

HAWAII OCEAN HEALTH INDEX

2018

Tracking the benefits our ocean
and coastal resources provide to
people now and into the future

WHAT IS THE OCEAN HEALTH INDEX?

The Hawai'i Ocean Health Index (OHI) tracks the benefits our oceans provide Hawai'i now and into the future by measuring the status of six goals:



FOOD PROVISION



COASTAL PROTECTION



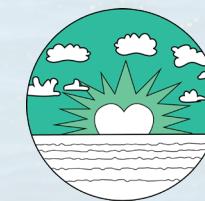
BIODIVERSITY



LIVELIHOODS & ECONOMIES



SUSTAINABLE TOURISM



SENSE OF PLACE

Using the best available science, these goals are scored on a 0-100 scale, reflecting how close a coastal region is to reaching their targets for a healthy ocean. A score of 100 represents a healthy ocean that provides maximum benefits to people now and into the future.

The Hawai'i OHI was developed by local stakeholders and integrates Hawai'i's policies and initiatives to support sustainable ocean management.

The OHI framework allows for repeatable assessments of the index goals over time to measure progress towards a common vision for a healthy ocean and sustainable ocean management for Hawai'i.

WHY TRACK OCEAN HEALTH?

Traditional Hawaiian customs and practices supported sustainable management and use of finite natural resources. The Hawaiian worldview is grounded in environmental kinship that embraces the interconnectedness of a thriving natural environment, human health, and well-being. Today, we seek to revive those connections between people and place that drive resource abundance and healthy communities.

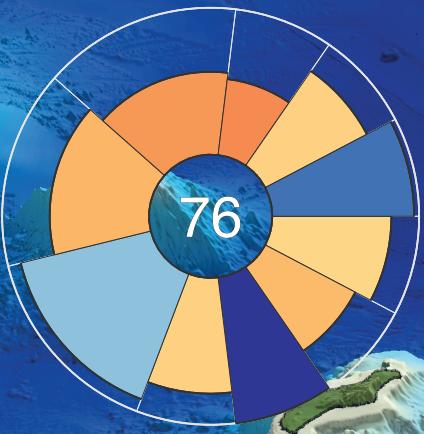
Hawai'i's unique blend of diverse social and cultural values and practices are at the foundation of the Hawai'i Ocean Health Index and can be found within every goal.

By tracking the sustainability of our ocean resources, we will be better equipped to help protect what matters most to us and ensure a sustainable future.

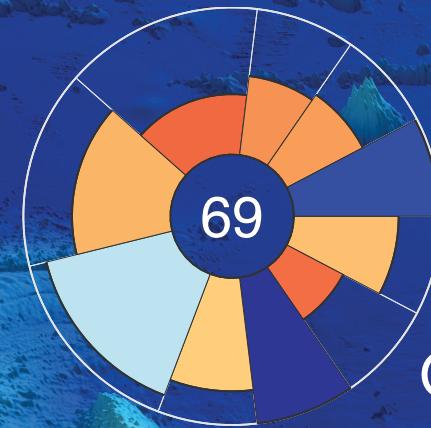
ALOHA+ CHALLENGE

The Ocean Health Index is part of the Aloha+ Challenge, Hawai'i's statewide commitment to achieve six integrated sustainability goals by 2030 for clean energy, local food, natural resource management, solid waste, smart sustainable communities, and green education and workforce. Progress on the six goals and climate commitment is measured on the Aloha+ Challenge Dashboard, which can be viewed online at dashboard.hawaii.gov/aloha-challenge.

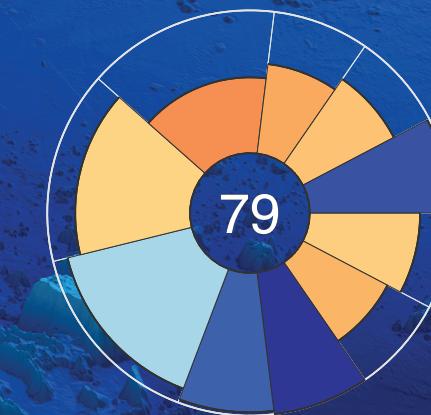
In particular, the OHI incorporates the initiatives to protect 30% of priority watersheds by 2030 and effectively manage 30% of nearshore ocean waters by 2030.



