



# FROM REEF TO TABLE: coral reefs, culture, and food security

John N. (Jack) Kittinger, PhD

Director, Conservation International - Hawai'i

Betty and Gordon Moore Center for Science and Oceans

# food security and the sea

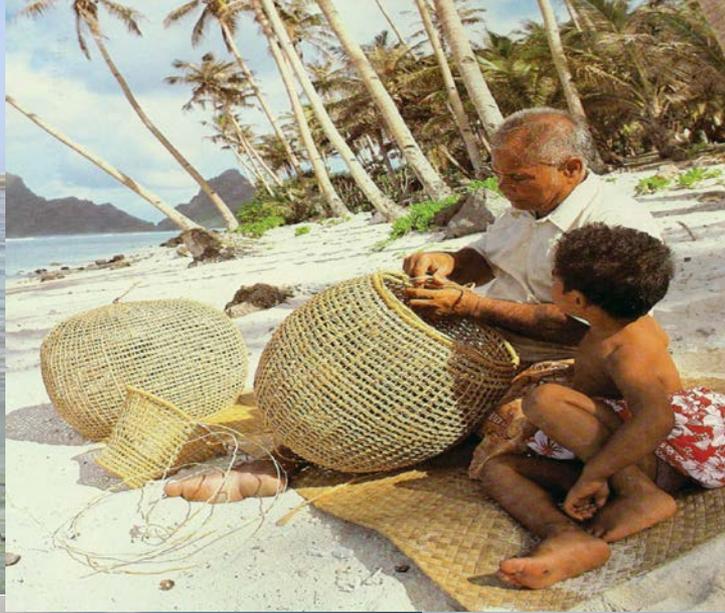
*from reef to table*



↑  
physical  
availability of  
sufficient  
quantities of  
seafood

↑  
economic and  
physical access

↑  
consumption and  
utilization for  
nutrition



# Kīholo

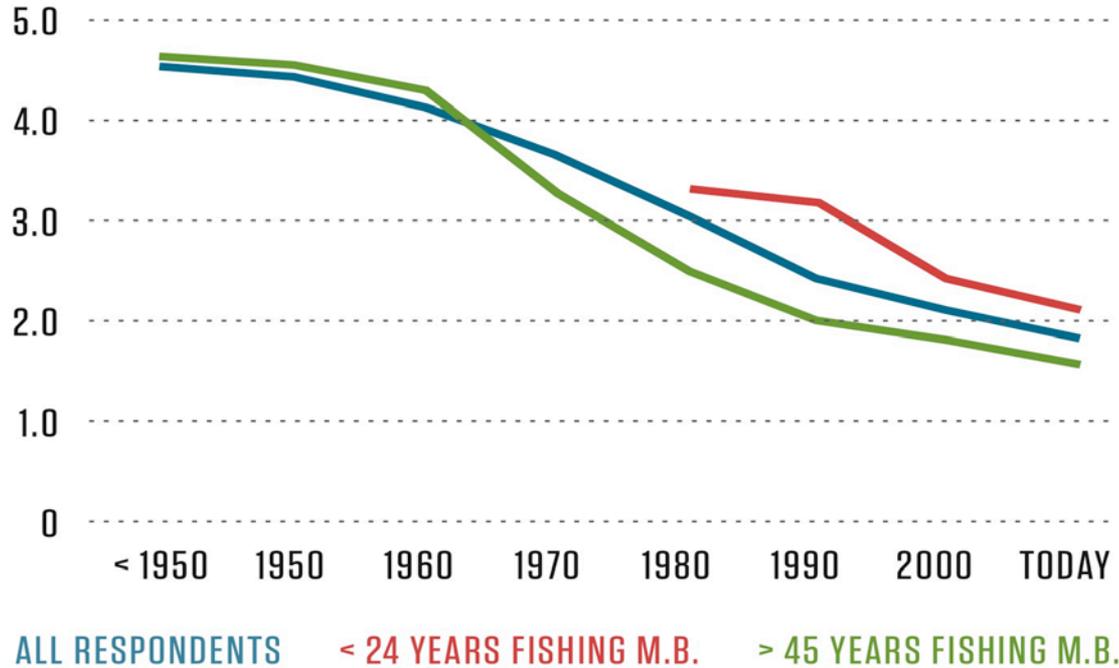


# Kīholo



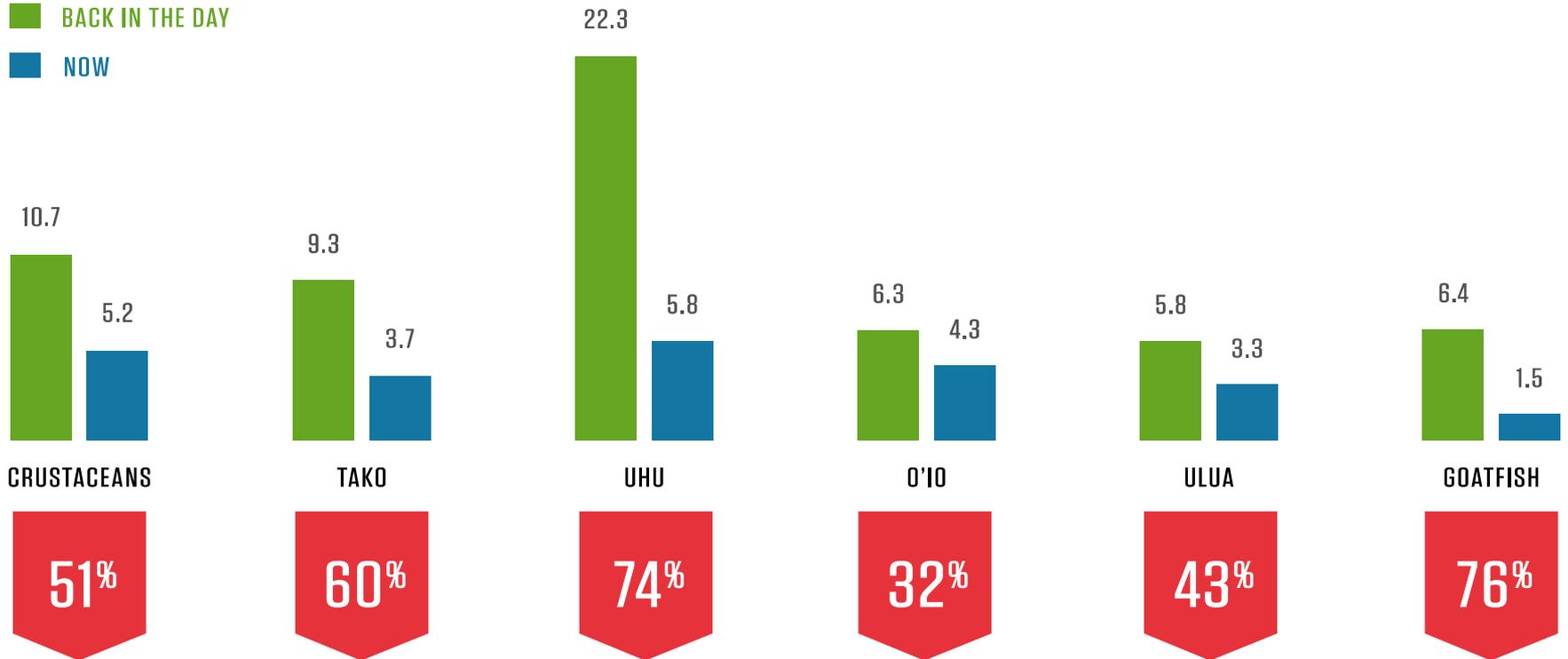
