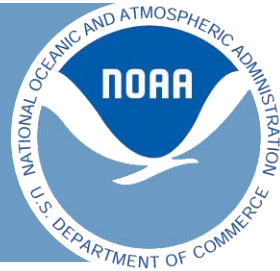


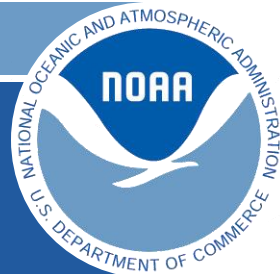


UNITED STATES DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND  
ATMOSPHERIC ADMINISTRATION



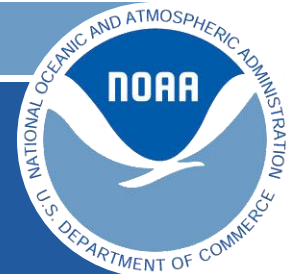
*Scientific Foundation for  
Coastal & Marine  
Spatial Planning*

Paul A. Sandifer, Ph.D.  
Senior Science Advisor to the  
NOAA Administrator  
March 11, 2010



## President Obama's Memo of June 12, 2009 to Executive Departments and Agencies

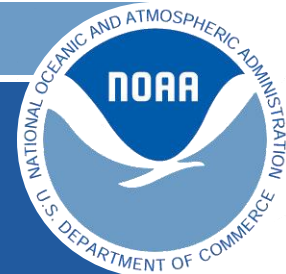
“Within 180 days from the date of this memorandum, the Task Force shall develop, with appropriate public input, a recommended framework for effective coastal and marine spatial planning. This framework should be a comprehensive, integrated, **ecosystem-based** approach that addresses conservation, economic activity, user conflict, and sustainable use of ocean, coastal, and Great Lakes resources...”



# What is Coastal and Marine Spatial Planning?

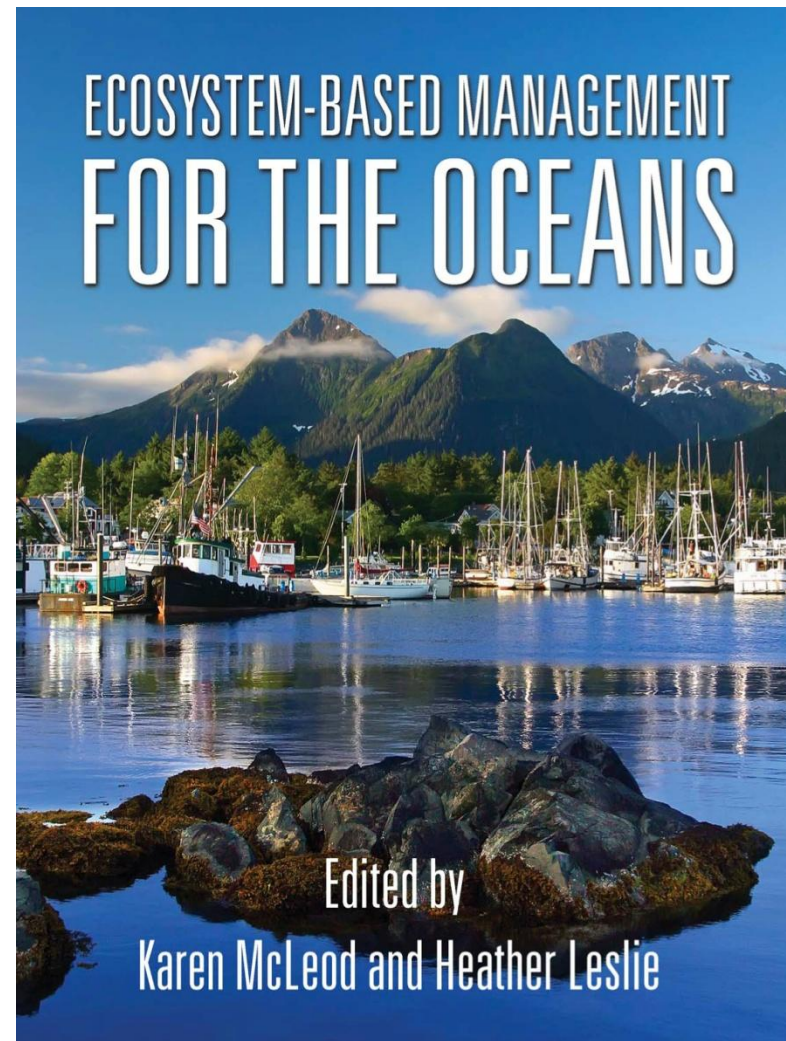
CMSP is a comprehensive, adaptive, integrated, **ecosystem-based**, and transparent spatial planning process, based on sound science, for analyzing current and anticipated uses of ocean, coastal, and Great Lakes areas. CMSP identifies areas most suitable for various types or classes of activities in order to reduce conflicts among uses, reduce environmental impacts, facilitate compatible uses, and preserve critical ecosystem services to meet economic, environmental, security, and social objectives.

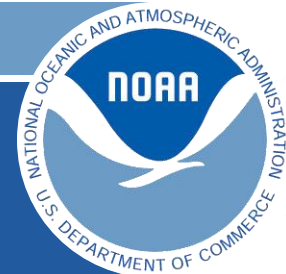
In and of itself, CMSP is not regulatory; it is a planning process!



# Scientific Foundation for CMSP Is Ecosystem-Based Management

**EBM is an integrated approach to management that considers the entire ecosystem, including humans. The goal of EBM is to maintain an ecosystem in a healthy, productive and resilient condition so that it can provide the services humans want and need.**