Kaua'i
& Ni'ihiāu



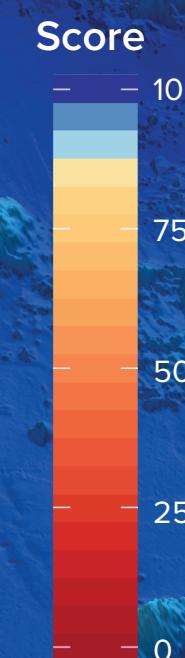
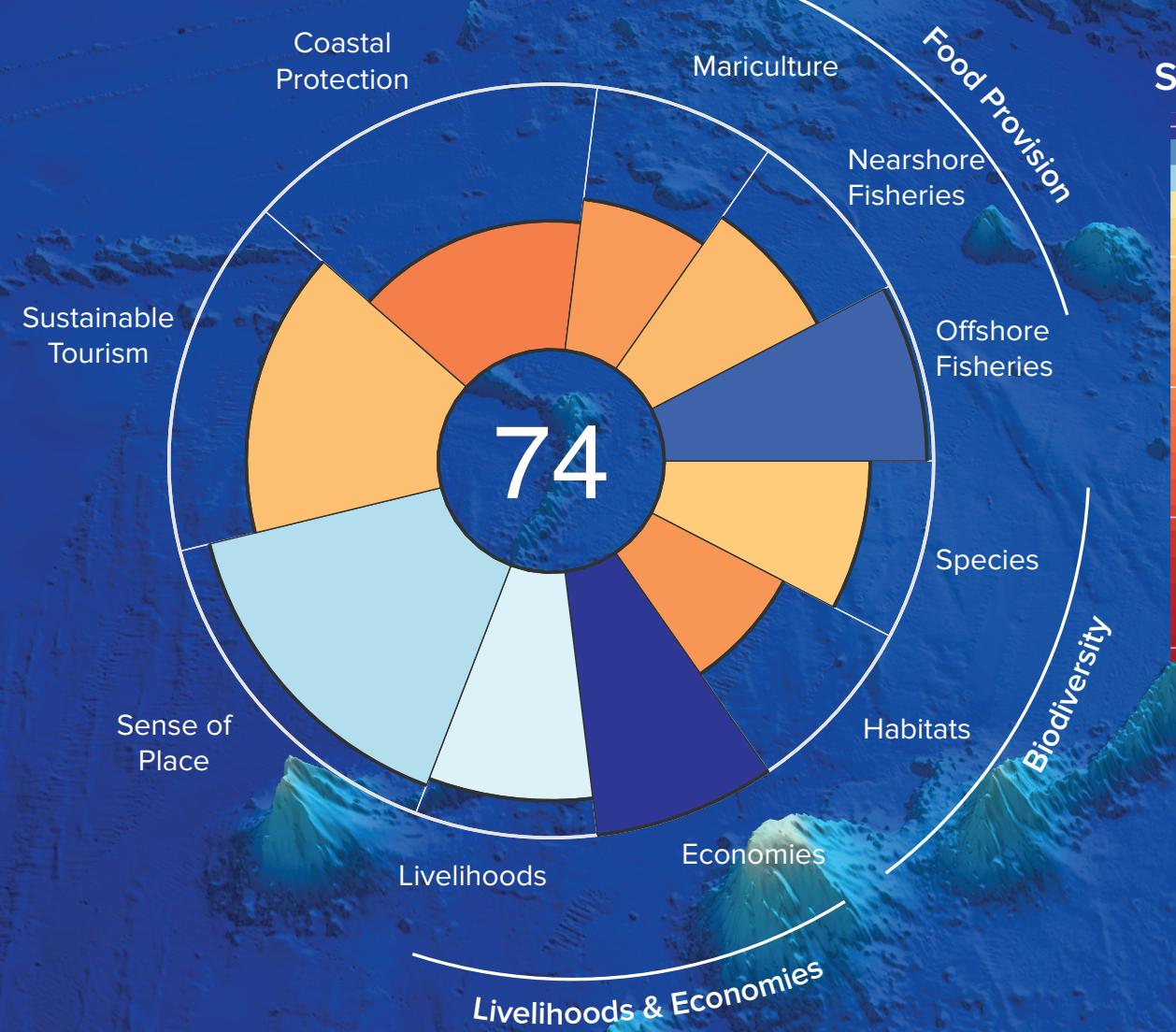
O'ahu



