WHOI
Marine Policy Center Seminar

Sponsored by the:

Henry Luce Foundation

Autumn 2002

WHOI Marine Policy Center (MPC)

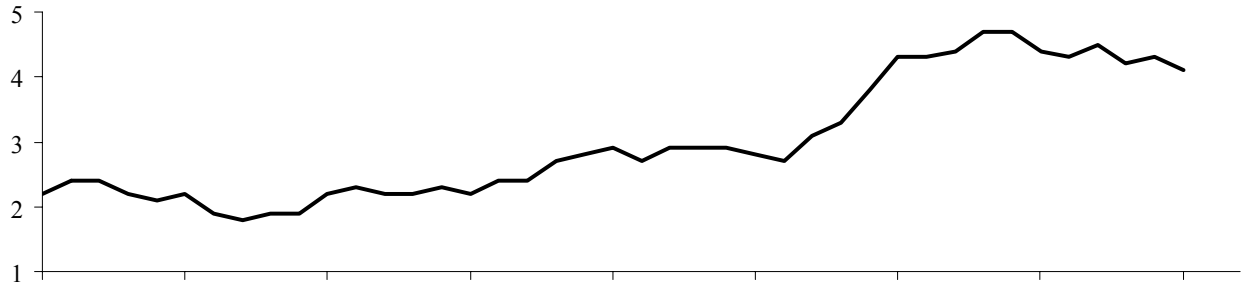
- Coastal and marine public policy questions
- Environmental and natural resource economics
- Linking models of the economy and nature
- Alternative policy instruments
- Value of information
- Non-advocacy
- Journals, technical reports, testimony, committees

Some Marine Policy Research Questions

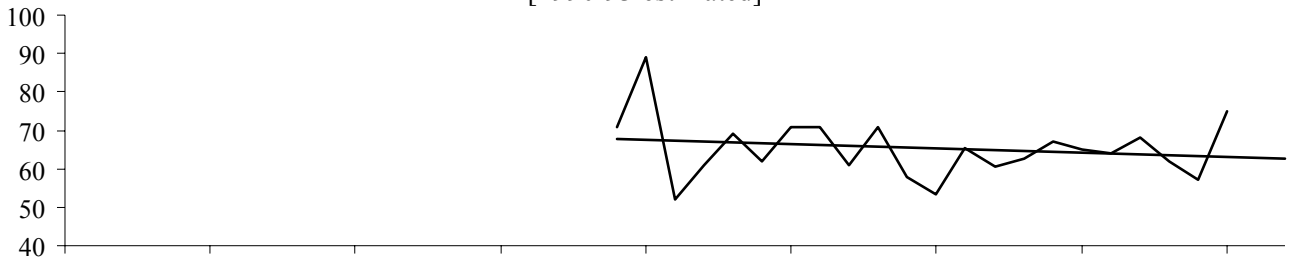
- Ocean economy
- Fisheries
- Marine Protected Areas
- Marine aquaculture
- Protected species conservation
- Marine transportation
- Value of environmental monitoring
- Minerals

- Economic growth?
- Wasting resources?
- How to value?
- Allocation of ocean space?
- Cost to industry?
- Risks of pollution?
- Scale/scope of research?
- Are we running out?

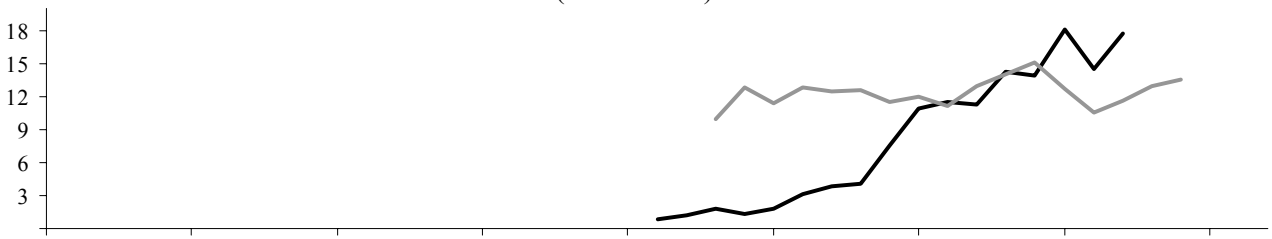
U.S. marine commercial fish landings (million mt)



