

Emerging Roles for Ocean Research in Gloucester

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Photo Ed Murray Jr.



Merging knowledge and technology

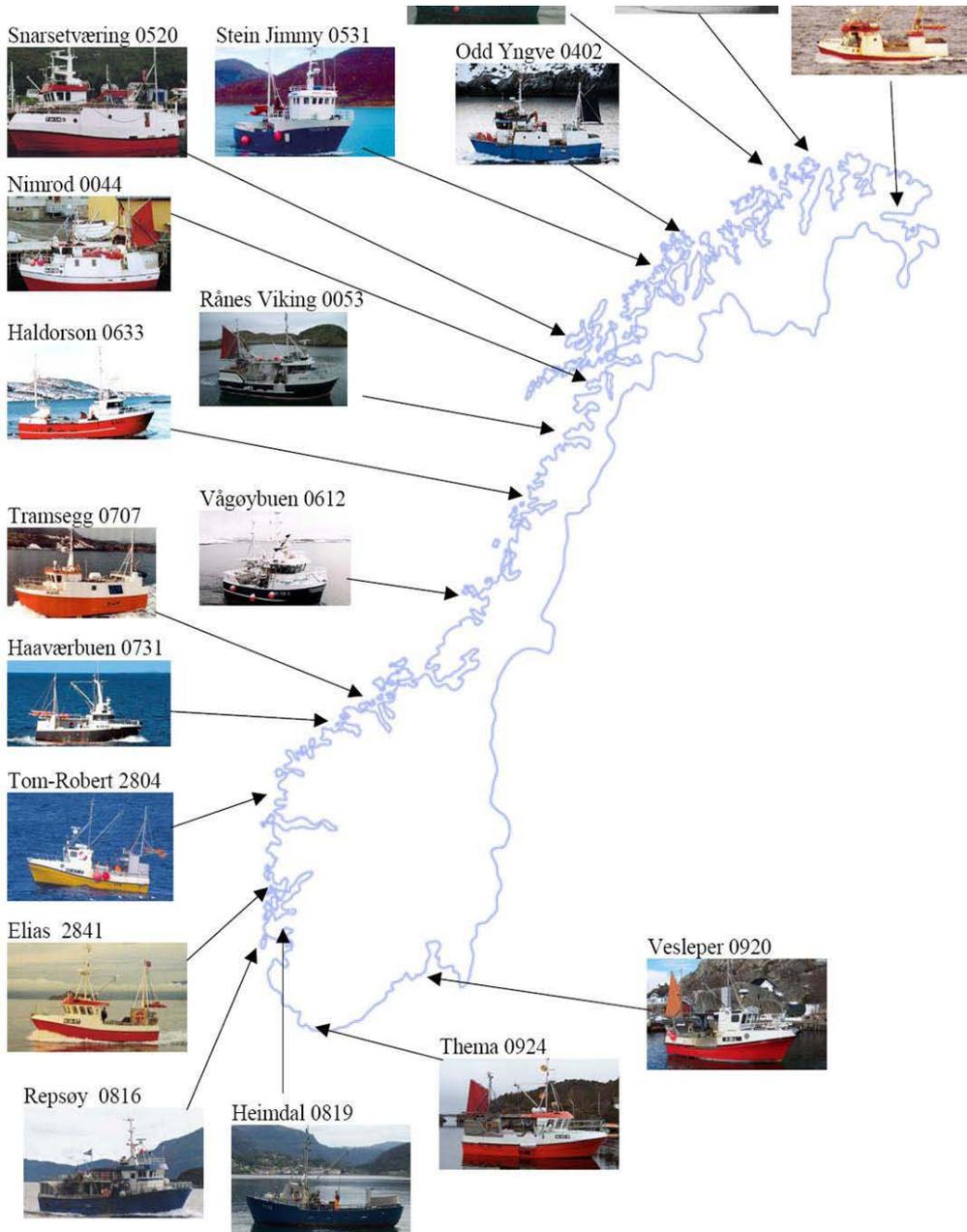




Our Fisheries

How can we develop science, management and economic tools to improve outcomes for stakeholders and consumers?

