



Ocean Health Index+ independent assessments

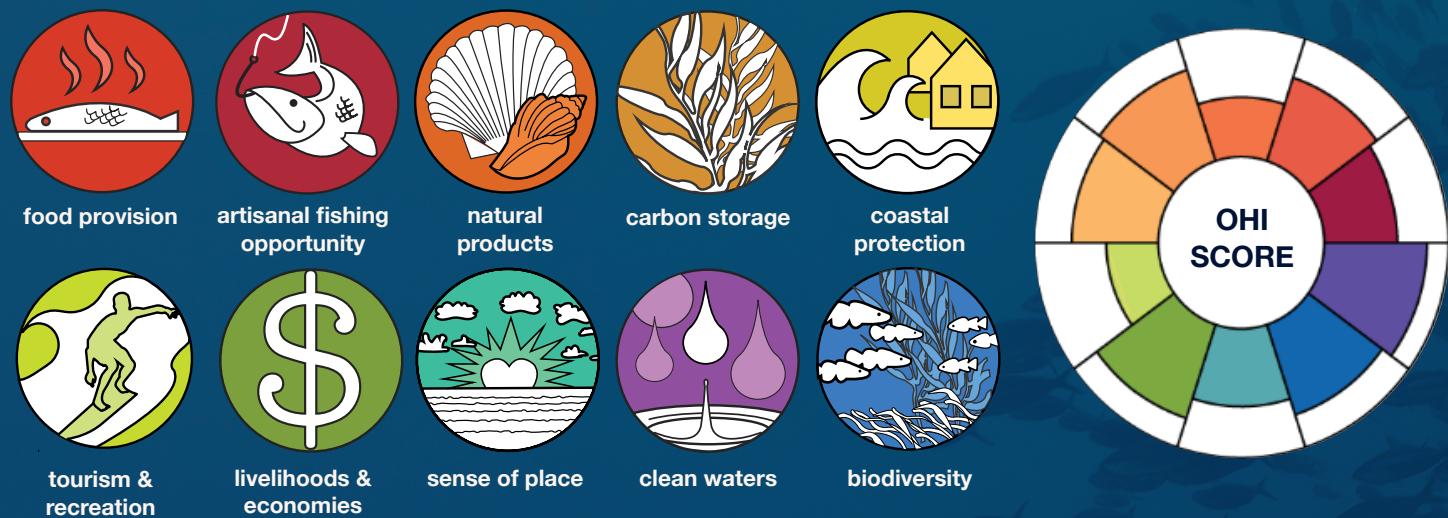
A healthy ocean sustainably delivers a range of benefits to people now and in the future

Many national and international efforts, such as the Sustainable Development Goals (SDG), recognize the importance of healthy oceans for the livelihoods and well-being of humans, but to date have lacked a comprehensive method for measuring ocean health. The Ocean Health Index (OHI) is the first integrated framework and management tool that measures the health of coupled human-ocean ecosystems in different contexts by accommodating local environmental characteristics, cultural priorities, and information availability and quality. It assesses a suite of benefits the ocean provides to humans using the best available information and translates complex socio-ecological relationships and context specific targets into easily accessible scores, on a scale from 0 to 100, that reflect how well a coastal region is utilizing the ocean in a sustainable way. The OHI framework is a flexible and repeatable approach and the process is iterative so that management can track and respond to changes through time.

The OHI is used to inform decisions ranging from a global scale, such as through the SDGs, and at smaller scales by regional, national, and local governing bodies. Increasingly, the OHI process is implemented by independent groups; these efforts, called OHI+ assessments, allow for the exploration of variables influencing ocean health at smaller scales where policy and management decisions are made. In practice, the OHI process helps users establish management targets, identify locally important ocean characteristics, centralize relevant information (data & indicators), and recognize information and knowledge gaps. This enables scientists, managers, policy makers, and the public to better and more holistically understand, track and communicate the status of local marine ecosystems and to design strategic management actions to improve overall ocean health.

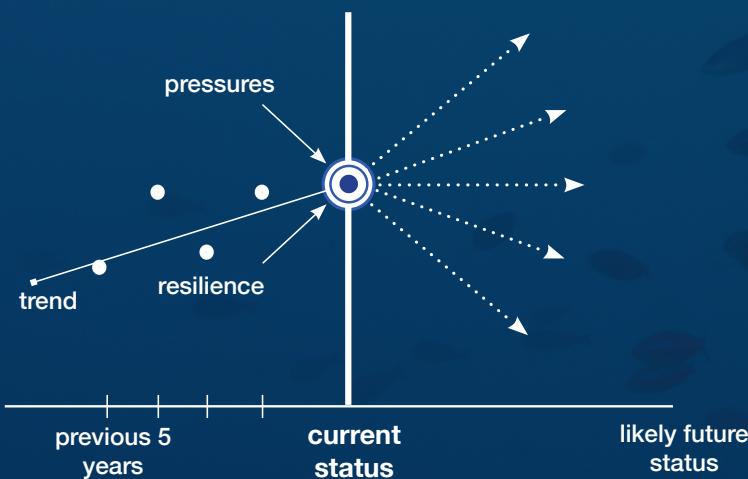
goals for healthy oceans

The Ocean Health Index combines key benefits, called ‘goals’, that a healthy ocean provides to people. Only goals that are relevant to a study area are assessed; these may include the food and natural products the ocean provides, protection and carbon storage that certain habitats provide, and cultural benefits including tourism & recreation, sense of place, coastal livelihoods & economies, artisanal fishing opportunities and values from clean waters and biodiversity.