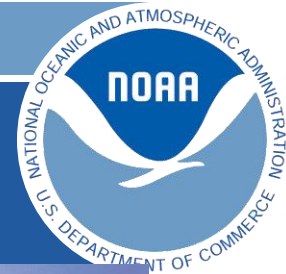




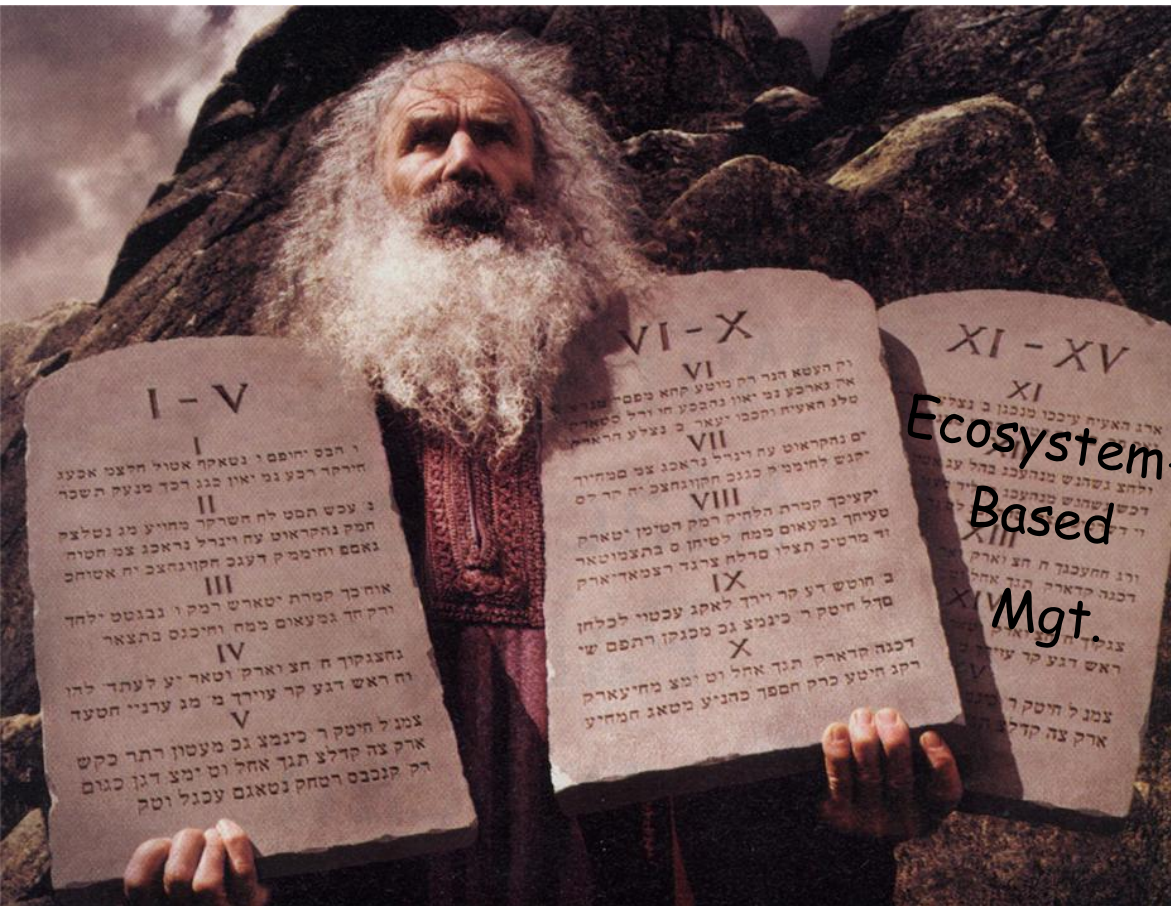
# Scientific Foundation for CMSP Is Ecosystem-Based Management

**Specifically, ecosystem-based management:**

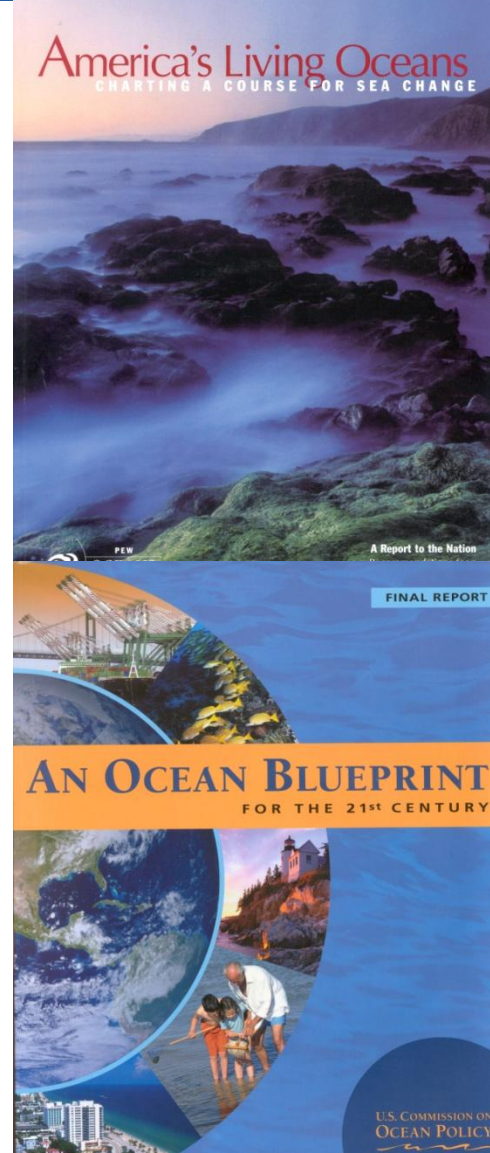
- **emphasizes protection of ecosystem structure and functioning;**
- **is place-based, focusing on a specific ecosystem**
- **accounts for interconnectedness within and among ecosystems;**
- **integrates ecological, economic, social and institutional perspectives; and**
- **considers cumulative impacts.**

