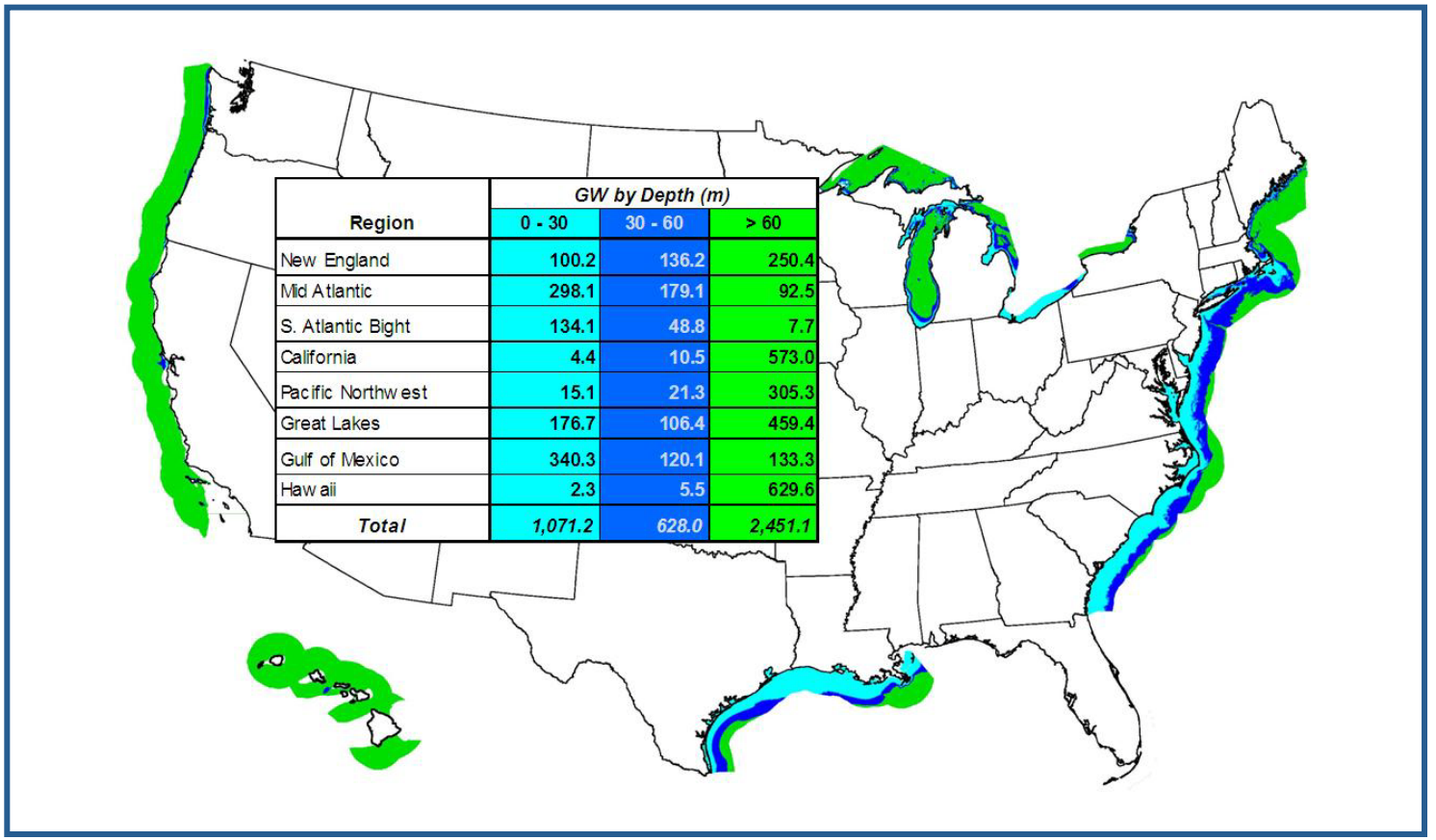
Marine Spatial Planning Framework Applied to Offshore Wind Energy Development

Andrew Allyn, Walter Jaslanek, Kate McClellan, Katherine McCusker, and Ryan Wallace



Region	GW by Depth (m)		
	0 - 30	30 - 60	> 60
New England	100.2	136.2	250.4
Mid Atlantic	298.1	179.1	92.5
S. Atlantic Bight	134.1	48.8	7.7
California	4.4	10.5	573.0
Pacific Northwest	15.1	21.3	305.3
Great Lakes	176.7	106.4	459.4
Gulf of Mexico	340.3	120.1	133.3
Hawaii	2.3	5.5	629.6
Total	*1,071.2*	*628.0*	*2,451.1*

NREL, 2010

Challenge: How to encourage offshore wind in the US?

