

# Maui's Coral Reefs: Declining Trends 1993-2015

and

## Restoration of Maui's Coral Reefs (IEM-27)

Maui County Council

Infrastructure and Environmental Management Committee Meeting

November 16, 2015



IEM-27

RECEIVED AT IEM MEETING ON 11/16/15





## MAUI'S CORAL REEFS: DECLINING TRENDS 1993–2015

The health of Maui's coral reefs is inextricably linked to our local economy and well-being. However, Maui's coral reefs are in serious trouble. Recent scientific studies clearly illustrate the decline now underway. During the past two decades, nearly one-quarter of Maui's corals have been lost,<sup>1,2</sup> with half of Maui's reef sites currently experiencing declining health (see map).<sup>3,4</sup> The largest declines have been observed on reefs adjacent to residential centers and agricultural lands such as Kahekili, Papa'ula Point, Honolua Bay, and Mā'alaea Bay, where on average the percent of living coral at sites has dropped from more than 30–50% in 1993, to less than 5–10% today.<sup>5,6,7</sup> Even with minimal upland development, Olowalu reef has declined from 43% to 33% live reef during this time.

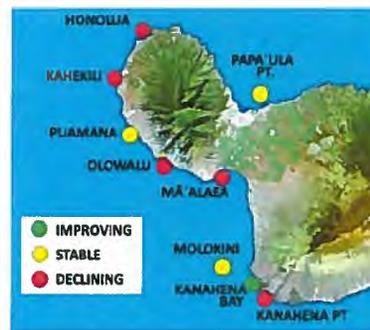
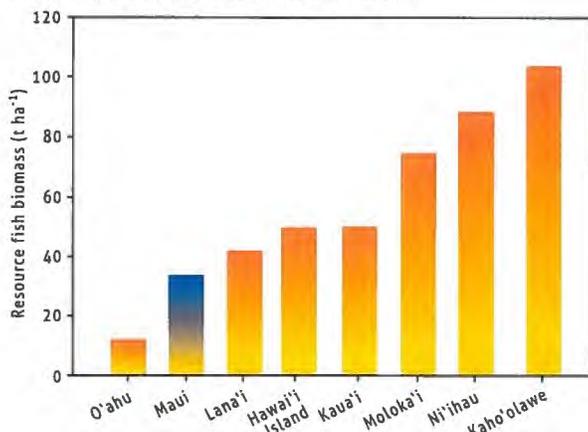
As the amount of living reef has declined, so too have Maui's native reef fish populations. Since 1995, the biomass (amount, by weight) of culturally and economically important reef fish species found on Maui's reefs has declined significantly.<sup>8</sup> As with other main islands, some fish stocks around Maui have seen declines of more than 90% over the past century.<sup>9</sup> As a result, the average amount of reef fish found around Maui's reefs is the second lowest in the State, behind only O'ahu (see Figure 1).<sup>10</sup>

The quality of Maui's coastal waters is also a concern for coral reefs because reefs require clean clear water and bottom substrate for growth and reproduction. Nearly 90% of water quality samples taken around Maui in the period 2012–2014 exceeded State Water Quality Standards for turbidity, nutrients, and/or bacteria.<sup>11</sup> Maui's impaired waters are a public health concern for humans and for marine life. Improving coastal water quality is essential to the survival and recovery of reefs.

The reasons for these declines relate to the increasing use of Maui's coastal lands and waters. There are three primary drivers behind these negative trends: (1) introduced land-based pollutants and sediments onto reefs;<sup>12,13</sup> (2) overfishing coupled with poor enforcement of current fishing regulations;<sup>14,15,16</sup> and (3) insufficient 'resting' (kapu) sites that protect marine life by providing adequate time and space to recover from stresses, and then 'spill over' and replenish adjacent areas.<sup>17,18</sup>

In addition, there are emerging impacts beyond Hawai'i's control that threaten to further damage Maui's reefs:<sup>19,20</sup> increasing ocean temperatures<sup>21</sup> that result in coral bleaching, rising sea levels<sup>22</sup>, ocean acidification<sup>23</sup>, and increasing frequency and intensity of coastal storms.<sup>24</sup>

Figure 1: Resource fish biomass across the main Hawaiian Islands. Data courtesy of Friedlander et al. 2015.



*Healthier reefs are more resilient and have a greater chance of recovery following disturbances and ocean change.*

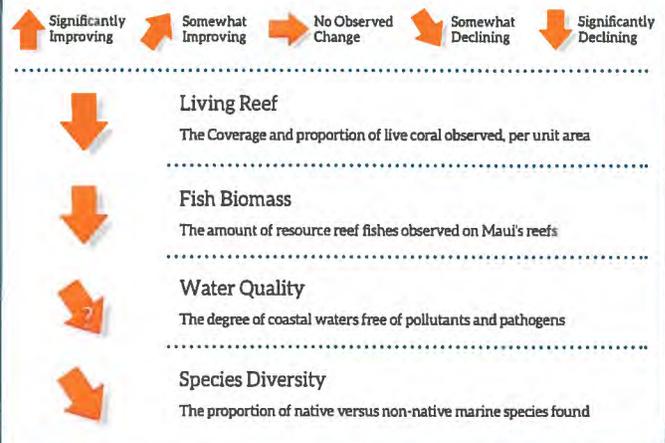
Our best hope to protect Maui's corals from global threats is to reduce local stressors like pollution and overfishing.

Similar to monitoring human health, we can periodically 'check-up' on the health of Maui's coral reefs. Like people, healthier reefs have a greater chance of recovery from periodic illnesses than ones that are continually stressed and/or diseased. Summary check-up results regarding the current health of Maui's reefs are presented below (Box 1). They are deeply alarming.

### Our Diagnosis in 2015

The status of Maui's coral reef health is poor. In the absence of increased treatment and effective management, continued declines in reef health are expected in coming years.

#### Box 1: Summary results on the current health of Maui's coral reefs (trends in key diagnostics of health: 1995–2015)



# REVERSING THE DECLINE

## Why We Should Care About Maui's Reefs

Maui is home to some of the largest and most complex coral reefs in the main islands. These reefs provide innumerable cultural, economic, and recreational benefits to the people and the visitors of Maui. Continued losses will forever alter the economic value, quality of life, and traditional and cultural connections of these irreplaceable resources for Maui's people.

Simply acknowledging that there is a problem is not enough to solve it. Through the customary and shared native Hawaiian value of kuleana, we feel strongly compelled to let the public know about the observed declines in the health of Maui's coral reefs. Fortunately, Hawai'i and other places around the world have shown us how to reverse such declines, and we believe that it is not too late to do so. Accordingly, we must act immediately to reverse and stop these alarming trends.

We are encouraged by the recent increased local engagement and action that has been taken to restore reefs in people's communities.

*The creation of community-managed makai areas (CMMAs) starting in 2010 and the initiation of the Maui Community Managed Makai Area Network in 2013 hold great promise.*

At Kahekili a new preserve is protecting herbivorous reef fish. New rules were also recently passed limiting the number of parrot and goatfish that can be fished. We also have a much stronger scientific understanding of the status and trends in the health of Maui's reefs and fish populations than we did a generation ago, providing us with an improved level of precision to guide our actions and objectively measure the outcomes of our management efforts. For example, we know through a recent comparison of 310 sites around the world that using resting areas (kapu) in modern times typically helps to restore both reef fish populations and coral habitat.<sup>25</sup> Despite these successes, we remain deeply concerned.

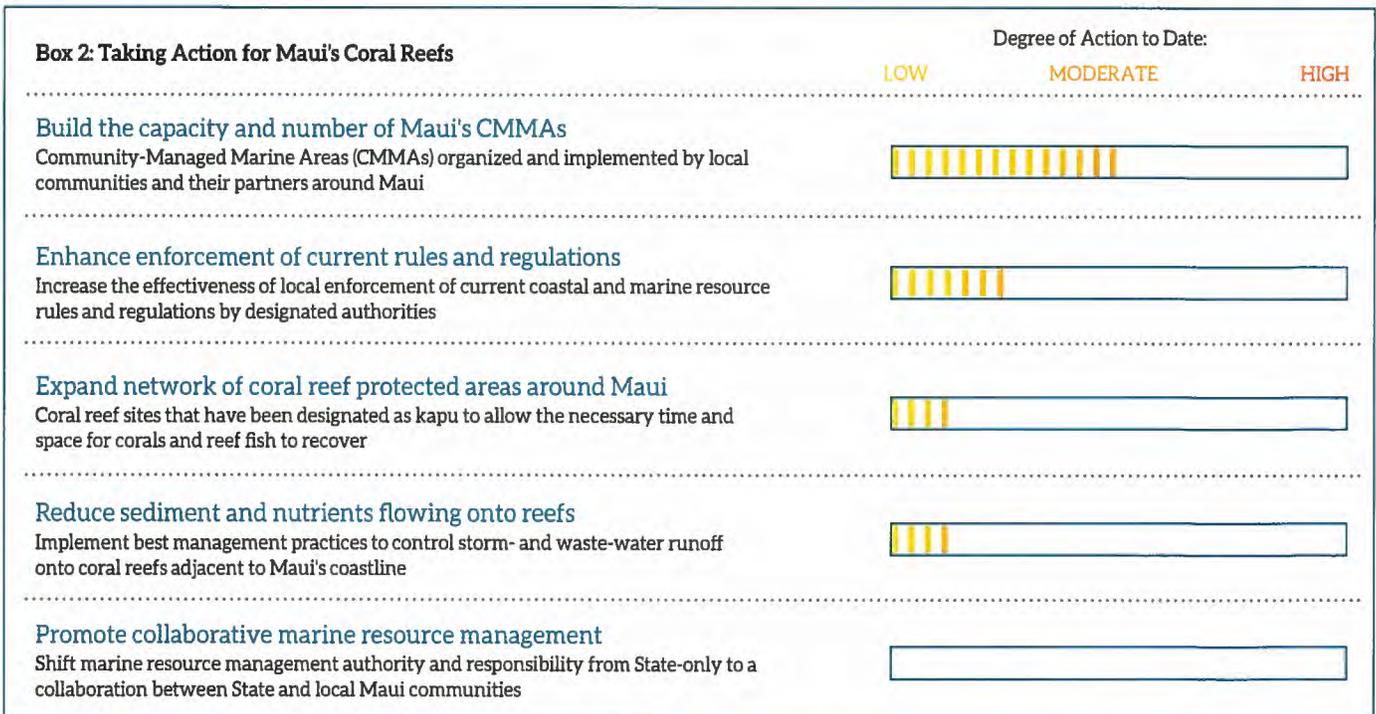
*This report has been written for you, because you can help to reverse Maui's declining reef health.*

There are 5 priority actions that we must increase beyond current levels of effort (see Box 2) during the next 3 years: (1) building the capacity and increasing the number of CMMAs around Maui to implement coral reef recovery strategies through collaborative efforts; (2) enhance enforcement of current marine resource rules and regulations within Maui's coastal waters; (3) expand the network of coral reef areas under protection around Maui, with a target of protecting 20% of Maui's coral reef ecosystems sustainably managed by 2020 (currently < 2%); (4) implementing policies and practices to reduce sediment and nutrients flowing onto Maui's reefs; and (5) promote a collaborative approach to marine resource management around Maui.<sup>26</sup> If we take appropriate action, Maui's reefs will recover. This hope depends on our collective commitment to do so.

