

# Predicting right whale distributions from space

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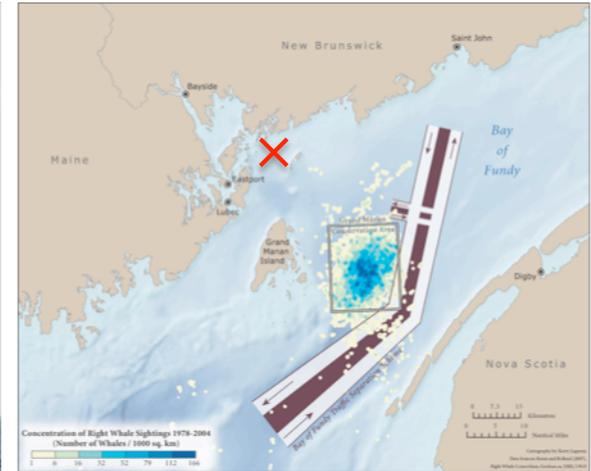
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# Right whale, wrong time



# Dynamic routing of vessels



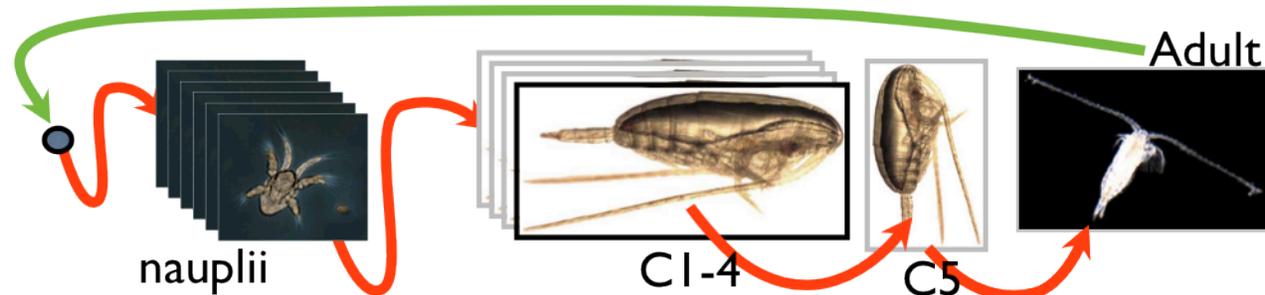
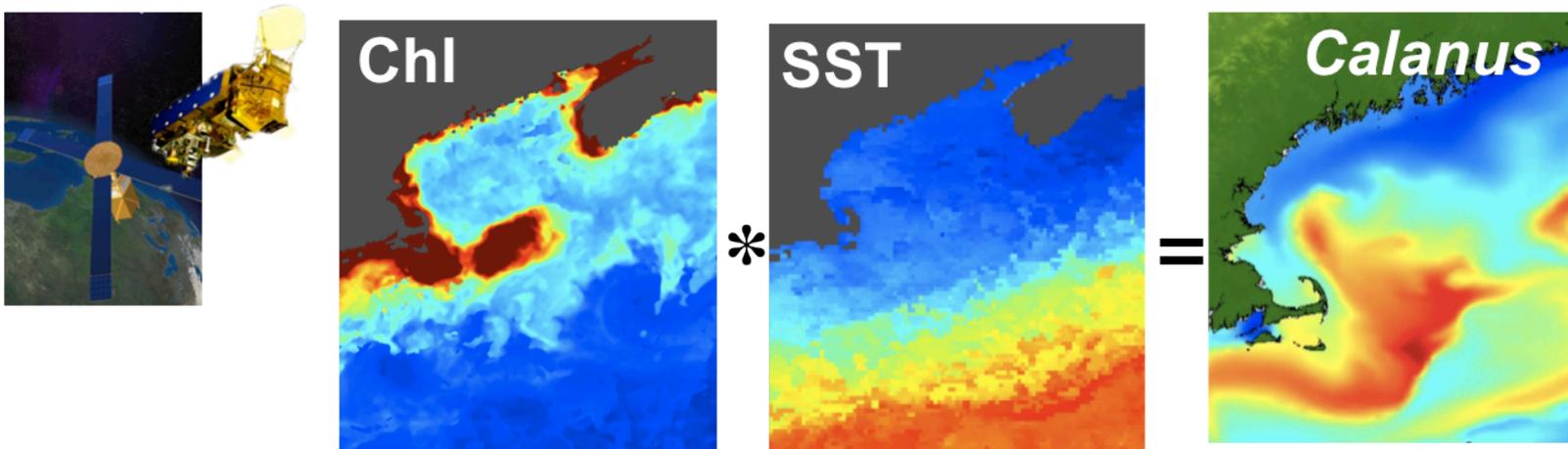
Large vessel

