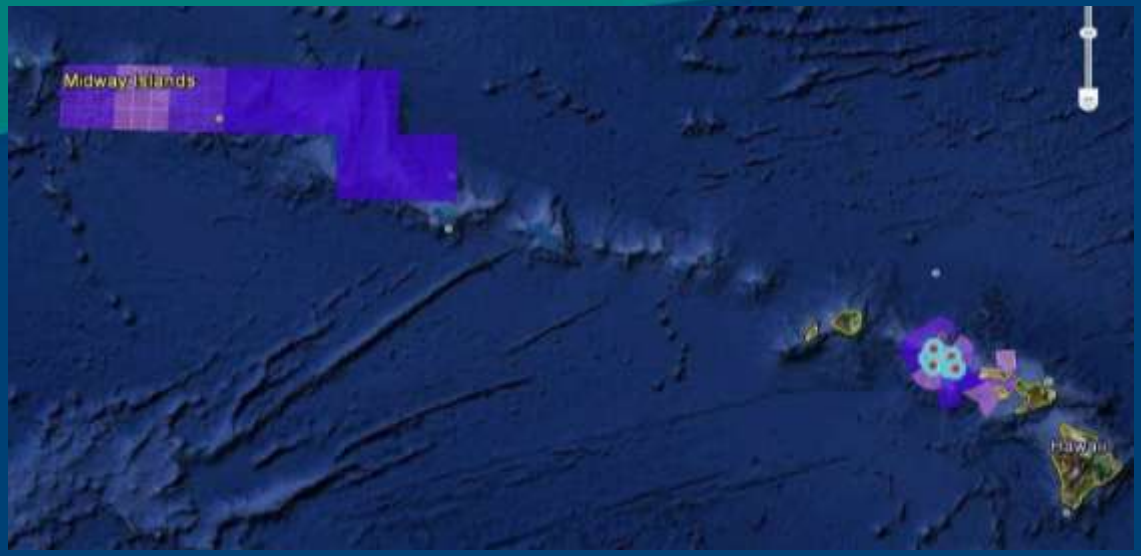
Science, Service, Stewardship



Fishing Ecosystem Analysis Tool (FEAT)

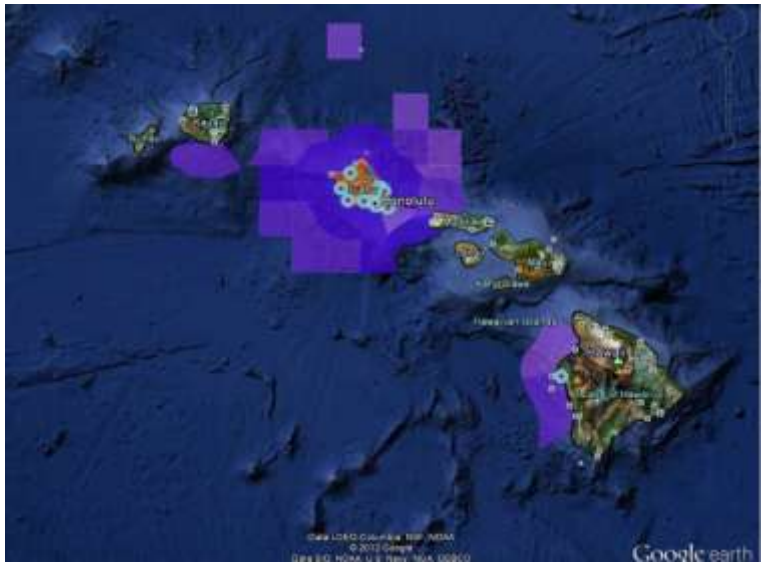
Stewart Allen
Human Dimensions Research Program
Pacific Islands Fisheries Science Center

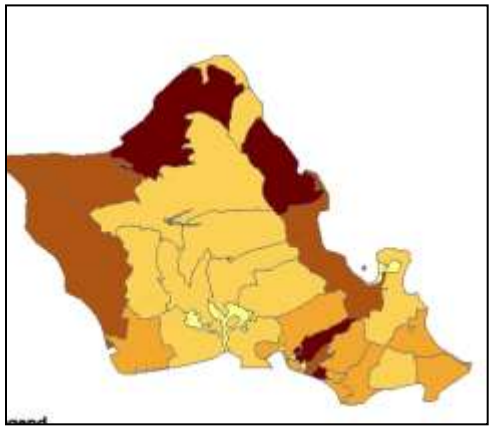
NOAA FISHERIES SERVICE

2012 Hawaiian Islands Symposium

What

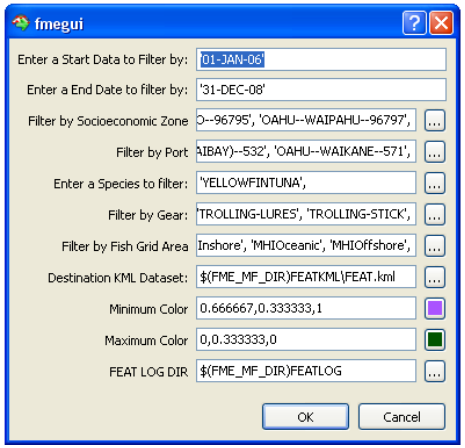
Transforms inaccessible databases of commercial and recreational fisheries catch into useable spatial displays





Links fisheries catch patterns with socioeconomic conditions

Incorporates a simple front end for painless queries



Masks confidential data to allow eventual use via the web

Why

Scientists, managers, Council, communities and fishermen desire better access to fishing data

Incorporating socioeconomic data gets people thinking about people and ecosystems