### Our Recommendation for 2016+

The current level of action to restore the health of Maui's reefs is insufficient; we must commit fully to taking the actions necessary to protect Maui's coral reefs by urgently expanding the level and scope of protection and community involvement.

All footnoted references are available online at:  
<http://www.mnmrc.org/mauis-coral-reefs-declining-trends-report>



## REFERENCES

**This report was prepared by the Maui Coral Recovery Team:  
A voice for the health of Maui's reefs**



We have created this report both for Hawai'i's decision makers and the public. Our team is comprised of Hawai'i's preeminent coral reef scientific and management experts from across the islands. We work together on a voluntary basis driven by our shared concern regarding the fate of Maui's coral reefs. We support decision makers and local communities to take action that effectively manages Maui's coral reefs for the benefit of current and future generations.

- <sup>1</sup> DAR 2014. Status and Trends of Maui's Coral Reefs. State of Hawai'i Department of Land and Natural Resources, Division of Aquatic Resources and the Hawai'i Coral Reef Initiative Research Program. Honolulu, HI. 2 pages.
- <sup>2</sup> Rodgers et al. 2015. "Over a decade of change in spatial and temporal dynamics of Hawaiian coral reef communities." *Pacific Science*. 69(1): 1–13.
- <sup>3</sup> CRAMP map for Maui Nui
- <sup>4</sup> Walsh et al. 2009. "Long-term monitoring of coral reefs of the Main Hawaiian Islands: final report." NOAA Coral Reef Conservation Program and the State of Hawai'i. Report NA06NOS4260113. Honolulu, HI.
- <sup>5</sup> Brown et al. 2015. "State of the Coral Reef Ecosystems of Maui and Lāna'i, Hawai'i." Manuscript in review.
- <sup>6</sup> Rodgers et al. 2015. "Over a decade of change in spatial and temporal dynamics of Hawaiian coral reef communities." *Pacific Science*. 69(1): 1–13.
- <sup>7</sup> DAR 2014. Status and Trends of Maui's Coral Reefs. State of Hawai'i Department of Land and Natural Resources, Division of Aquatic Resources and the Hawai'i Coral Reef Initiative Research Program. Honolulu, HI. 2 pages.
- <sup>8</sup> Friedlander et al. 2008. "The state of coral reef ecosystems of the main Hawaiian Islands." Pages 219–261 in J. Waddell (ed.). *The state of coral reef ecosystems of the United States and Pacific Freely Associated States*. NOAA Technical Memorandum NOS NCCOS 11. Prepared by the NCCOS Center for Coastal Monitoring and Assessment Biogeography Branch. Silver Spring, MD.
- <sup>9</sup> Friedlander AM., Nowlis J, Koike H. 2015. Stock assessments using reference points and historical data: stock status and catch limits. Pages 91–118 In: *Applying Marine Historical Ecology to Conservation and Management: Using the Past to Manage for the Future* (JN Kittinger, LE McClenachan, K Cedan, LK Blight ed.), University of California Press. Williams et al. 2008. "Assessing the importance of fishing impacts on Hawaiian coral reef fish assemblages along regional-scale human population gradients." *Environmental Conservation*. 35 (3): 261–272.
- <sup>10</sup> Friedlander AM, Donovan MK, Stamoulis KA, Williams ID, Brown EK, Conklin EJ, DeMartini EE, Rodgers KS, Sparks RT, Walsh WJ. Human-induced gradients of reef fish declines in the Hawaiian Archipelago through the lens of traditional management boundaries. In Review. *Conservation Biology*. Friedlander, Biomass by Island graph.
- <sup>11</sup> State of Hawai'i Water Quality Monitoring and Assessment Report: Integrated Report to the U.S. Environmental Protection Agency and the U.S. Congress Pursuant to §303(d) & §305(b), Clean Water Act (PL. 97–117).
- <sup>12</sup> Dailer et al. 2010. "Using  $\delta^{15}N$  values in algal tissue to map locations and potential sources of anthropogenic nutrient inputs on the island of Maui, Hawai'i, USA." *Marine Pollution Bulletin*. 60: 655–671.
- <sup>13</sup> Smith, C. E., and J. E. Smith. 2006. "Algal blooms in North Ki'hei: An assessment of patterns and processes relating nutrient dynamics to algal abundance." A Report to the City and County of Maui. Kahului, Maui.
- <sup>14</sup> Walsh et al. 2009. "Long-term monitoring of coral reefs of the Main Hawaiian Islands: final report." NOAA Coral Reef Conservation Program and the State of Hawai'i. Report NA06NOS4260113. Honolulu, HI.
- <sup>15</sup> Friedlander, A.M., E.K. Brown, and M. E. Monaco 2007. "Defining reef fish habitat utilization patterns in Hawai'i: comparisons between MPAs and areas open to fishing." *Marine Ecology Progress Series*. 351: 221–233.
- <sup>16</sup> Williams et al. 2011. "Differences in reef fish assemblages between populated and remote reefs spanning multiple archipelagos across the Central and Western Pacific" *Journal of Marine Biology*. vol. 2011, Article ID 826234, 14 pages, 2011.
- <sup>17</sup> Friedlander et al. 2010. "Monitoring Hawai'i's Marine Protected Areas: Examining Spatial and Temporal Trends Using a Seascape Approach." NOAA Technical Memorandum NOS NCCOS 117. Prepared by the NCCOS Center for Coastal Monitoring and Assessment Biogeography Branch. Silver Spring, MD. 130 pp.
- <sup>18</sup> Friedlander et al. 2006. Fish Habitat Utilization Patterns and Evaluation of the Efficacy of Marine Protected Areas in Hawai'i: Integration of NOAA Digital Benthic Habitats Mapping and Coral Reef Ecological Studies. NOAA Technical Memorandum NOS NCCOS 23. 213 pp.
- <sup>19</sup> Hoeye et al. 2011. "Projected changes to growth and mortality of Hawaiian corals over the next 100 years." *PLoS ONE* 6(3).
- <sup>20</sup> IPCC 2013. "Climate Change 2013: The Physical Science Basis" The 5th Assessment Report of the Intergovernmental Panel on Climate Change (IPCC). Cambridge University Press.
- <sup>21</sup> Neilson, B. 2014. "Coral bleaching rapid response surveys September to October 2014." Hawai'i State Department of Land and Natural Resources.
- <sup>22</sup> M.E.Field, A.S.Ogston and C.D.Storlazzi "Rising Sea Level May Cause Decline of Fringing Coral Reefs" *EOS Transactions, American Geophysical Union Volume 92, Number 33 (2011):* Pages 273–280.
- <sup>23</sup> Hoegh-Guldberg et al. 2007. "Coral reefs under rapid climate change and ocean acidification." *Science* 318: 1737–1742.
- <sup>24</sup> Hoegh-Guldberg, O., and J. F. Bruno 2010. "The impact of climate change on the world's marine ecosystems." *Science* 328: 1523–1528.
- <sup>25</sup> Selig, E. R., and J. F. Bruno 2010. "A global analysis of the effectiveness of marine protected areas in preventing coral loss." *PLoS ONE*. 5(2): 1–7.
- <sup>26</sup> For a practical guide on how to implement proven, peer-reviewed coral reef recovery strategies for Maui's reefs, see the Maui Coral Reef Recovery Plan (2nd edition; 2015). Download online at: <http://www.mnmrc.org/mauis-coral-reefs-declining-trends-report>



## Maui Nui Coral Recovery Team Members

- |  |   |
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Our vision: the waters of Maui Nui are clean, our coral reefs healthy, and our native fishes abundant.

Learn more and get involved at <http://www.mnmrc.com> and <https://www.facebook.com/MNMRC>

*This document was prepared by the Maui Coral Recovery Team: a voice for the health of Maui's reefs. We have created this report both for Hawaii's decision makers and the public. Our team is comprised of Hawaii's preeminent coral reef scientific and management experts from across the islands. We work together on a voluntary basis driven by our shared concern regarding the fate of Maui's coral reefs. We support decision makers and local communities to take action that effectively manages Maui's coral reefs for the benefit of current and future generations.*

# *The Coral Reefs of Maui Nui*

*Remarkable, but severely threatened*



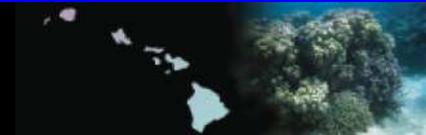
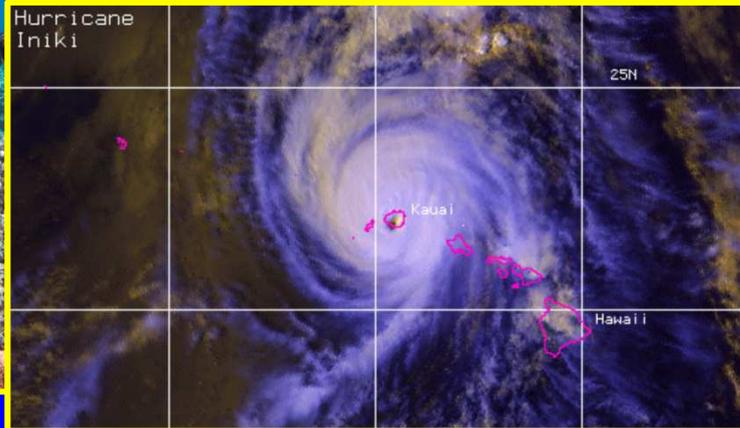
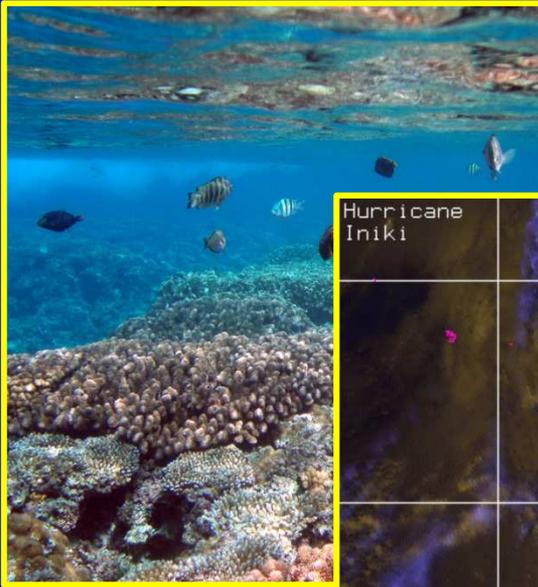
Dr. Michael Field