Right whale



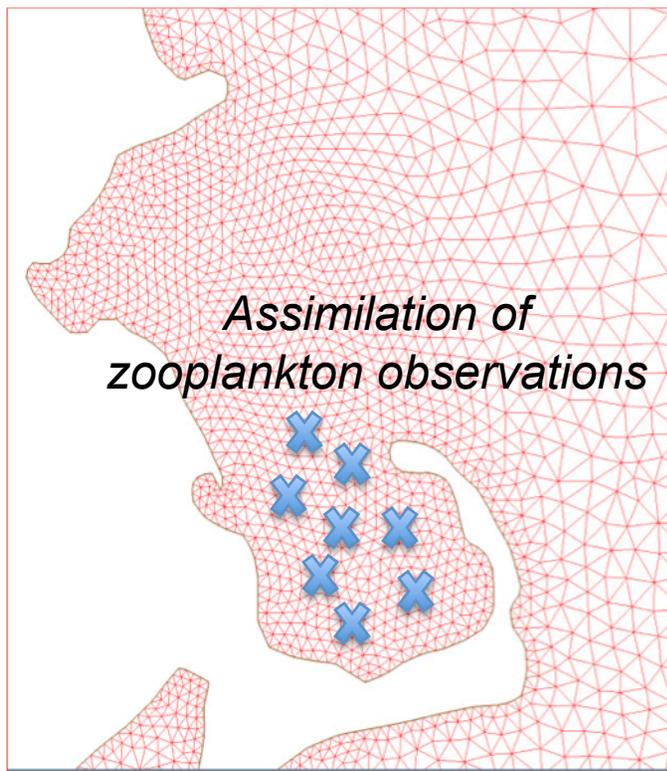
# RWPS 1.0

- **SEASCAPE=Satellite-based Estimates and Analysis of Stage-resolved Copepod Abundance in Pelagic Ecosystems**
  - Satellites can measure temperature and chlorophyll from space
  - Copepod growth and reproduction is related to temp & chl

