Hau'ula to Punalu'u Watershed Snapshot

LOCAL MEASURES OF AHUPUA'A HEALTH
PURPOSE

INFORMATION
EMPOWER COMMUNITIES WITH NATURAL RESOURCE INFORMATION

EVALUATION
ASSESS THE IMPACT OF CURRENT MANAGEMENT EFFORTS

ACTION
CATALYZE ACTION, WHETHER TOP DOWN (POLICY) OR BOTTOM UP (GRASSROOTS EFFORTS)

CO-MANAGEMENT
ENCOURAGE COLLABORATION BETWEEN GOVERNMENT AGENCIES, NON-PROFITS AND COMMUNITIES FOR RESOURCE MANAGEMENT
WATERSHED SNAPSHOTS PROGRESS 2012-16

2013
- 8 Community Consultations Statewide
- Watershed Boundary Maps, Scope of Communication Tools and Metrics Confirmed
- Honolua to Napili, Maui

2014
- Convening of Communities Statewide to Solicit Interest in Snapshot Participation
- Intellectual Property, Data Sharing Agreement, HCA ARC GIS Tool Demo Data Discussion, Communications 101
- Waimea, Hawai‘i Island

2015
- Site Planning Meeting on O‘ahu and Moloka‘i for 6 Volunteer Communities
- Maps with Available Data, Metrics Checklist, Site Plan Development, Additional 2-3 Metric Selection, Project Timeline, Metric Data Compilation
- Hā‘ena, Kaua‘i

2016
- 3 Community Engagements
- Watershed Health Web Map and Snapshot Web Maps for each of the 3 sites
- Water Quality: Training, Consult, Collection, Supply Kits and Monitoring Plans
- Community Data Gathering: Community Involvement in Resource Management, Place Names, Local Knowledge
- Lessons Learned Workshop
- IUCN WCC Pavilion Event
- Maunalua Bay, O‘ahu
HOW DO WE MEASURE THE HEALTH OF OUR WATERSHED?

### SOCIO-CULTURAL

**Population Size and Growth**  
(DBEDT)

**Cultural**  
(# of kūpuna, # families persist, presence of lo'i, traditional fishing)

**Health/Diet**  
(Prevalence of diabetes, heart disease, obesity, drug abuse; # of farmers/fish markets)

**Community Involvement in Natural Resource Management**  
(# of people, # of projects, # of organizations, # schools, etc)

### BIOPHYSICAL

**Rainfall**  
(rain and stream gauges- NOAA-Weather)

**Availability Of Fresh Water**  
(# of water sources/household(or capita), Board of Water Supply)

**Water Quality**  
(Stream sediment, flow, pathogens)

**Groundwater Recharge, Land Use**  
(% Impermeable Surface, ratio of developed over natural)

**Native Vegetation**  
(% trees/plants cover, acres)

**Key Bird Species**  
(Presence, abundance, compare historic)

**Target Food Fish**  
(Biomass, Fishing Effort, Size Structure)

**Ocean Habitat Quality**  
(Coral: abundance & biodiversity; sand; rubble etc)

**Marine Invertebrates & Algae**  
(Indicators of water or habitat quality)

**Freshwater: Food Fish & Key Invertebrates**  
(see fish and invertebrate above)
COMMUNITY REPRESENTATIVES

LINDA AVEGALIO
DR. TUSI AVEGALIO
LISA CHANG
KEN FURUKAWA
RONNIE HDDY
DOTTIE KELLY-PADDOCK
DAN VANRAVENSWAAY
WATERSHED METRICS
“The kūpuna tell us there is less water in the streams, and the scientists tell us that not only is there less rainfall, but the spread of invasive trees means the forest holds onto even less water than they used to. We need healthy forests to ensure that Hauʻula still has clean, flowing water in the future.”

- KAWIKA WINTER, PH.D.
NATIONAL TROPICAL BOTANICAL GARDEN
WATER QUALITY TRAINING

MARCH 2016
HUI KŪ MAOLI OLA, KĀNEʻOHE
FACILITATED BY THE NATURE CONSERVANCY’S
DR. KIM FALINSKI AND MANUEL MEJIA

COMMUNITIES RECEIVED:
• SUPPORT IN DESIGNING A COLLECTION PLAN
• SUPPORT FOR FIRST SAMPLE COLLECTION
• WATER QUALITY STIPEND FOR START-UP KIT
AND LAB ANALYSIS FEES
• QUAAP CERTIFIED TURBIDITY METER,
AVAILABLE AT KUA’S LENDING LIBRARY
121 of 698 Cesspools are within 200 feet of a stream.

201 of 698 Cesspools are within 200 ft of the coastline.

DEPT. OF HEALTH, 2016
27% NATIVE FOREST COVER (USGS, 2001)
ʻIWA (FREGATA MINOR)
KŌLEA (PACIFIC GOLDEN PLOVER)
PUEO (HAWAIIAN SHORT EARED OWL)
ʻAUKUʻU (BLACK CROWNED NIGHT HERON)
The numbers of near shore reef fish such as *Uhu* have decreased over the years likely due to a combination of factors including a loss of coral habitat, over harvesting of fish, and decreased water quality from pollution such as sediment runoff from land.