# Role of Coral Reefs:

**Biodiversity** – Only cover 0.5% of sea floor but house more than 25% of all marine species

**Food** – a primary source of protein for most island nations; nursery habitat for many commercial species

**Coastal resilience** – protection from storms, hurricanes, typhoons, tsunamis (2009 Samoan, 2011 Japan), and predicted sea-level rise



A. We know that there is a world-wide crisis on coral reefs

B. We know the causes: 1) Unsustainable fishing; 2.) Land-based pollution, and 3.) **Climate change**

**And now we know: The Problem has arrived in Hawai`i**



West Maui



West Maui



South Moloka'i



Seattle Times, 10/27/2015



DLNR photo, Molokini



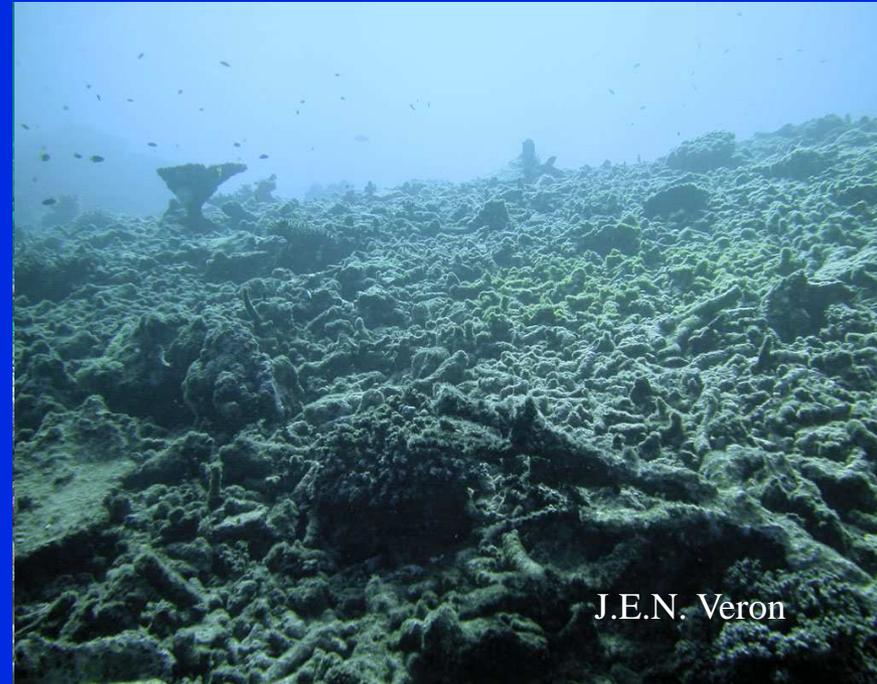
DAR photo, Olowalu

# WHY THIS MATTERS:

- Dead reefs are quickly flattened
- Many/most will not come back

So.....we lose, **probably forever:**

1. Habitat for fish and invertebrates
2. Barriers for storm and flood protection
3. Sites for family and community recreation



J.E.N. Veron

# THE RESULT ?

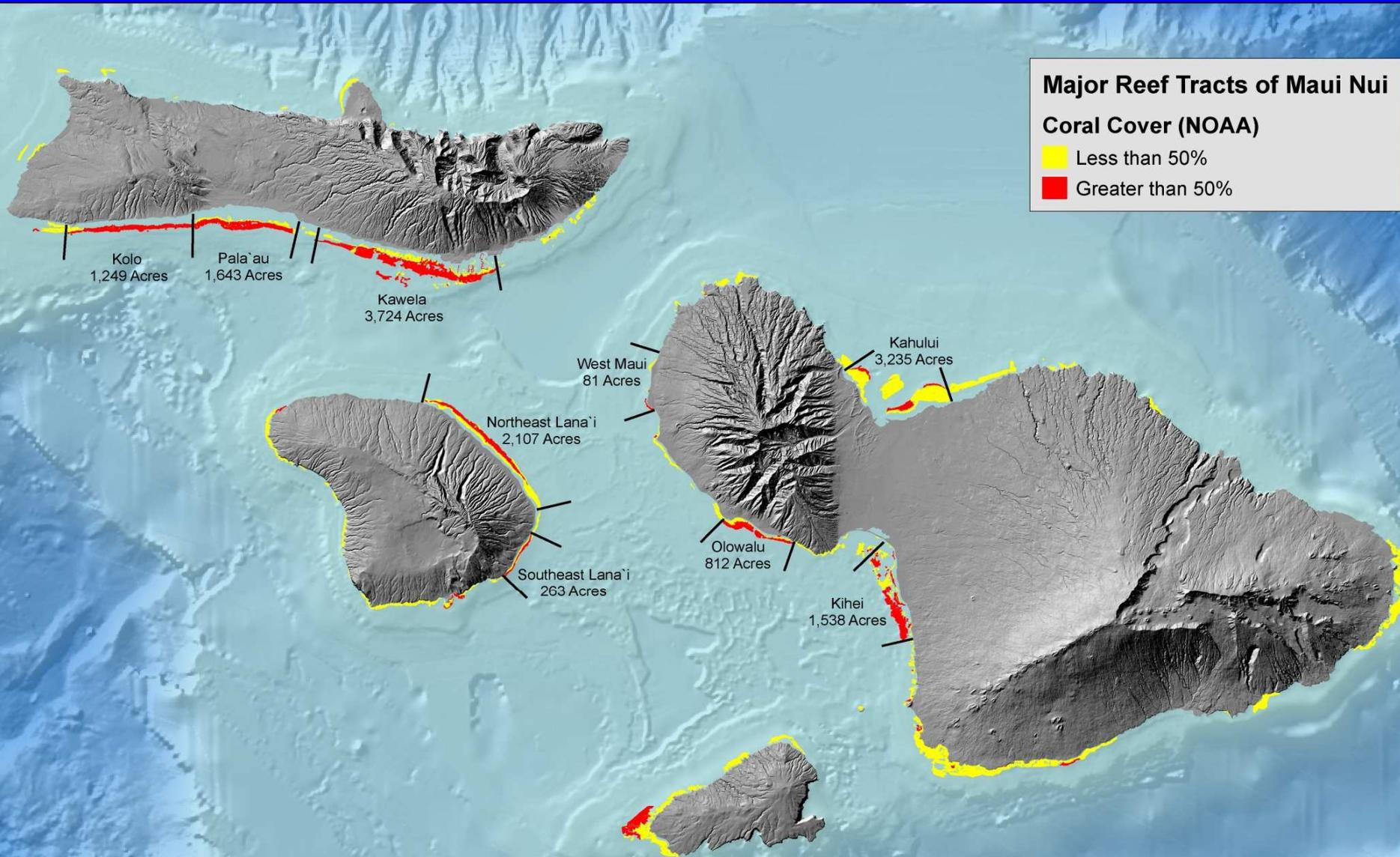
**The economic and cultural value of Maui Nui coral reefs will be greatly reduced within one generation ...or sooner.**

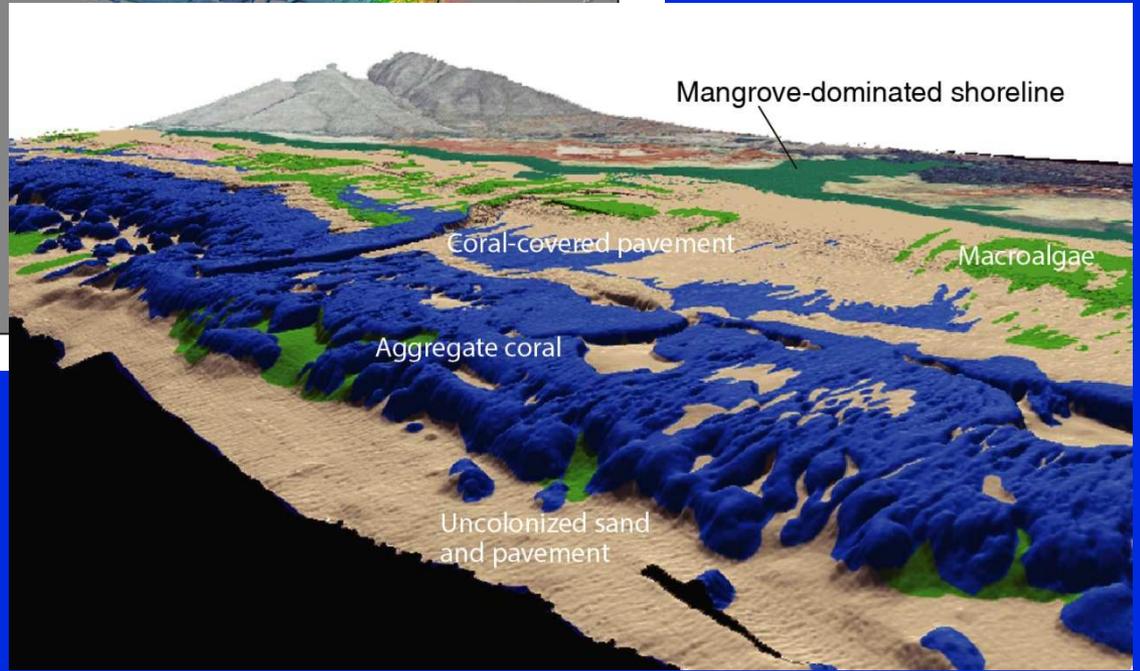
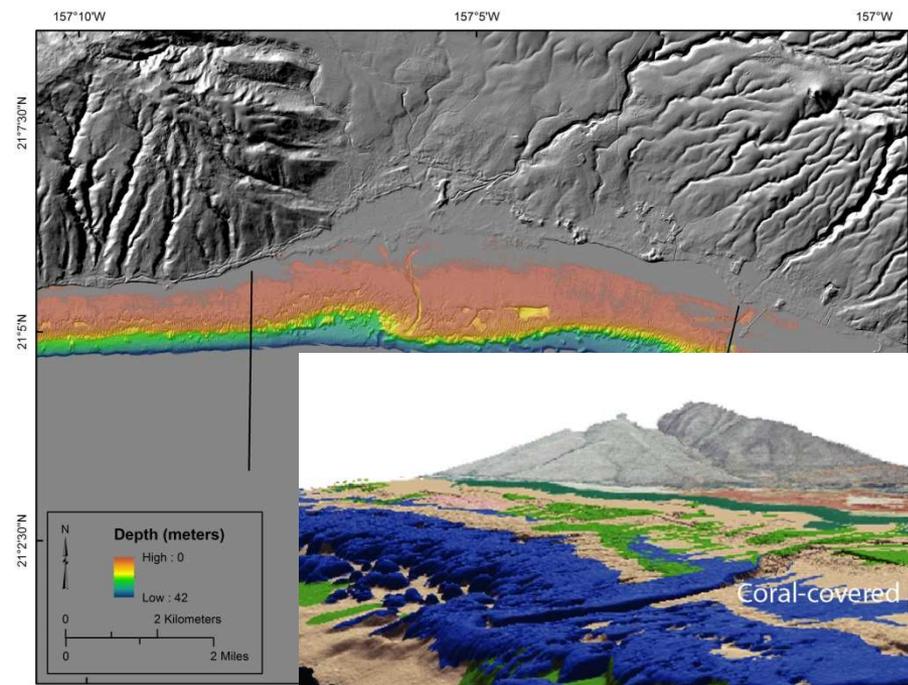
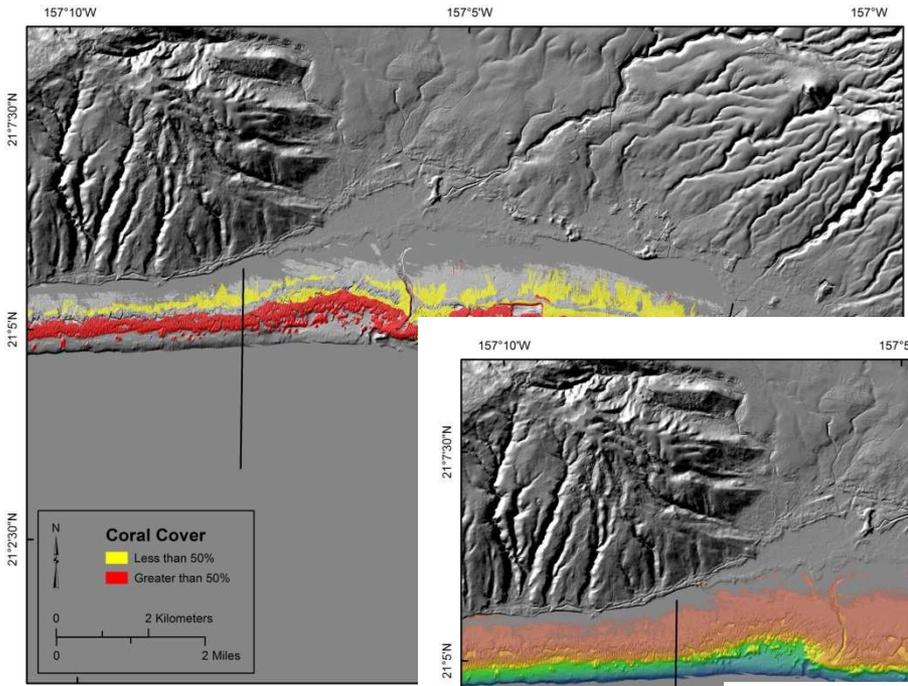
Sept 15, 2015