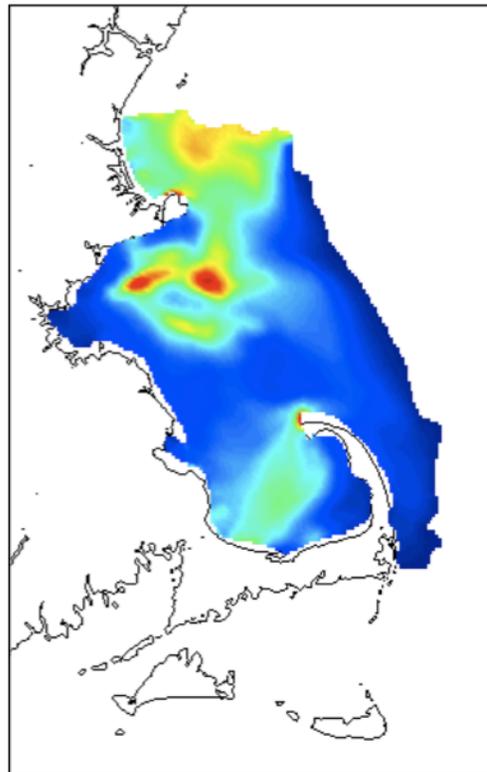


# RWPS 2.0

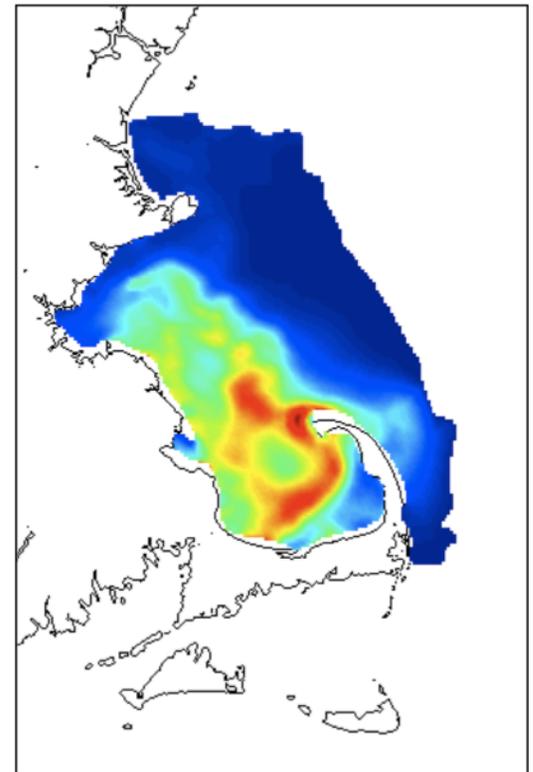
High resolution 3D physical model



*Calanus*

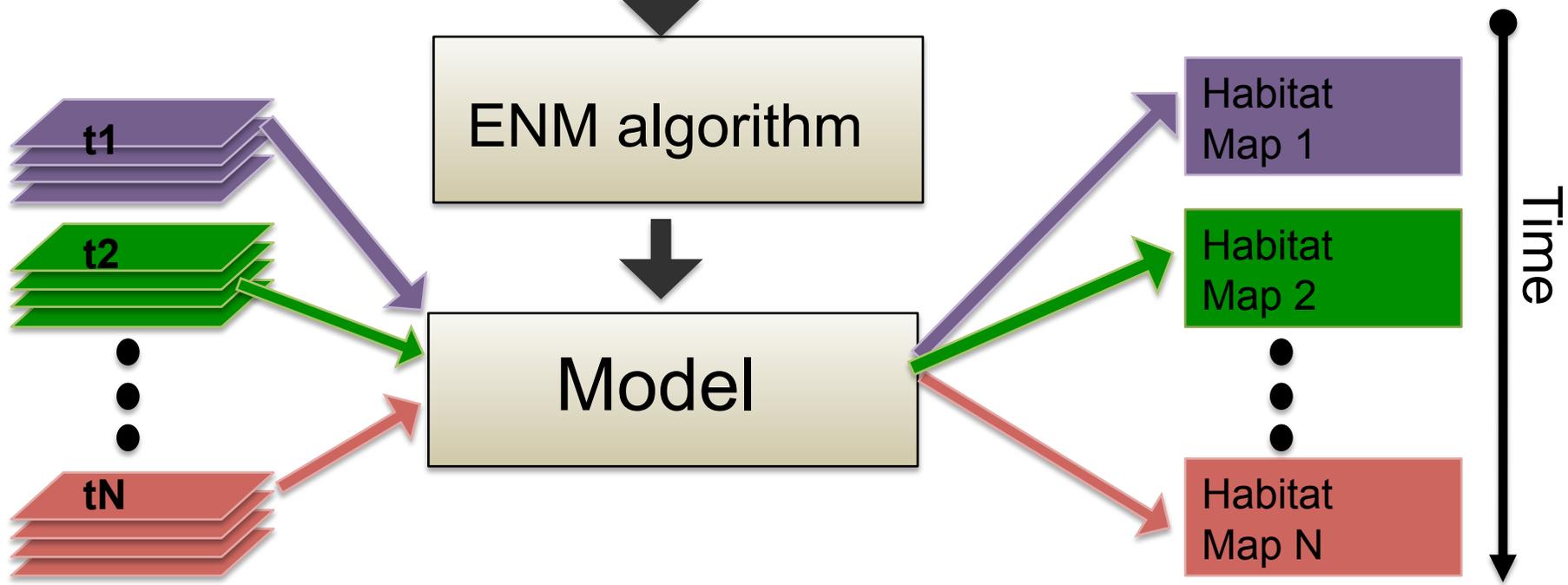
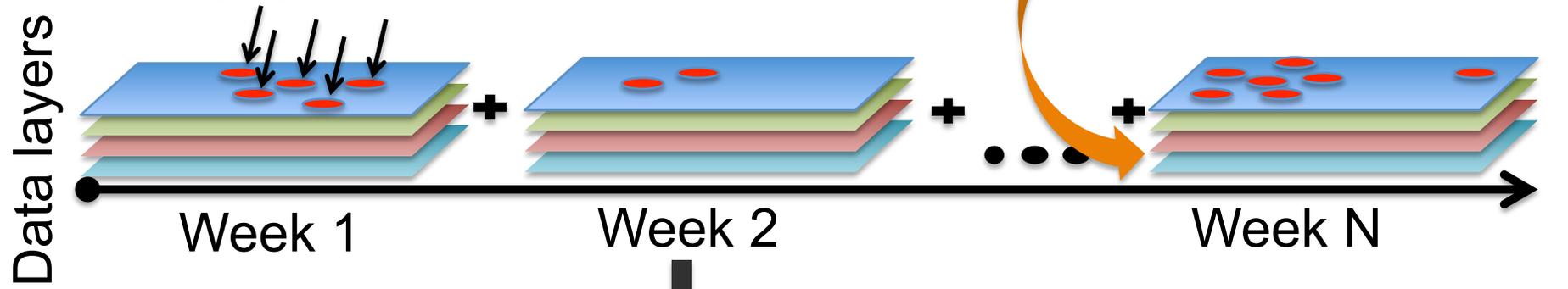