## HEALTH OF MAUNALUA BAY OVER TIME

( 5 = HEALTHY, ABUNDANT & DIVERSE – 1 = SEVERELY DEGRADED )



declining  
resource  
health

# catch declines



Maunalua Bay, O'ahu

Kittinger (2013), Pacific Science: 67(3)

# participatory assessment methods

## getting community fishers involved

creel (pakini) + fish flow (mahele) surveys

**observation: effort**

**+**

**intercept survey: catch**



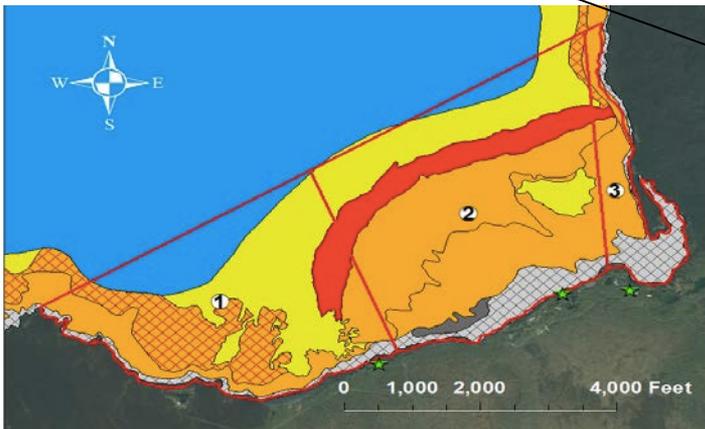
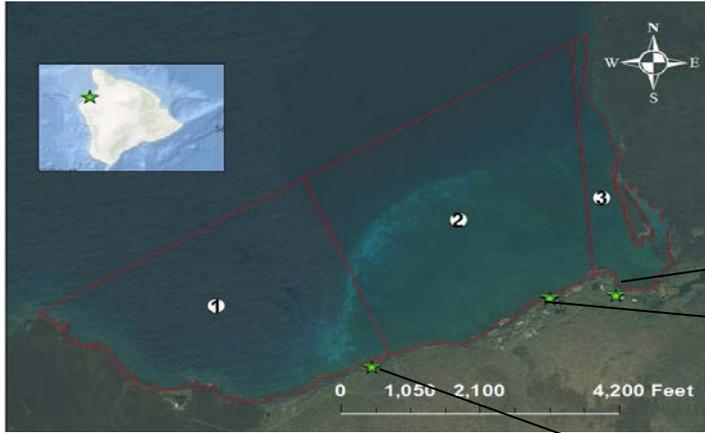
Time in/out  
Gear type  
Habitat  
accessed  
Weather  
Crew size