Maui Nui (Maui,
Moloka'i, & Lāna'i)

Main Hawaiian Islands

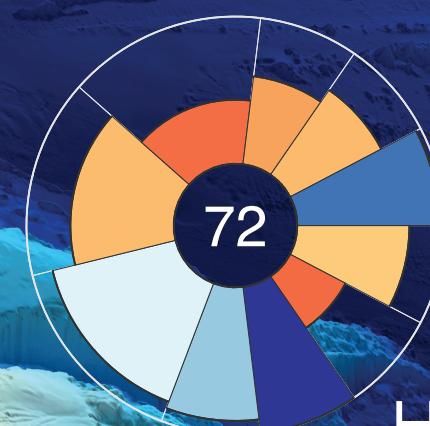
Scores were assessed for each county. On average, the Main Hawaiian Islands scored a 74 out of a possible 100. While Sense of Place, Ocean Economies, and Offshore Fisheries are doing relatively well, our coastal and ocean habitats that underpin many of the other goals are impacted.



Regional scores varied across counties and are based on regional differences in local economic, social, and ecological indicators that underpin the index.

This index reviews our progress toward achieving our coastal and ocean management targets for each goal to ensure the sustainability of our ocean resources now and into the future.

Each goal within the 2018 index is displayed with the score and trend in status. The trend is either decreasing (↘), increasing (↗), or remaining stable (→).



Hawai'i



FOOD PROVISION

NEARSHORE FISHERIES

Nearshore non-commercial fisheries catch is **5x** times the nearshore commercial fisheries catch.

Nearshore fisheries received a score of 70. Nearshore fisheries resource abundance, or availability was poor to average. O'ahu had the lowest score (59) and Kaua'i & Ni'ihau had the highest score (78).

Nearshore fisheries are extremely valuable for providing food and cultural resources for Hawai'i. The majority of nearshore catch does not go to markets and is kept by fishers or given away for home consumption, demonstrating the value of this fishery for providing local meals and supporting cultural practices.

Score
70
Trend→

OFFSHORE FISHERIES

55%

of seafood consumed in Hawai'i is locally sourced, providing 77 million meals.

31

million lbs. were caught in 2016 in Hawai'i's pelagic and bottomfish fisheries.

Offshore Fisheries received a score of 98, reflecting that the majority of commercial catch from pelagic and bottomfish comes from sustainable fisheries.

Scores are based on the stock status of both pelagic and bottomfish fisheries, with species that comprise the majority of Hawai'i's catch contributing more to the overall score.

In 2016, the pelagic fishery was composed primarily of bigeye tuna (16M lbs), yellowfin tuna (4M lbs), and swordfish (2M lbs), followed by ono, marlin, mahimahi, and monchong contributing 1M to 2M lbs each.

The bottomfish fishery is a multispecies fishery. In 2016 opakapaka (131K lbs) and uku (110K lbs) comprised the majority of the catch.

Score
98
Trend→



MARICULTURE

45%

of local seafood demand will be met by 2040. We will need to look to mariculture to meet the growing seafood demand.