- **NOAA FISHERIES, PACIFIC ISLANDS REGIONAL OFFICE**
43% CORAL COVERAGE (10%-50% DENSITY) (NOAA, 2007)
“The oceans needs to drink. The zone where the *wai* (freshwater) from the land meets the *kai* (ocean water) is where the limu grows, and is the nursery for marine and stream life. We need good quality water flowing from mauka so that the ocean can be full of food.”

– **UNCLE HENRY CHANG WO,**
**LIMU LOEA (EXPERT), (1941 - 2015)**
Residents: 5,439 (US Census, 2010)

Volunteers: 2,650 (2010-15)

13 Natural Resource Management Projects (Since 2010)
Hau‘ula to Punalu‘u Watershed Snapshot

LOCAL MEASURES OF AHUPUA‘A HEALTH

The Watershed Snapshot is a status report on the health of our ahupua‘a, a watershed. In consultation with the Hawai‘i Conservation Alliance, communities across the state identified metrics that would best define the health of their ahupua‘a. Available data from resource management organizations was compiled to inform the selected metrics, and communities also collected socio-economic and local kipuka (olé) knowledge. An online library of all available watershed related data has been created as a public-resource and can be found by visiting hca.maps.arcgis.com. The information compiled in a suite of communication tools will help inform, guide and garner support for increasing, ma‘u to make management efforts. Visit www.hawaiiconservation.org/watershedsnapshot for more information.

27% NATIVE FOREST COVER (2011)

43% CORAL COVERAGE (15%-56% DENSITY)

RESIDENT POPULATION: 5,439 (2010)

VOLUNTEERS: 2,650 (2010-12)

13 NATURAL RESOURCE MANAGEMENT PROJECTS (2010-2012)


LOCAL MEASURES OF AHUPU'A HEALTH

The Watershed Snapshot is a status report on the health of our ahupua'a, or watershed. In collaboration with the Hawaii Conservation Alliance, communities across the state identified metrics that would best define the health of their ahupua'a. Available data from resource management organizations was compiled to inform the selected metrics, and communities also collected socio-economic, and local ki'ipuna (elder) knowledge. An online library of all available watershed related data has been created as a public resource and can be found by visiting hawaiiwatershed.com. The information is compiled as a suite of communication tools to help inform, guide, and garner support for more effective maui-to-maui management efforts. Visit www.hawaiiconseratin.org/communitysnapshot for more information.

HAU'ULA TO PUNALU’U

Located on the southwest coast of O‘ahu in the Kulaikai valley (district) are the rural communities of Hau‘ula and Punalu‘u. Hau‘ula and Punalu‘u are small, essential communities with fertile landscape framed by sandy beaches and adjacent shallow reef. Five streams in Hau‘ula and two streams in Punalu‘u support natural wetlands and isolated ponds. In the 1890s the land was annexed to the state to be used for cattle, but in the 1950s the land was used to grow sugarcane. In the 1950s land was subdivided into tracts. Hau‘ula is the first in the state to be USDA-certified organic and Tonniih’itei (2012, 2013).

WATERSHED SNAPSHOTT PROGRESS 2012-16

STATEWIDE WATERSHED HEALTH DATA

To access a variety of publically available watershed-related fact sheets compiled from various agencies, visit the Watered Health Map at hawaiianetmaps.org. Also available is the Hawai‘i to Puna‘au‘ula Web Map, which features data from the community snapshot metric used for the project and additional coupled data.

WATER QUALITY

of 698 Cesspools are within 200 feet of a stream.

of 698 Cesspools are within 200 ft of the coastline.

Marine Invertebrates and Algae

The oceans needs to drink. The water where the salt (freshwater) from the land meets the ocean (sea water) is where the lama grows, and is the nursery for marine and stream life. We need good quality water flowing from moku so that the ocean can be full of food.

— UNCLE HENRY CHANG WO, LIMU EXPERT, 1941 - 2015

COMMUNITY INVOLVEMENT (2010-15)

Natural Resources Management Projects 13

Volunteers 2,650

NATIVE VEGETATION (2011)

Native Forest Cover 27%

HAU‘ULA’S POPULATION IN 2010 WAS 4,270 AND PUNALU‘U WAS 1,564
LAND AREA FOR HAU‘ULA IS 1.3 SQ MI AND FOR PUNALU‘U IS 1.1 SQ MI

TARGET FOOD FISH

The numbers of near shore reef fish such as Uhu have decreased over the years likely due to a combination of factors including a loss of coral habitat, over harvesting of fish, and decreased water quality from pollution such as sediment runoff from land - NOAA Fisheries, Pacific Islands Regional Office

AVERAGE ANNUAL RAINFALL

121

201

KAWAI KAWAI, PH.D.
NATIONAL TROPICAL BOTANICAL GARDEN

Native Forest Cover 27%

Hawai‘i Conservation Alliance Foundation
www.hawaiiconseratin.org
STATEWIDE, PUBLICLY AVAILABLE WATERSHED-RELATED DATA AVAILABLE AT: WWW.HAWAIICONSERVATION.ORG/COMMUNITYSNAPSHOT
DISCUSSION