Species  
# of fish  
Size  
Disposition

# developing a plan for the pakini survey

## Kīholo Bay, Hawai'i Island



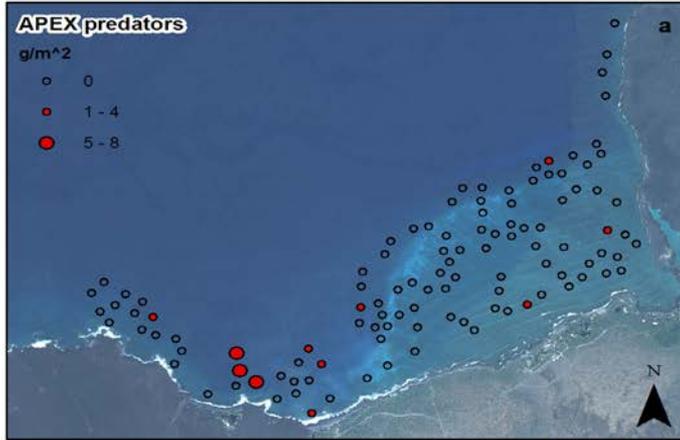
### Legend

- ★ VantagePoint
- Orange: Coral 10% - <50%
- Orange with cross-hatch: Coral 50% - <90%
- Red: Coral 90% - 100%
- Light gray with cross-hatch: Turf 10% - <50%
- Dark gray with cross-hatch: Turf 50% - <90%
- Black with cross-hatch: Turf 90% - 100%
- Yellow: Uncolonized 90% - 100%
- Blue: Unknown

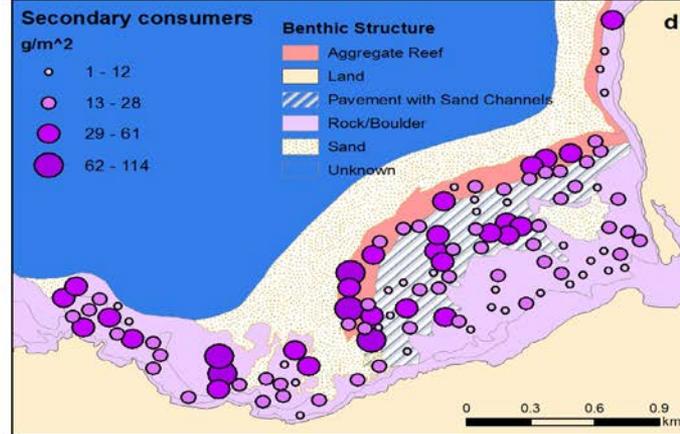
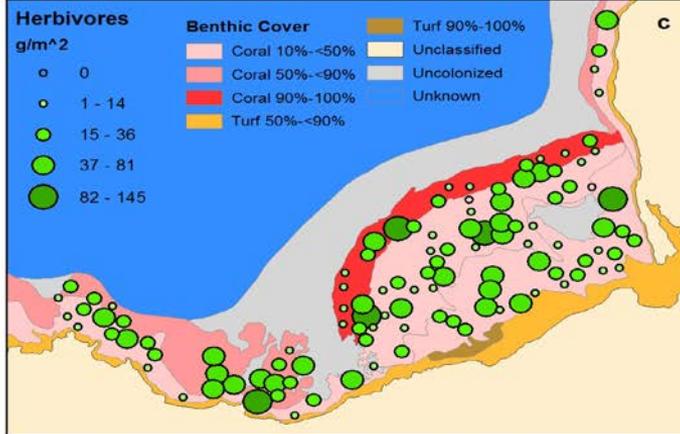
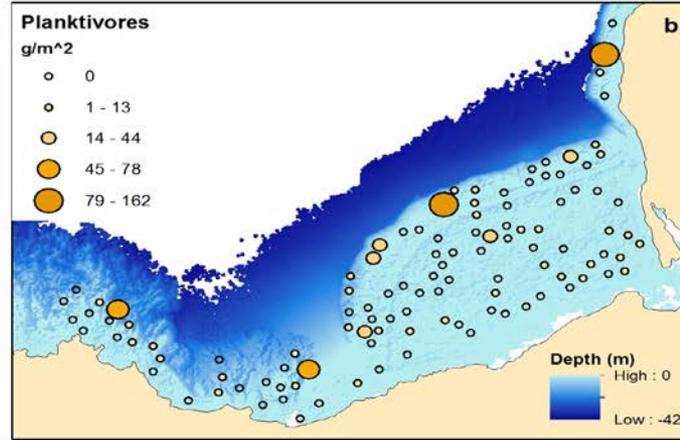