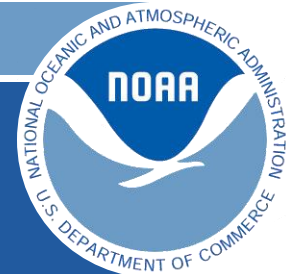


# Where Did Ecosystem-Based Management Come From?

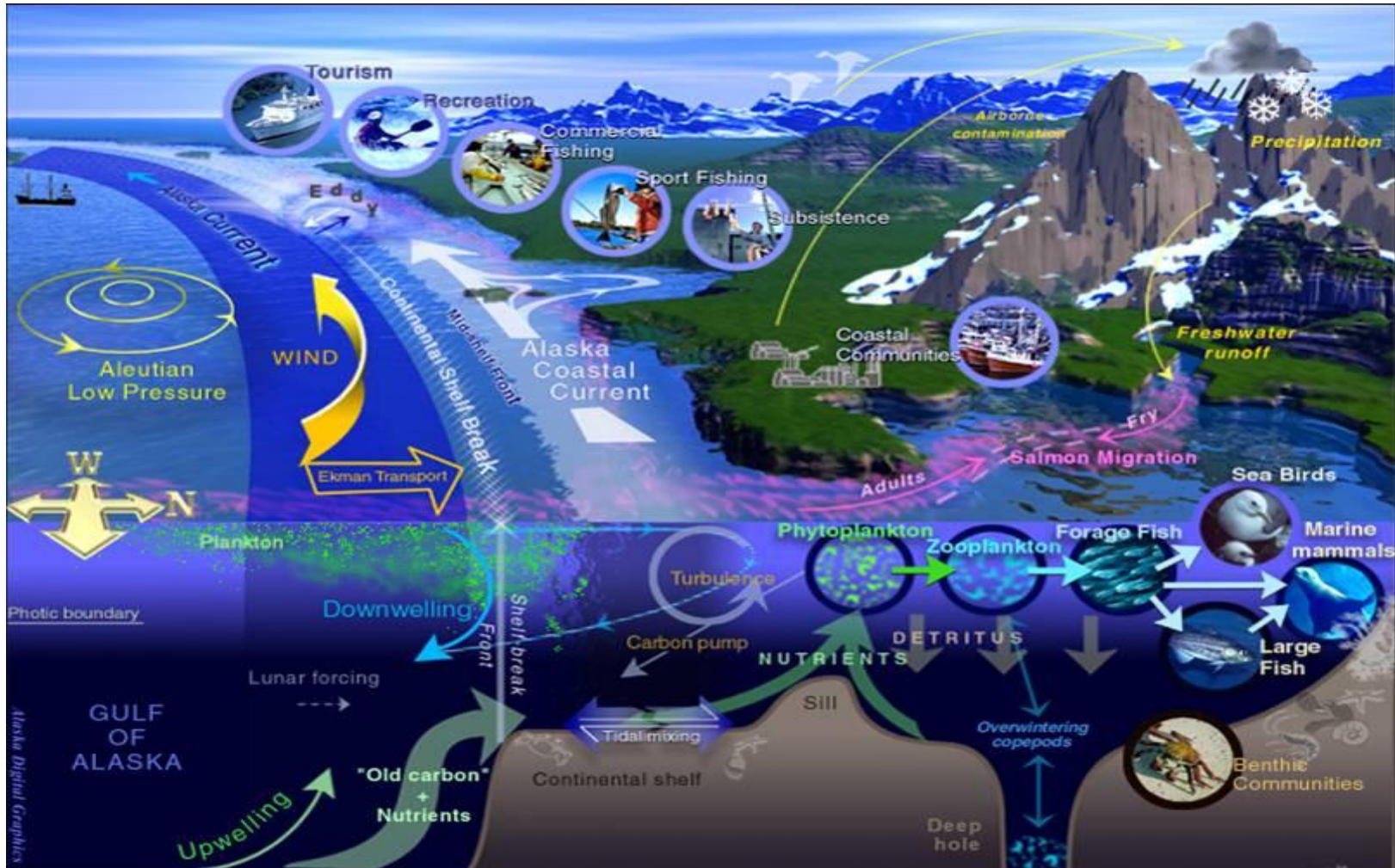


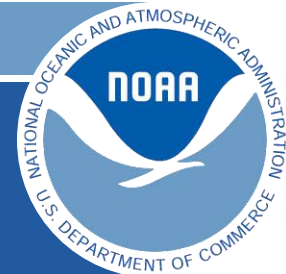
Ecosystem-Based Mgt.