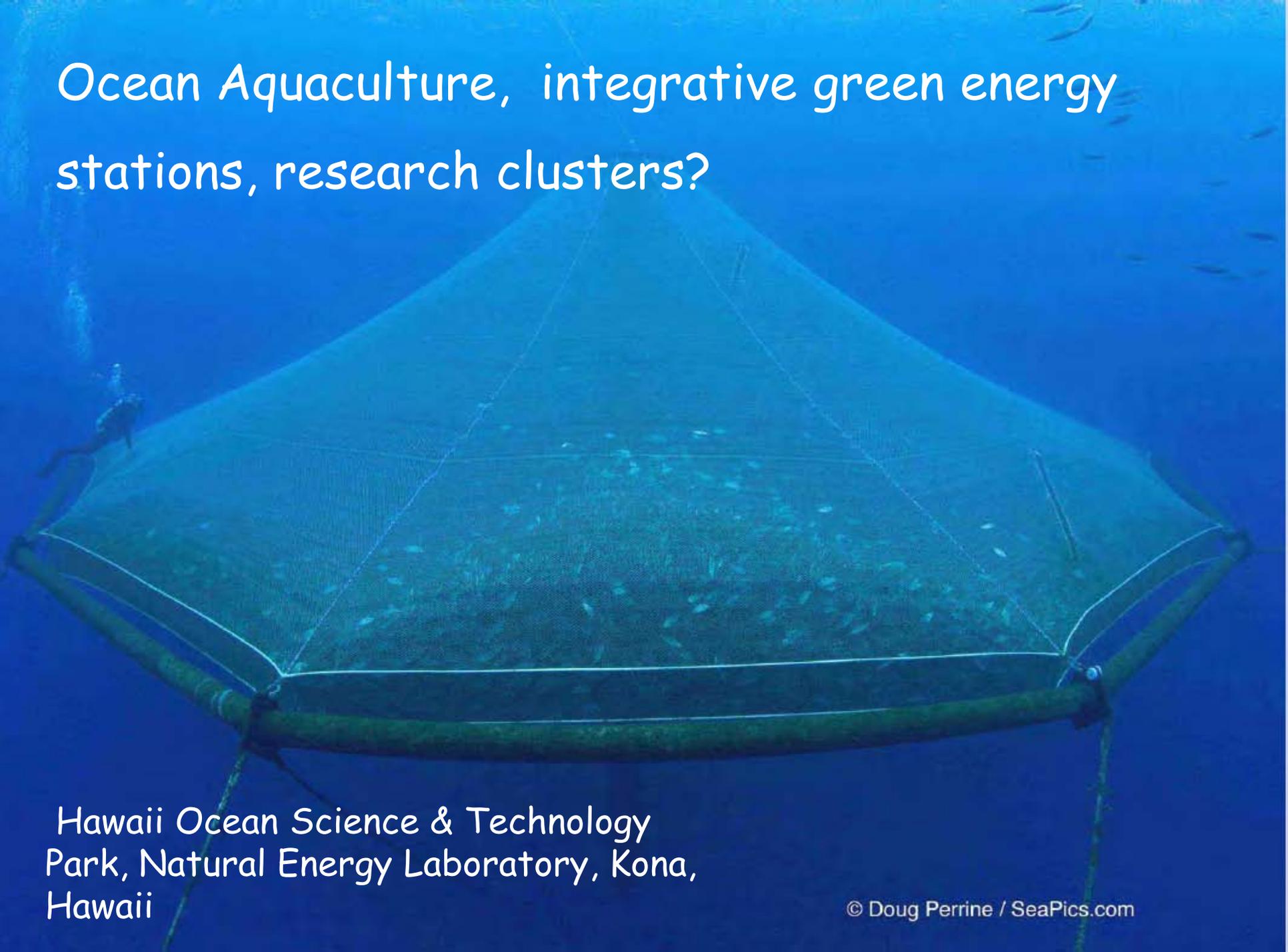
The Norwegian "Reference Fleet" Model



" It is very important that research scientists who give advice on fisheries management issues have sound knowledge about the different fisheries; how and where the fleets operate during the season, and what and how they fish. ...

The Reference Fleet aims to improve data collection and information flows both from and to the fishermen. " IMR

Ocean Aquaculture, integrative green energy
stations, research clusters?