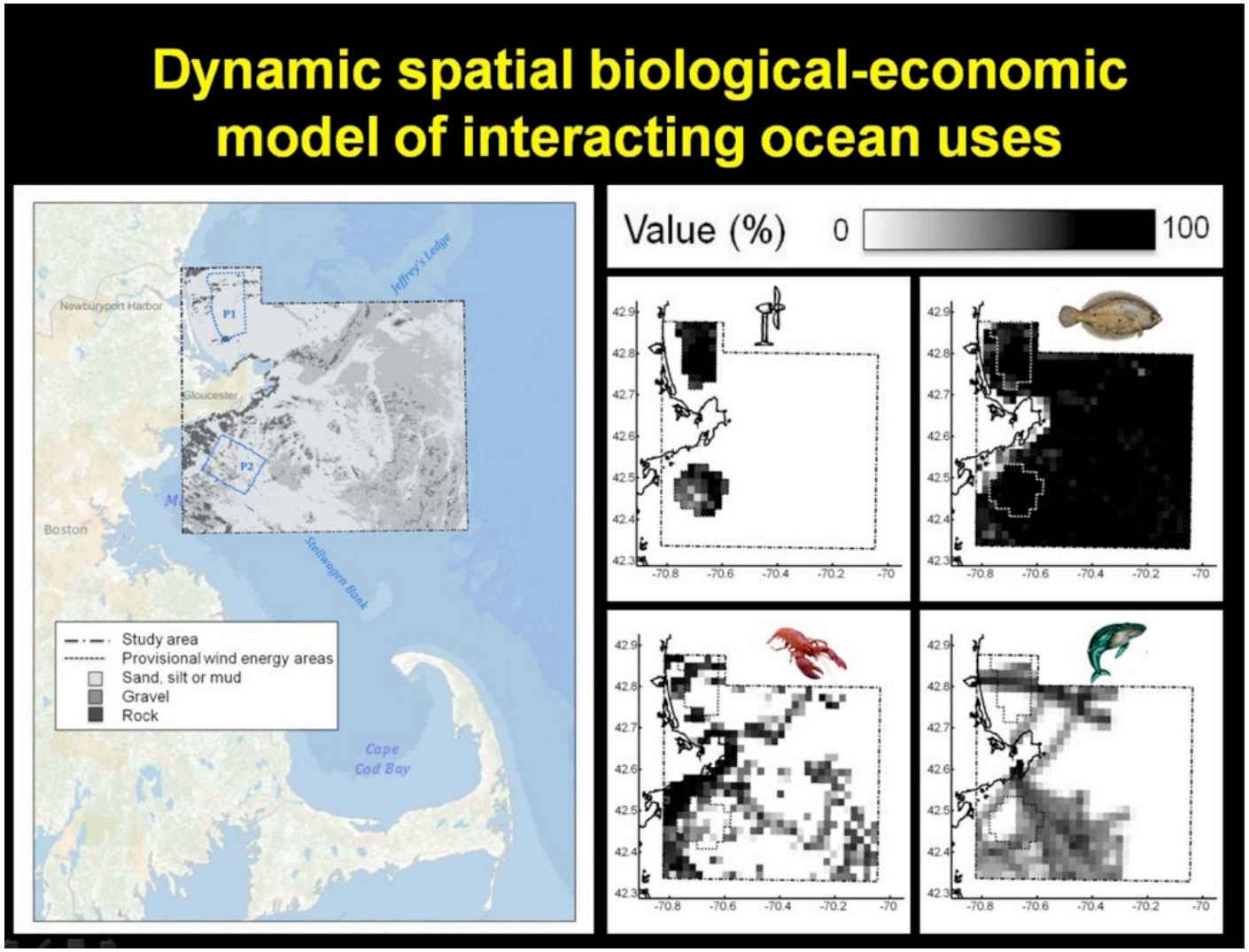
Siemans, Sweden

S. Anderson

Parts of the ocean are in high demand

- Multitude of ocean users
- User-user and user-ecological conflicts

Challenges



Zoning through marine spatial planning is a means to mitigate user-user or user-environment conflicts by weighting specific areas according to their ‘highest and best use’.