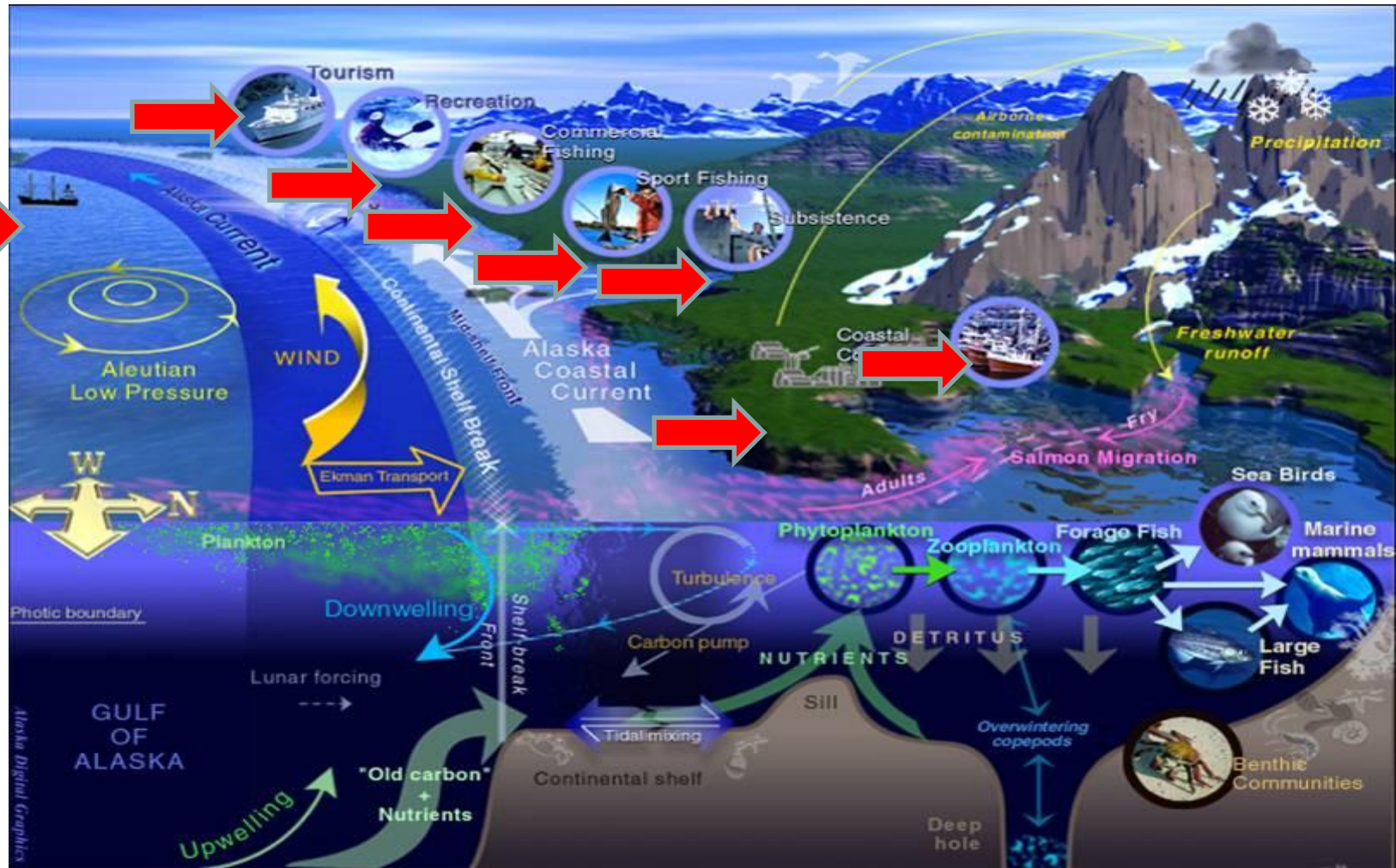


# Alaska Marine Ecosystem

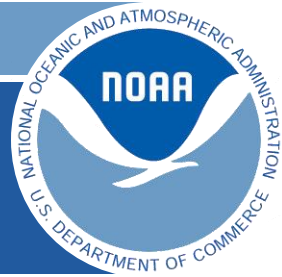




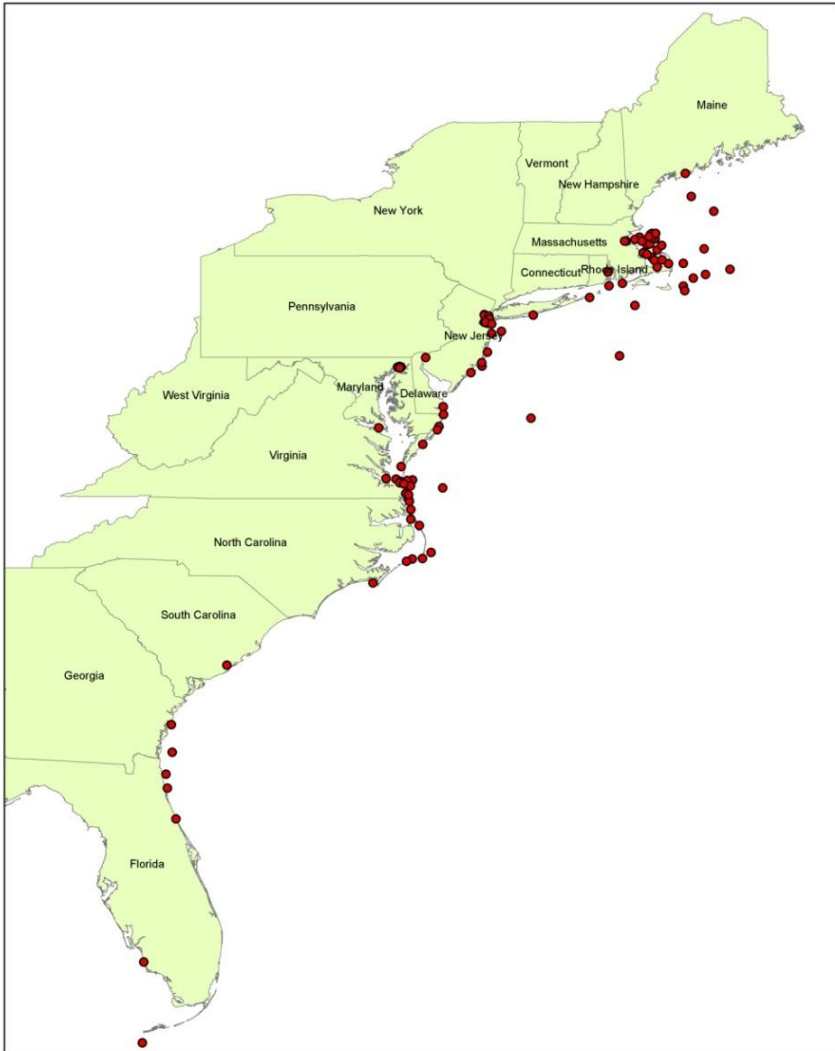
# Alaska Marine Ecosystem



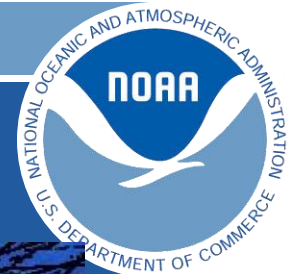




# Baleen Whale Ship Strikes

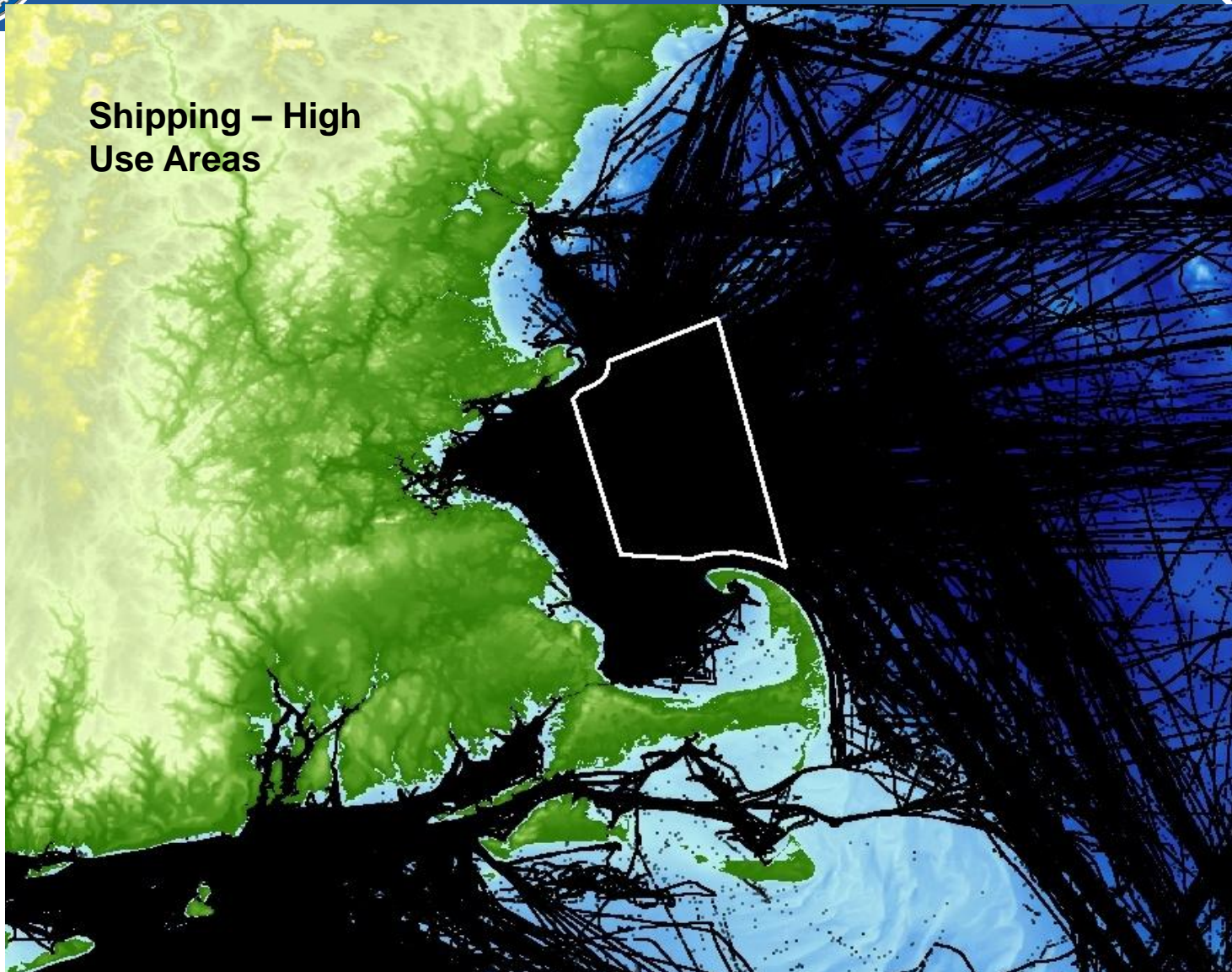


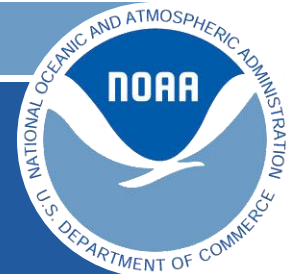
**Approximate  
Distribution of  