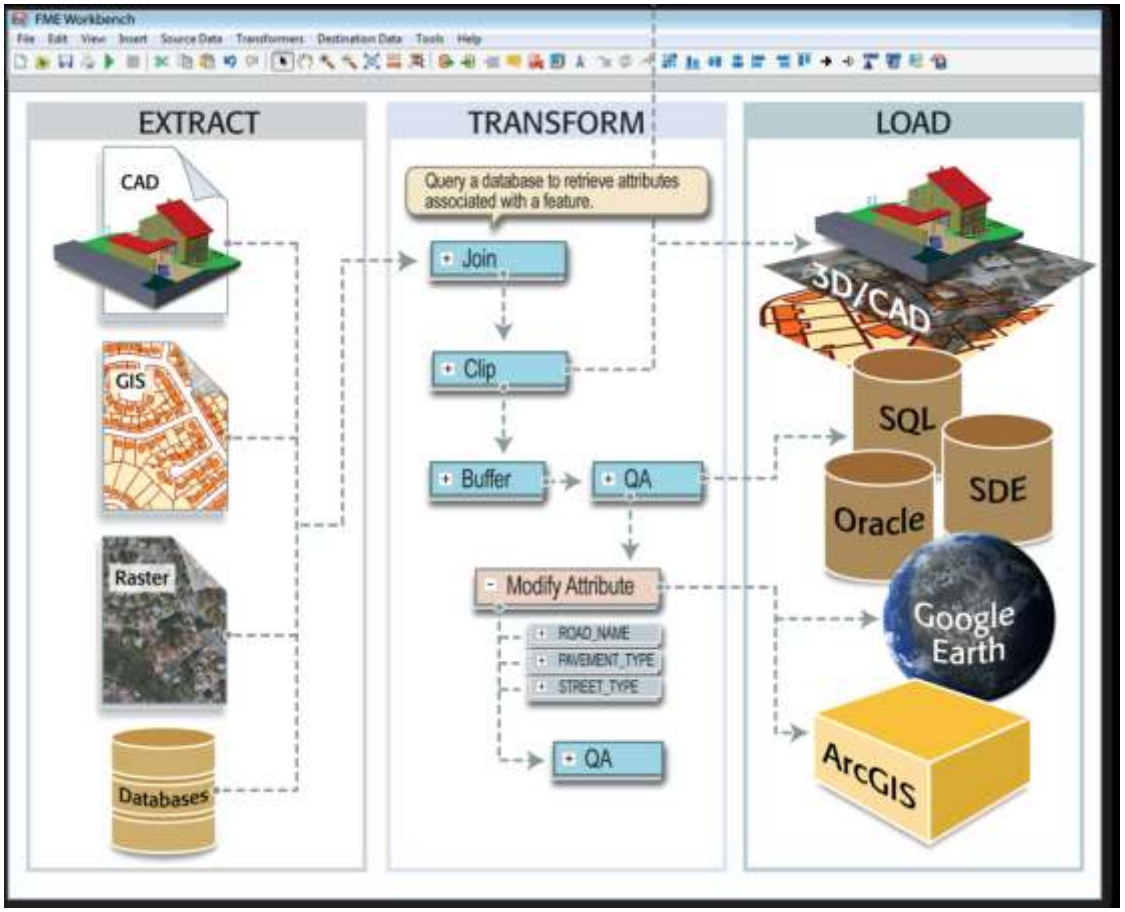
How

FME, available from Safe Software (safe.com)

FEAT input:

- Commercial Marine License non-longline logbook data (1994-2011);
- Hawaii Marine Recreational Fishing Survey data (2004-2011);
- U.S. Census data (2000, 2010)

FEAT output: KML, GeoPDF, Excel, shape files



NOAA
FISHERIES
SERVICE

Who

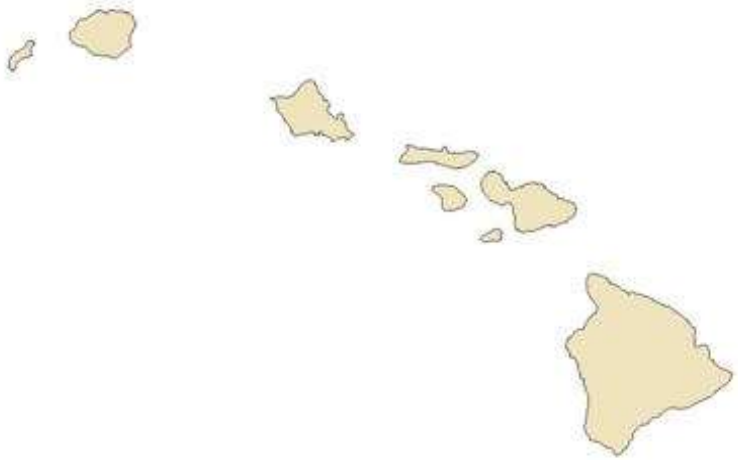
Stewart Allen, Leader, Human Dimensions Research Program, PIFSC, Honolulu

First version (ArcGIS-based) developed by Allen and NOS employee Kyle Ward on rotational assignment to PIFSC, 2007

Refined with Matt Austin, NOS, on rotational assignment to PIFSC, 2009

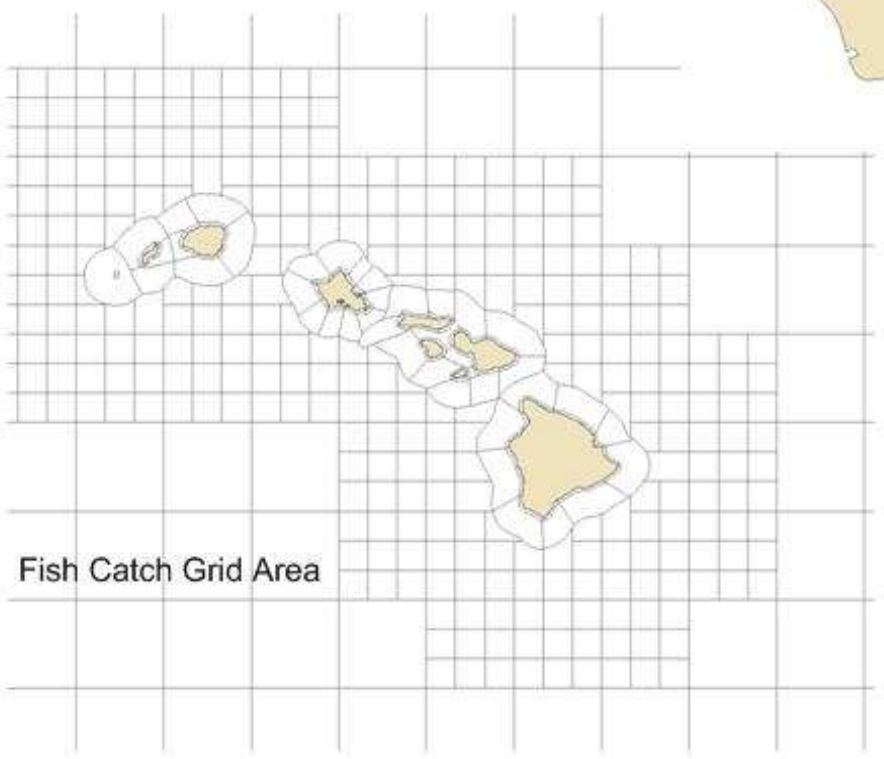
Refinements currently being made under contract by Makai Ocean Engineering, Waimanalo