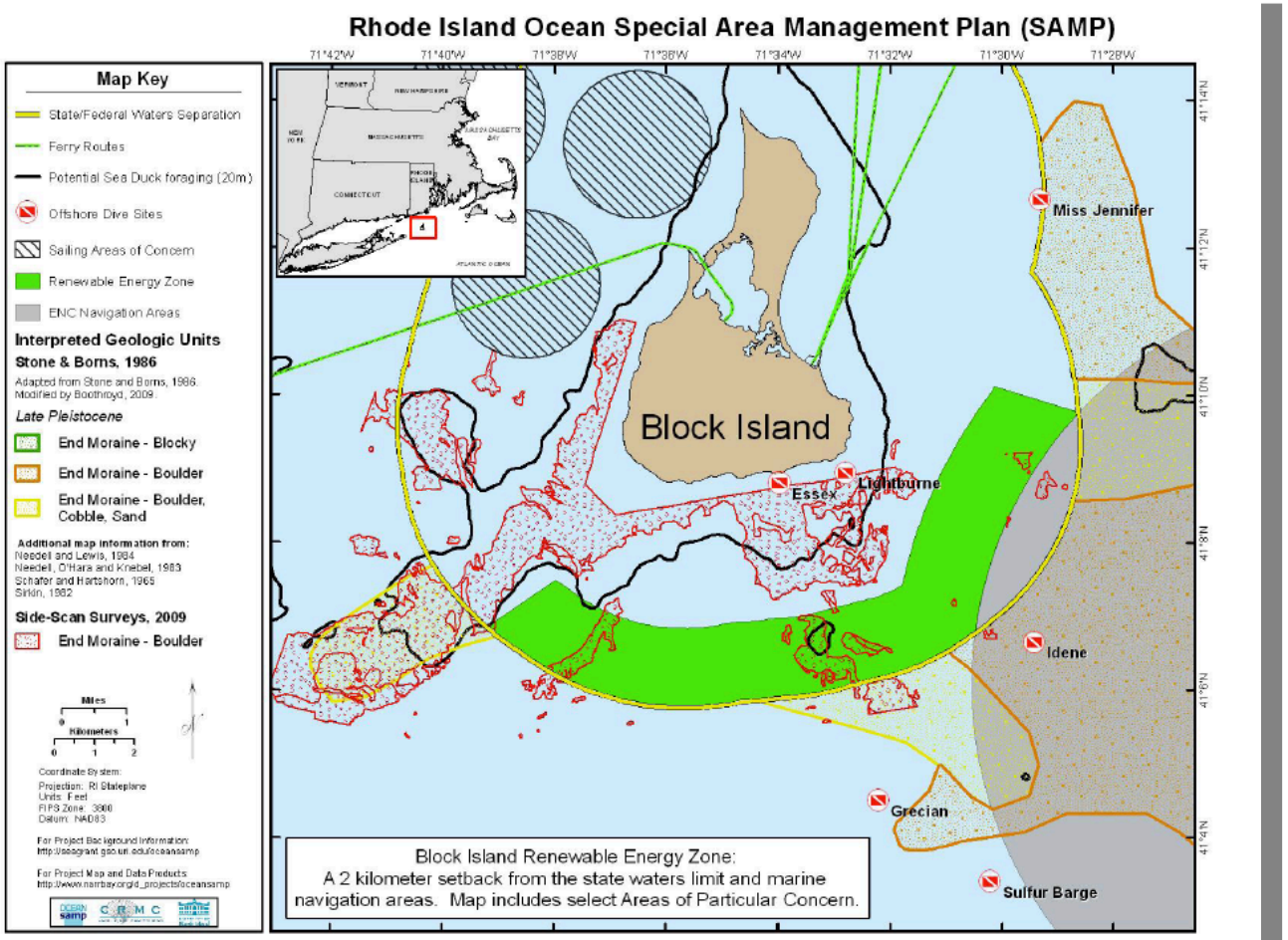
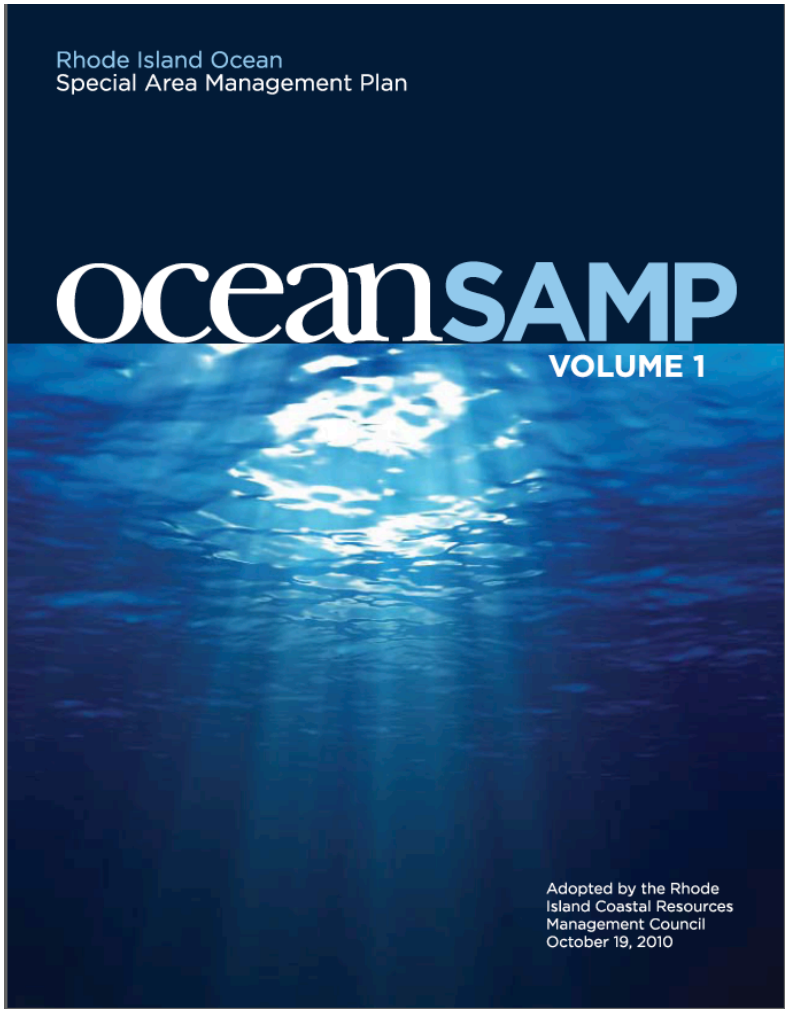