Ship Struck  
Baleen  
Whales along  
the Eastern  
Seaboard of  
the U.S**



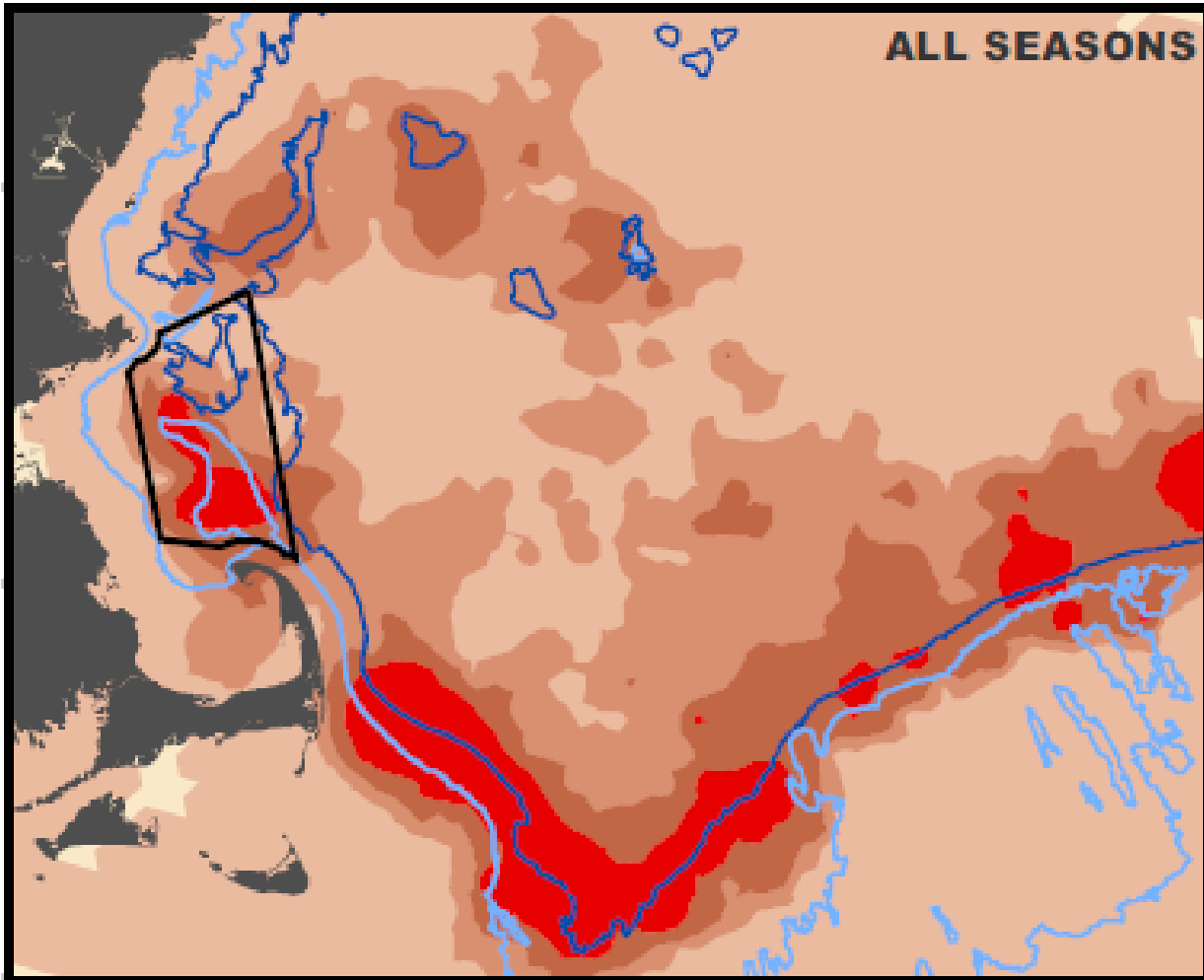
# Stellwagen Bank NMS

Shipping – High  
Use Areas





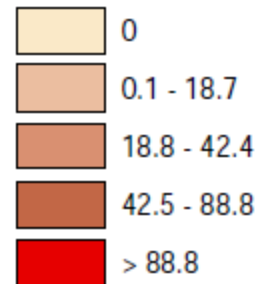
# Application of CMSP To Save Whales



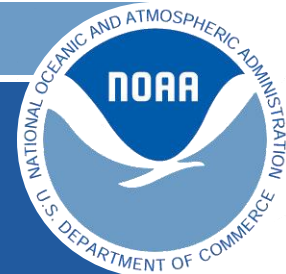
## Baleen Whales

**1970-2005**

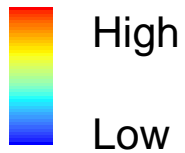
SPUE (Quantile)