Hawaii Ocean Science & Technology
Park, Natural Energy Laboratory, Kona,
Hawaii

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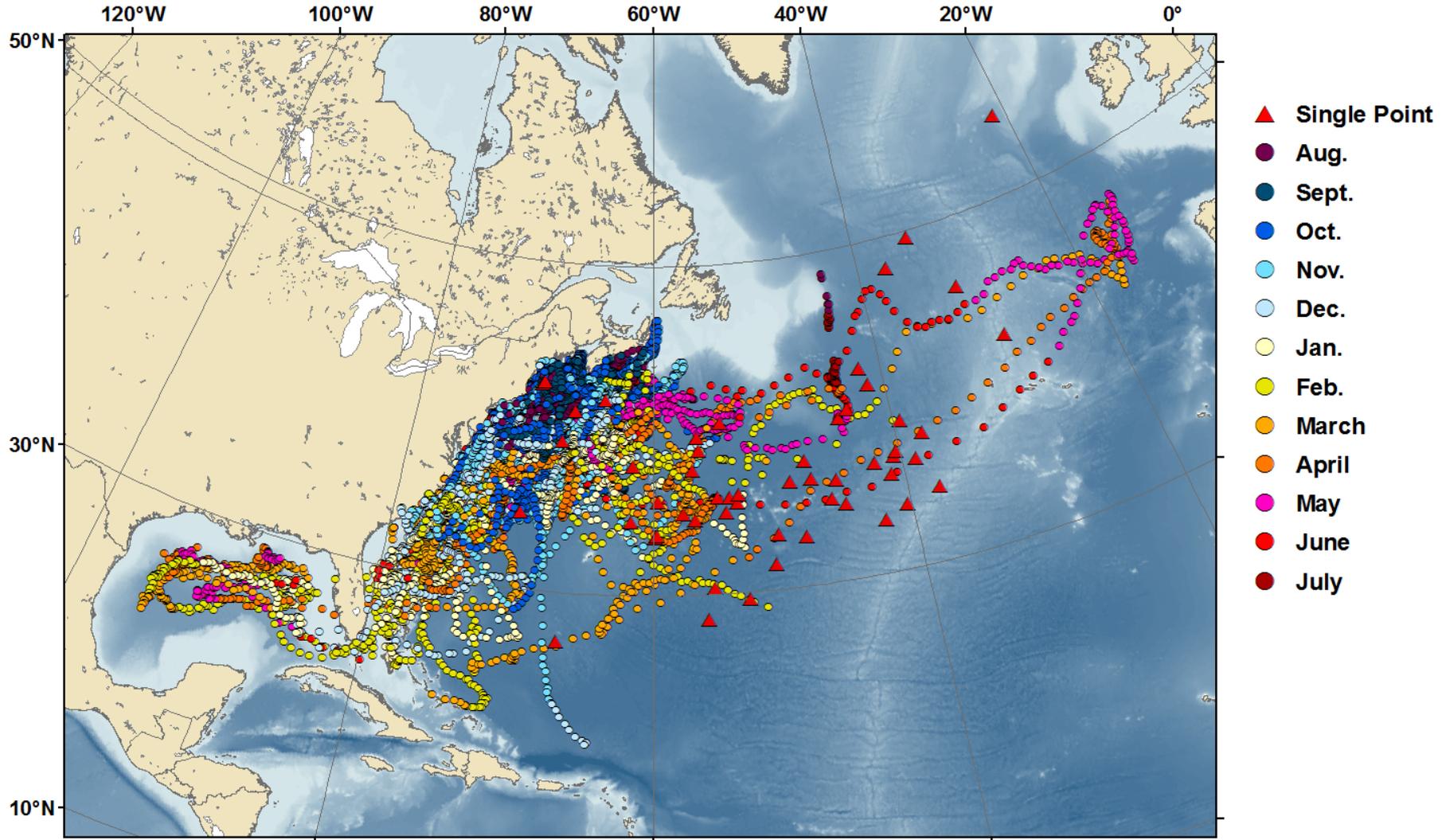
Offshore Energy and Integrative Aquaculture

What synergies can be
created with fisheries?

Tracking technologies: Where are they going?