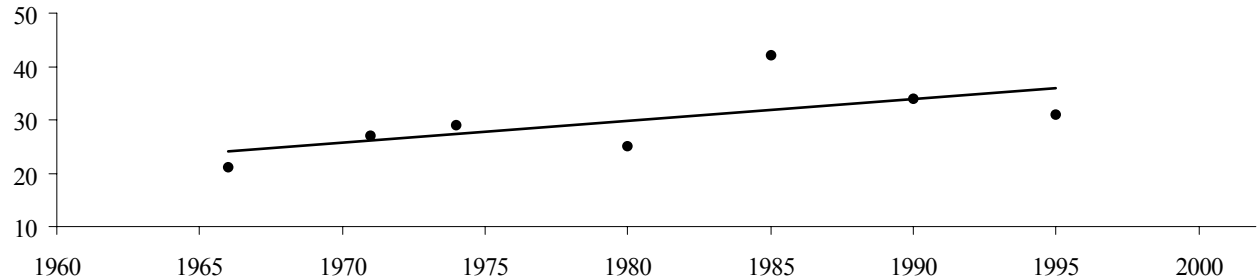
U.S. marine recreational fishing trips (millions)
[1990-93 estimated]

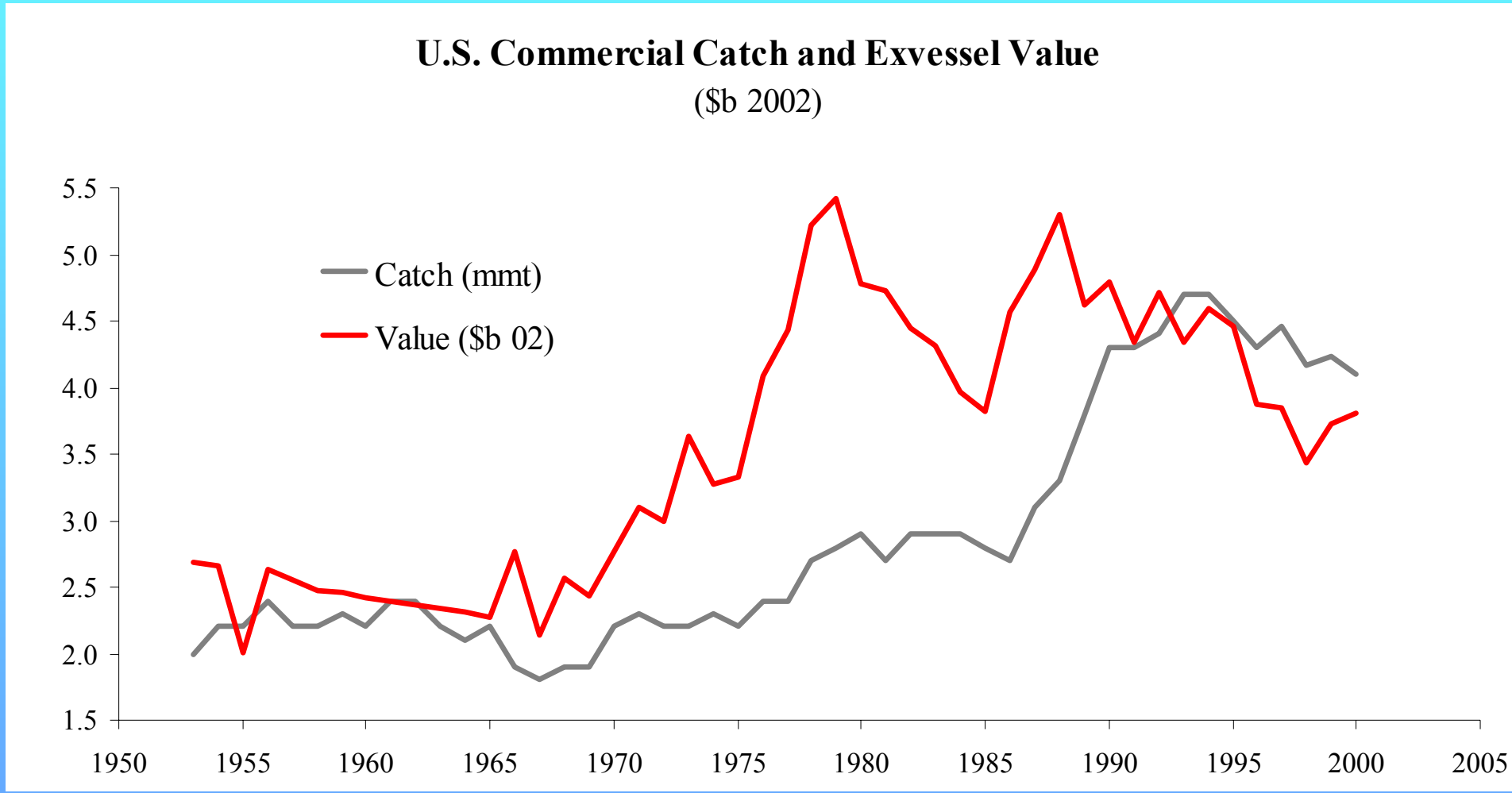


U.S. Shellfish and Salmon Aquaculture Production
(thousand mt)



U.S. "harvest limited" shellfish growing waters (% of total)




U.S. Commercial Catch and Exvessel Value
($b 2002)
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
Catch (mmt)
Value ($b 02)
1950
1955