Figure 8.53. Areas of Particular Concern overlapping the Renewable Energy Zone in state waters.

Encouraged by the success, so far, of the Block Island case, believe the Ocean SAMP process is the reason.

- Literature reviews
- Case study and site visit
- Interviews

Marine spatial planning is a way to evaluate offshore wind opportunities in the U.S.



Methods

Comprehensive, adaptive, ecosystem-based planning process

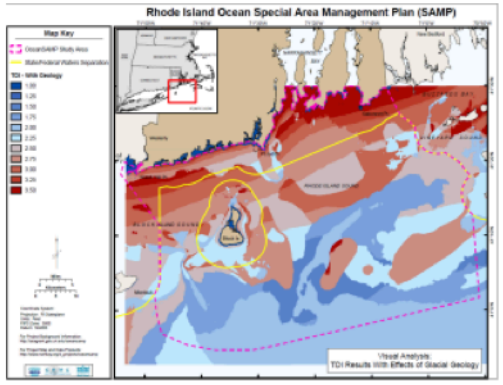
Existing data

New studies

Social & cultural

Scientific

Economic



Technology Development Index

Streamline regulatory process

Balanced approach

Local knowledge

Comprehensive

Engagement

Transparent

Reduce conflicts and environmental impacts, while meeting economic, environmental, and social objectives

- Regulatory document with political support
- Clear objectives
- Consider all uses
- Stakeholder involvement
- Sound science
- Integrate with other coastal area plans

