Ahupua' a, Traditional Management System Leading Towards a Resilient Hawai'i

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How will Native Hawaiian traditions will be affected by climate change and can their traditional knowledge help Hawai'i mitigate these effects?

Abstract:
Climate change will eventually affect all people on Earth but some of the most vulnerable populations early on, will be those living on islands scattered among the oceans. Threats to their livelihoods include rising sea level, acidification of the ocean changing the coral reef systems that provide food and protection from storms that have been predicted to intensify, as well as threats to traditional occupations and cultural heritage. The changes in biological cycles and relationships have not gone unnoticed by the local residents. The query of how Native Hawaiians will be affected and what traditional knowledge can be used to mitigate these effects or help communities adapt. To investigate these issues, I reviewed for their relevance into the issue, reports from the governor of Hawai'i as well as symposiums involving Native Hawai'ians as participants, peer reviewed articles that explain traditional, and organizations working to help Hawai'ians protect their rights. Testimony on the subject presented to the Committee on Indian Affairs of the U.S. Senate, gave information of the traditions that were being lost due to a warming planet and insight on ways to reverse these trends. Local knowledge that has been practiced for over a thousand years can help both Native Hawaiians and non-native residents mitigate and/or adapt to the inevitable impacts climate change will have on the islands. The respectful use and implementation may allow enough time for adaption to occur while mitigating some of the lesser impacts on Hawaiian culture and the ecosystem.

http://activerain.trulia.com/image_store/uploads/2/7/2/2/2/ar118741839022272.JPG

Fig 1 Hawaiian burial site near the shoreline.
These sacred spots are at risk from rising sea levels.

Findings:

Hawai'i is already being affected by climate change as verified by reduction in rainfall, shoreline erosion from intensified storms, rising air and sea surface temperatures and ocean acidification[1]. All of these effects threaten traditional food security as well as culturally important areas such as burial grounds and fishponds.

The State of Hawai'i in lieu of Federal action on climate change, has begun processes to mitigate the effects. A return to the *ahupua'a* management, from the mountains to the sea, would benefit and enhance these actions.

Though not Federally recognized, Native Hawaiians have a few State laws and United Nation mandates that can help them protect cultural sites and traditional food sources.

Community management techniques have shown that fisheries can be sustainable and have more biomass than Marine protected areas managed by modern techniques[2].

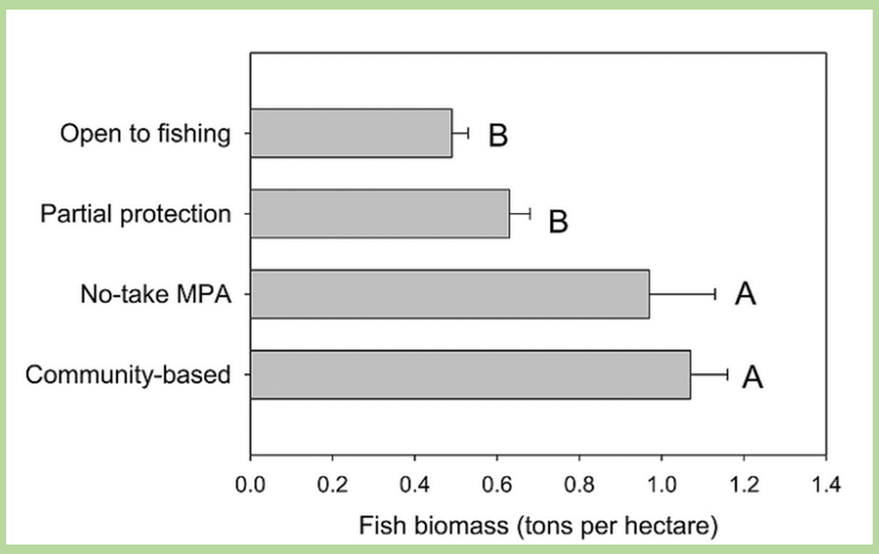
http://www.islandbreath.org/2010Year/08/100801mauinei.jpg

Fig 2 *Ahupua'a* of four of the Hawaiian islands. Sizes are determined by the amount of resources, especially water, to maintain sustainability in each area

Conclusion:
A return to traditional management, *ahupua'a,* that the Hawaiians followed before European intervention is a necessary step for the State of Hawai'i to mitigate the ongoing effects of climate change. To fully enact a return this system, the state will need to incorporate Native Hawaiians in the planning and implementation while respecting the traditional knowledge and those who hold this knowledge. Though an abolishment of modern land divisions is not conceivable at this time, property owners should be educated of how important protection of vital resources benefits all that live on the islands. Further more the courts should not be the only avenue Native Hawaiians have to protect their traditions and their homelands from the effects of climate change and economic driving forces which may or may not exacerbate these changes.

http://waipafoundation.org/images/slideshow/waipa-hm2.jpg

Fig 3 Planting of taro at the *Mahuahua 'Ai o Hoi* restoration project



Graph image from Friedlander et al 2013

Fig 4 Community-based management of fisheries, like those used before the overthrowing of the Hawaiian Kingdom, are more sustainable then other fisheries while marine protected areas have about the same biomass without helping food security.

upload.wikimedia.org/wikipedia/commons/d/d2/Kaloko_Fish_Pond.jpg

Fig 5 Restoring fishponds like this one can increase food security and protect shorelines from storm surges and sea level rise.

References:
1) Hawai'i Conservation Alliance. (2009). Climate Change in the Hawaiian Islands. Retreived from http://www.hawaiiconservation.org/images/uploads/pages/hca_climatechange.pdf.
2) Friedlander, A.M., J.M. Shackeroff., J.N. Kittinger. (2013). Customary marine resource knowledge and use in contemporary Hawai'i. *Pacific Science 67,* 441-460. doi:10.2984/67.3.10

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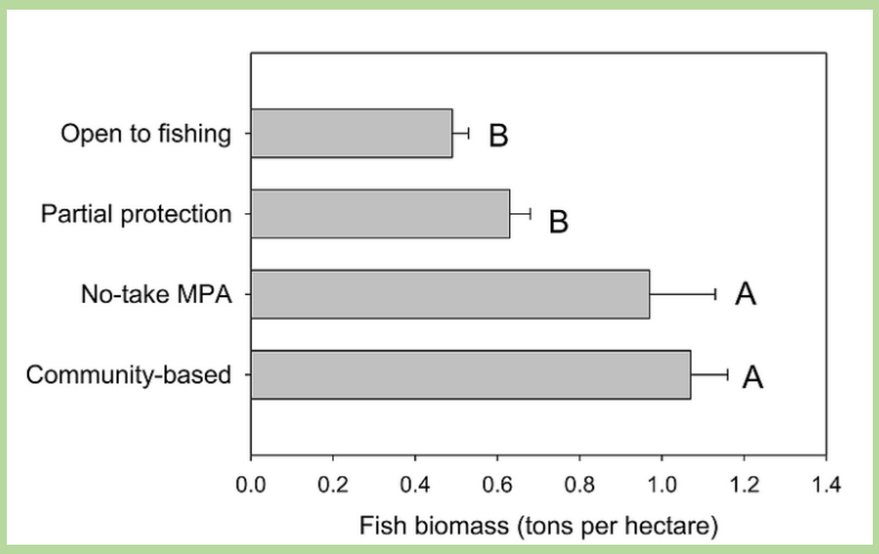

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