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005

➢Start with a problem.

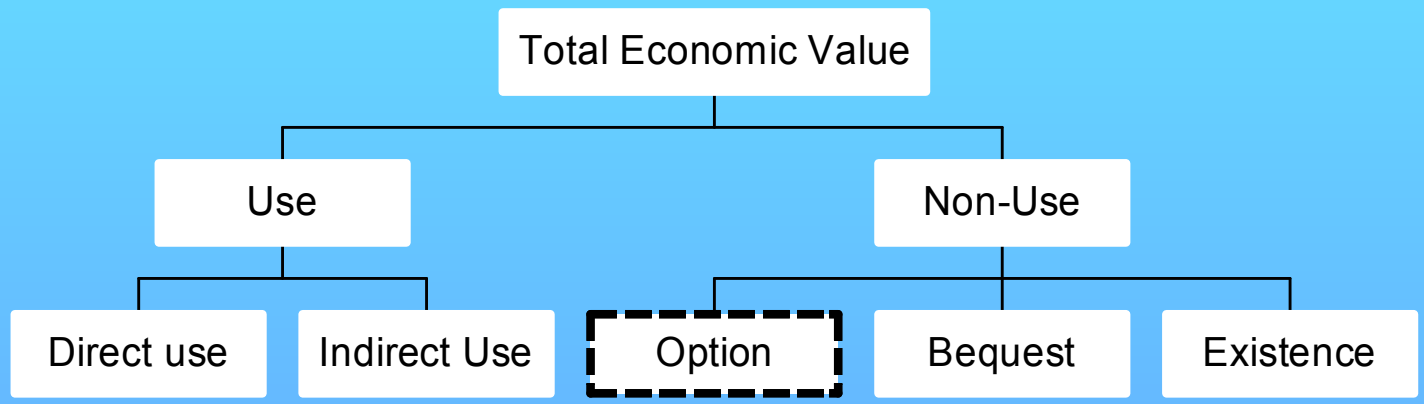
- Dead zone the size of New Jersey
- Mortality of beaked whales in the Bahamas
- 170 wind generators proposed for Nantucket Sound
- Spread of virus among Atlantic salmon netpens
- Pfiesteria bloom in North Carolina estuaries
- Dredge the PCB sediment “hotspots” in the Hudson
- Sea level rise due to global warming
- Alteration of hydrothermal vent communities