# ecology of Kiholo Bay

## predators



## planktivores



## herbivores

## secondary consumers

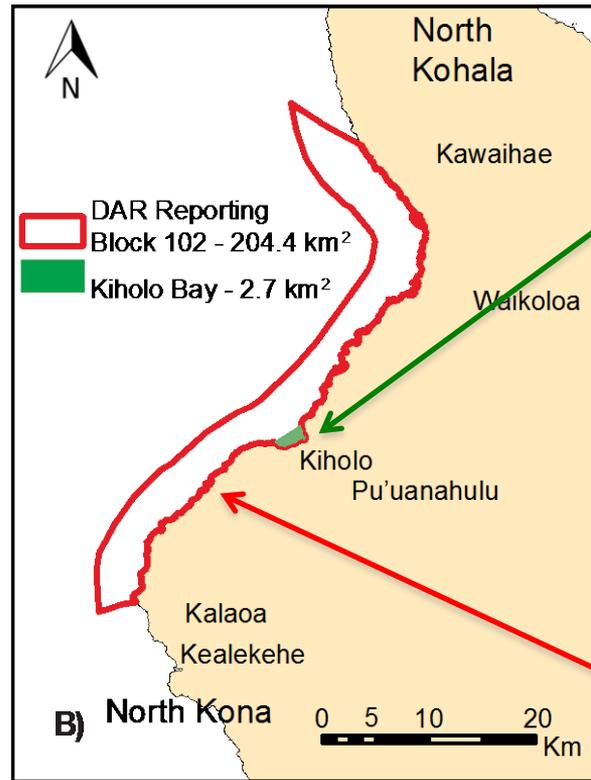
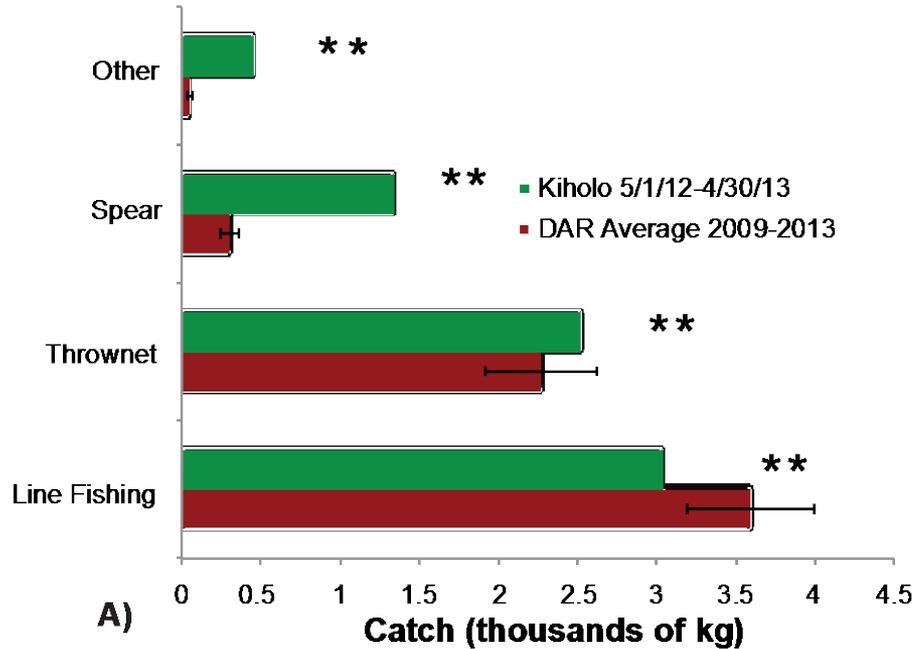
# fishing gears at Kīholo

<b>Gear Type</b>	<b>Fishing Method</b>	<b>Fishing Hours</b>	<b># of events</b>
Handpole	Handpole	2614.08	21
Thrownet	Thrownet	1397.98	43
Rod and reel	Whipping	1145.21	11
Spear	3 prong	739.50	14
Rod and reel	Slidebaiting	661.29	2
Gleaning	Opihi	504.00	6
Rod and reel	Dunking	425.64	4
Gleaning	Crabbing	138.00	3
Other	Other	73.80	1
Aquarium	Aquarium	70.73	1
Flyfishing rod	Flyfishing	51.62	0
Spear	Speargun	7.67	1