Atlantic bluefin tuna migration paths

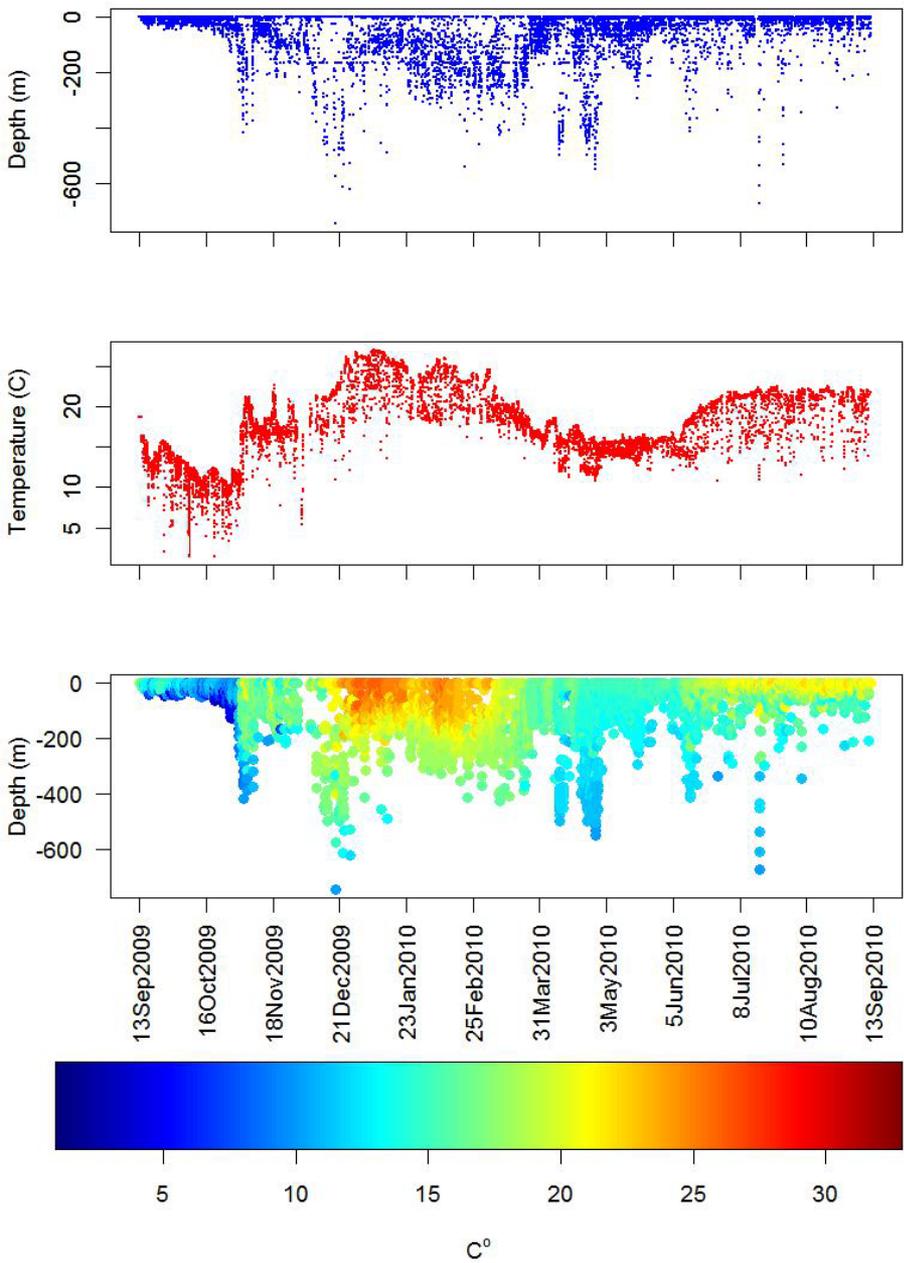




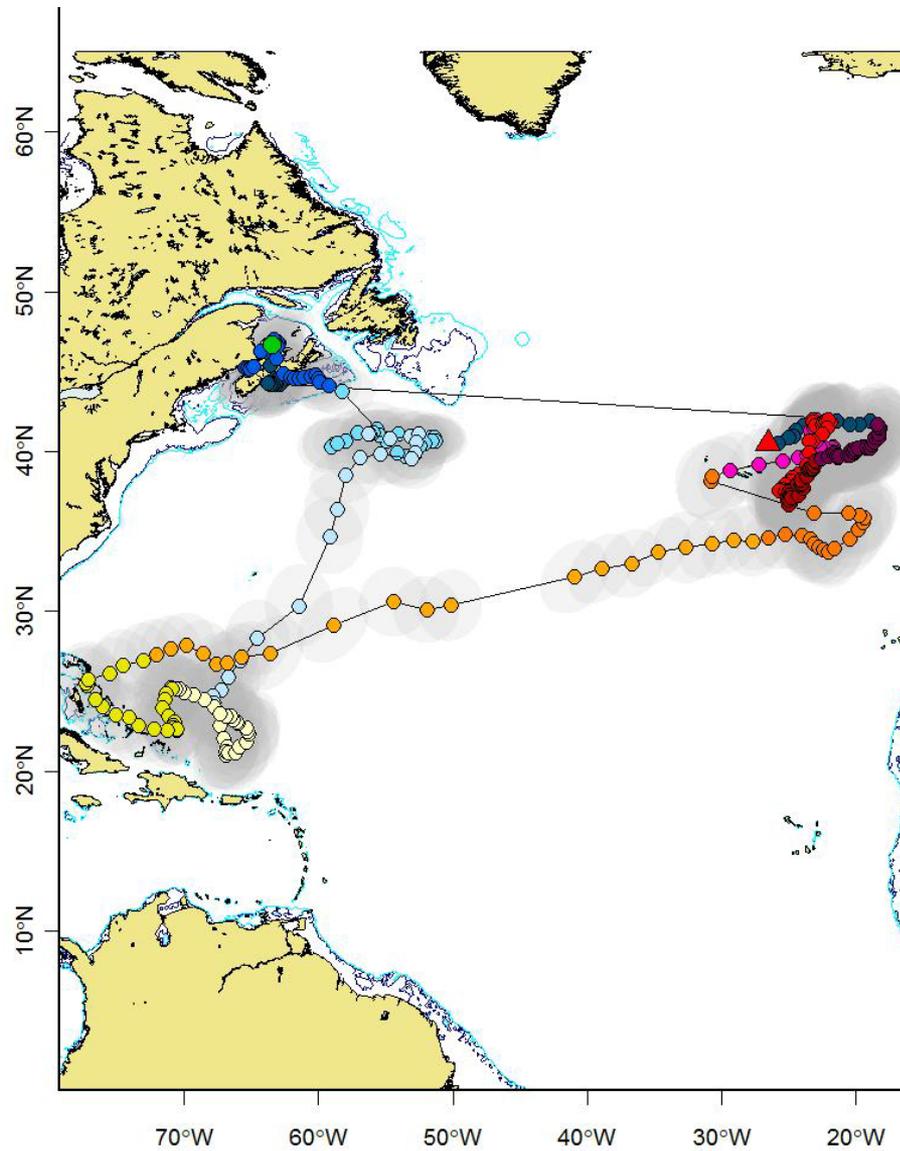
Tracking limited by technology:

size, cost, reliability, bandwidth, data transmission, range, compatibility...

We need new kinds of tracking tools !



But where did it spawn?

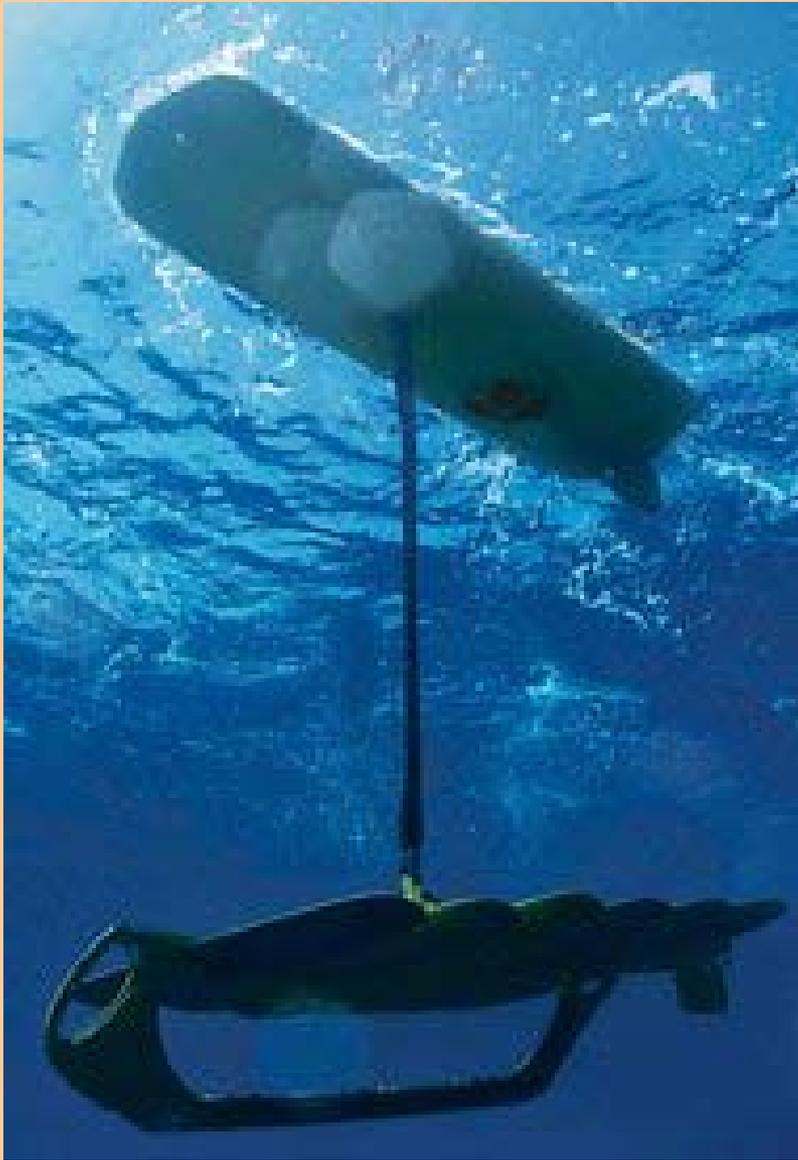


Understanding marine animal behavior - not just where are they going, but what are they doing there-

Limited by lack of biological sensors.

We need "Lab On a Chip" -

ways to detect spawning, foraging, refuge areas of marine animals



New technologies to better understand ocean ecosystems



How many fish are there?