Where



Hawaii State

Island

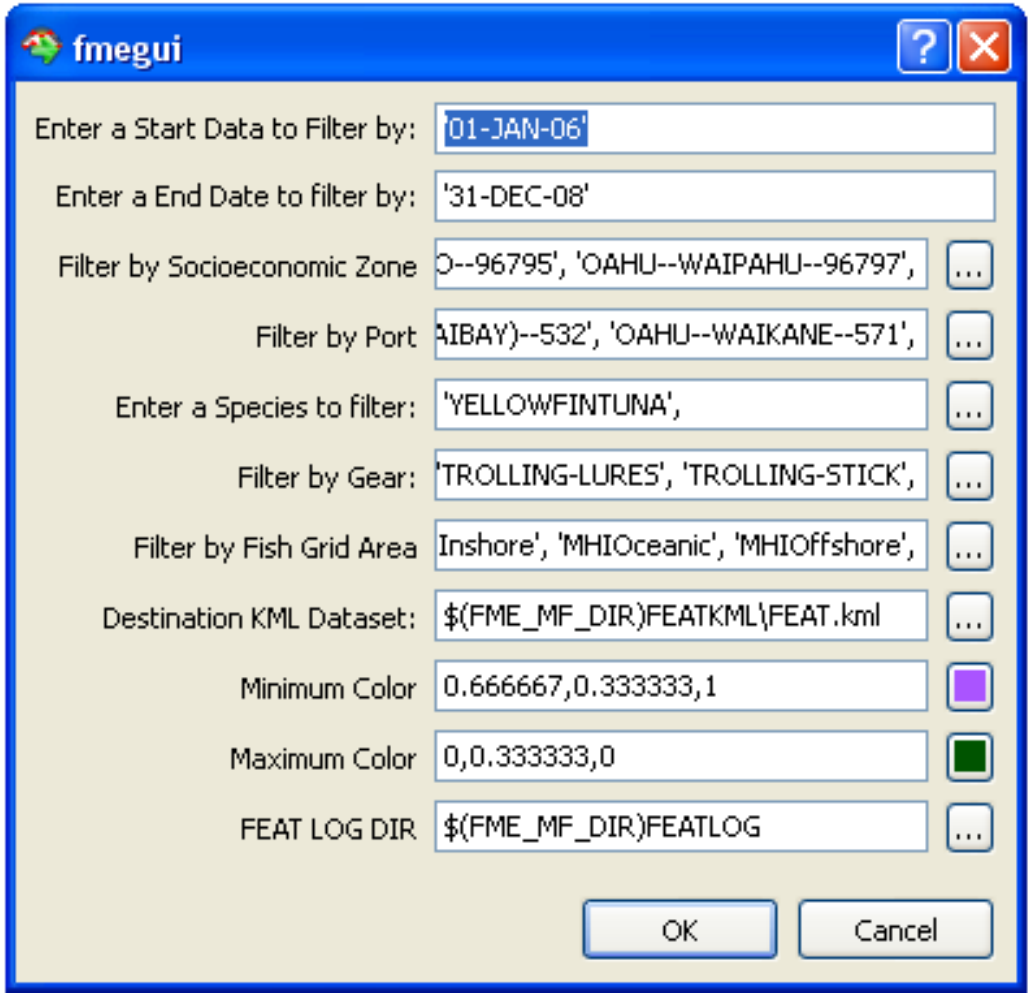


Fish Catch Grid Area

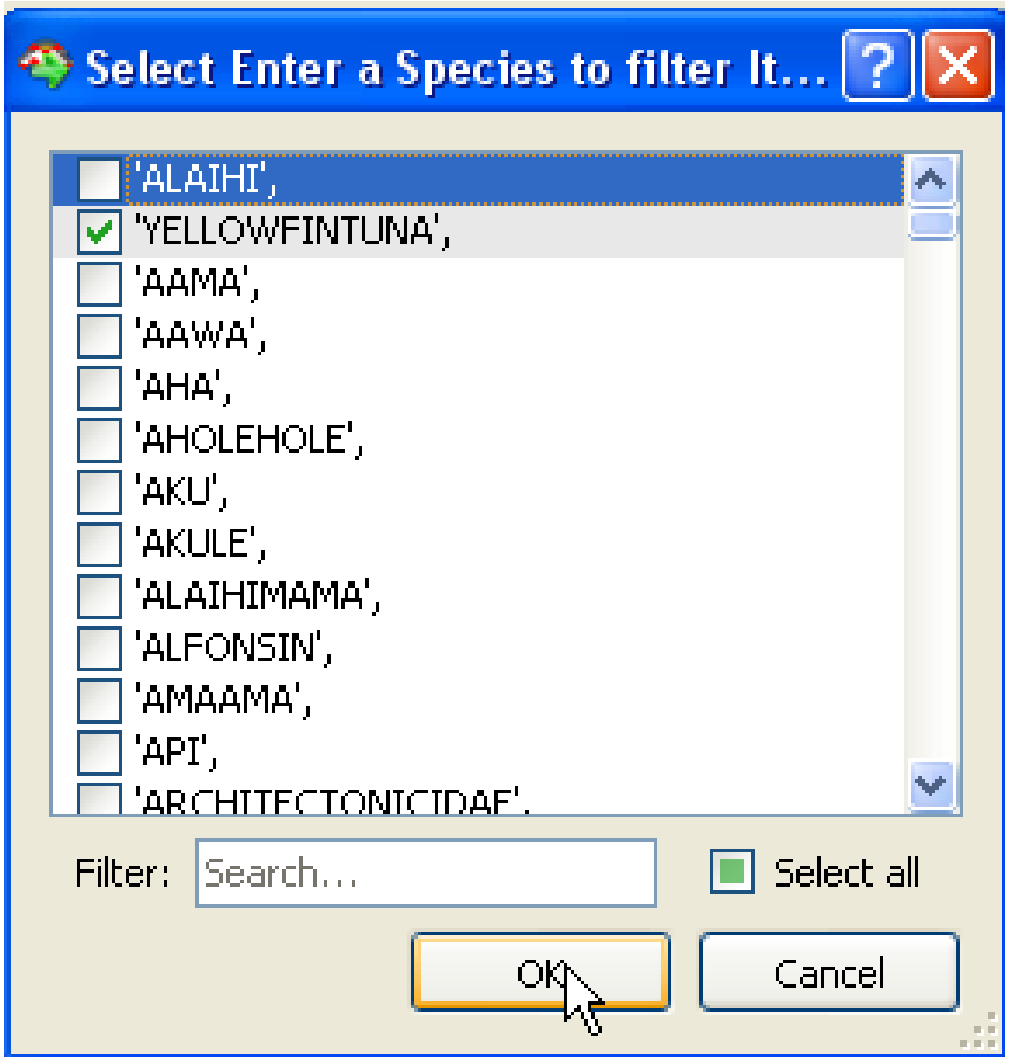
Socioeconomic zone (ZCTA)