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# understanding catch



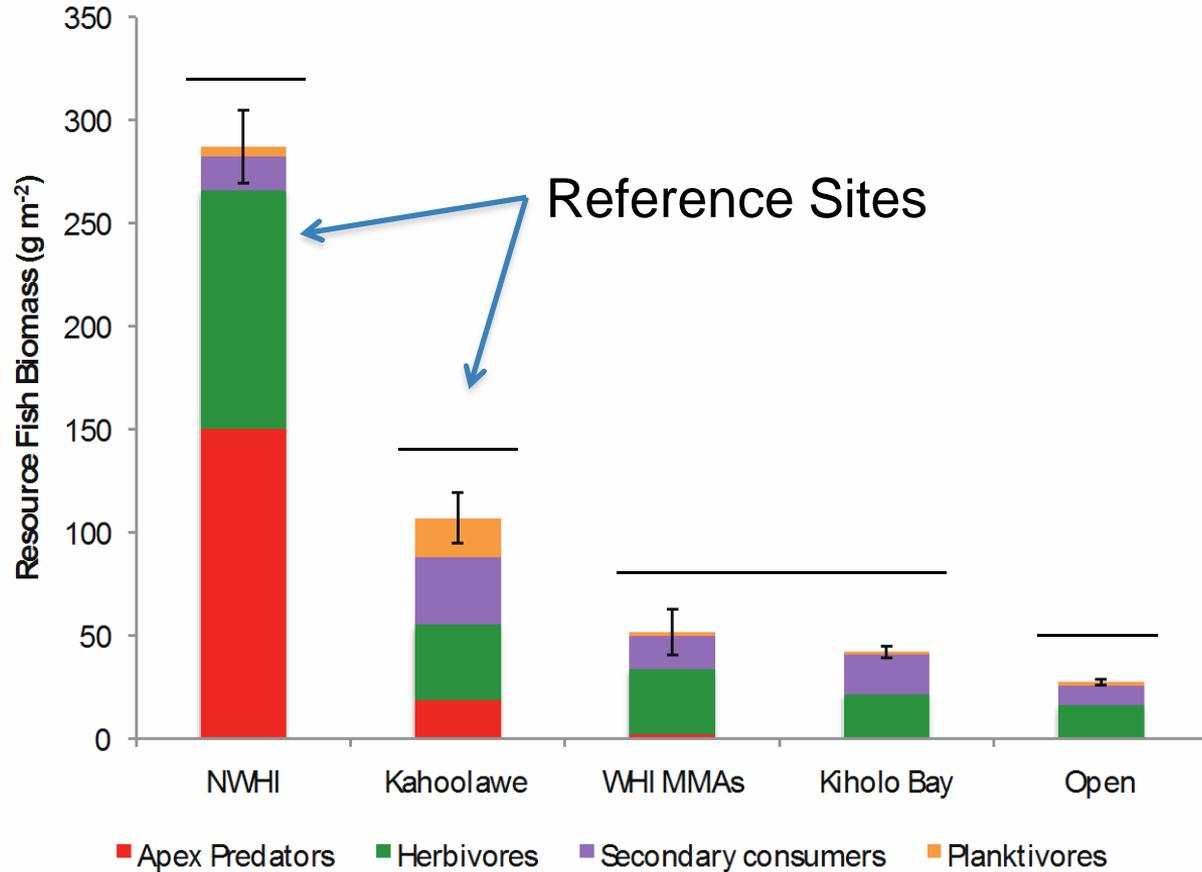
Annual catch for Kiholo Bay:  
**7,353 kg/yr**  
(16,210 lbs/yr)

Annual catch for Area 102:  
**~6,200 kg/yr**  
(13,670 lbs/yr)