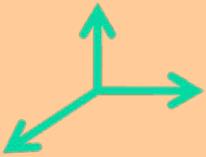
Fishery-independent stock
assessment methods needed

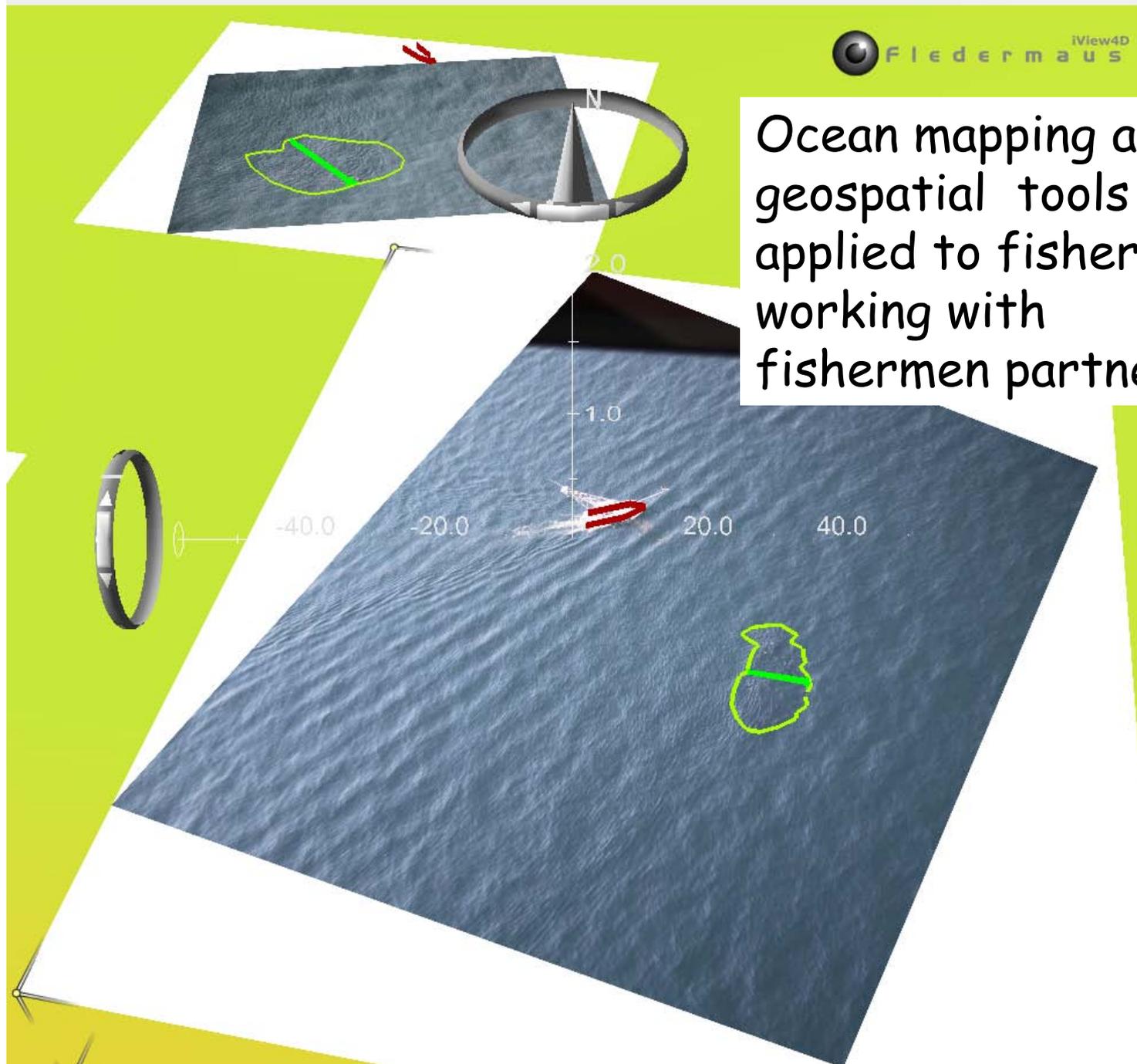