Port of Landing

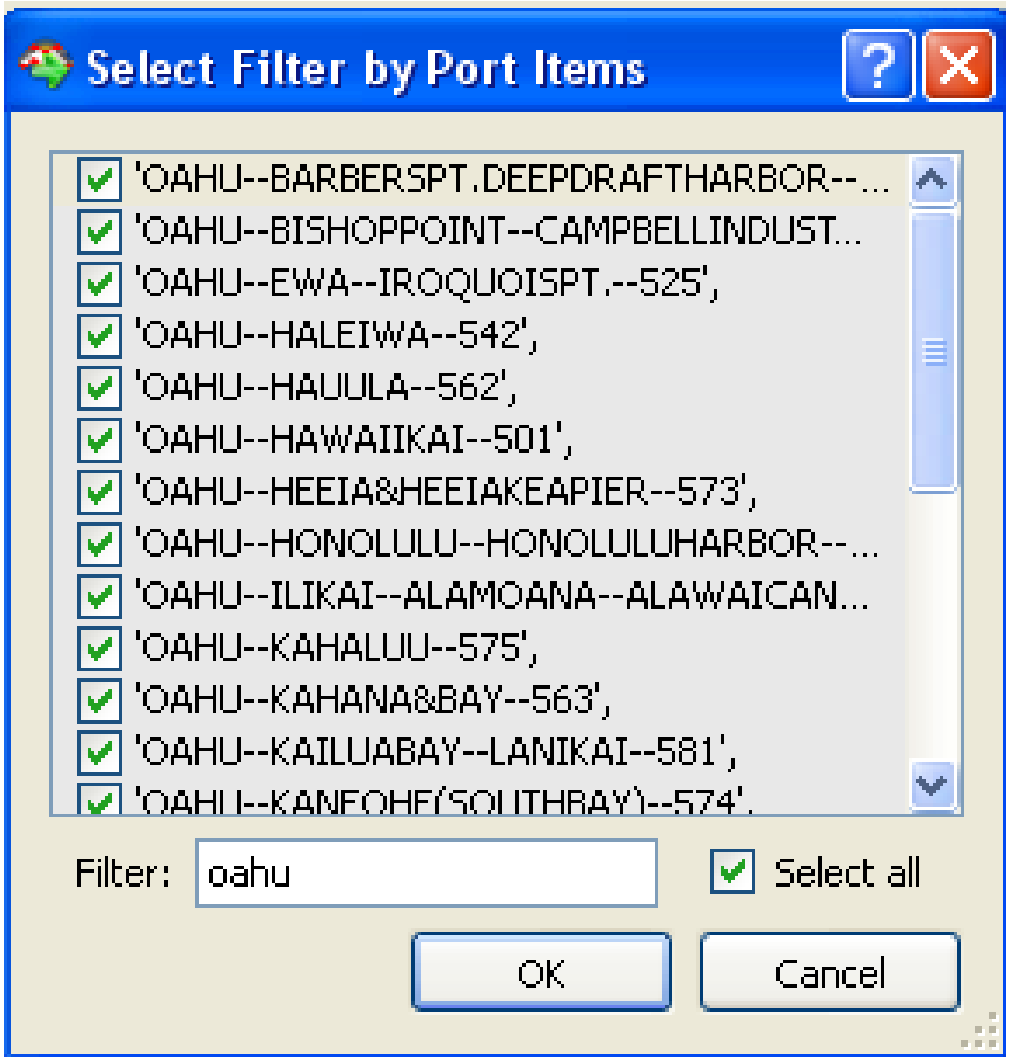
The front end, showing a query asking for the pounds of yellowfin tuna caught commercially in 2006-2008 by Oahu anglers using trolling gear in all ocean locations and landing at any port



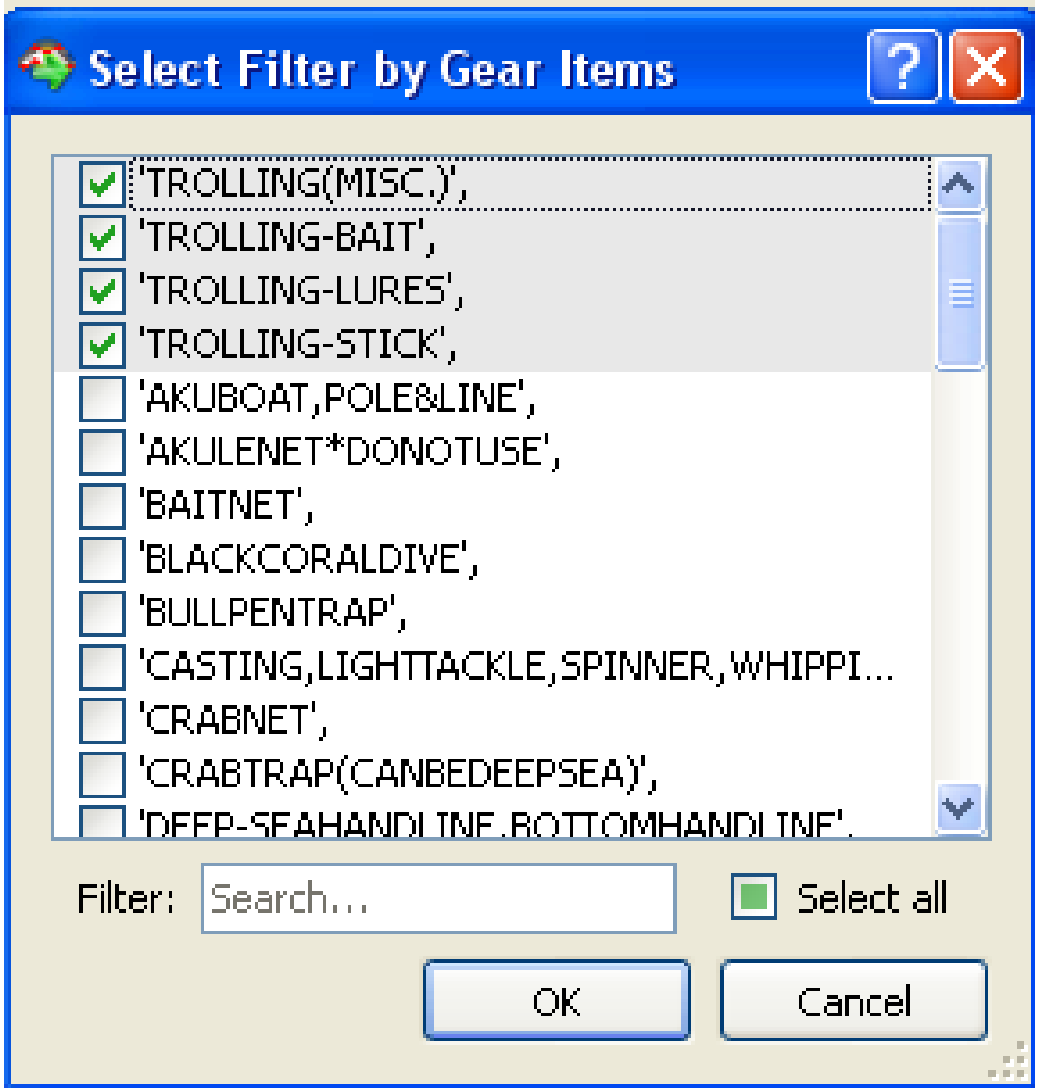
Yellowfin tuna was chosen from a list of 200+ species, which can be selected individually or in any combination (for example, Deep 7 bottomfish)