**Kiholo catch is higher even though Block 102 is 75 times bigger!!**

Kittinger et al., In review

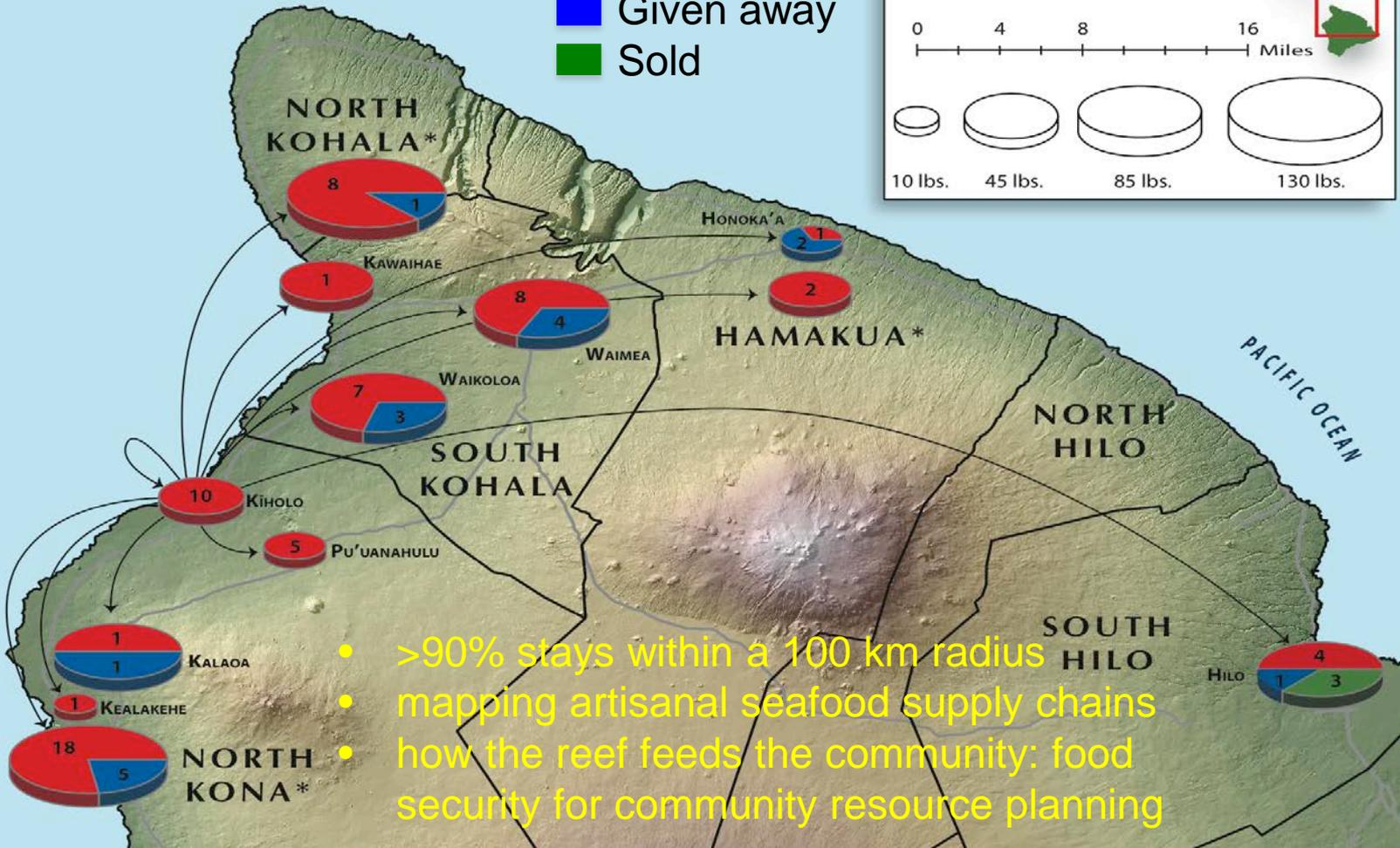
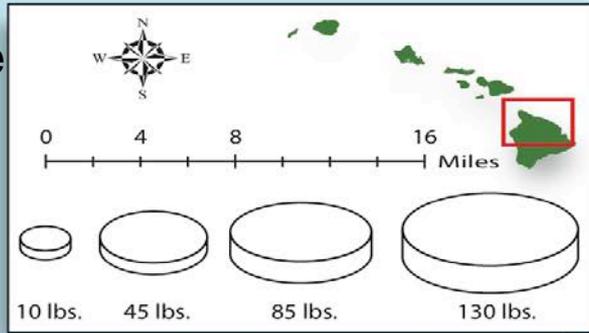
# comparing Kīholo to other sites in Hawai‘i