**NOAA – NCCOS (Figure excerpted from Pittman et al., 2006)**



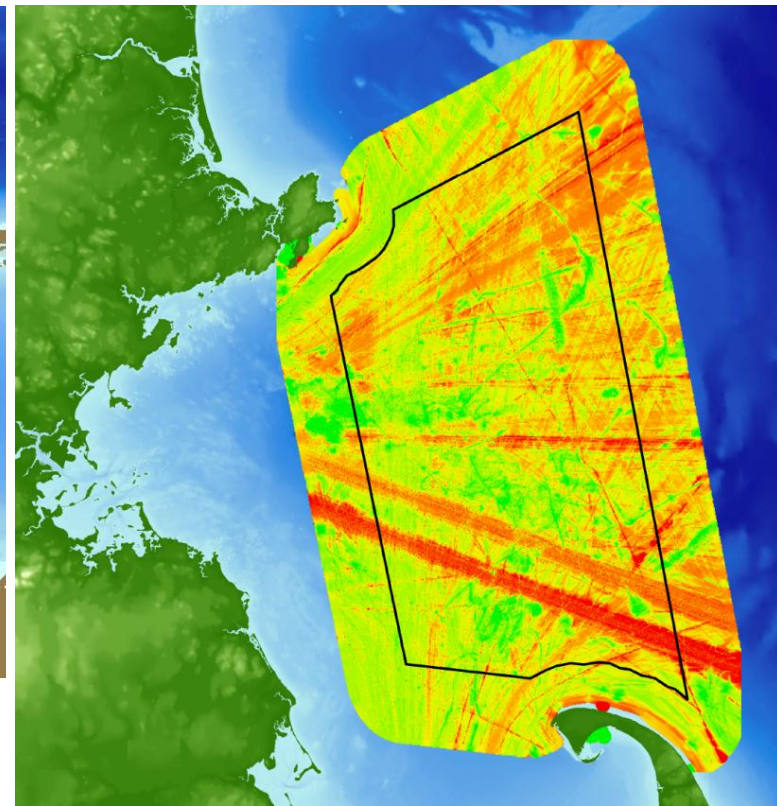
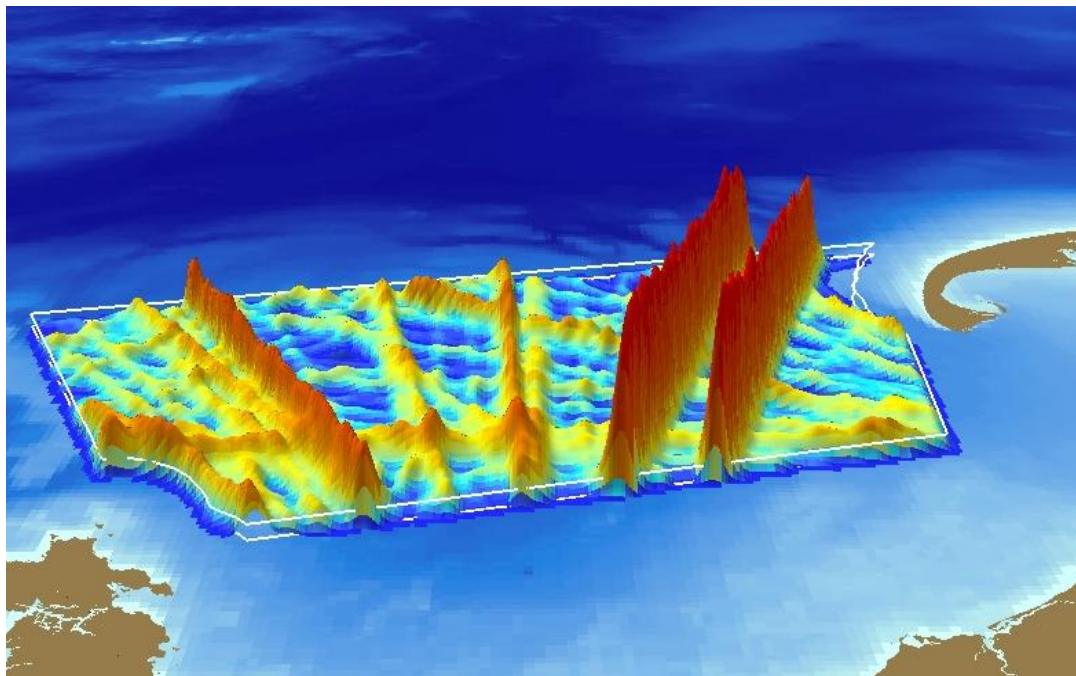
# Vast Majority & Fastest Ships Use The Traffic Separation Scheme