*Pseudocalanus*

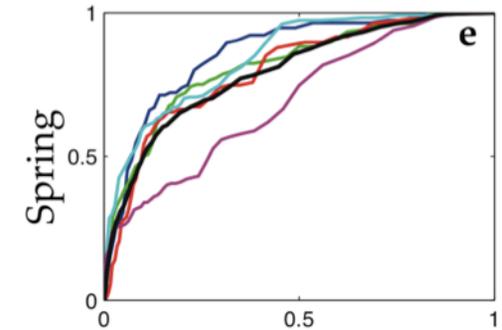
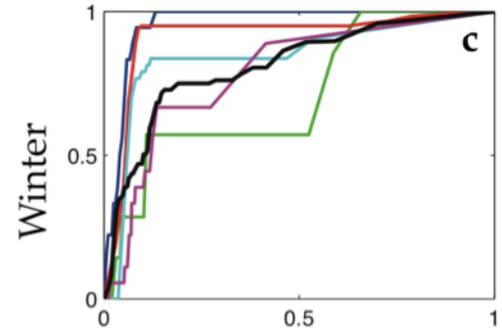
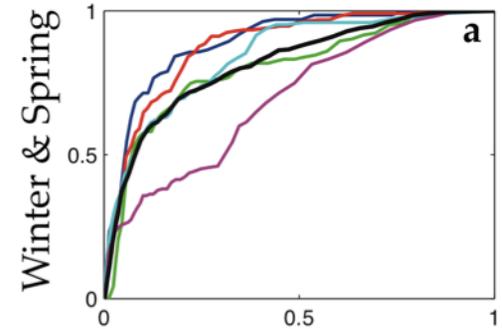
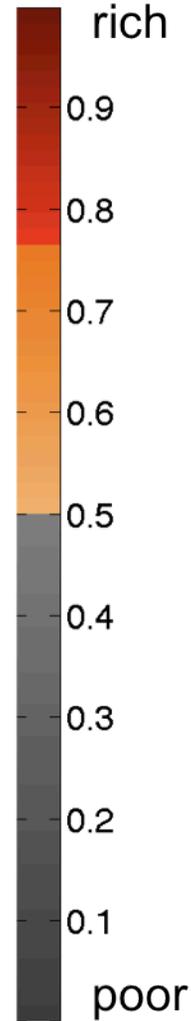
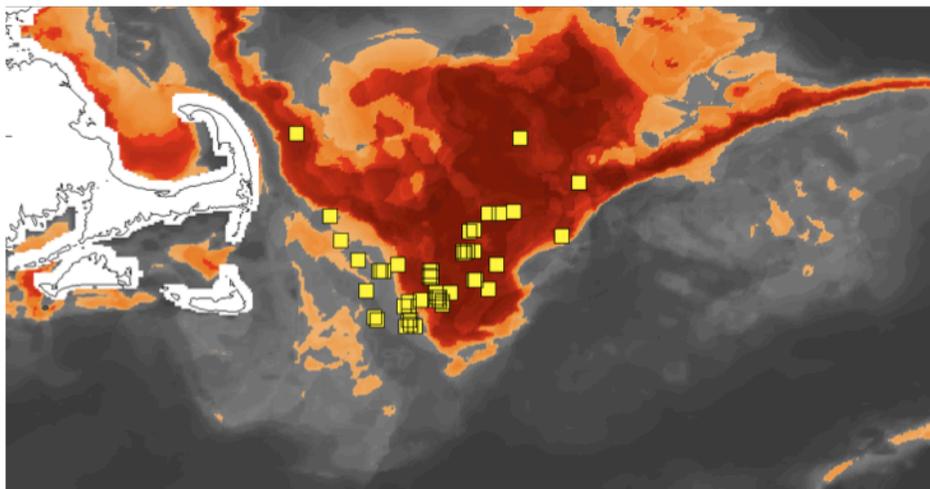
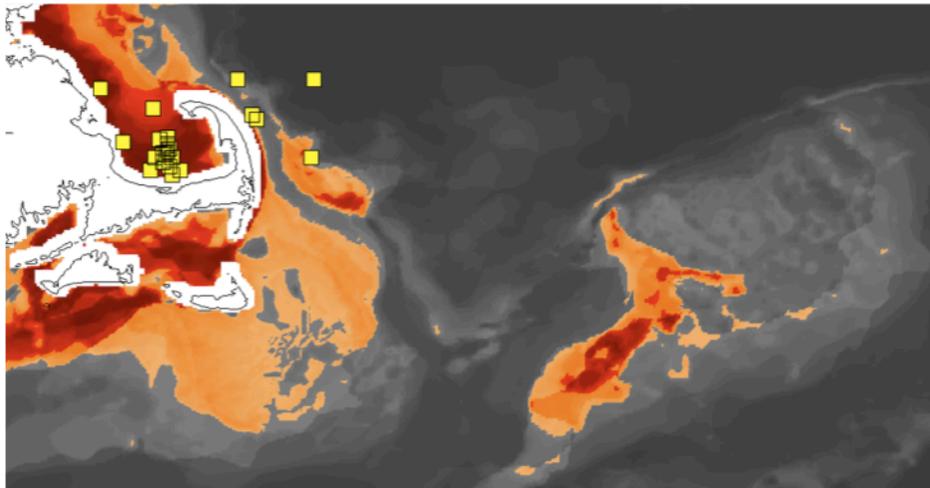