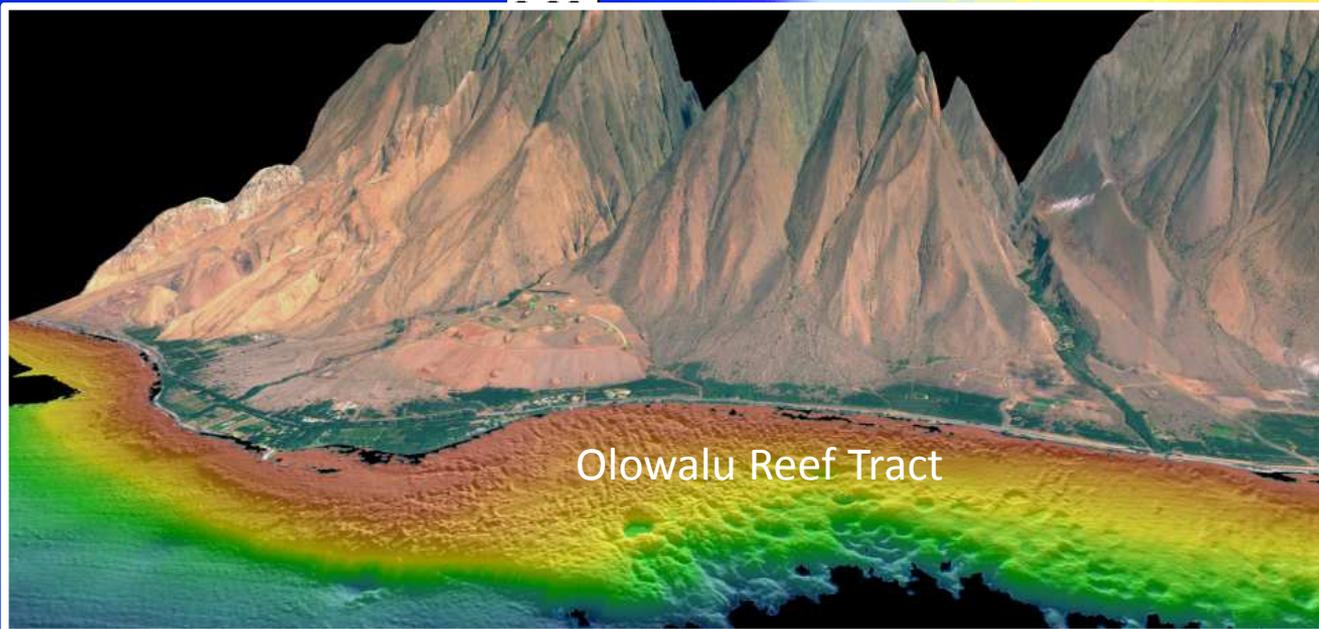
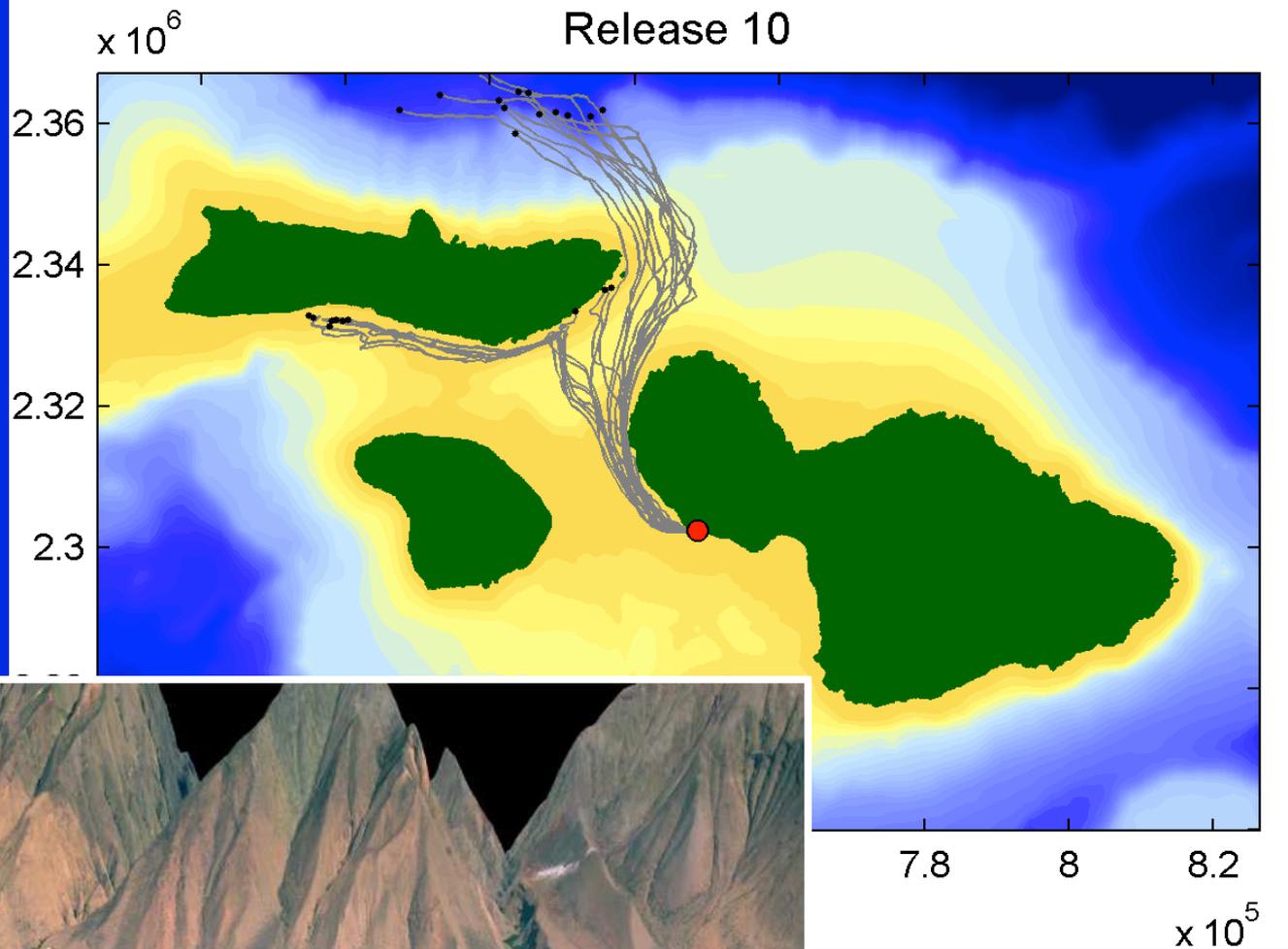
DLNR Chair Suzanne Case emphasized that Hawaii's coral reefs are the foundation of a healthy ocean. **"If we fail to protect them and lose them, it could have tremendously negative impacts not only on the overall ocean ecosystem but on Hawaii's economy."**

# Maui Nui has the largest, most complex, and richest coral reefs in the Main Hawaiian Islands

9 reef tracts with ~ 15, 000 acres of reef , mostly over 50% live coral !







