**Cover Page (Page 1)**

Title: Hawaiʻi Ocean Health Index

2018

Text: Ensuring/Measuring/Tracking the sustainability of our ocean resources now and into the future

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What is the OHI?

The Hawaiʻi Ocean Health Index tracks the benefits that our oceans provide the residents of Hawai’i now and into the future through measuring the status of 7 goals: Food Provision, Artisanal Fishing Opportunities, Sustainable Tourism, Livelihoods & Economy, Sense of Place, Biodiversity, and Coastal Protection. Overall Index scores are a combination of components, or ‘goals’, of ocean health. These scores are calculated using the best available data and indicators at the scale of the assessment. Scores reflect how well coastal regions optimize their potential ocean benefits and services in a *sustainable way relative to a reference point* (target), on a scale of 0-100.

The OHI was developed by local stakeholders and integrates Hawaii’s policy initiatives to support sustainable ocean management. The Ocean Health Index framework allows for repeatable assessments of the index goals overtime to measure progress toward a common vision for a healthy ocean and sustainable ocean management for Hawaiʻi.

Why measure/track ocean health? Why it matters?

Hawaiians have a long history of sustainable management and resource use. They recognized that their wellbeing and health relied on the status or availability of the resource. Today, the same is true; the health of our communities and our environment is intertwined. This strong sense of place or connection to the place that we have in Hawaii drives conservation and sustainability in Hawaiʻi and is a model for the rest of the world. Hawaii’s unique social and cultural practices and values are at the foundation of the Hawaii Ocean Health Index and can be found in every goal. Hawaii is leading by example through local policies and initiatives such set through the *Aloha+ Challenge,* a joint leadership commitment to sustainability for the State of Hawai‘i. The *Aloha+ Challenge* sets statewide sustainability targets to be achieved by 2030– in clean energy transformation, local food production, natural resource management, solid waste reduction, smart sustainable communities, climate resilience, green job creation, and education. These initiatives are integrated into the Hawaiʻi Ocean Health Index to track our progress toward achieving those targets and overall ocean sustainability.

**Page 3-4 Map**

**Page 5 Food Provision**

Score:70

Facts:

Over half (55%) of available seafood in Hawaii is locally sourced, providing 140 million meals.

Seafood demand is projected to rise 20% by 2040. With many of our fisheries fully exploited we will need to look to mariuculture to meet the growing seafood demand.

Traditional Hawaiian fishponds in the early 1900s produced 400-600 lbs of seafood per acre. Today, 44 out of the estimated 99 fishponds in the 1900s remain and many are being restored to return them to viable seafood production systems.

Summary:

Nearly 34 million lbs (99%) comes from wild caught fisheries and 0.4 million lbs (1%) comes from mariculture annually. The majority of the catch is from the pelagic fishery, followed by the reef fishery (commercial & non-commercial catch), bottomfishery, and coastal pelagic fishery. Wild caught fisheries received a score of 87 reflecting that the majority of the catch comes from sustainable fisheries, with a score of 100 meaning that harvest for all fish species is done at sustainable level.

Production of edible seafood is relatively low compared to Hawaii’s wild caught fisheries, representing 1% of the total seafood production. Mariculture scored 53, reflecting the sustainability of production from contemporary mariculture systems (consistent production of seafood and species environmental impact and biosecurity risk scores) and the current progress to increase seafood production from Hawaiian fish ponds by restoring 30% of Hawaiian fishponds. Future projections show that local seafood production will meet only 45% of the local seafood demand by 2040. Therefore, mariculture may play a larger role in future seafood production in the future.

Wild Caught Fisheries

Score:87

Summary:

Nearly 34 million pounds of seafood are caught in Hawaiʻi annually, the majority of the catch is from the pelagic fishery, followed by the reef fishery (commercial & non-commerical catch), and then the bottomfish and coastal pelagic fishery. Wild caught fisheries received a score of 87 reflecting that the majority of the catch comes from sustainable fisheries, with a score of 100 meaning that harvest for all fish species is done at sustainable level. Sustainability scores varied across species, with some species exploited beyond sustainable biological limits including big eye tuna and many reef fish. Fish sustainability scores are declining for several species assessed, reducing the future sustainability of many fisheries species.

Mariculture

Score:54

Summary:

Mariculutre production in Hawaii comes from contemporary mariculture production and from traditional Hawaiian fishponds, known locally as loko iʻa. Historically, seafood from traditional Hawaiian fishponds played a large role in sustaining Hawaiian populations. In the early 1900s, Hawaiian fishponds produced 400-600 lbs of seafood per acre (Honua Consulting, 2013). Today, 44 out of the estimated 99 fishponds in the 1900s remain and many are being restored to viable seafood production systems. The number of managed or restored fishponds are used as a metric for seafood potential and are part of the mariculture score along with contemporary mariculture production system.