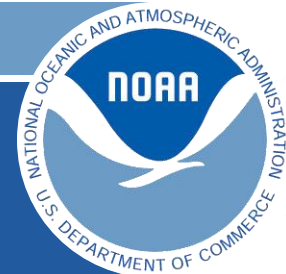


Shipping Density

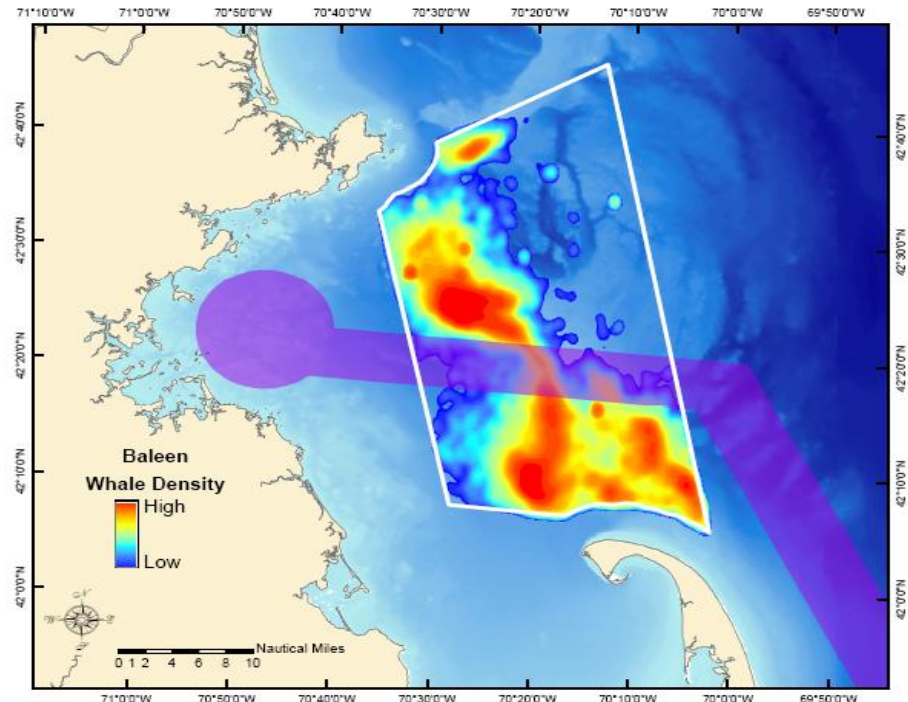
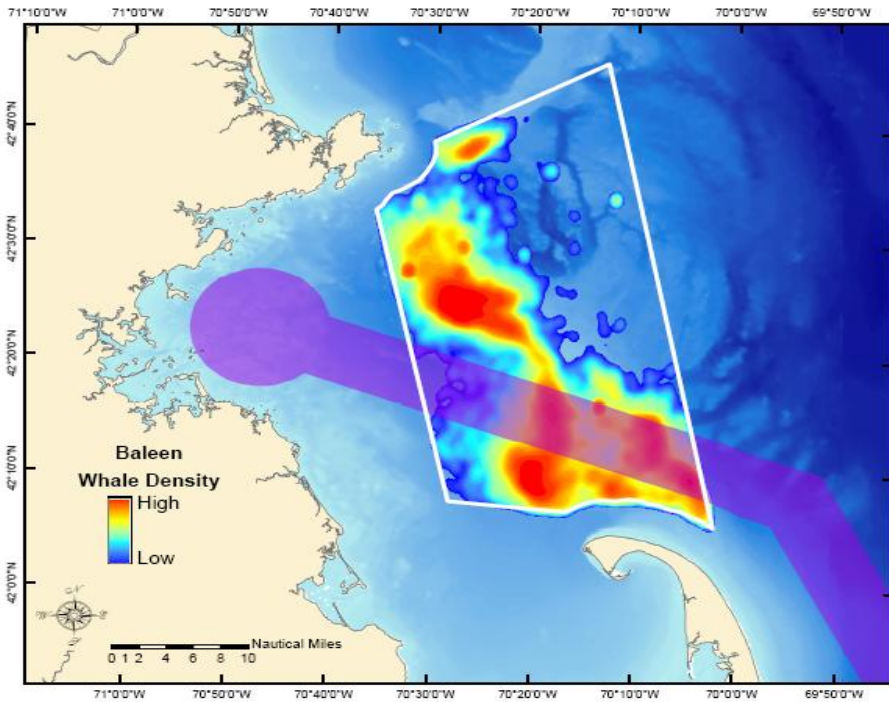


Ship Speed





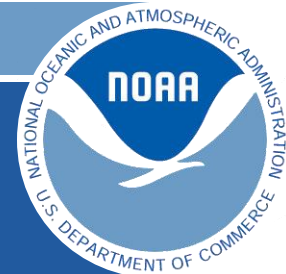
# GOAL: Shift TSS To Area Of Lower Whale Density