**Given the ongoing and increasing threats to the Maui Nui coral reef complex, can anything be done?**

**YES**

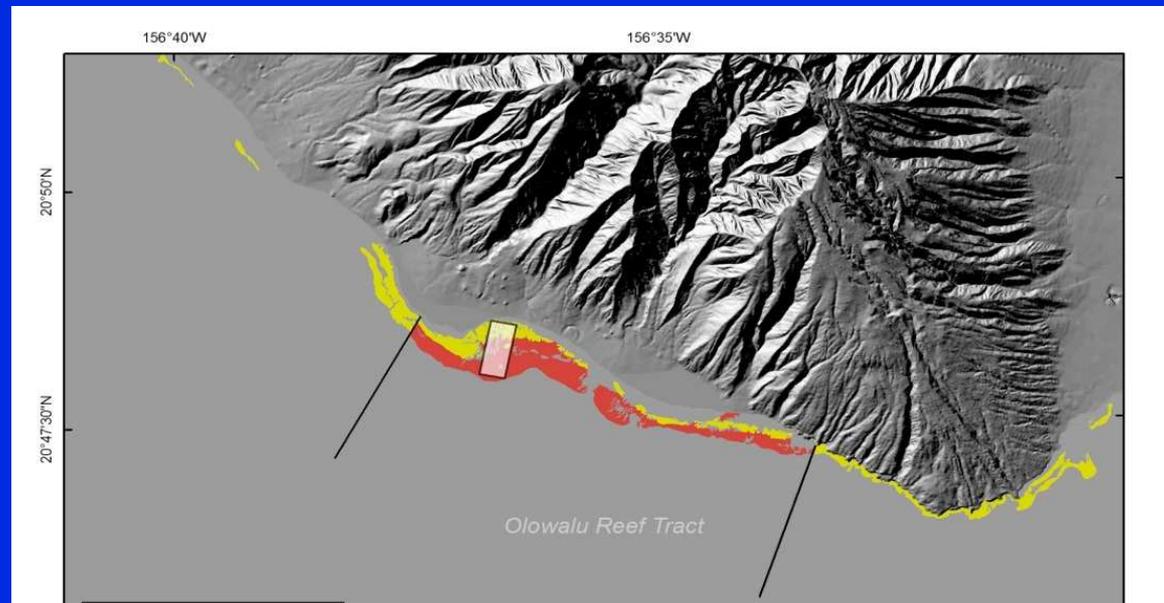
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## YES

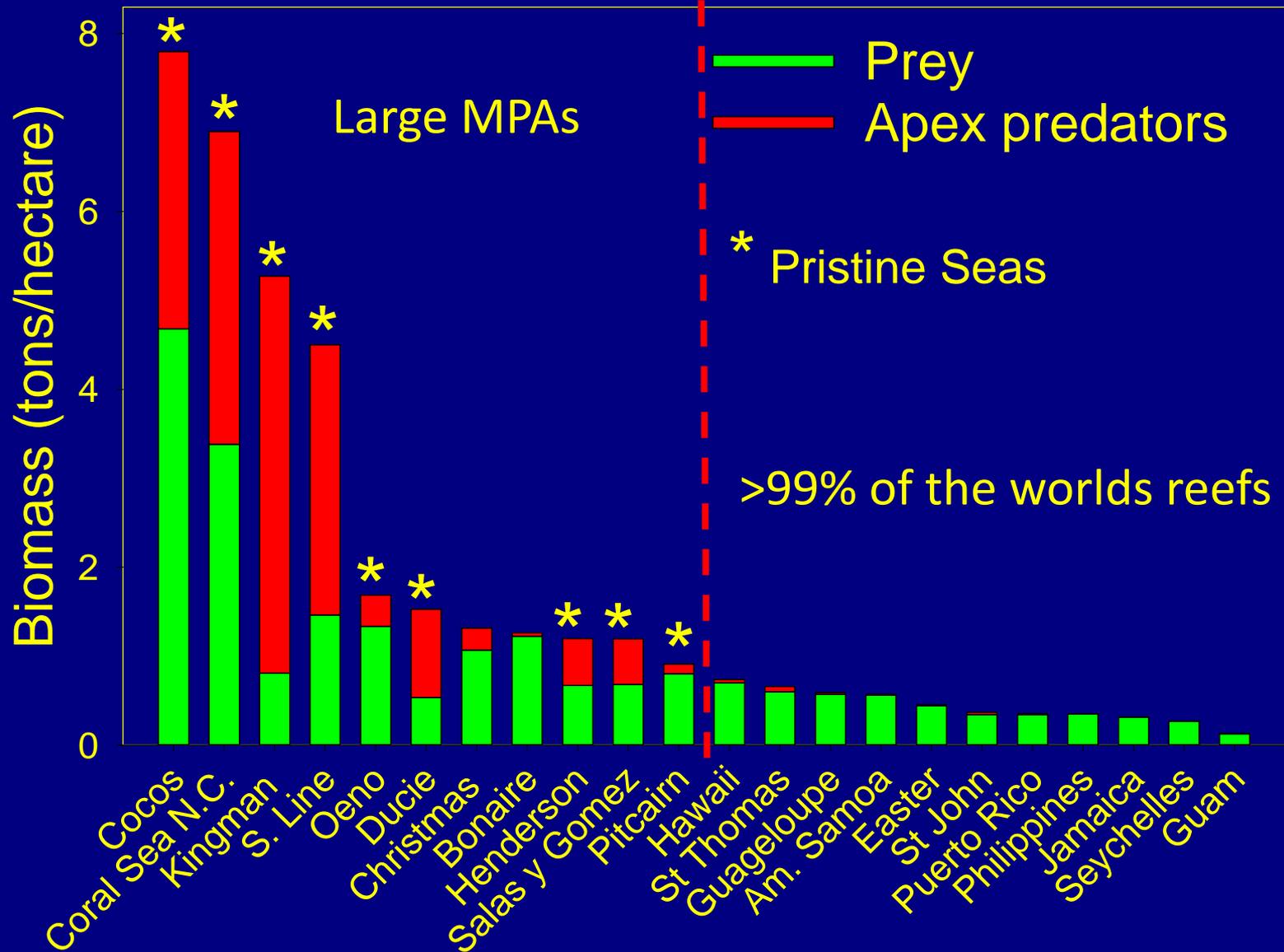
*Reducing all other stresses to coral reefs is recognized as the 2<sup>nd</sup> most effective action for providing coral reefs a chance to survive.*

*Setting aside 15 to 20 % of the reefs so that fish can grow and corals can fight warming is the only way we can insure a coral reef future for Maui.*