Several species of finfish and shellfish are grown in Hawaii for food consumption. However, many of the mariculture species grown in Hawaii do not support local food provision such as microalgae and broodstock shrimp. Therefore, while revenue is high for Hawaii’s mariculture industry (79 Mil; Ref), the yield or production of edible seafood is relatively low compared to Hawaii’s wild caught fisheries, representing 1% of the total seafood production. Scores for mariculture reflect the sustainability of production from contemporary mariculture systems (consistent production of seafood and species biosecurity and sustainability scores) and the production potential of Hawaiian fish ponds to an established target of 30% of fishponds restored per region.

**Page # Sustainable Tourism**

Score:59

Facts:

Tourism contributed $11.8 billion in visitor generated revenue in 2015, contributing 14% to Hawaii’s GDP from visitor spending alone.

Resident’s sentiment or acceptance of tourism received a score of 63 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.

Summary:

This goal measures the balance between economic growth through tourism with management and preservation of natural resources and Hawaiian culture. Sustainable tourism was scored based on the benefit of visitors to economic growth while taking into account thepreservation of social and cultural values of residentsand protection of the natural environment.

Scores ranged from 51 to 71 by region. The low scores reflect the decrease in visitor generated revenue in 2013 -2015 and the need to balance the economic gains with the preservation of Hawaii’s unique cultural and natural environment. Stakeholders have identified several areas to improve to increase preservation of social and cultural values and the natural environment. These include increased tourism education programs and increased proportion of the tax revenues generated from the tourism industry allocated to community and environmental preservation.

**Page 6 Artisanal Fishing Opportunities**

Score: 82

Facts:

33% of locally caught seafood is estimated to come from the non-commercial or artisanal fishery, with 5% from the nearshore and coral reef fishery.

Summary:

Artisanal fishing is part of Hawaii’s unique culture, provides local communities with meals, and is a valued recreational activity. Artisanal fishing opportunities measures fisher access to the resource and the status of the nearshore and coral reef fishery resources. While fisher access to resources is high, the availability of the resource is average to poor across Hawaiʻi. Nearshore fishery resources scored low with the lowest scores on Oahu (54) and the highest scores on Kauai & Niʻihau (72). Access to the resource is lowest on Oahu due to the larger military zones and no-take marine protected areas on the Island.

**Page # Sense of Place**

Score:79

LSP:64

CON: 94

Facts:

Coastal areas are importance for spiritual and physical wellbeing.

89% of Hawaiʻi residents participate in ocean activities at least once a month

Effectively managing and protecting coastal areas ensures that these activates can take place now and into the future.

Summary:

Cultural values are expressed in the development of this goal and several of the other goals, a local and culture values are recognized as important to all aspects of Hawaii’s ocean health. This goal stresses the importance of past, present, and future for the connection of people to the ocean. This goal is composed of two subgoals: Lasting Special Places and Connection to Place.

Lasting special places tracks the protection of marine and coastal areas. Lasting special places received a score of 64, with 14.1% of nearshore areas protected and 28% of coastal areas are protected. A score of 100 will be achieved when the State of Hawaii meets its Hawaii Sustainability Initiative of 30% of nearshore waters effectively managed by 2030 and 30% coastal areas is protected within conservation districts.

Connection to place measures the connection that people have to coastal and marine environments measured through resident participation rates in ocean activities. Hawaiʻi has a strong connection or relationship with the ocean, scoring 89.

**Page # Livelihoods & Economies**

Score 93

LIV: 92

ECO: 93

Facts:

Contributes $6 billion annually to Hawaii’s economy

Provides 16% of Hawaii’s jobs

96% ocean sector jobs are in tourism & recreation

Summary:

Ocean sectors represented in the Hawaiʻi 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 92. However, while the tourism and recreation sector provides the most jobs, mean wage is lowest in this sector at $20,919. This is 48% lower than the state mean wage and 36% below the state self-sufficiency standard. Economies scored 93 and captures the economic value associated with marine industries using revenue from marine sectors. Hawaii’s ocean economy has increased or remained stable for each county.

**Page # Biodiversity**

Score: 68

HAB:59

SPP: 77

Facts:

Hawaii’s ocean is home to over 565 endemic marine species, with over 20% endemic marine fishes, found nowhere else on earth.

39% of Hawaii’s marine mammals and turtles are listed on the Endangered Species List.

Summary:

Hawaiʻi 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 our livelihoods and economy. However, our ocean and coastal habitats surrounding the Main Hawaiian Islands are threatened and we are seeing the impacts of coastal pollution, development, and climate change. Hawaii’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 is essential to sustaining our community and economy now and into the future.

**Page # Coastal Protection**

Score 50

Facts:

72% of beaches are actively eroding across Hawaiʻi

25,800 acres and 550 cultural sites are projected to be flooded by 2030 with $19 billion in economic loss

Summary:

Coral reefs, wetlands, and beaches protect Hawaii’s coastline from flooding and inundation.

The protective ability of these habitats depends on their extent and condition. Coastal Protection received a score of 50. A score of 100 would indicate that these habitats are all still intact or have been restored to their reference conditions. Climate change poses a huge threat to coastal communities and Hawaii’s economy. Sea level rise is protected to cause increased coastal erosion and inundation, furthering the importance of our coastal habitats to buffer against these changing ocean conditions.