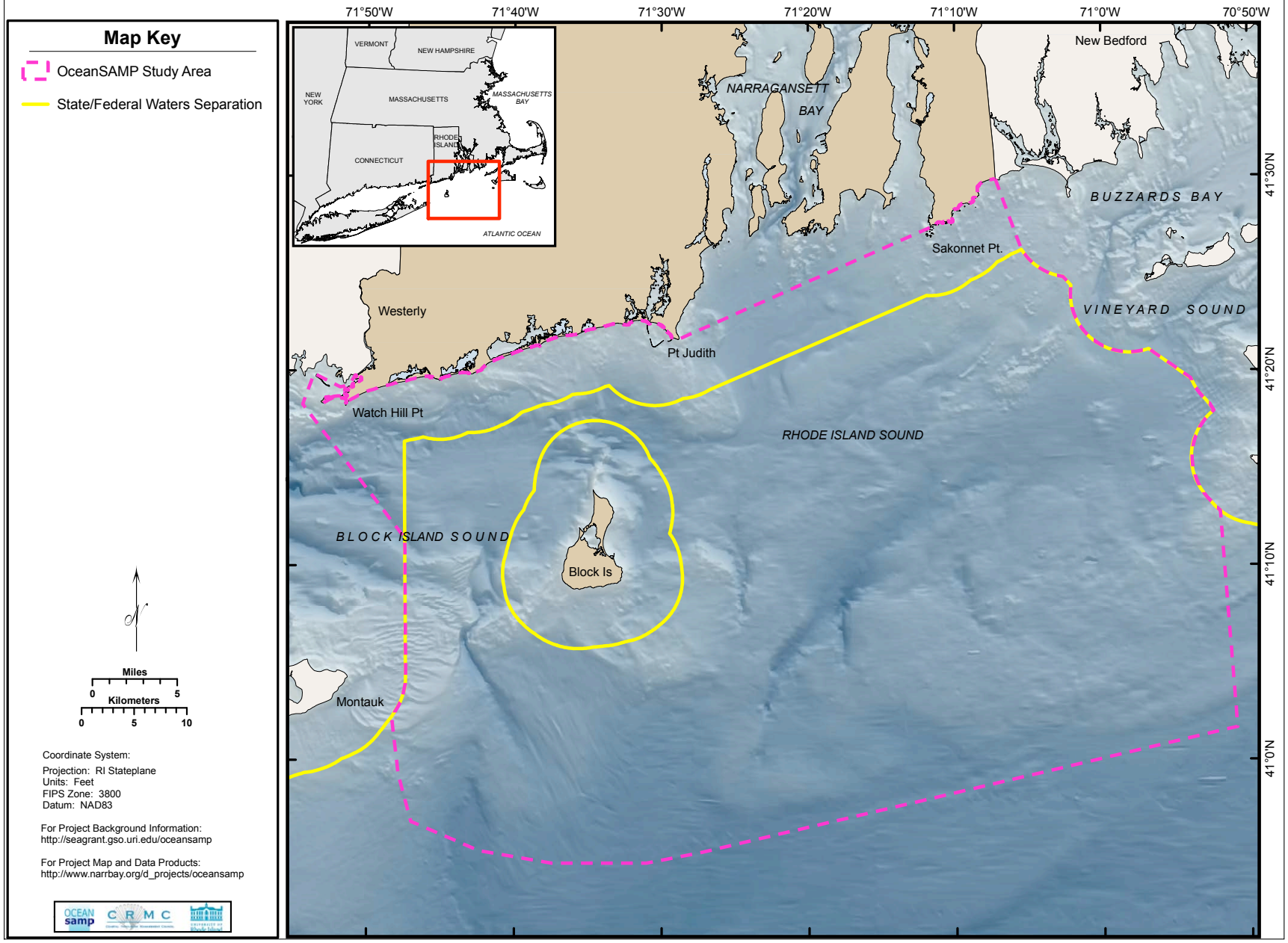
1. Streamline the regulatory process
2. Garner stakeholder support
3. Collect necessary data
4. Balance economic and environmental objectives

2007: Governor mandated that **offshore wind** resources provide 15% of the state's electricity by 2020

CRMC proposed the creation of an Ocean Special Area Management Plan (SAMP) to help identify potential sites for wind farms

Case Study: Rhode Island Offshore Wind

Rhode Island Ocean Special Area Management Plan (SAMP)



Federal, State, Local, and Tribal Governments

Ocean SAMP: Stakeholder Process

Characteristics of the stakeholder process:

Early identification and inclusion

Neutral/Fair

Transparent/Credible

Real impact on decision-making

Ongoing stakeholder processes:

- Fishermen's Advisory Board
- Habitat Advisory Board

Process Evaluation:

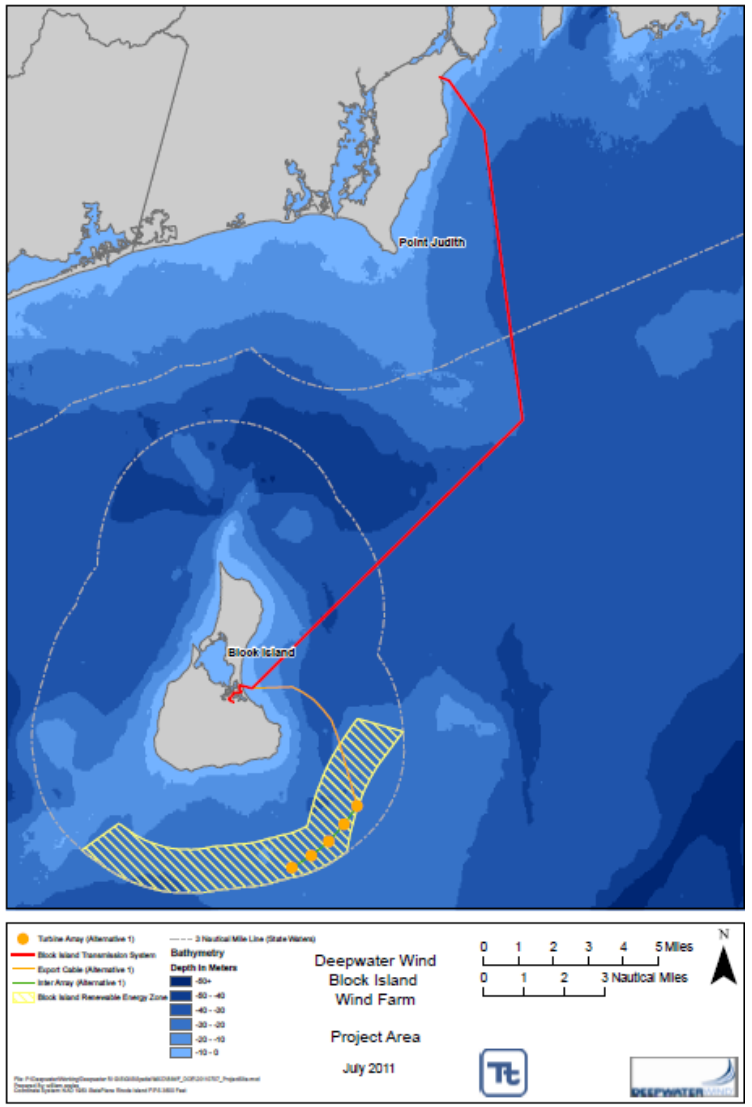
- Quality of participation
- Complexity of issues
- Cost

pbn.com

Overall: Positive experience, model process

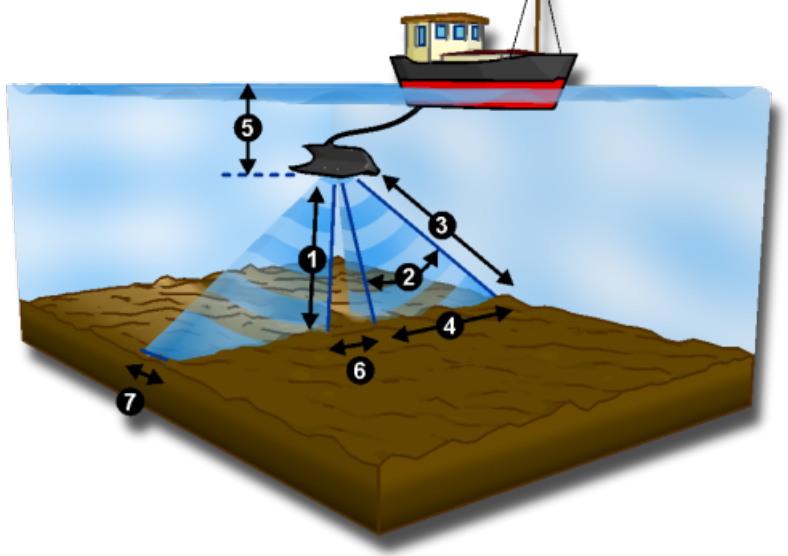
Data collection driven by wind energy:

- CRMC identifies need for extensive study
- URI perfect for interdisciplinary research & data analysis
- ~2 Year Time Period