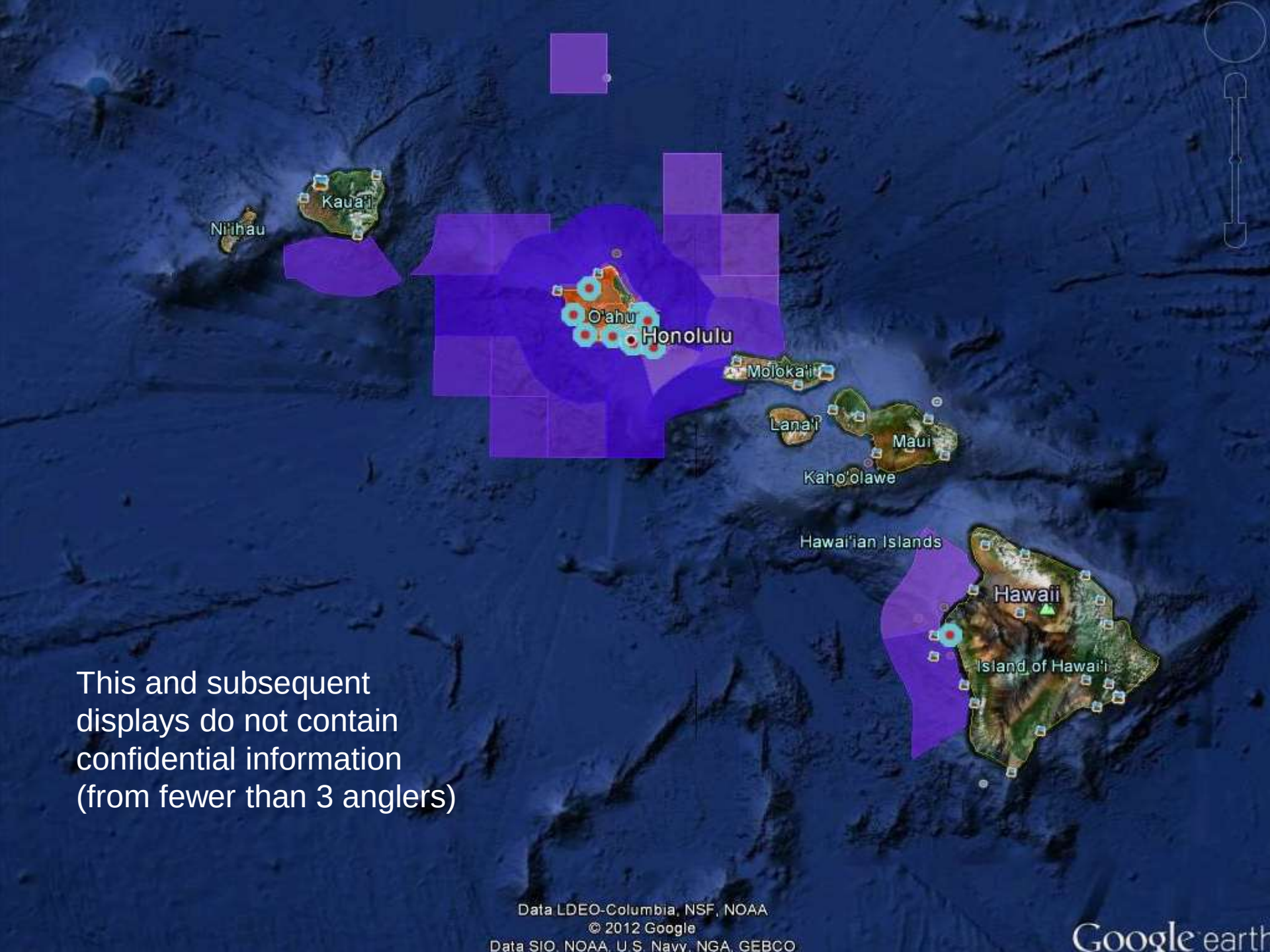


Oahu anglers were chosen from a list of socioeconomic zones (ZCTAs); it's easy to select the state, an island, individual socioeconomic zone, or a combination