# Habitat predictions

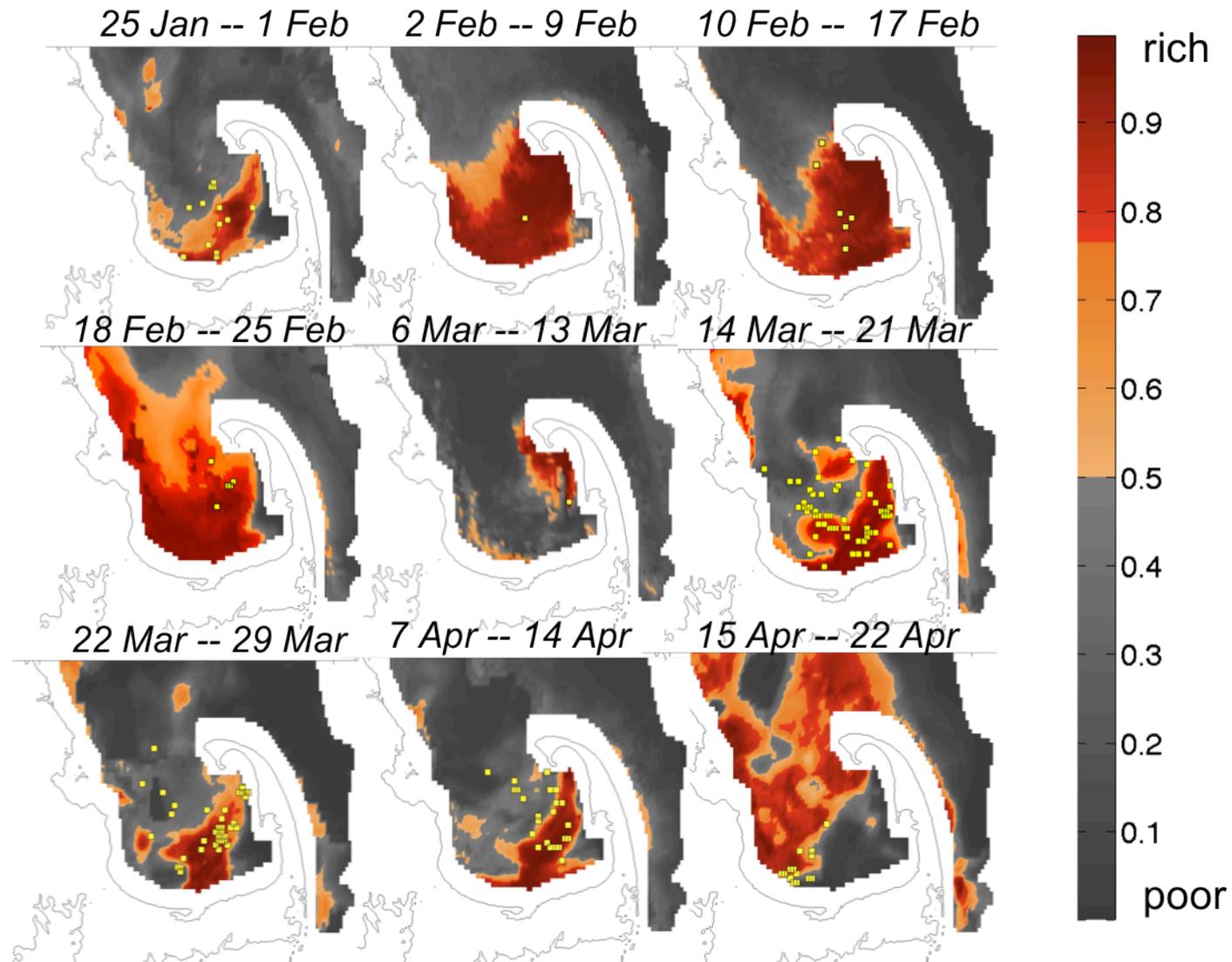
Satellite SST  
Satellite chl a  
*Calanus*  
*Pseudocalanus*  
Bathymetry