Scientific Data

- Gaps in knowledge or unreliable existing data
- New Survey data needed to understand study area and wind siting
- Wide range of data needed
- Needs to compare to existing federal datasets

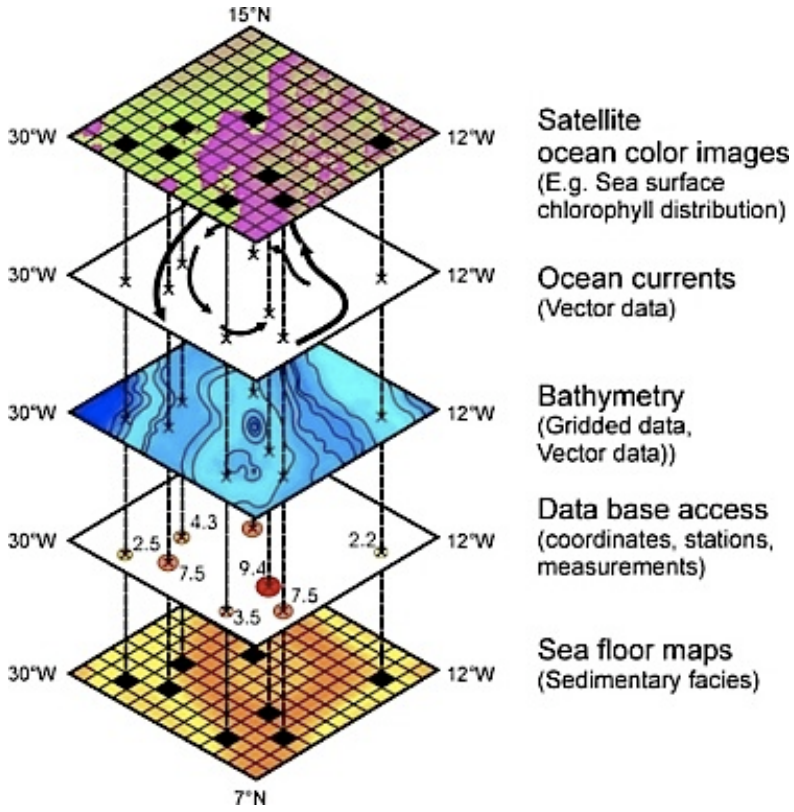


Supporting Studies

- Environmental forcing: winds and waves
- Geology and geophysics
- Fishing and Fisheries
- Ecology
- Wind farm technology (structures and foundations)
- Physical oceanography and water quality
- Marine mammals and sea turtles
- Marine and coastal birds, bats
- Air quality and meteorology
- Acoustics and electro-magnetics

Comprehensive Data

- Technical team approve their data
- Data managed in <u>one</u> Database system
- Data interpolated into GIS friendly datasets



Data Delivery

- Delivered to all stakeholders at same time
- Maps and live meetings
- Live decision making
  - Commercial and Recreational Fishing
  - Fisheries navigation system

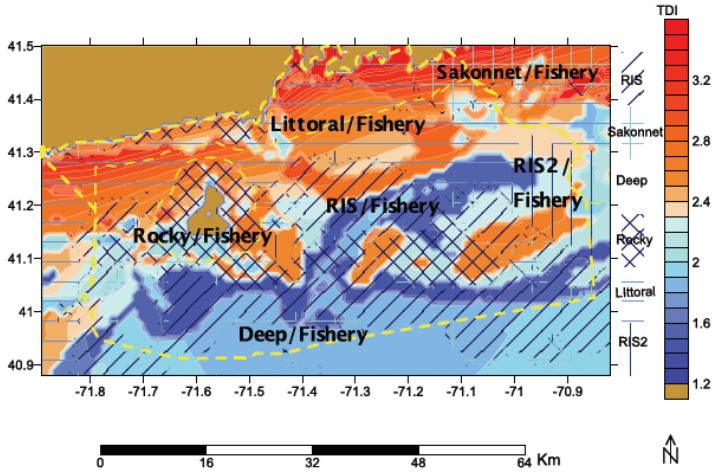


Figure 17 :Fall Optimal Siting Map: TDI and ecosystem services sub-regions.