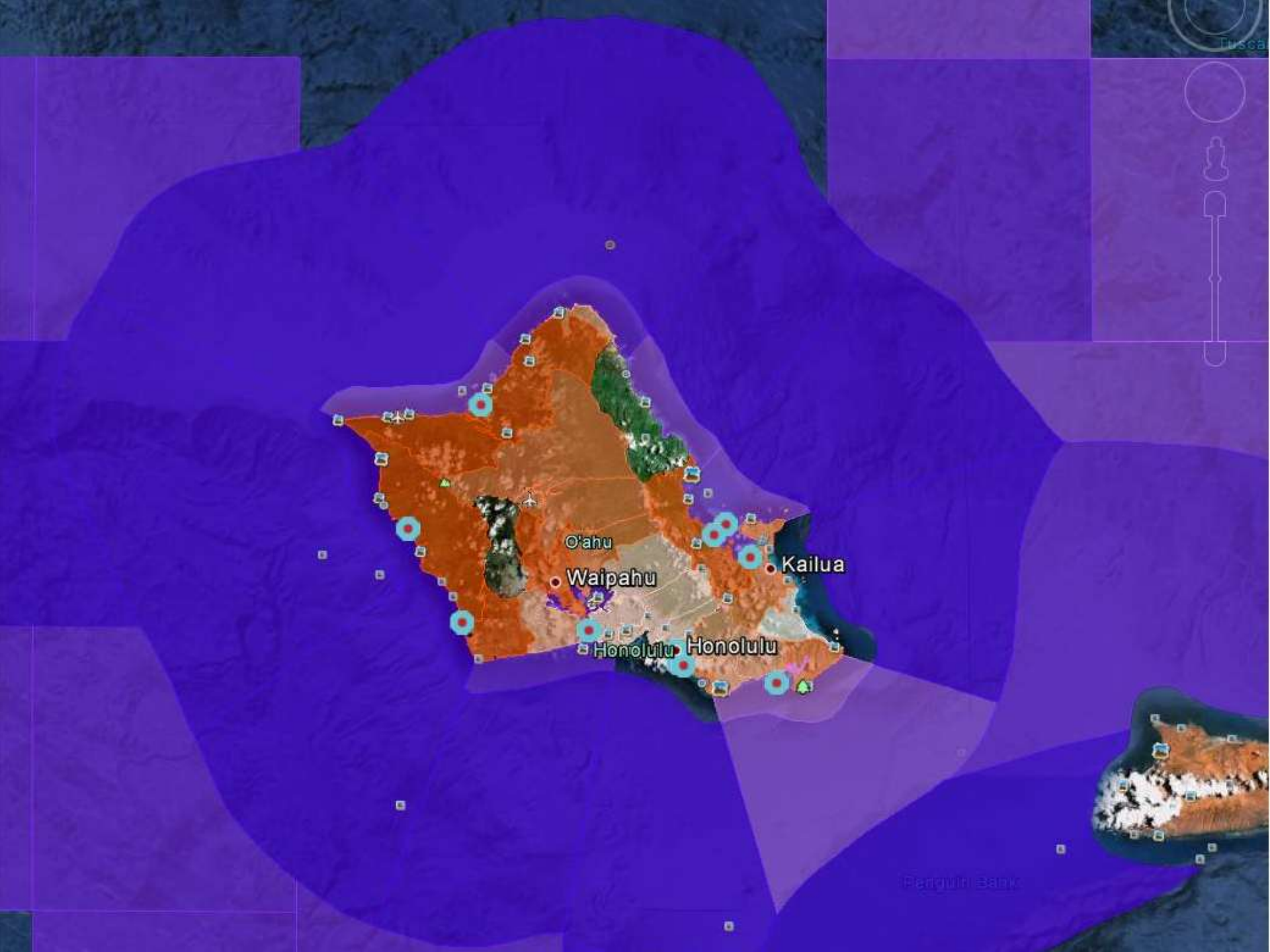


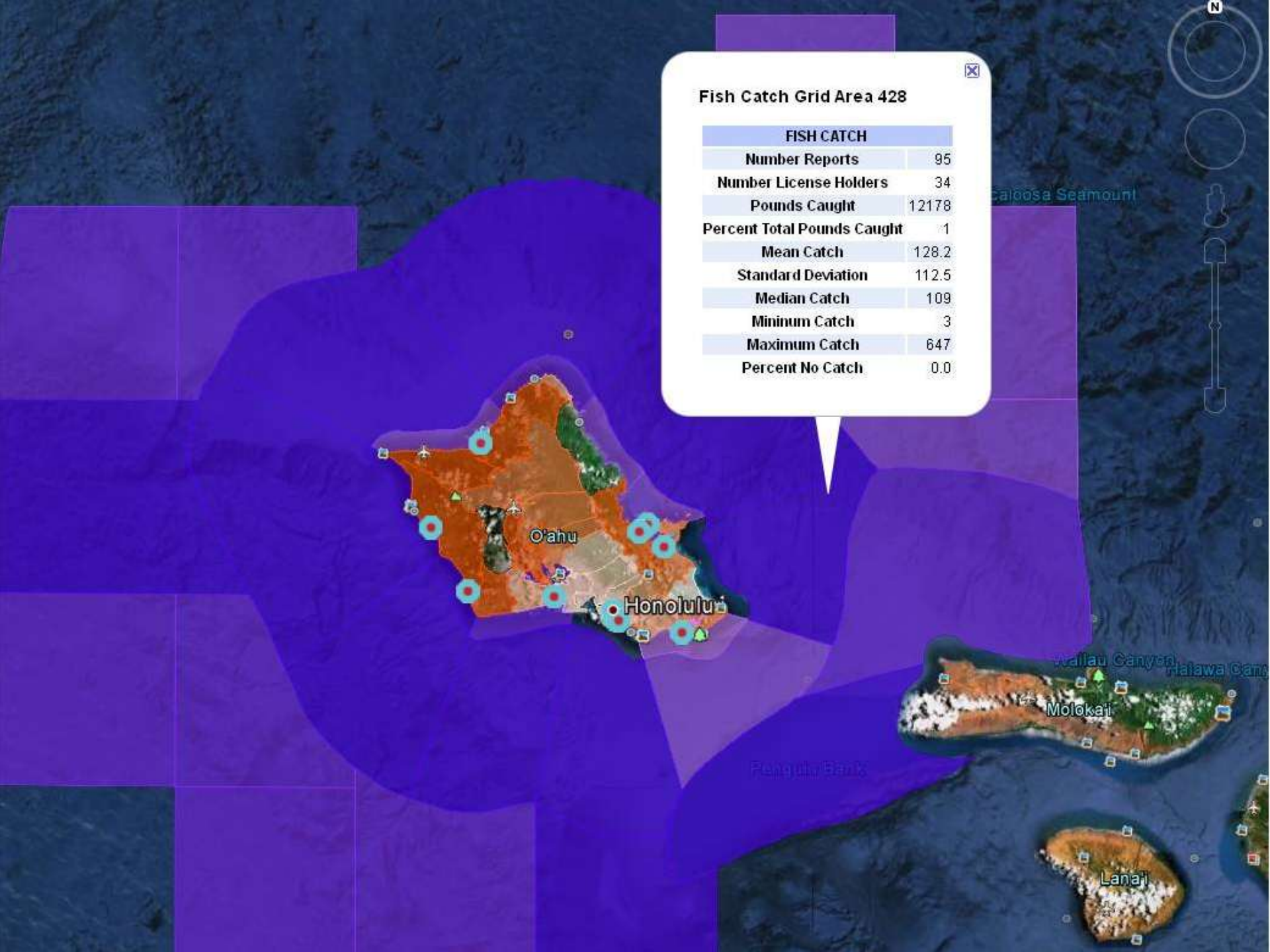
Trolling gear was chosen from a list of 42+ gear types, which can be selected individually or in combination