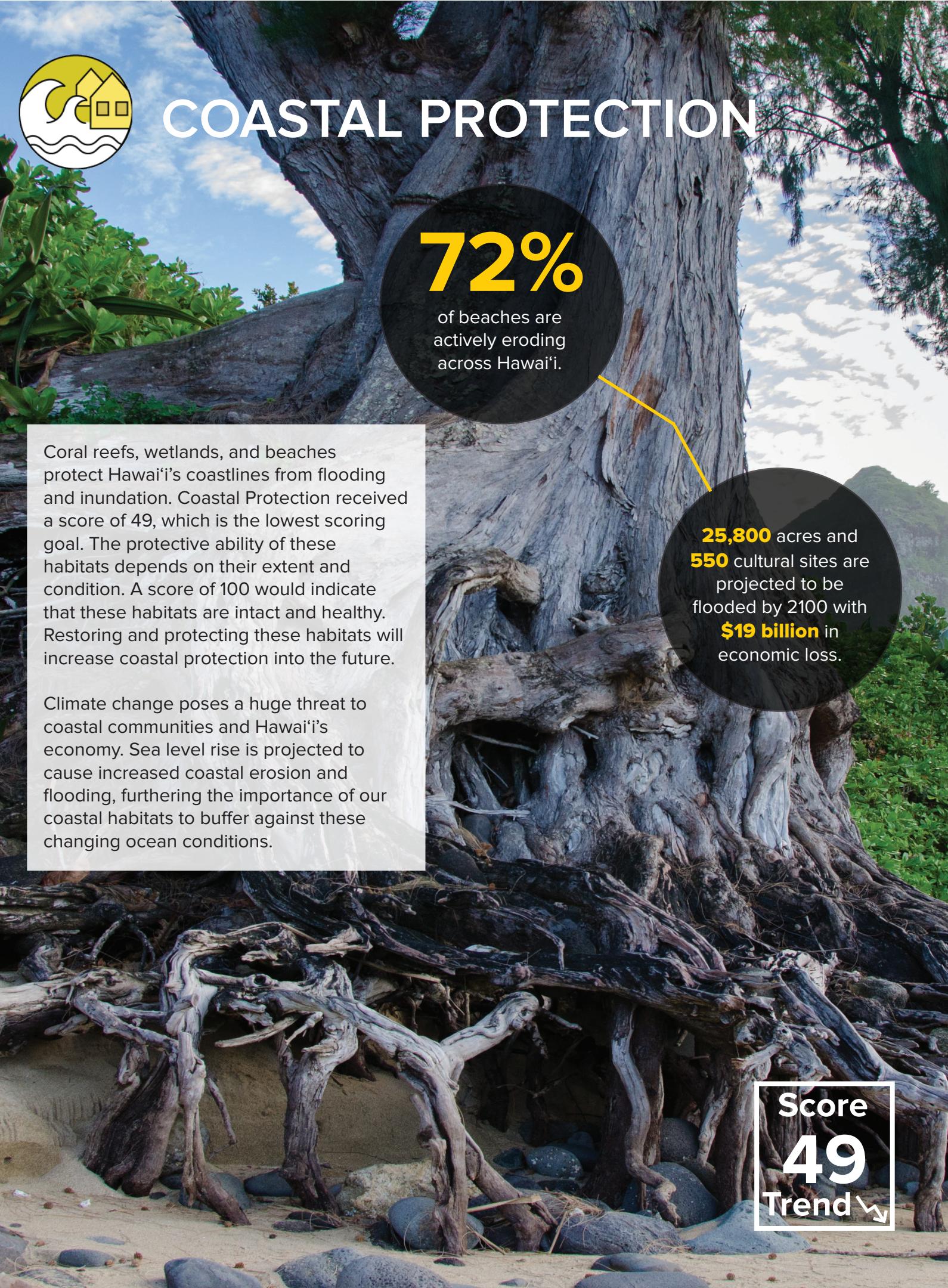
In the early 1900s, traditional Hawaiian fishponds produced **400-600 pounds** of seafood per acre. Today, many of them have been lost or damaged. There is an effort to restore traditional Hawaiian fishponds to return them to viable seafood production systems.



Mariculture production in Hawai'i comes from contemporary mariculture (also referred to as aquaculture) and from traditional Hawaiian fishponds, known locally as loko i'a. Mariculture received a score of 57, reflecting the inconsistent yields from contemporary mariculture and loss of traditional Hawaiian fishponds.

Production of edible seafood from mariculture is relatively low compared to Hawai'i's fisheries, representing 1% of the total seafood production. Much of the species grown in contemporary mariculture production systems do not support local food provision, such as microalgae and brood stock shrimp. Therefore, while revenue is high for Hawai'i's mariculture industry (\$78M in 2014), the production of edible seafood is relatively low.

Projections show that local seafood production will meet only 45% of the local seafood demand by 2040. Therefore, to meet the rising local demand, seafood may need to be sourced from sustainable mariculture production methods including Hawaiian fishponds and contemporary mariculture.



SPECIES



BIODIVERSITY

HABITAT

39%

of Hawai'i's marine mammals and turtles are listed on the Endangered Species List.

Hawai'i's ocean is home to over **565** endemic marine species, with over **20%** endemic marine fishes found nowhere else on earth.