Kittinger et al., In review

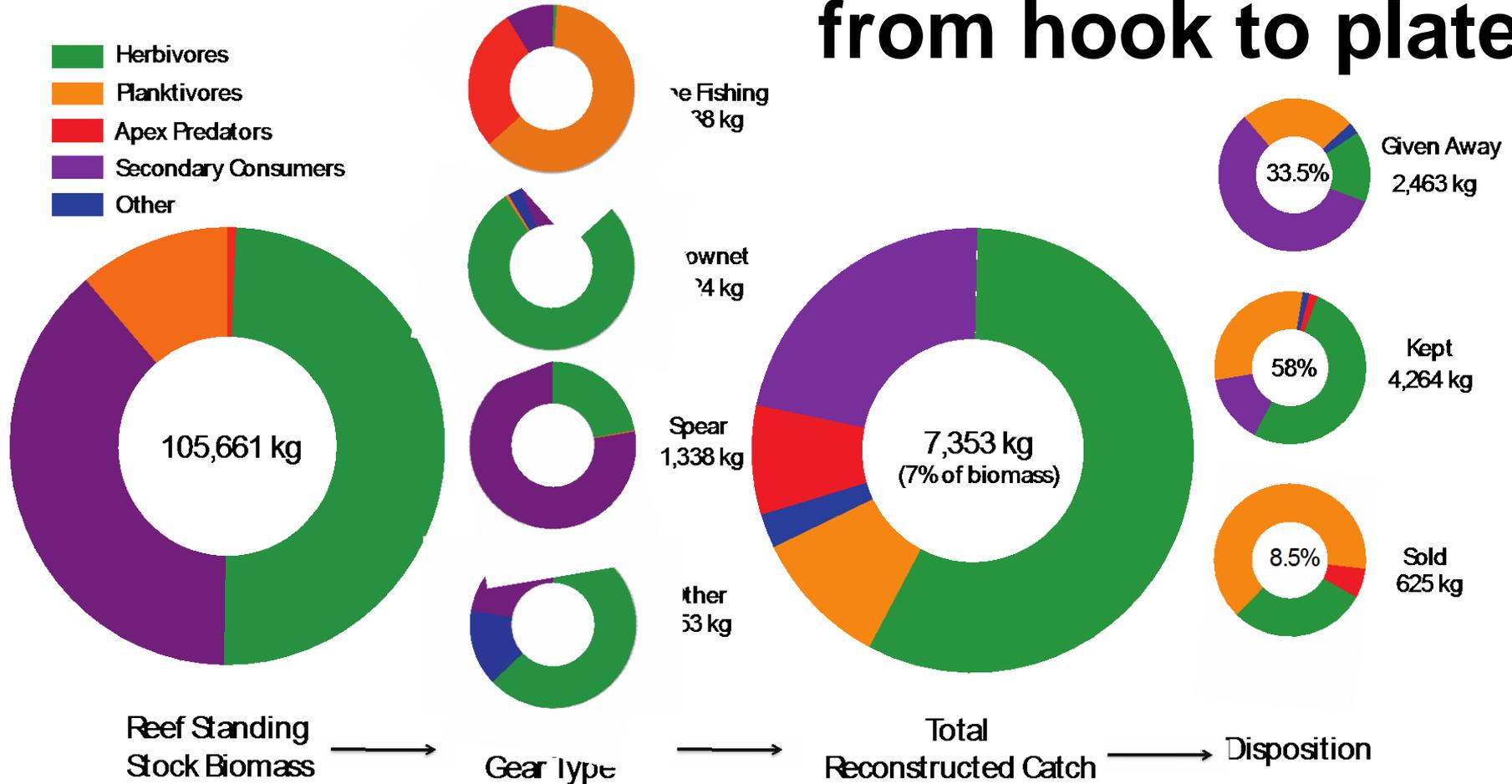
# FISH FLOW: seafood supply chains

■ Kept for home  
■ Given away  
■ Sold



- >90% stays within a 100 km radius
- mapping artisanal seafood supply chains
- how the reef feeds the community: food security for community resource planning

# from hook to plate



diverse *fisheries*  
diverse *values*  
diverse *dependencies*



economic value of the fishery: about **\$78,400/year**



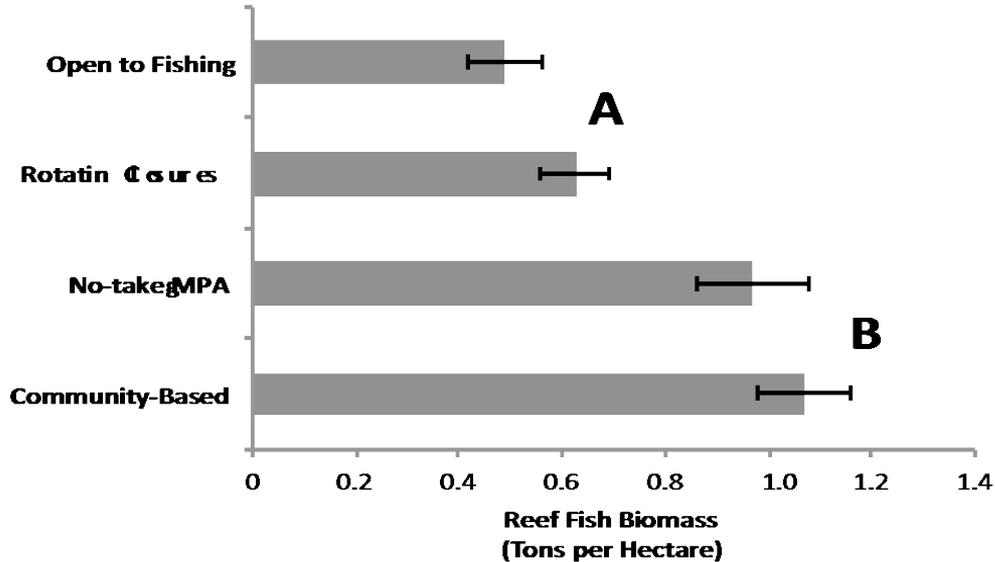
nutritional value of the fishery: **about 30,500 meals/year**

cultural value of the fishery:

- **21.4% of the catch given away** as part of cultural exchange
- **~6,500 meals/ year for pā'ina** (social gatherings)