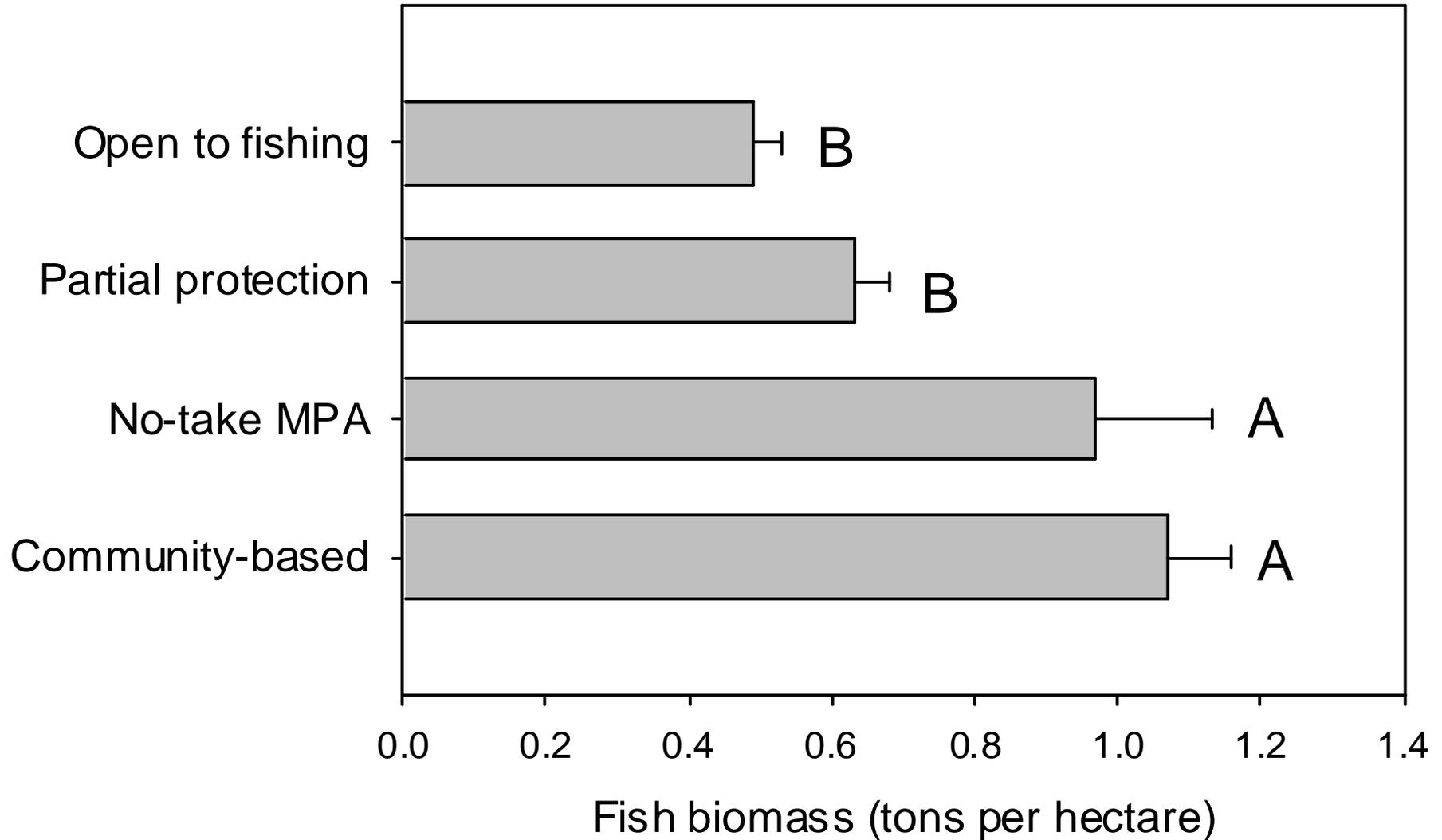
## There is no other choice



# Comparisons of fish biomass around the world



# Fish biomass under different management in Hawaii

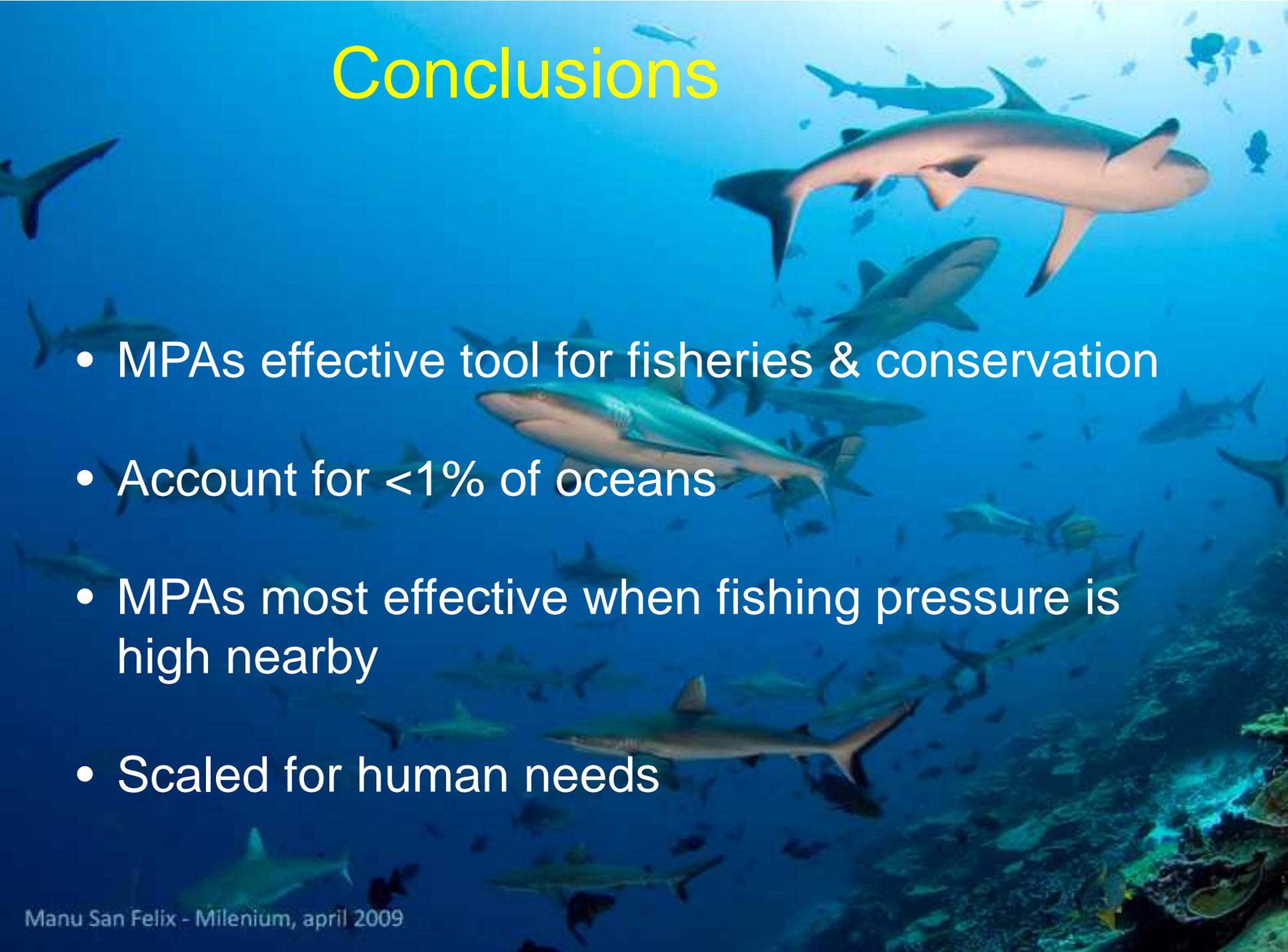


# Design Criteria for Effective MPAs in Hawaii

- Range of habitat complexities
- Full protection from fishing or community-managed
- Shoreline to deep habitats
- Mosaic of habitats (sand corridors, etc.)
- Low macroalgae cover (invasives)
- Representative wave exposures



# Conclusions

A large school of sharks, likely grey reef sharks, is swimming in clear blue water. The sharks are of various sizes and are swimming in different directions. In the bottom right corner, a coral reef is visible with various coral species and some smaller fish. The overall scene is a healthy marine ecosystem.

- MPAs effective tool for fisheries & conservation
- Account for <1% of oceans
- MPAs most effective when fishing pressure is high nearby
- Scaled for human needs

# Polanui Hiu





Lahaina Harbor

505 Front Street

Polanui

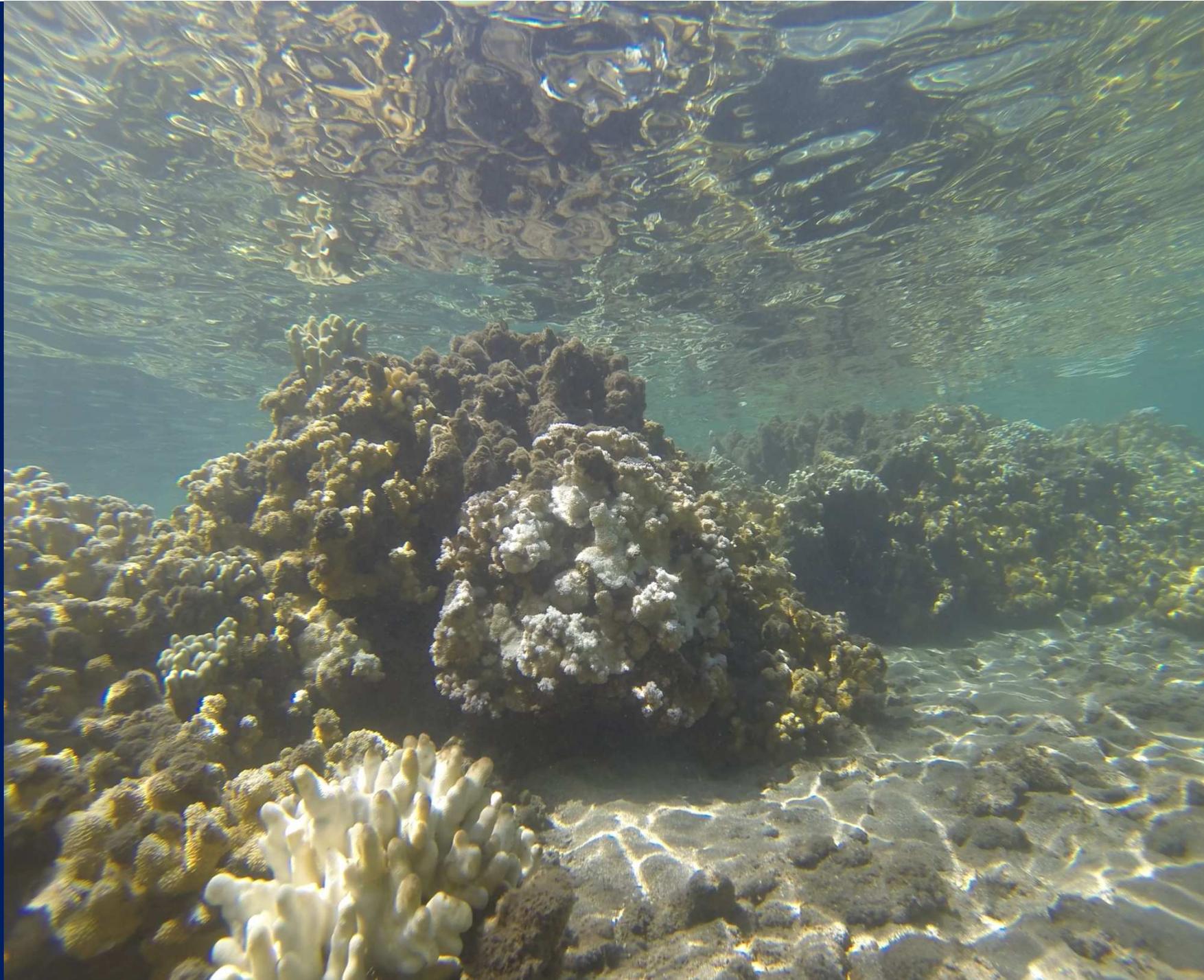
Kaua'ula

Makila Point

- Proposed CMMA
- Stream
- Ahupua'a
- 70ft Depth

0.125 0.25 0.5 mi







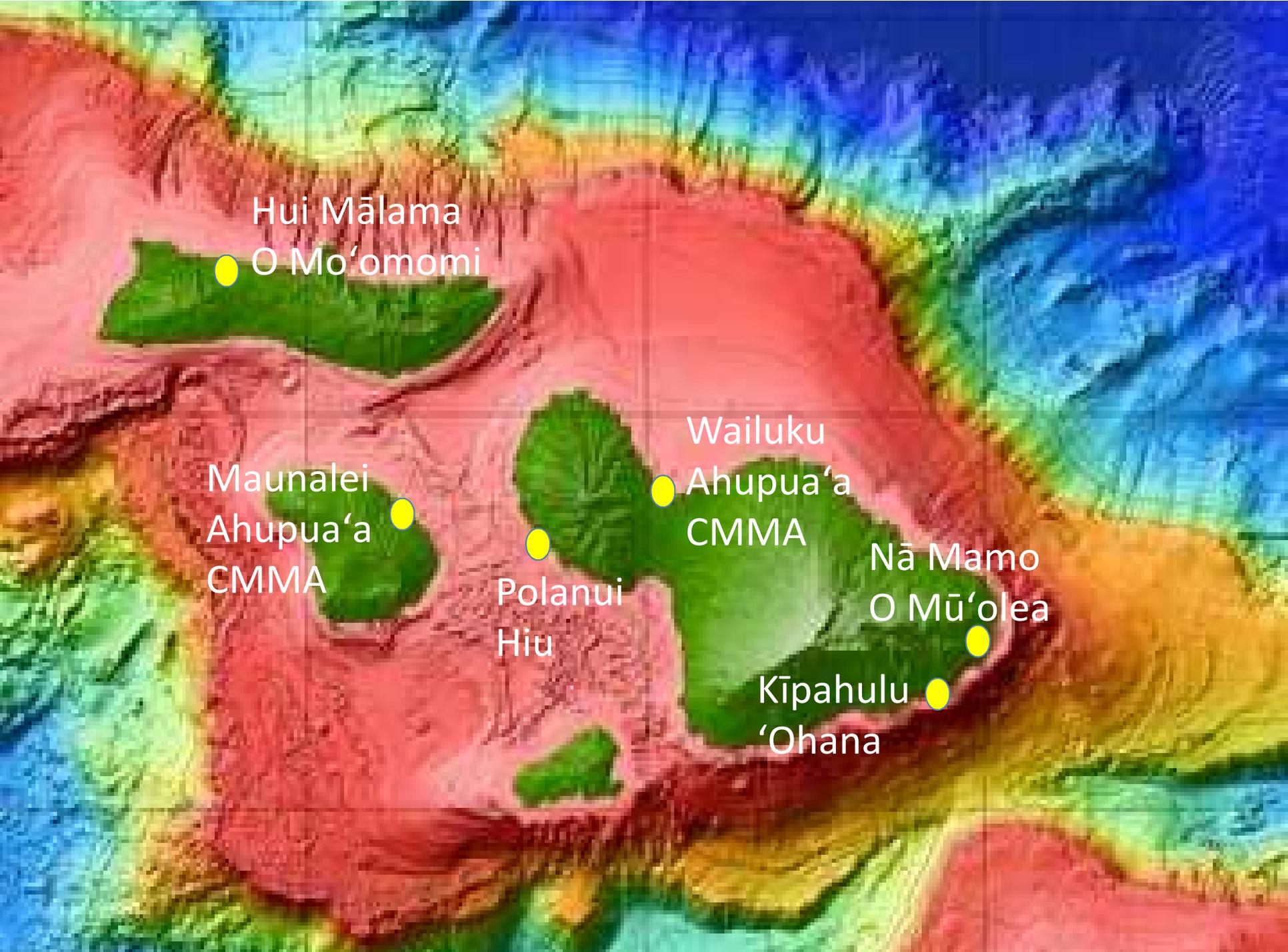




# The Maui Nui Makai Network



**Kako'o:**  
The Nature Conservancy  
Maui Nui Marine Resource Council



Hui Mālama  
O Mo'omomi

Maunalei  
Ahupua'a  
CMMA

Polanui  
Hiu

Wailuku  
Ahupua'a  
CMMA

Nā Mamo  
O Mū'olea

Kīpahulu  
'Ohana



•E Alu Pu and Maui Nui Network  
 •Communities' Visit to the State Legislature  
 •February 18–19, 2015