Participatory approach, transparency, and clear communication of the process and resulting findings are fundamental in conducting OHI+ assessments. Flower plots, as shown above, are one way to effectively communicate with diverse audiences. Each petal represents an individual goal and the petal length conveys the score of the goal i.e. longer petals are closer to achieving their target.

calculating goal scores



Current Status (50% of goal score)
Goal's present value (represented by the most recent data available) compared to a goal-specific reference point
Likely Future Status (50% of goal score)
Current Status modified by Trend, Pressures, and Resilience
Trend: average percentage change in status shown by the most recent five years of data
Pressures: sum of the ecological and social pressures likely to depress near-future scores for a goal
Resilience: sum of ecological factors (if any) and social initiatives (policies, laws etc.) enacted that can reduce pressures and therefore increase near-future scores for a goal

assessment process

The OHI+ process has four iterative phases that are repeated with each assessment:

- 1) Learn** about the Ocean Health Index and how the framework can be applied to a specific context, or learn by improving upon a previous assessment
- 2) Plan** the assessment by building a team and developing a timeline of management and scientific activities
- 3) Conduct** the assessment by tailoring the OHI framework and calculating scores using the OHI Toolbox
- 4) Inform** policy, management efforts, and future assessments by both using findings from the assessments and knowledge gathered throughout the process



The OHI framework allows assessment methods to be refined over time with better information and understanding. Repeated assessments allow for tracking and understanding changes in ocean health through time, which can be integrated into decision-making processes and adaptive management. The process for developing OHI+ assessments can be as valuable as the final calculated scores, since the process itself creates an ocean alliance that combines knowledge and cultural values from many different perspectives and disciplines.

Conducting OHI+ assessments require collaboration and communication within the team but also with many different stakeholders, potentially including government agencies, research institutions, policy groups, and the civil and private sectors.

outcomes

OHI+ assessments result in numeric scores that can be interpreted and communicated to many audiences. These scores enable comparisons between goals, between regions within the assessment area, and through time when assessments are repeated with the same methods. Such comparisons can help local managers to make decisions based on the best available science by identifying geographic and thematic priorities, altering the allocation of resources, and tracking management performance over time.

toolbox

The innovation of the OHI also comes from its analytical Toolbox, which is built with cutting-edge software tools that are freely available and powerful for analysis, visualization, and communication. The Toolbox provides structure to capture decisions made throughout the process so that future assessments can be repeated with less effort than previous assessments. This enables OHI assessments to be transparent, reproducible, and easily communicated, which is paramount to informing policy and understanding how socio-ecological systems change over time.

requirements

A Qualified Technical Team

OHI assessments require teamwork; it is important to have team members working closely together and in close communication. We recommend that core members of the technical team have overlapping skill-sets and be in close contact with advisors or stakeholders, including goal-specific experts. Some of the skills the core team will need include:

- having a broad scientific understanding
- collaborating well in a multidisciplinary team, remotely and in person
- being organized and experience with data management or workflows
- ability to learn new software, make decisions, and think creatively
- experience with programming in R or similar
- doing analyses with spatial data (in ArcGIS, R, or other spatial analysis software)

Funding

The costs to complete OHI+ assessments vary depending on the local context, and will need more investment for the first one. Financial support is needed for a management and technical team, workshops and meetings (including travel), communications, policy engagement, and operating costs. Therefore, securing funding is an important component to satisfactorily complete assessments and building institutional memory. We encourage the development of a local proposal or strategic action plan that details a timeline of activities and the resources needed to accomplish them.

Data and Indicators

OHI+ assessments are information-intensive; they require gathering existing data and indicators to represent relevant OHI goals, and the pressures and resilience actions interacting with those goals. Information can come from environmental, social, and economic sources.

It takes time to identify, gather, and process these data and indicators, and accessing the best available information is of highest importance. It is important to communicate where there are data gaps and data that are not ideal are used; identifying missing information helps highlight areas for future improvement.

Policy and Management Interest

OHI+ assessments can be used to inform government policies to improve ocean health. This is most effective if there is interest and engagement from policy makers and ongoing communication during the OHI process to best inform management actions that could have measurable impacts. Repeated assessments as new data become available enable tracking ocean health through time and evaluating management priorities.

what we offer

Our team of scientists and managers provide guidance for OHI+ assessments, from initial meetings to technical support to disseminating results. OHI+ assessments are conducted with the OHI Toolbox - free and open-source software developed to organize information, tailor methods, and calculate OHI scores at any scale. The Toolbox also interacts with websites built for each assessment to communicate the assessment process including decisions, methods, and visualizing results.

Our science website, ohi-science.org, provides instruction throughout the assessment process and the Forum enables opportunities to discuss within the growing OHI+ community.

For OHI+ information visit: www.ohi-science.org

Contact us at: info@ohi-science.org

For general OHI information visit: www.oceanhealthindex.org

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