Direct Detection Technology

Spotter pilot

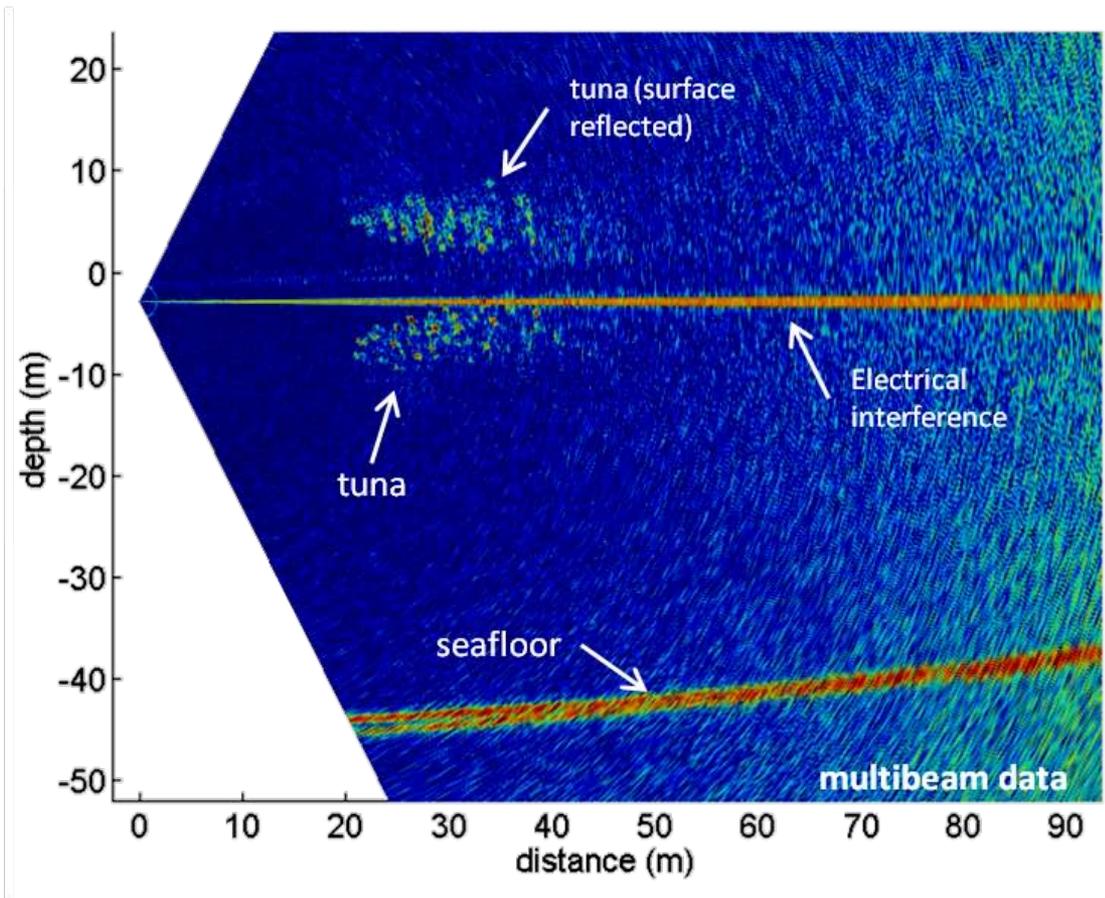
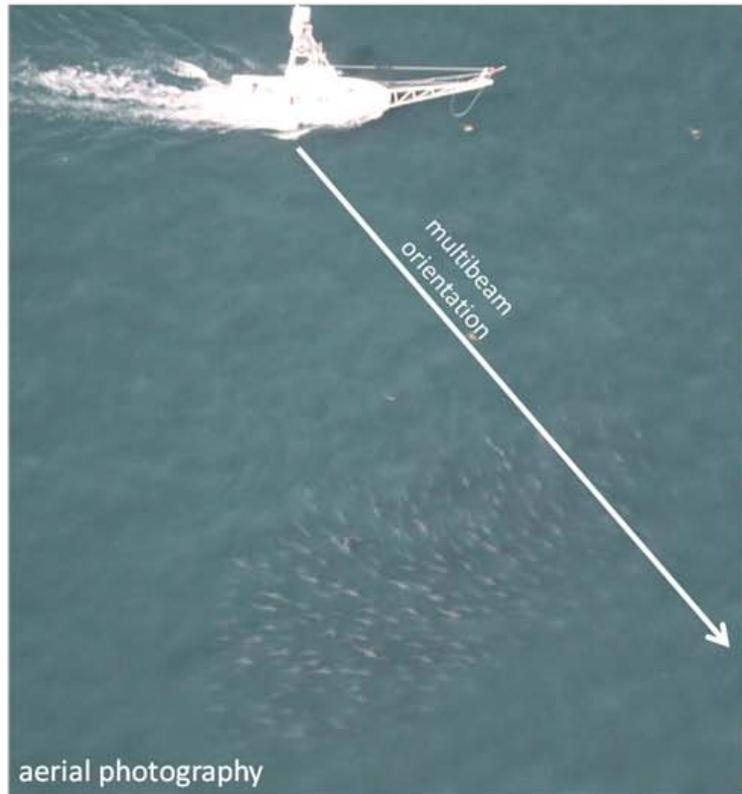
Canon EOS
REBEL T1i