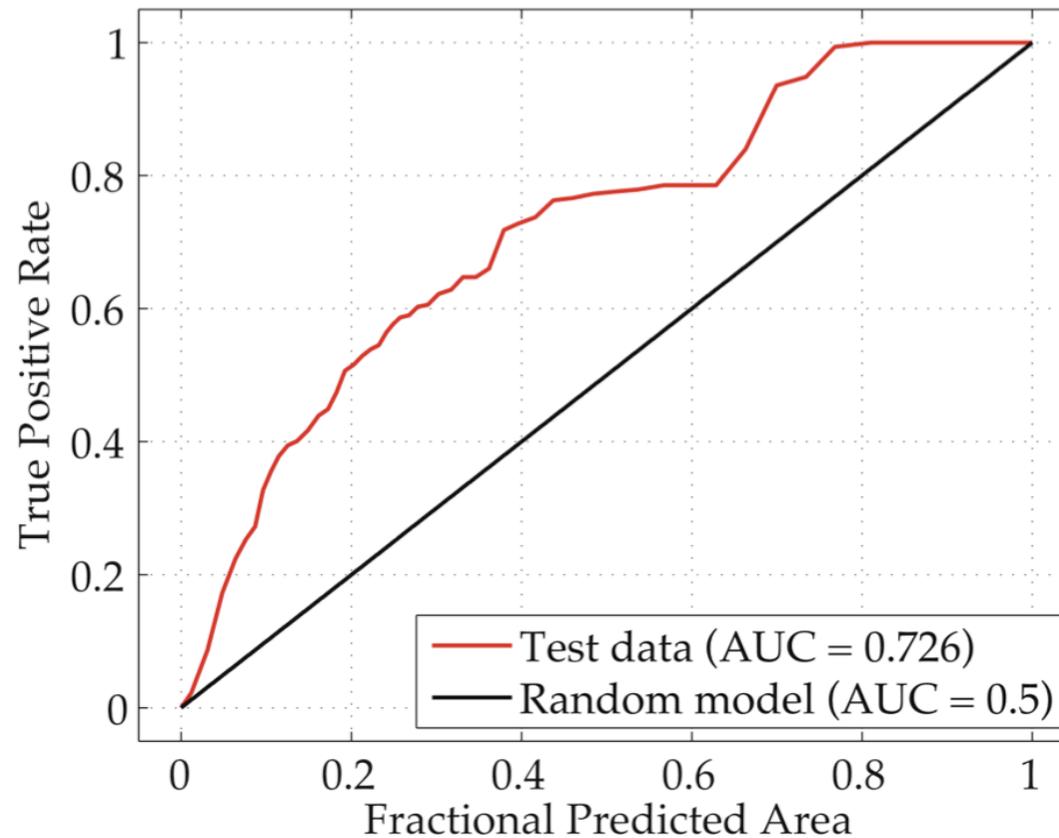
# Ground-truthing models of right whale habitat suitability