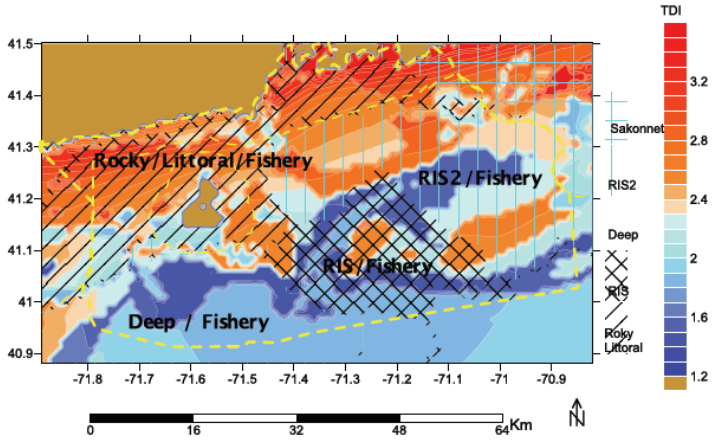
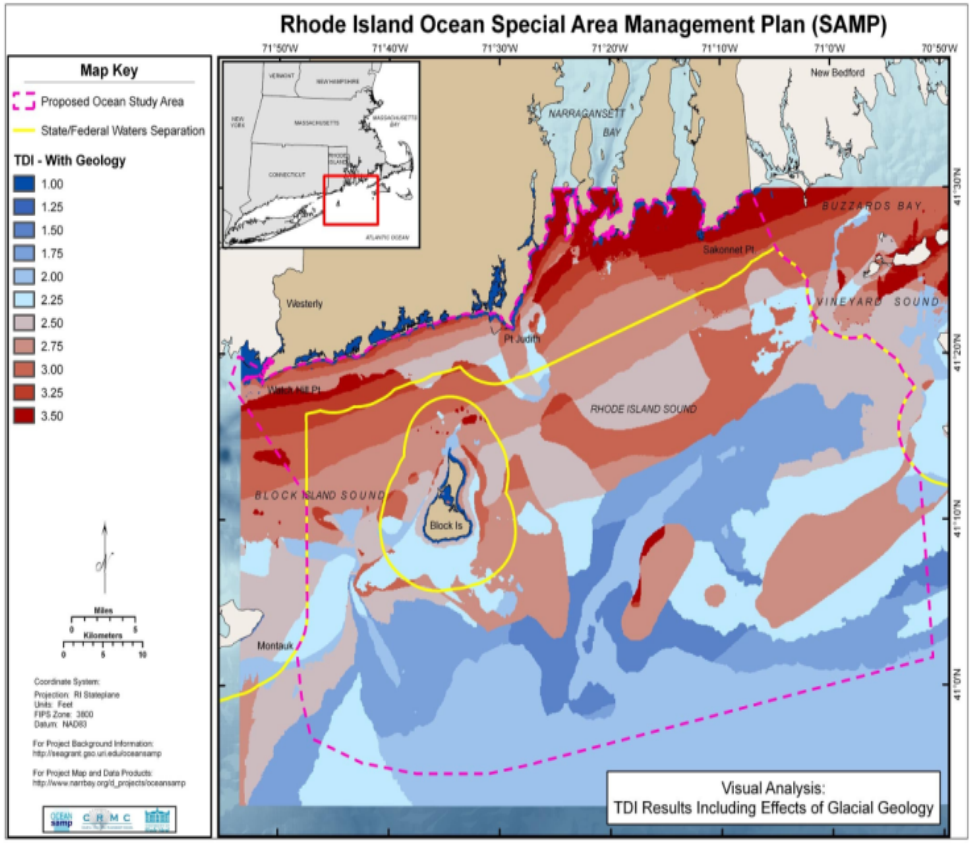


Figure 18: Spring Optimal Siting Map: TDI and ecosystem services sub-regions

Specialized Data Analysis

- TDI – ecosystem based modeling technique and statistical approach
- Wind Screening Phase
- Wind Siting Phase



No conclusive results, but…

- Approval and siting of projects
- Ongoing process of MSP
  - Continuing data monitoring and public process

SAMP process could be considered a success

- Model for National Ocean Policy and Marine Spatial Planning

However,

- RI access to huge financial resources
- Massive data collection effort

Conclusions

Stakeholder process

Data collection

Involve federal agencies

Leveraging financial and university resources

THANKS

QUESTIONS?


N
Great
Salt Pond
Dunn
Landing
Block Island
Block Island
Block Island
State Airport
Block Island
Mohegan Trail
3.43 miles
to nearest
visible turbine