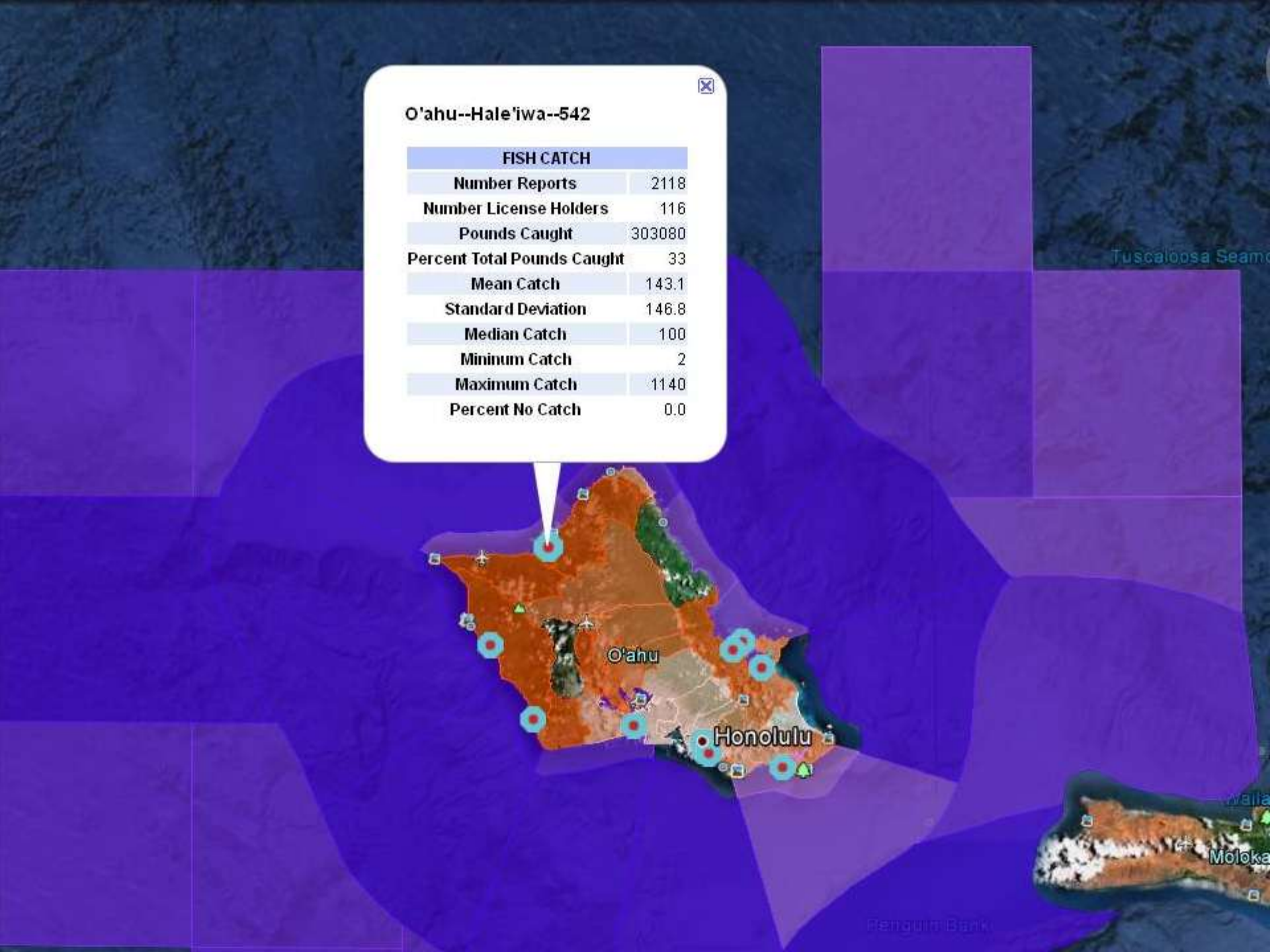


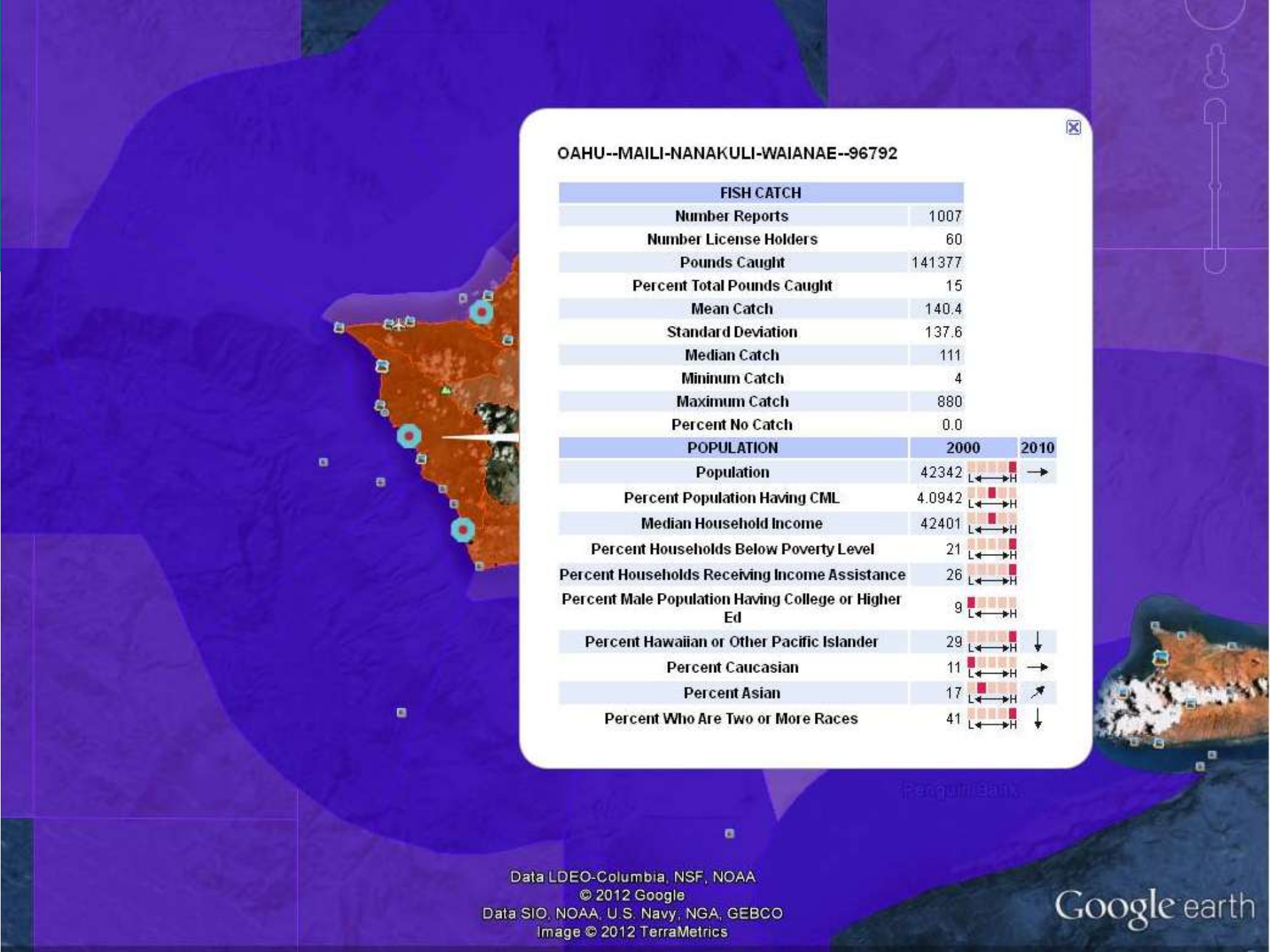


This and subsequent displays do not contain confidential information (from fewer than 3 anglers)

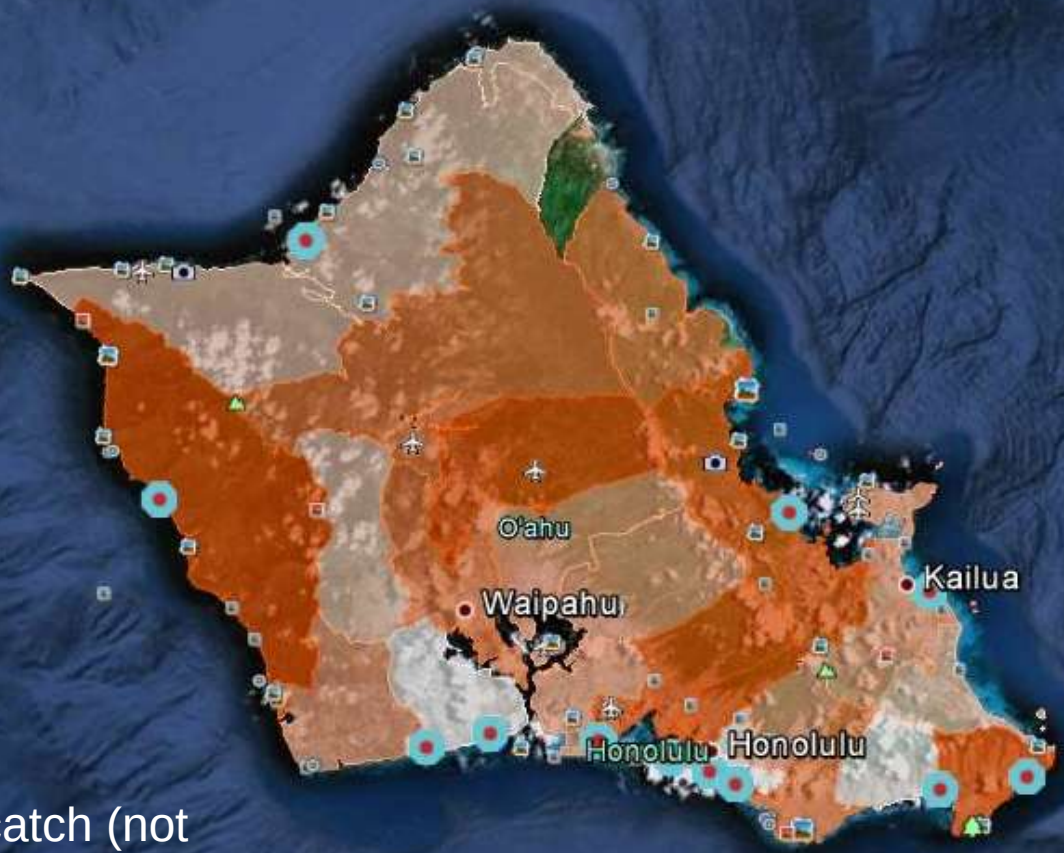

O'ahu
Waipahu
Kailua
Honolulu
Honolulu


Fish Catch Grid Area 428
FISH CATCH
Number Reports 95
Number License Holders 34
Pounds Caught 12178
Percent Total Pounds Caught 1
Mean Catch 128.2
Standard Deviation 112.5
Median Catch 109
Mininum Catch 3
Maximum Catch 647
Percent No Catch 0.0
Caloosa Seamount
O'ahu
Honolulu
Molokai
Lana'i


O'ahu--Hale'iwa--542
FISH CATCH
Number Reports 2118
Number License Holders 116
Pounds Caught 303080
Percent Total Pounds Caught 33
Mean Catch 143.1
Standard Deviation 146.8
Median Catch 100
Mininum Catch 2
Maximum Catch 1140
Percent No Catch 0.0
O'ahu
Honolulu
Tuscaloosa Seamo
Moloka


OAHU--MAILI-NANAKULI-WAIANAE--96792
FISH CATCH
Number Reports 1007
Number License Holders 60
Pounds Caught 141377
Percent Total Pounds Caught 15
Mean Catch 140.4
Standard Deviation 137.6
Median Catch 111
Mininum Catch 4
Maximum Catch 880
Percent No Catch 0.0
POPULATION 2000 2010
Population 42342
Percent Population Having CML 4.0942
Median Household Income 42401
Percent Households Below Poverty Level 21
Percent Households Receiving Income Assistance 26
Percent Male Population Having College or Higher Ed 9
Percent Hawaiian or Other Pacific Islander 29
Percent Caucasian 11
Percent Asian 17
Percent Who Are Two or More Races 41
L H
Penguin Bank
Data LDEO-Columbia, NSF, NOAA
© 2012 Google
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image © 2012 TerraMetrics
Google earth

FEAT also can do recreational fishing queries using onsite interview data from the Hawaii Marine Recreational Fishing Survey



Sample data
(not “census”)

No location of catch (not problem for shoreline fishing queries)

Next Steps

1. Transition to web-based application (FME Server) for widespread use

2. Revise based on user feedback

3. Implement in other regions

Stewart.Allen@noaa.gov

http://www.pifsc.noaa.gov/human_dimensions/index.php