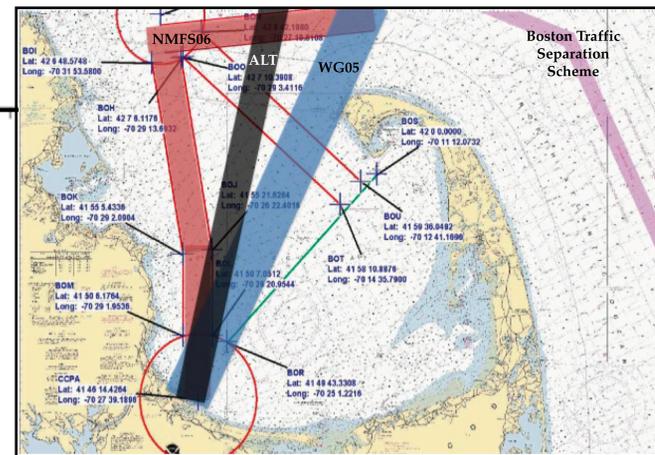
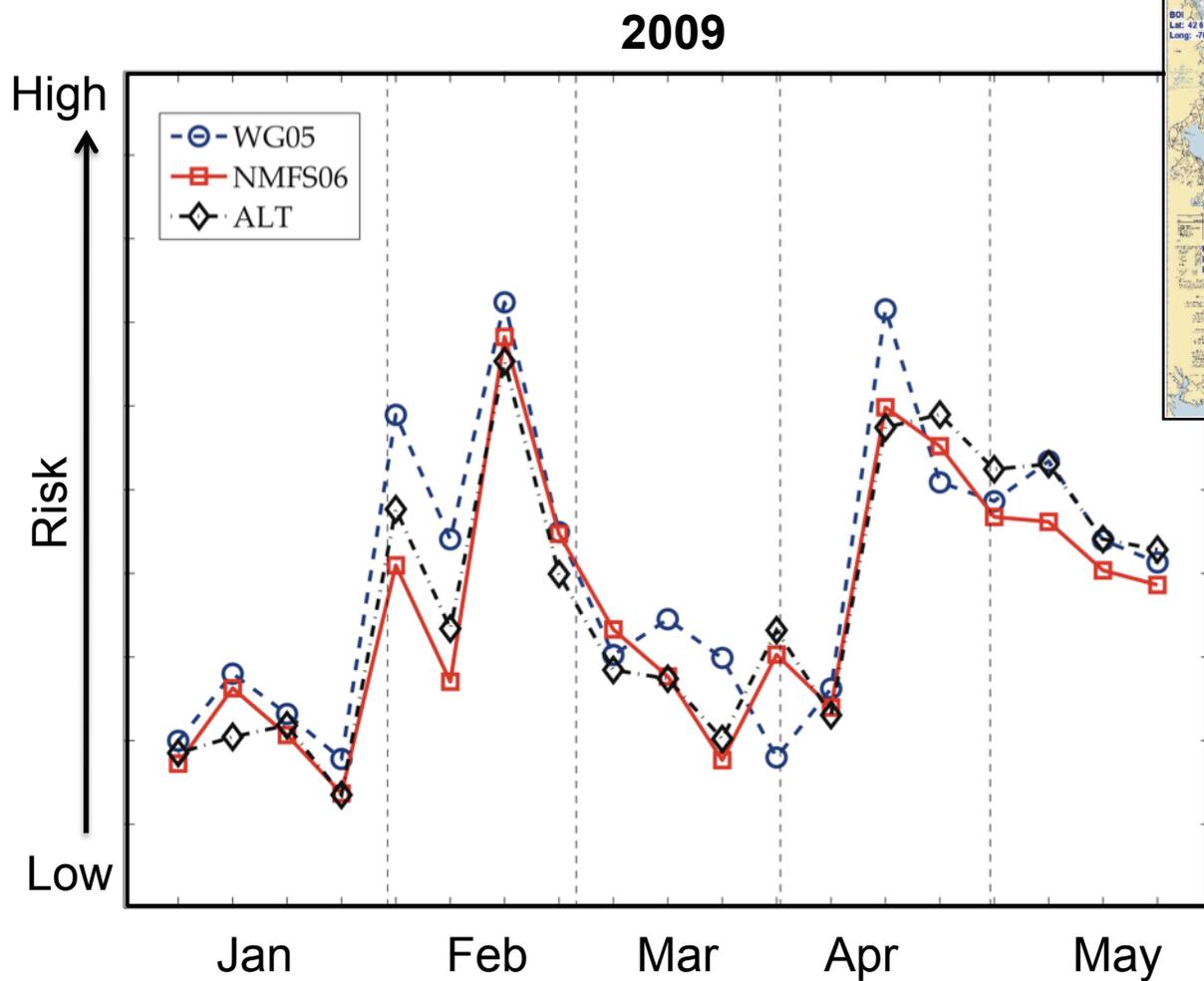
# 2009 predictions of habitat suitability (trained with '03-'06)



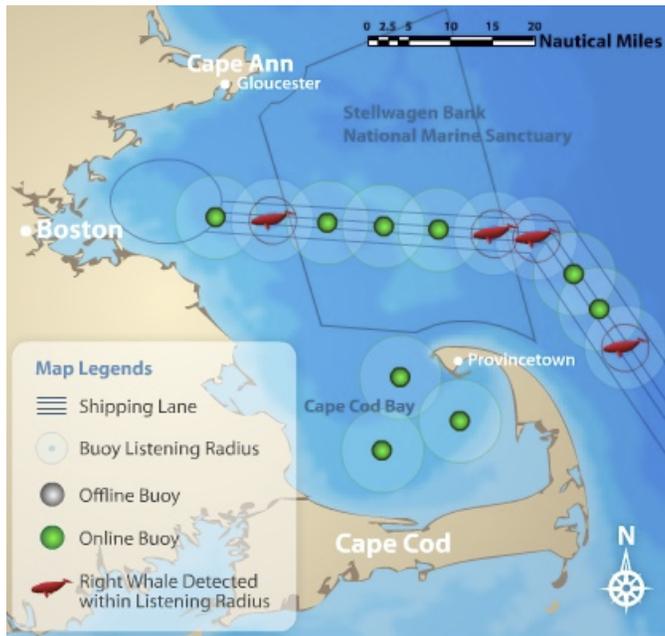
# 2009 Model Predictive Capacity “reasonable”



