



## OCEANS & HUMAN HEALTH INITIATIVE

*A Healthy Ocean for Healthy People*



National Oceanic and Atmospheric Administration's (NOAA) Oceans and Human Health Initiative (OHHI) is taking a new look at how the health of our ocean impacts our own health and well-being, and in turn how our actions affect the health of aquatic environments. **The mission of the OHHI is to improve understanding and management of the ocean, coasts and Great Lakes to enhance benefits to human health and reduce public health risks.** The OHHI accomplishes its mission by catalyzing innovative and interdisciplinary OHH research; fostering and facilitating strong partnerships; and developing and delivering useful tools, technologies and environmental information to public health and natural resource managers, decision-makers and the public.

Our oceans, coasts and Great Lakes affect every person on the planet no matter where they live. We receive many benefits from the oceans from seafood, recreation and transportation industries; harder to measure ecosystem services such as shoreline protection, climate regulation and nutrient recycling; and contributions to our daily aesthetics and cultural heritage. The Great Lakes, one of the largest freshwater sources in the world, supply more than 40 million people with drinking water. Also, the diversity of species found in our oceans offer great promise for a treasure chest of pharmaceuticals and natural products to combat illnesses and improve our quality of life.



Recent discoveries of marine-based pharmaceuticals include pain medication derived from snails, anti-viral drugs from sponges, anti-inflammatory compounds from corals, and anti-cancer agents from marine bacteria.

Yet our oceans can also threaten human health, just as humans can threaten ocean health - the link is inextricable. Over the last several decades our waters have become conduits for environmental threats to human health including infectious diseases, harmful algal toxins and chemical pollutants from eating contaminated seafood or coming into direct contact with polluted drinking waters and recreational beaches. Sentinel species such as whales, dolphins and other marine organisms and sentinel coastal habitats are impacted by environmental degradation and can shed light on how the condition of ocean environments could affect human health both now and in the future.

Throughout the country there are thousands of beach and shellfish closures or advisories each year due to the presence of harmful marine organisms, chemical pollutants or algal toxins.



The incidence of illnesses associated with exposure to contaminated seafood and harmful algal blooms has steadily increased and results in public health costs and economic losses to recreational and commercial fisheries.

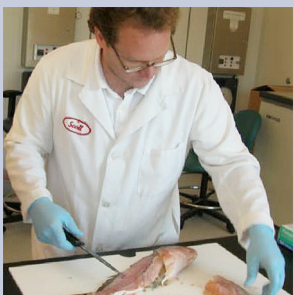
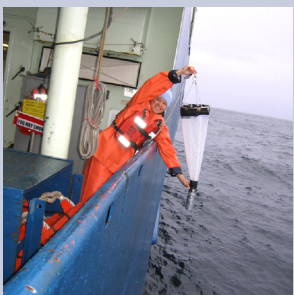


Unusual mortality events among marine mammals and sea turtles are on the rise.

To tackle these issues, Congress authorized the OHH Act of 2004, and directed NOAA to develop the OHHI and cooperate and coordinate with an interagency OHH effort comprised of the National Science Foundation, National Institute of Environmental Health Sciences and other Federal agencies and departments.



OHHI scientists conduct research to reduce threats to human health from diseases, harmful algal blooms, and chemical contaminants in our waters



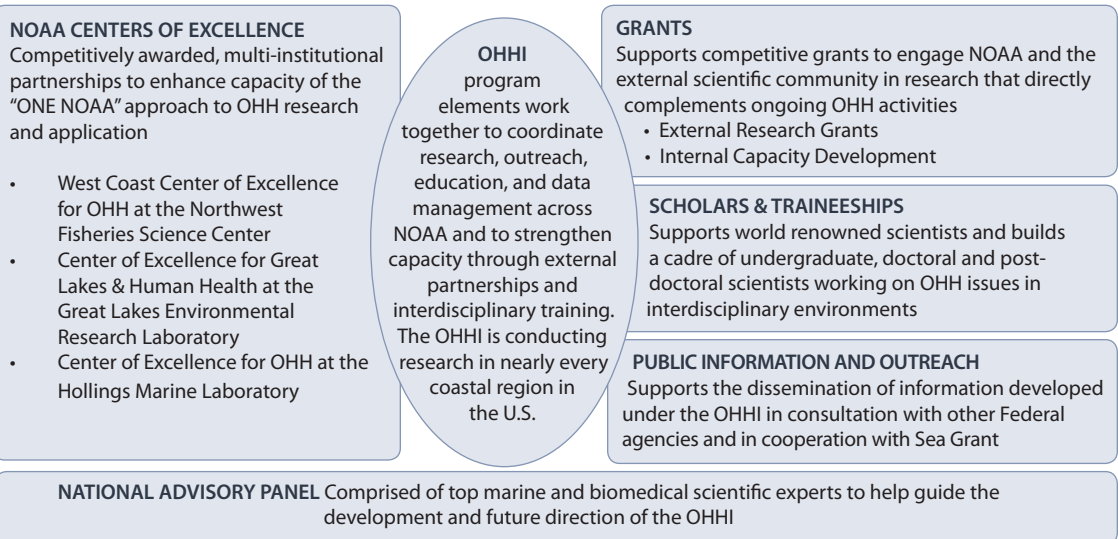
**The OHHI goals are to:**

- Lead the development of early warning systems to forecast threats and predict long-term risks to human health throughout U.S. coastal and Great Lakes waters
- Investigate and optimize health benefits from the sea
- Develop a robust oceans and human health community working across disciplines and institutions to improve public health

**The OHHI strives to:**

- Develop and transfer environmental and public health monitoring and assessment capabilities
- Produce biological and chemical sensors to rapidly measure public health threats and incorporate them into ocean observing systems
- Characterize impacts of coastal ecosystem change, in response to natural factors and environmental stressors such as climate change, land-use and pollution, on ecosystem goods and services related to human health
- Use sentinel species and habitats as integrative indicators of ocean health threats to humans
- Develop and transfer early warning systems and forecasts for existing and emerging ocean and coastal health risks
- Leverage partnerships to discover and identify marine natural products and pharmaceuticals for human health benefit
- Assess and improve understanding of the comparative risk and benefit of seafood consumption
- Develop and transfer technology to enhance the healthful characteristics of seafood and minimize ocean-related contamination of seafood
- Develop biomedical models to assess human health risks
- Coordinate environmental sampling for emergency response to natural disasters
- Provide opportunities and institutional mechanisms to support interdisciplinary OHH research such as Centers of Excellence, traineeships, early career and distinguished scholar awards, grants and research collaborations

**OHHI Program Elements**



**The OHHI supports NOAA's mission goals:**

To protect, restore and manage the use of coastal and ocean resources through ecosystem-based management; to understand climate variability and change to enhance society's ability to plan and respond; and to serve society's needs for weather and water information.

**For more information on NOAA's Oceans and Human Health Initiative please visit:**

<http://www.eol.ucar.edu/projects/ohhi/> OR call (301)713-0524.