

# Innovative Approaches to Managing Mixed Stock Fisheries

Fish live in a dynamic environment, or seascape, in which their habitats move in time and space. The four traditional tools, and the regulations that support them, are not sufficiently flexible to respond to the dynamic seascape and as a result season and area closures are a blunt management tool.

## TRADITIONAL MANAGEMENT TOOLS

Size  
Limits

Season  
Limits

Closed  
Areas

Catch  
Limits

## DYNAMIC OCEAN MANAGEMENT

Predictive  
Models

Satellite  
Data

Remote  
Sensing

Dynamic  
Closures

Over the last 25 years, new technologies have been incorporated into the fishing industry that allow fishing vessels to know exactly where they are in space, where they are with respect to currents and surface temperature features, exactly where their nets are, and how much is in their net. However, the capabilities these technologies offer have not entered the regulatory environment.

## BENEFITS

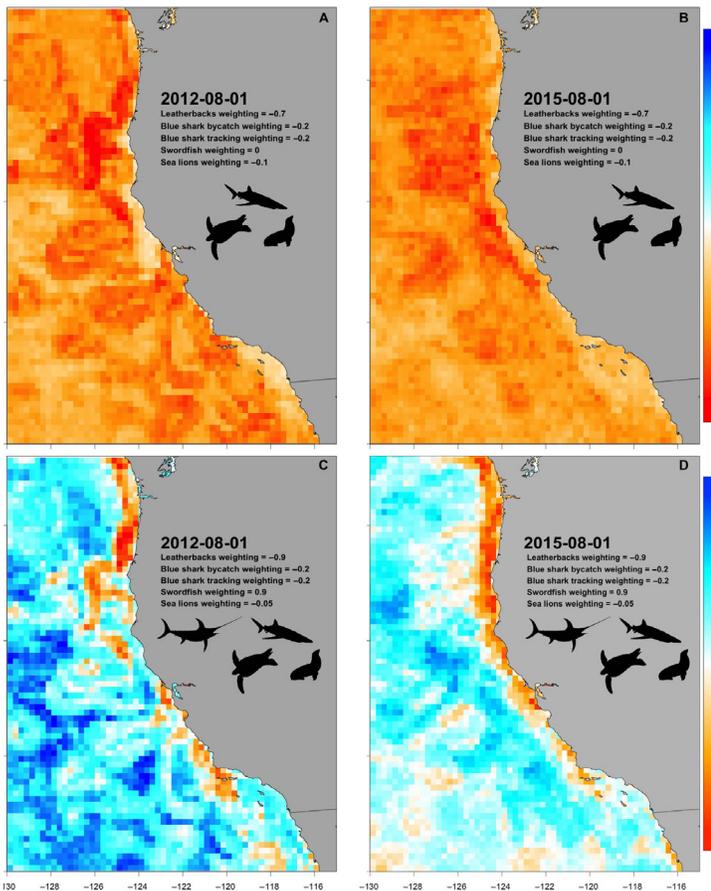
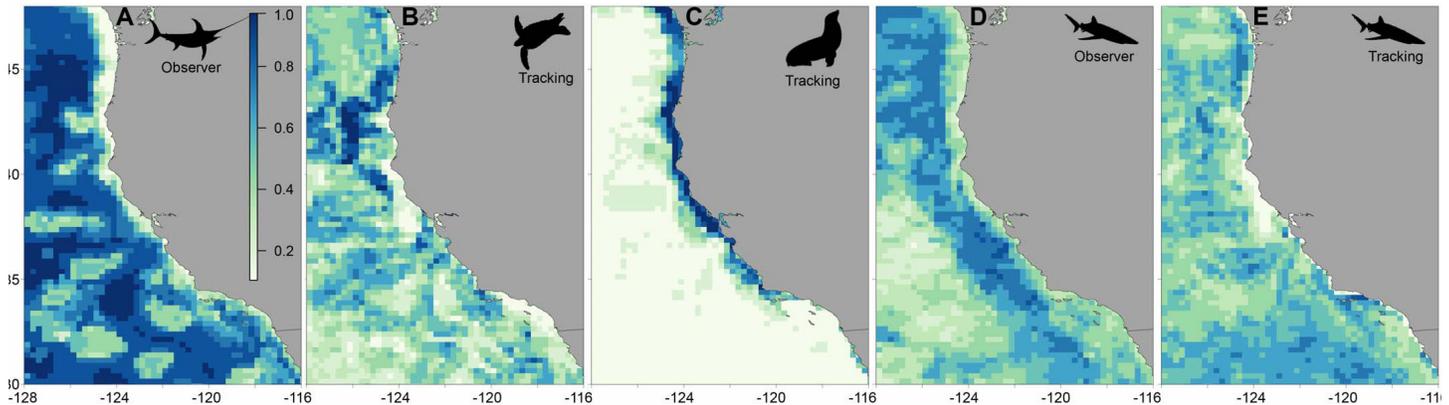
Dynamic ocean management could lead to smaller areas of the ocean being closed to fisheries, less bycatch of endangered and unwanted species, and an increase in the efficiency of individual fishing vessels.

Data collected in such a system could lead to more accurate stock assessments and improved fisheries management.



# Dynamic Ocean Management

Fisheries scientists have an increasingly sophisticated understanding of how fish use the dynamic marine seascape, how and when fish co-occur, and when they are likely to move. A system of dynamic closed areas that shift in space and time in direct response to the key characteristics of the marine environment, sensed by either satellite data or an array of physical sensors is practical.



Scientists are using this information to develop predictive models that would predict what would be caught where, and as importantly what could be avoided. It would be necessary for these data to be analyzed in near real time to produce maps of species distributions relative to dynamic ocean features and for fishing vessels to have access to such information.

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<http://fisheries.org/wp-content/uploads/2018/09/MSFCMA-Reauthorization-Final-1.pdf>