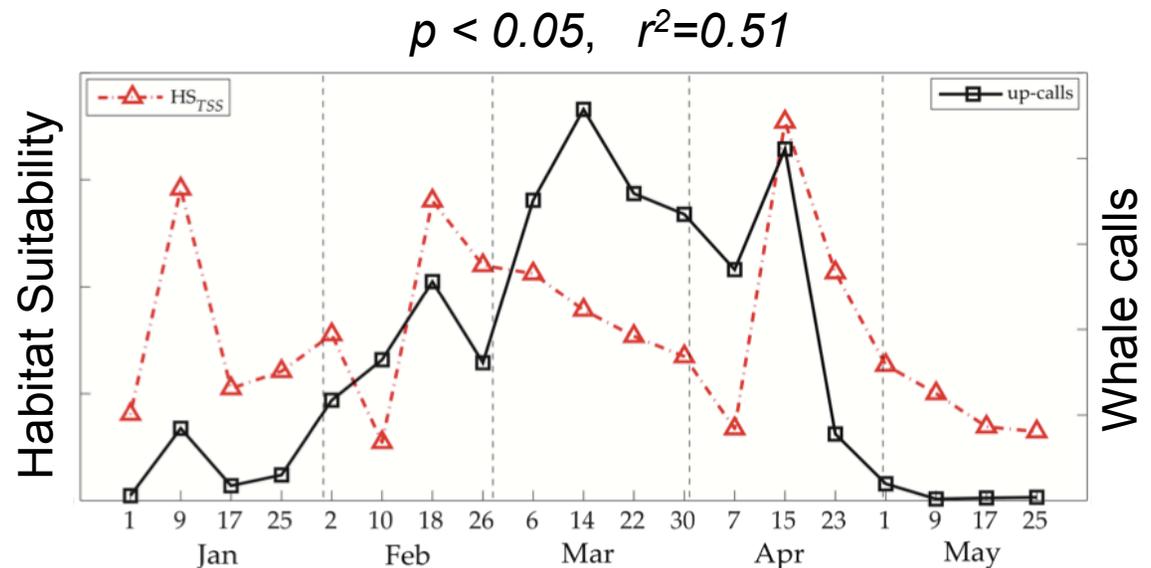
# Habitat suitability in shipping routes



# Projecting and validating the model in Massachusetts Bay



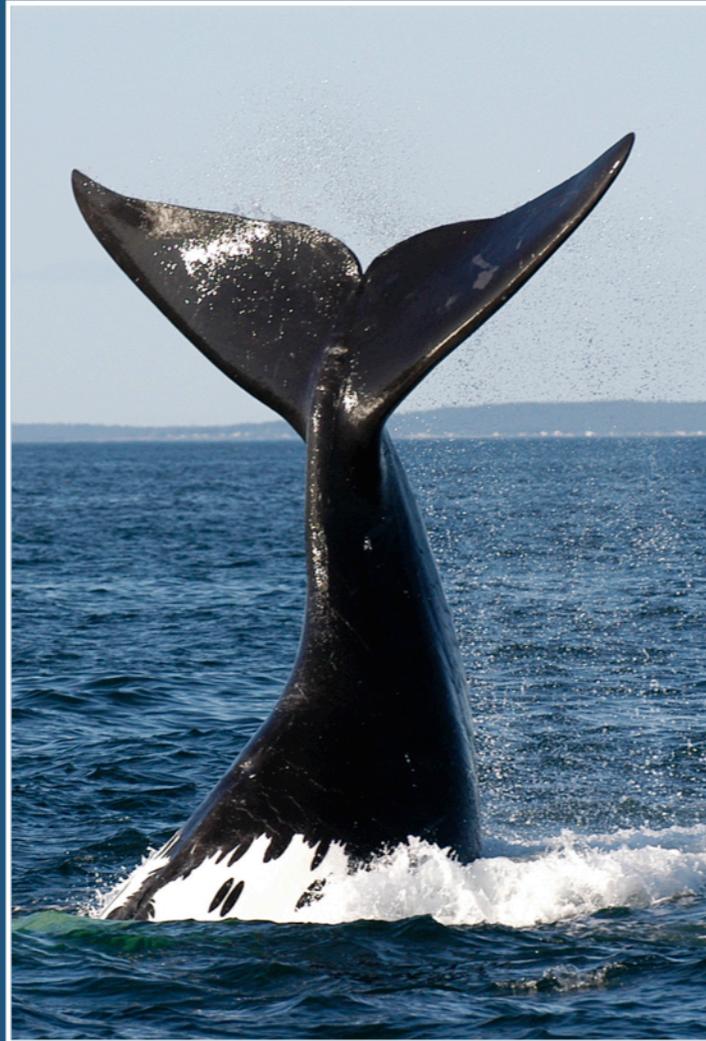
[www.listenforwhales.org](http://www.listenforwhales.org)



- Model provides good information on level of right whale activity outside of training region

# Work for 2010

- Running model with improved circulation fields
- Forecasts for 2010 in Cape Cod Bay
- Refining and writing up manuscripts
- Working on finding a way to continue producing and refining forecasts



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