Species scores are based on the percent of species listed on the Endangered Species List and fish population assessments. Species received a score of 77, with the majority of marine species (marine, mammals, turtles, shorebirds and seabirds, and coastal sand and dune plants) not listed as threatened or endangered. However, some groups of species severely impacted. Seabirds and shorebirds have the highest rate of endangered, threatened, or listed species of concern (53%), followed by marine mammals and turtles with, 39% of Hawai'i's marine mammals and turtles listed on the Endangered Species List.

Score
77
Trend ↘

Hawai'i has unique and diverse coastal habitats including anchialine ponds, fishponds, wetlands, beaches, and coral reefs. These habitats and the species that reside in them are the foundation of many of the benefits that we receive from the ocean including food provision, coastal protection, sustainable tourism, sense of place, and livelihoods and economies.

However, our ocean and coastal habitats surrounding the Main Hawaiian Islands are threatened and received a score of 56. These habitats are impacted by deforestation and development, pollution and land-based runoff, and climate change.

Hawai'i's ocean habitats are in average to poor condition with 54% of historical coastal wetlands intact, coral reef condition declining drastically with recent coral bleaching events, and 72% of beaches actively eroding.

Protecting and restoring these habitats are essential to maintaining our ocean resources, our communities, and our economy now and into the future.

Score
56
Trend ↘



LIVELIHOODS & ECONOMIES

LIVELIHOODS

Ocean sectors represented in the Hawai'i Ocean Health Index are marine construction, living resources, ship and boat building, tourism and recreation, and marine transportation.

Livelihoods describes ocean job quantity and quality, receiving a score of 86.

This score is relatively high, however, while the tourism and recreation sector provides 96% of ocean jobs, mean wage is lowest in this sector at \$20,919/year. This is 48% lower than the state mean wage and 36% below the state self-sufficiency standard.

Industries directly connected to the ocean provide over **103,000** jobs across Hawai'i.

16%

of Hawai'i's jobs are in ocean sectors.

96%

of ocean sector jobs are in tourism & recreation.

Score
86
Trend ↑

ECONOMIES

Industries directly connected to the ocean contribute **\$6 billion** to Hawai'i's economy annually.

Hawai'i's tourism and recreation sector is the highest contributor to annual ocean revenue.

Economies received a perfect score, 100, and captures the economic value associated with marine industries. A score of 100 means that Hawai'i's ocean economy has increased or remained stable across Hawai'i's counties.

Annual ocean revenues are highest in Hawai'i for the tourism and recreation sector and marine transportation sector.

Ocean generated revenue is highest on O'ahu and Maui Nui and lowest on Kaua'i and Ni'ihau.

Score
100
Trend →



SUSTAINABLE TOURISM

Tourism contributed **\$18 billion** in direct visitor generated revenue and over **\$23 billion** in indirect revenue in 2016.

Resident's sentiment or acceptance of tourism received a score of 68 and has been steadily **declining** over the past 5 years.

Increased stewardship and protection is needed to balance the increased human use from visitors on ocean and coastal areas.



This goal measures the balance between economic growth through tourism with management and preservation of natural resources and Hawaiian culture.

Sustainable Tourism scored 71, reflecting the need to balance economic gains with the preservation of Hawai'i's unique cultural and natural environment. Protection of nearshore areas and watersheds are included in this goal to sustain coastal habitats by reducing erosion and ensuring watersheds continue to provide the necessary freshwater for both residents and visitors.

Through this assessment, several areas have been identified to increase the preservation of social and cultural values and the natural environment. These include tourism education programs and increased proportion of the tax revenues allocated to cultural and environmental preservation.

Score
71
Trend ↘



SENSE OF PLACE

89%

of Hawai'i residents participate in ocean activities at least once a month.