- Maui Nui Network representatives
- with Majority Leader, Senator Kalani J. English
- District 7: Hana, East and Upcountry Maui, Molokai, Lanai,
- District 8: Kahakuloa, Waihe'e, Kaho'ohalawe, Pu'uohala, Wailuku, Waikapu



- Ekolu Lindsey, Sol Kaho'ohalahala & Jay Carpio meeting
- with Senator Rosalyn Baker (D)
- District 6: Seaboard, West Maui

**11,800 acres**

**600+ PEOPLE ENGAGED**

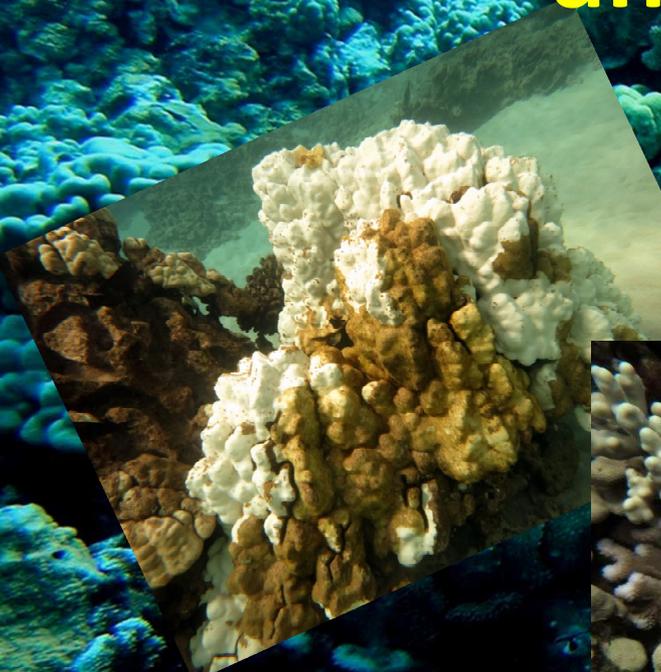
**6 sites promoting pono fishing**

**3 sites seeking state rules**



# Maui's Coral Reefs

## Current Management Successes and Challenges

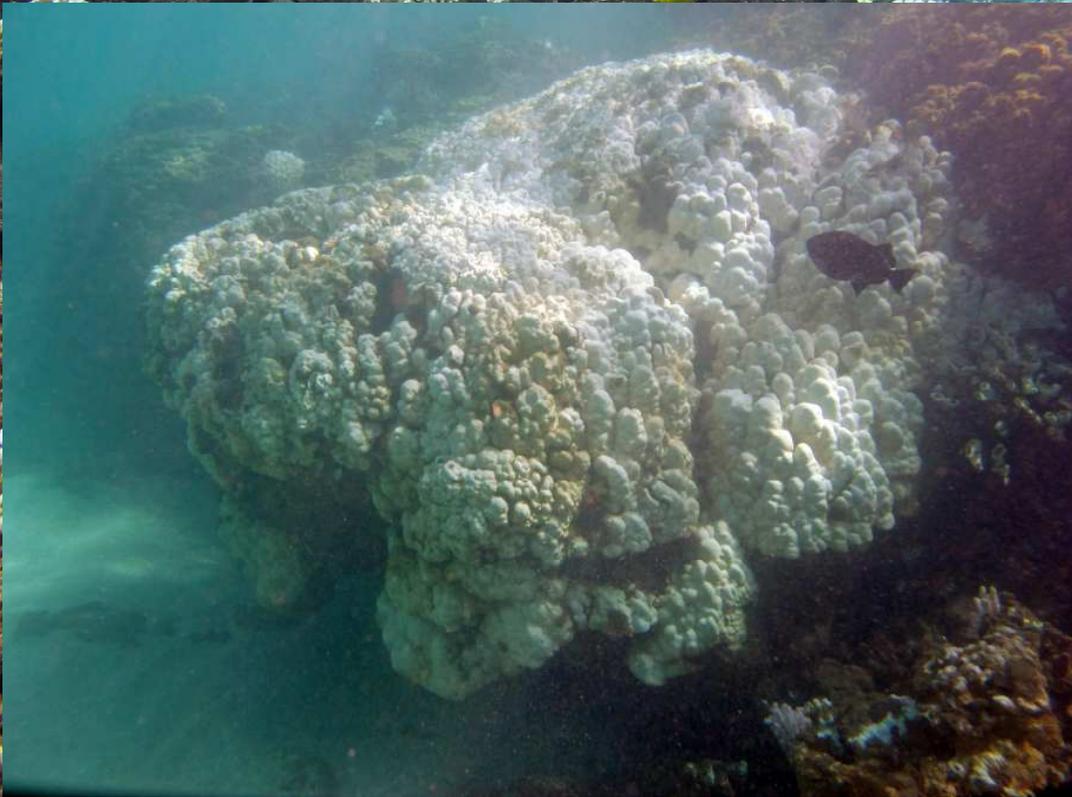


Russell Sparks, Aquatic Biologist  
DLNR / Division of Aquatic Resources

42%



- Bleaching this Year was the Worst Event Ever Recorded in Hawaii
- This is a new and Major Stress to Our Reefs
- Long term survival of Coral Reefs will Depend on Our Ability to Reduce Overall Stressors to the Reef Ecosystem



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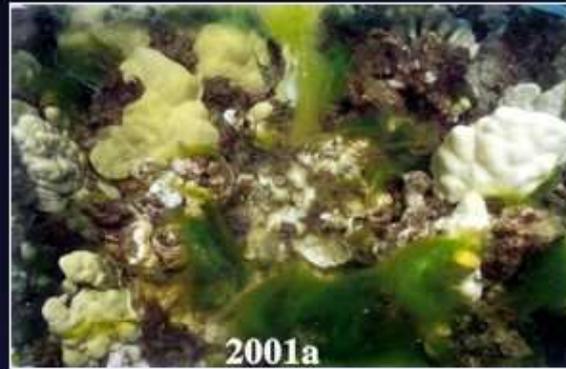
Miles

1993 1998 2003 2008 2013

1993 1998 2003 2008 2013

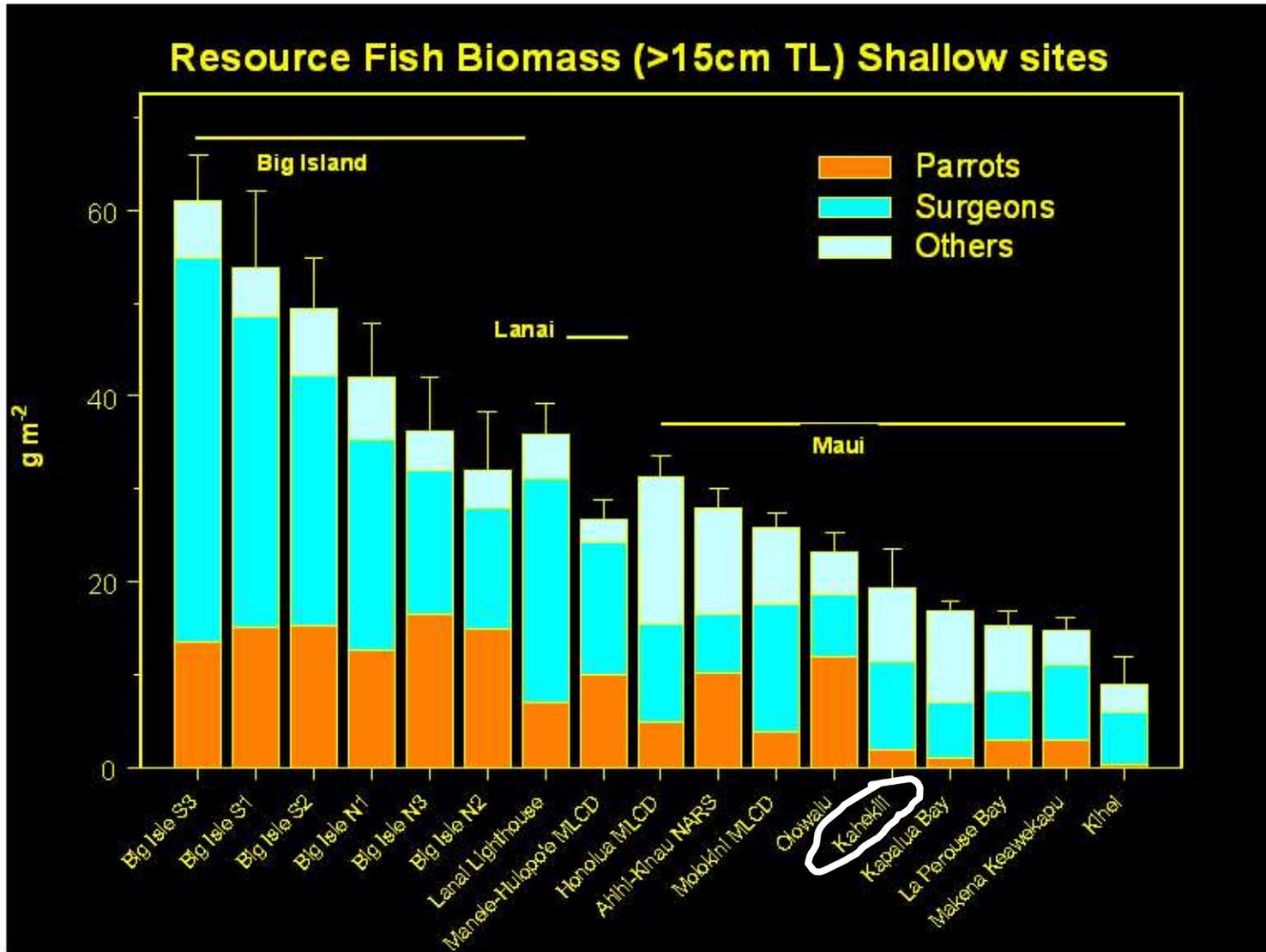


# Kahekili Park 3m Site (1999 - 2006)



# Comparisons of Fish Biomass

Kahekili compared to other MHI reefs surveyed by DAR



Honokowai  
Beach Park



## The Kahekili Herbivore Fisheries Management Area

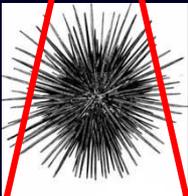
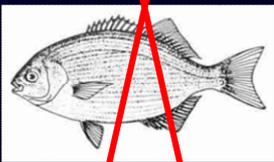
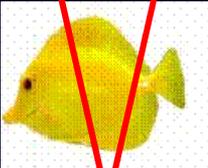
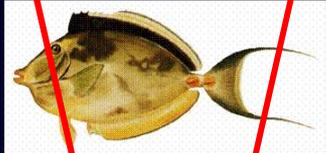
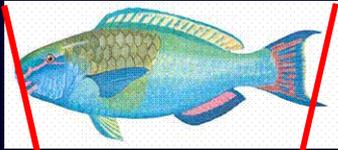
### Prohibited:

- Removing or killing any surgeon fish, parrotfish, or chub
- Removing or killing any sea urchins.
- Fish feeding.