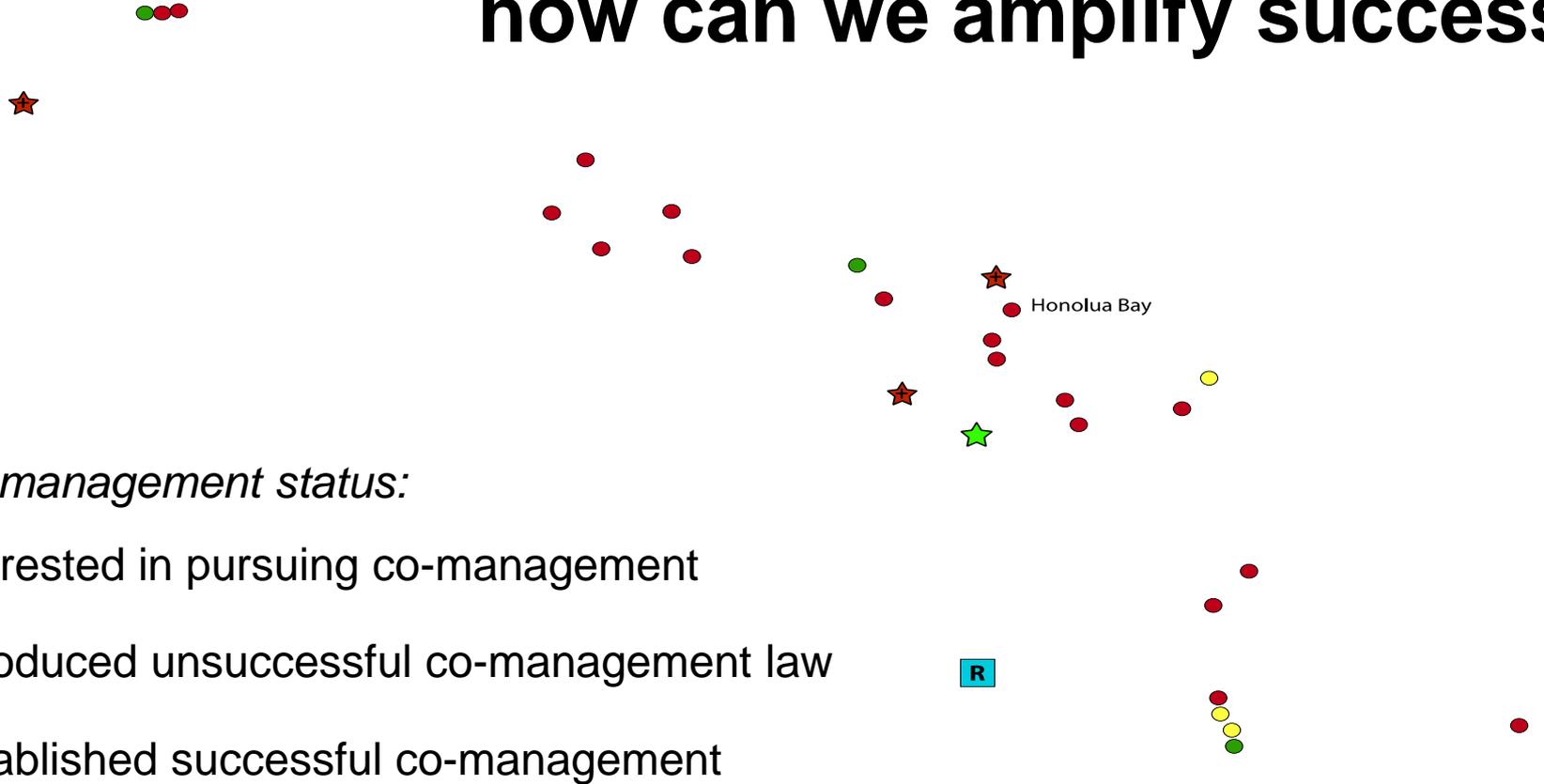
# community-based fishery management

place-based success with “back to the future” management



Mo'omomi Bay, Moloka'i

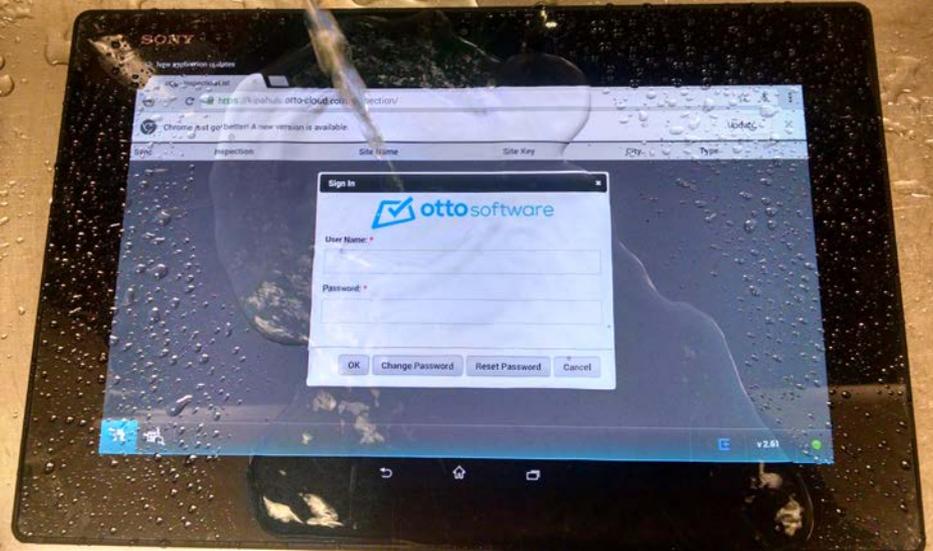
# how can we amplify success?



# #TEK+TECH



assessing food security:  
combining *traditional ecological knowledge* (TEK) with *technology* (TECH) and cloud-based data portals



# long-term engagement is key

*If you want to go fast, go alone*

***If you want to go far, go together***





**MAHALO NUI LOA (a big thank you)!**

**[jkittinger@conservation.org](mailto:jkittinger@conservation.org)**