**Baleen Whales Distribution: 1979 - 2004**

**Red** = highest density

**Blue** = lowest density

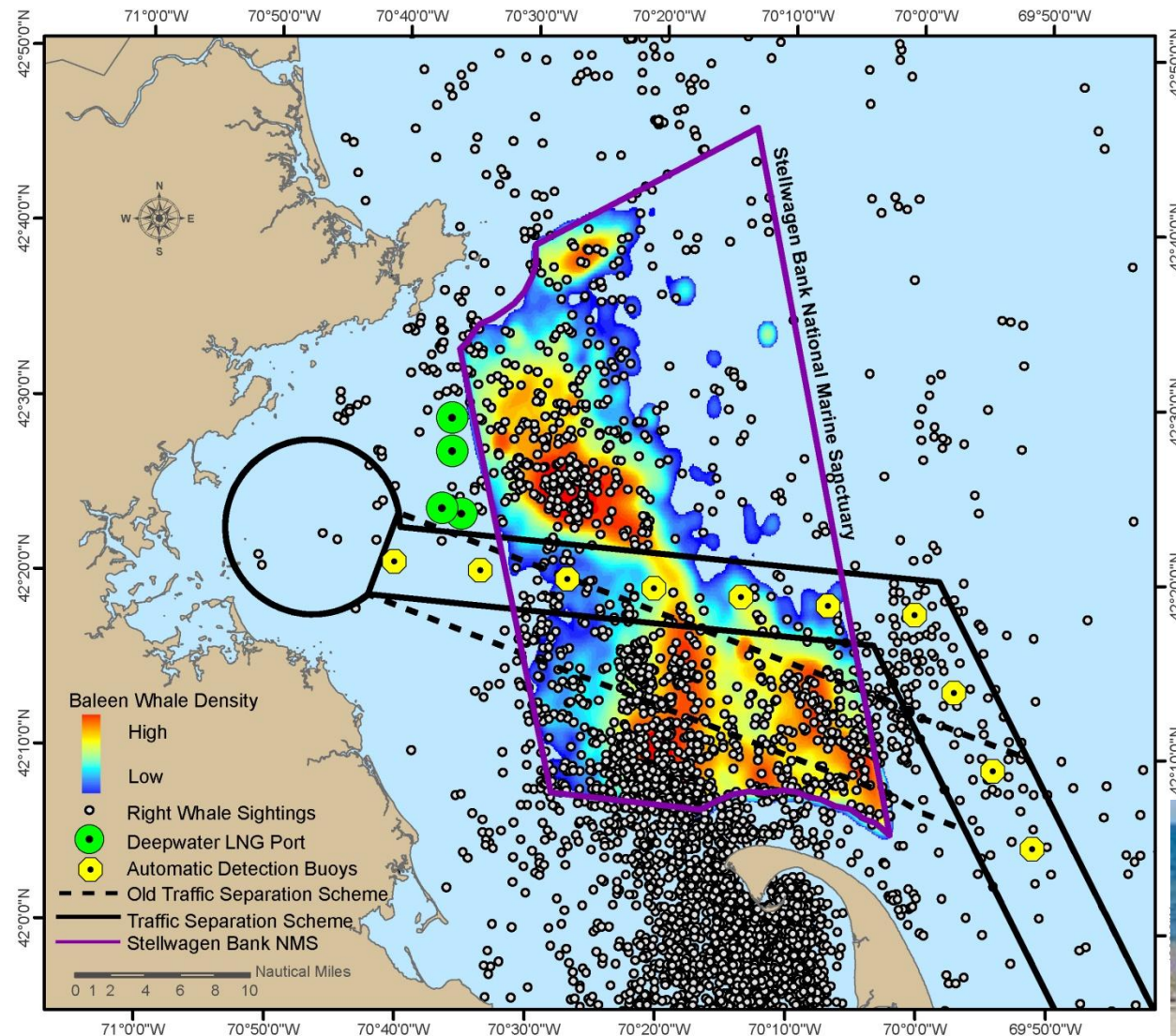


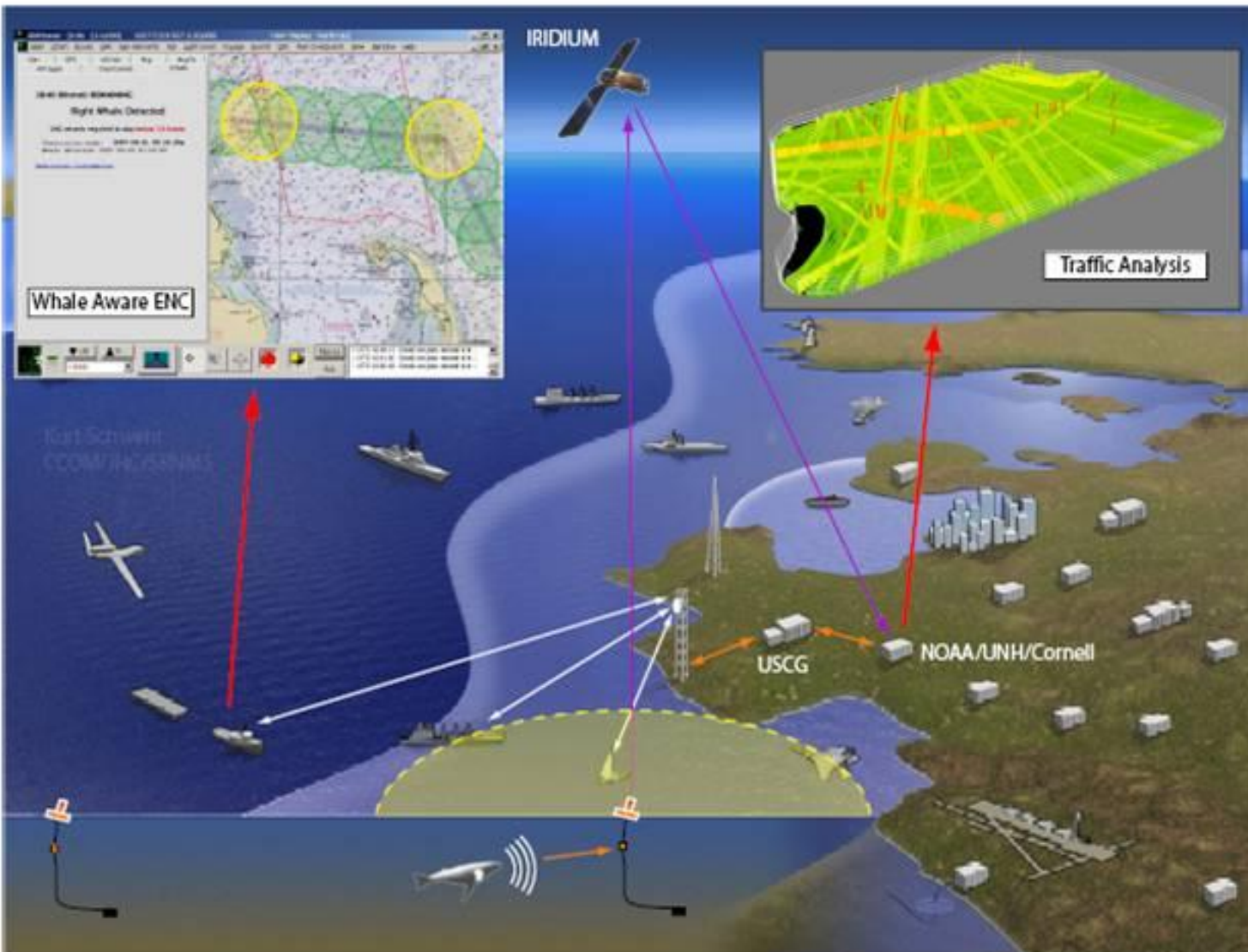
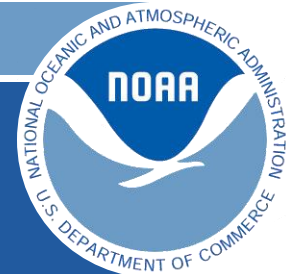
# Application of CMSP To Save Whales

**Shipping Lanes Through the Sanctuary Moved on 1 July 2007 to Reduce the risk of Ship Strike to Whales**

**81% all whales**

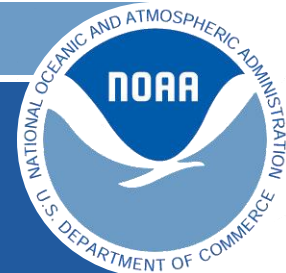
**58% right whales**





This schematic shows passive acoustics in real time--the use of real time buoys to alert ships to whales.





# Why CMSP Is Important



**“Coastal and marine spatial planning may sound like the stuff of policy wonks, but it is actually vital to anyone who works or plays on the oceans. In fact, coastal and marine spatial planning is an essential tool for anyone who depends on the oceans for sustainable jobs, healthy seafood, clean energy, recreation or vibrant coastal communities.”**

*- Dr. Jane Lubchenco, NOAA Administrator and member of the Interagency Ocean Policy Task Force  
December 14, 2009*