Attitude
Sensor





Ocean mapping and geospatial tools applied to fisheries, working with fishermen partners



- Sonar, aerial approaches for fishery independent determination of school and fish size ...
- Modeling, simulations, oceanographic analysis

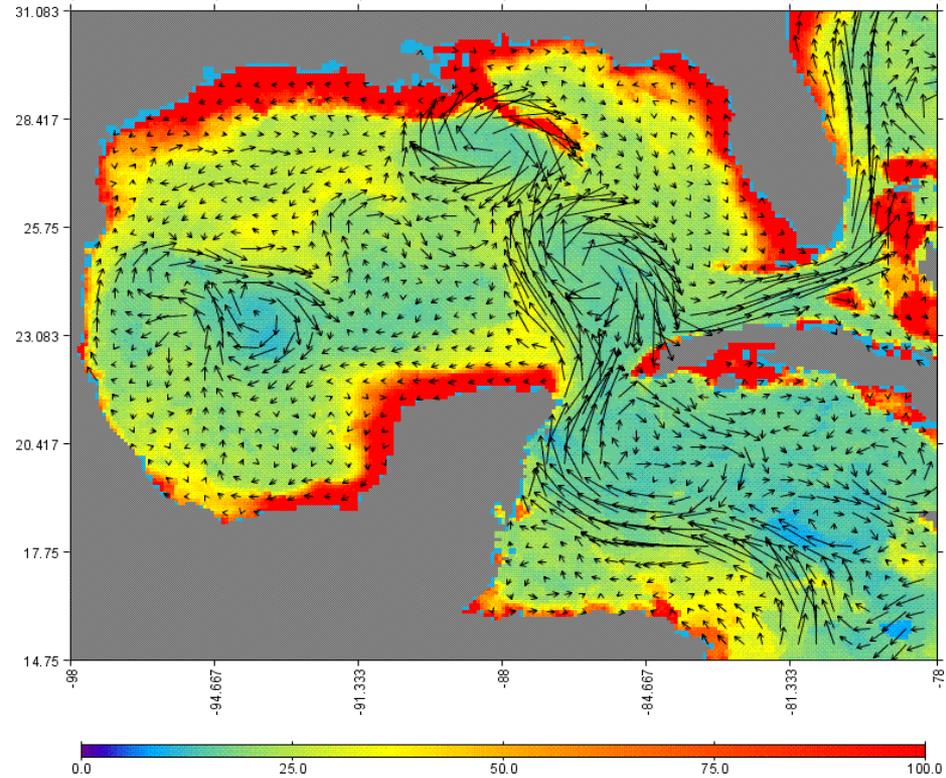
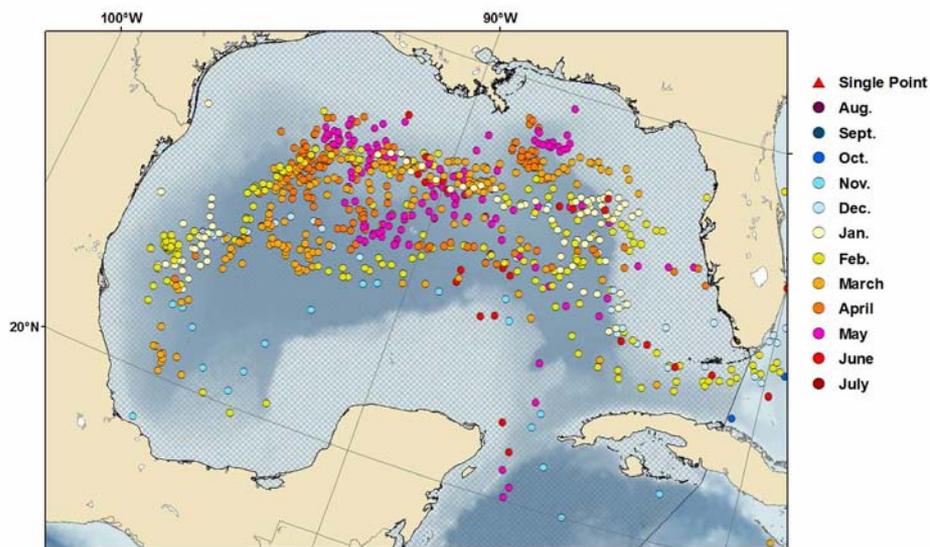


Photo Capt Ken Neill



Ocean & Fisheries Science Needs:

Better data, tools,
assessments, predictions.
More integrative technologies
Broader observation scales

Gloucester has been a hub for ocean innovation for centuries-