### Allowed Activities:

- Fishing/removing all other legally harvested marine life.
- Using bait and/or other attractants while legally fishing.

Keka'a Point  
(Black Rock)



Lmax: 30-40 cm  
Lifespan: 6-10 years

90

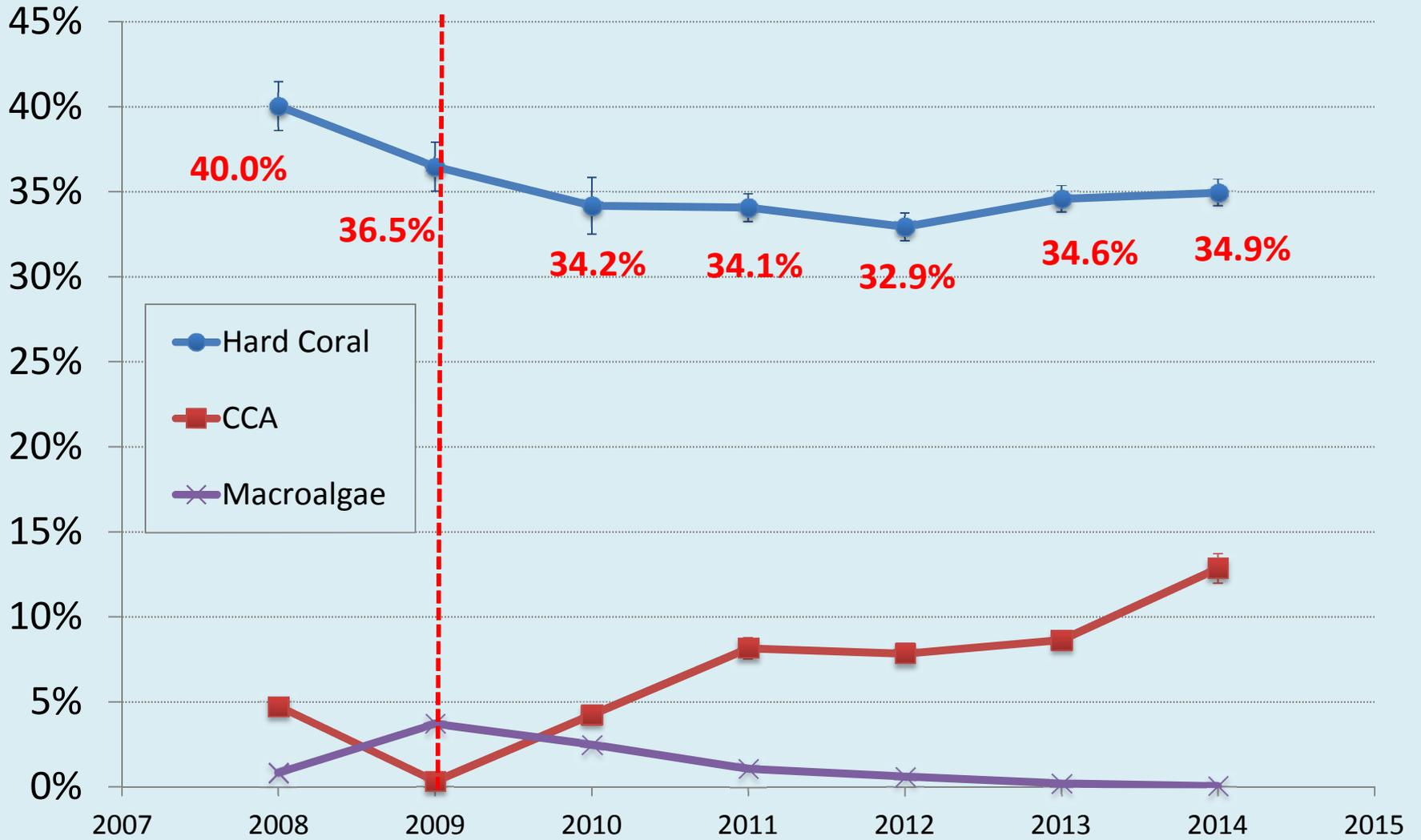
Lmax: ~70 cm  
Lifespan: ~20 years



Illegal  
Fishing  
Likely

NWHI and remote MHI 5-10 g/m<sup>2</sup>

# Benthic Cover Kahekili



# Macroalgae

Crustose Coralline Algae (CCA)

2008/09 ('Before'):

3 rounds, 253 transects

2014:

2 rounds, 160 transects

Parrotfish Biomass  
Coralline

Crustose

Algae (CCA)

Parrotfish Biomass  
Coralline

Crustose

Algae (CCA)

# Hope for the Future

## Positive Maui Management Actions with County Support

- Maui Lay Gillnet Ban 2007
- Kahekili Herbivore Fisheries Management Area, 2009
- New Maui Parrotfish & Goatfish Bag and Size Limit Rules 2014

## For Coral Reefs to Survive, much more needs to be done.

- Networks of Marine Managed Areas?
- Community Co-Management (CBSFA)
- More Maui County Support of Watershed Management efforts (West Maui R2R, etc)

# Controlling Land-Based Sediment



# NPDES Permit Requirement

## CHAPTER 11-55 APPENDIX C

### 6. Water Quality-Based Effluent Limitations

#### 6.1 General Effluent limitation to meet applicable water quality standards.

The permittee shall not cause or contribute to a violation of the basic water quality criteria as specified in section 11-54-4.

In the absence of information demonstrating otherwise, the department expects that compliance with the conditions in this permit will result in storm water discharges being controlled as necessary to meet applicable water quality standards. If at any time the permittee becomes aware, or the department determines, that the discharge is not being controlled as necessary to meet applicable water quality standards, the permittee must take corrective action as required in section 10.2.1., and document the corrective actions as required in section 10.2.1. and section 10.4.

The department will also impose additional water quality-based limitations on a site-specific basis, or require the permittee to obtain coverage under an individual permit, if information in the NOI, or from other sources indicates that the discharges are not controlled as necessary to meet applicable water quality standards. This includes situations where additional controls are necessary to comply with a wasteload allocation in a state-established and EPA-approved Total Maximum Daily Load (TMDL).

#### 6.2. Discharge limitations for impaired waters

If discharge is to a state water that is impaired for (1) sediment or a sediment-related parameter, such as total suspended solids (TSS) or turbidity, and/or (2) nutrients, including impairments for nitrogen and/or

## DOH Water Quality Requirements

§11-54-4 Basic water quality criteria applicable to all waters. (a) All waters shall be free of substances attributable to domestic, industrial, or other controllable sources of pollutants, including:

- (1) Materials that will settle to form objectionable sludge or bottom deposits;
- (2) Floating debris, oil, grease, scum, or other floating materials;
- (3) Substances in amounts sufficient to produce taste in the water or detectable off-flavor in the flesh of fish, or in amounts sufficient to produce objectionable color, turbidity or other conditions in the receiving waters;
- (4) High or low temperatures, biocides, pathogenic organisms, toxic, radioactive, corrosive, or other deleterious substances at levels or in combinations sufficient to be toxic or harmful to human, animal, plant, or aquatic life, or in amounts sufficient to interfere with any beneficial use of the water;
- (5) Substances or conditions or combinations thereof in concentrations which produce undesirable aquatic life; and
- (6) Soil particles resulting from erosion on land involved in earthwork, such as the construction of public works; highways; subdivisions; recreational, commercial, or industrial developments; or the cultivation and management of agricultural lands.

(b) The director is authorized to impose by order the penalties and fines and corrective measures as specified in chapters 342D and 342E, HRS, against any person who discharges or otherwise causes or allows water pollutants to enter State waters and cause violation of this chapter, unless that person acted in compliance with a permit or variance issued by the director pursuant to chapters 342D, HRS, for

## NPDES Permit: Self-Monitoring

2. Notify the Director of Health of the construction start date by e-mail at [cleanwaterbranch@doh.hawaii.gov](mailto:cleanwaterbranch@doh.hawaii.gov) or fax at (808) 586-4352 within seven (7) calendar days before the start of construction activities. All communication, including but not limited to the e-mail and fax, with the CWB shall include the File No. HI R10C659 and the certification statement below. The notification will only be accepted from the person qualified in accordance with HAR, Chapter 11-55, Section 11-55-34.08(f).
3. Complete and submit the Solid Waste Disclosure Form for Construction Sites to the DOH, Solid and Hazardous Waste Branch, Solid Waste Section, as specified on the form at least 30 calendar days before the start of the construction activities. The form can be downloaded at: <http://www.hawaii.gov/health/environmental/waste/sw/pdf/swdiscformnov2008.pdf>.
4. Implement, operate, and maintain the project site-specific Best Management Practices (BMPs) Plan to ensure that storm water discharges associated with construction activities will not cause or contribute to a violation of applicable State water quality standards.
5. Review the effectiveness and adequacy of the implemented site-specific BMPs Plan(s) and ESC Plan(s) at a minimum of once per week, and update the plan as often as necessary. Any change(s) to the site-specific BMPs Plans and/or ESC Plans or corrections to the information already on file with the CWB shall be maintained onsite and be available upon request. Any change(s) to the information on the CWB NOI General Form shall be submitted to the CWB within seven (7) calendar days of the change(s).
6. Retain a copy of this NGPC and all other related materials at the job site or nearby field office.
7. Comply with HAR, Sections 11-55-34.04(a), 11-55-34.07, 11-55-34.11, and 11-55-34.12 (enclosed) and any other applicable Sections of HAR, Chapter 11-55; HAR, Chapter 11-55, Appendix A, DOH, Standard General Permit Conditions (enclosed); HAR, Chapter 11-55, Appendix C, NPDES General Permit Authorizing Discharges of Storm Water Associated with Construction Activities (enclosed); and all materials submitted in and with the Notice of Intent (NOI), dated September 28, 2008 and all subsequent submittals.
8. Complete and submit the Notice of Cessation (NOC) Form (CWB-NOC Form) to the CWB within two (2) weeks of completion of the subject project. The CWB-NOC Form can be downloaded from our website at: <http://www.hawaii.gov/health/environmental/water/cleanwater/forms/pdf/cwb-noc.pdf>.
9. Mr. Patrick Shin of SMC Mahana LLC shall submit all information/documents for compliance with the NGPC conditions as of June 30, 2011. A new authorized representative may be appointed by updating the CWB NOI General Form (Item Nos. 6.c. or 6.d. – Authorized Representative Information); submitting a hard copy of CWB NOI General Form (Item No. 7. – Certification) with an original signature and date; and submitting the CWB NOI General Form (with the revisions to Item Nos. 6.c. or 6.d.) on a CD/DVD in pdf format.













# Controlling Land-Based Sediment