevant National Ocean Service and National Marine Fisheries Service programs, and institutions of higher education, shall design and implement a program to disseminate information developed under the NOAA Oceans and Human Health Initiative, including research, assessments, and findings regarding the relationship between oceans and human health, on both a regional and national scale. The information, particularly with respect to potential health risks, shall be made available in a timely manner to appropriate Federal or State agencies, involved industries, and other interested persons through a variety of means, including through the Internet.*

[(b) **REPORT.**—*As part of this program, the Secretary shall submit to Congress an annual report reviewing the results of the research, assessments, and findings developed under the NOAA Oceans and Human Health Initiative, as well as recommendations for improving or expanding the program.*]

(b) **REPORT.**—

(1) **IN GENERAL.**—*As part of this program, the Secretary of Commerce shall submit to Congress a biennial report describing—*

(A) *projects, products, and programs funded under the NOAA Oceans and Human Health Program;*

(B) *the work of the Advisory Panel;*

(C) *how the Program is meeting the goals and objectives of its strategic plan; and*

(D) *any recommendations the Secretary may have for improving or expanding the program.*

(2) **COMBINED REPORTS.**—*The report required by paragraph (1) may be the same as the NOAA input for the interagency report required by section 902(d).*

**SEC. 905. AUTHORIZATION OF APPROPRIATIONS.**

There are authorized to be appropriated to the Secretary of Commerce to carry out the National Oceanic and Atmospheric Administration Oceans and Human Health **[Initiative,] Program**, \$60,000,000 for fiscal years **[2005 through 2008] 2010 through 2014**. Not less than 50 percent of the amounts appropriated to carry out the **[initiative] Program** shall be utilized in each fiscal year to support the extramural **[grant and traineeship] grant, distinguished scholars, and training** programs of the **[Initiative.] Program**.

**SEC. 906. OCEANS DEFINED.**

*In this title, the term "oceans" includes the oceans, the Great Lakes, and the coastal areas appertinent thereto.*