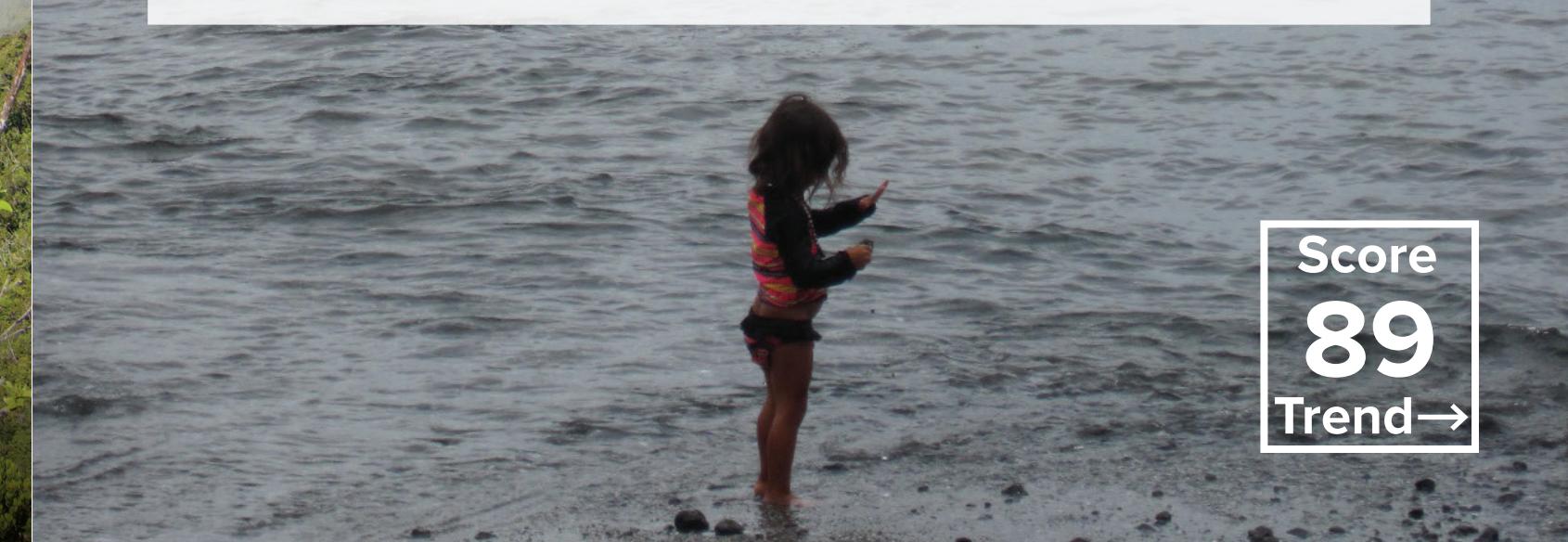
Coastal areas are important for **spiritual, cultural and physical wellbeing**.



The Sense of Place goal stresses the importance of preserving ocean areas that people value and maintain connections to. This goal scored 89, reflecting a strong sense of place and cultural connection to the land and ocean in Hawai'i.

This goal uses data on participation rates in recreational and cultural coastal and ocean activities as a proxy to measure the connection that people have to these environments.

There is a strong sense of kuleana (responsibility) to mālama (take care) the 'āina (land and ocean that feeds us). "He ali'i ka 'āina, he kauā ke kanaka." The land is the chief and the people are its servants. This Hawaiian proverb showcases how environmental stewardship was the foundation of Hawaiian culture and there was a strong sense of kuleana that reinforced the relationship between people and the environment.



Score
89
Trend →



Funded By

CONSERVATION
INTERNATIONAL

Hawai'i



HAWAIIAN
AIRLINES®



To learn more, visit:
ohi-science.org/mhi/

Mahalo to all of our participants, community members, and agencies that collaborated and supported the Hawai'i Ocean Health Index. Special thanks to these organizations for their feedback and support: Department of Land and Natural Resources Division of Aquatic Resources, Department of Land and Natural Resources Division of Forestry and Wildlife, National Park Service, Office of Hawaiian Affairs, National Oceanic and Atmospheric Administration Pacific Islands Fisheries Science Center Ecosystem Sciences Division, National Oceanic and Atmospheric Administration Pacific Islands Fisheries Science Center Stock Assessment Program, Office of Planning Coastal Zone Management, National Center for Ecological Analysis and Synthesis, Kua'āina Ulu 'Auamo, The Nature Conservancy, University of Hawai'i Sea Grant, Hawai'i Green Growth, Natural Energy Laboratory of Hawai'i Authority, and Liquid Robotics.

Photo Credits:

- © Conservation International photo by S. Kēhaunani Springer | © Conservation International photo by Troy K. Shen |
- © Map by Joey Lecky | © Conservation International photo by Jhana Young | © Conservation International photo by Matthew Ramsey | © Guru Khalsa | © Conservation International photo by Luana Luna | © NOAA Greg McFall | © Pixabay |
- © Conservation International photo by Luana Luna | © Kanaka Rastamon | © Conservation International photo by S. Kēhaunani Springer