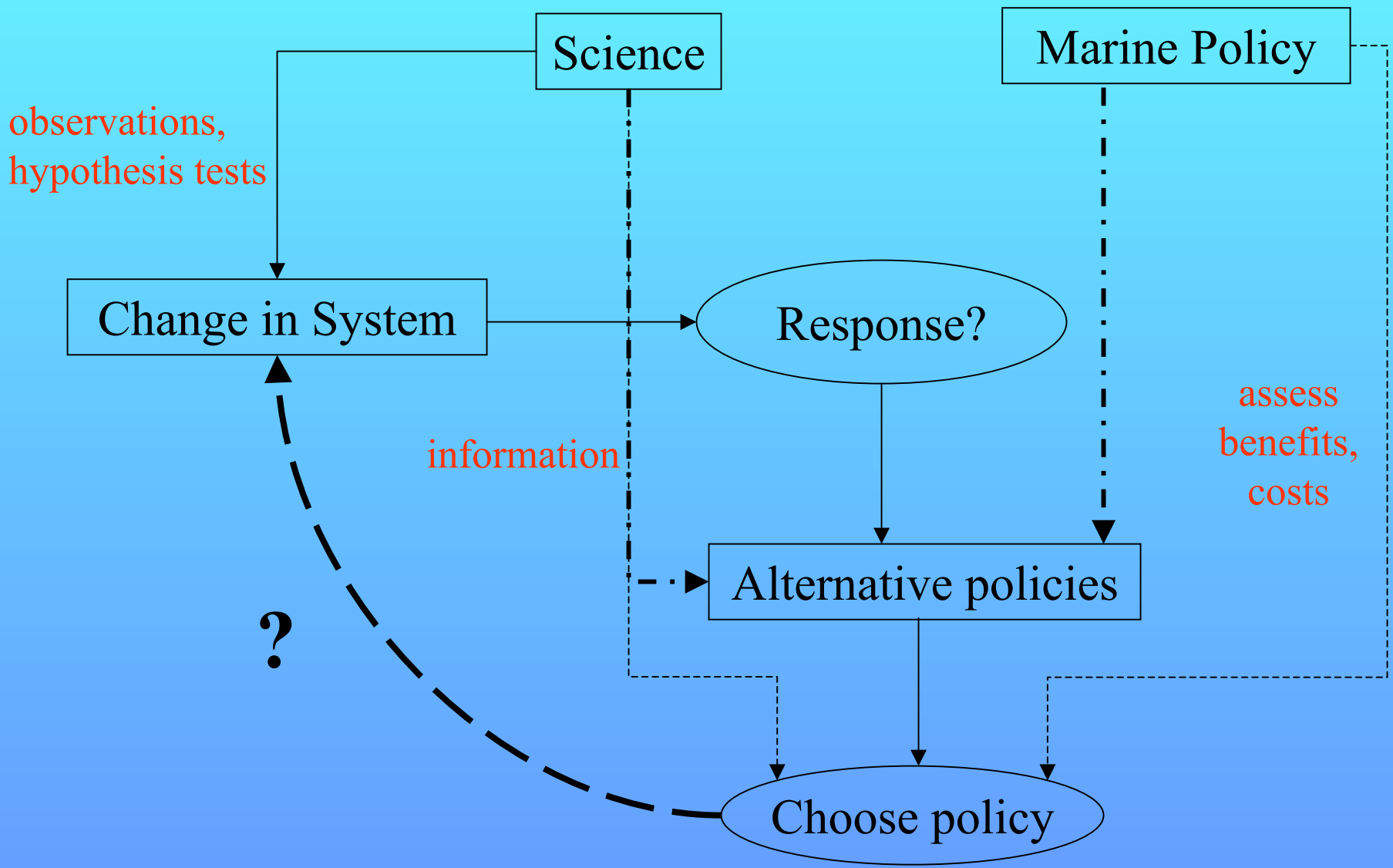
- What is the best course of action?

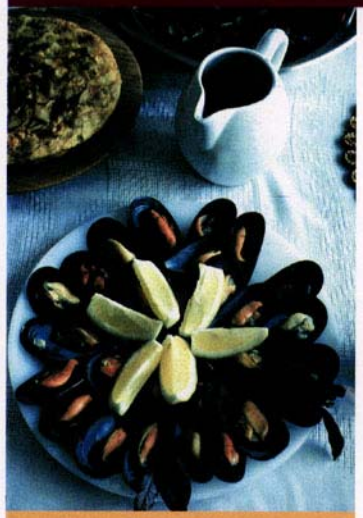
  - Identify feasible alternative policies
  - Need criteria: what is “best”
  - An economic criterion: compare benefits with costs
  - A political criterion: the distribution of benefits and costs

Types of Economic Value

Value = the capacity of something to satisfy human wants




Science
Marine Policy
observations,
hypothesis tests
Change in System
Response?
information
assess
benefits,
costs
Alternative policies
?
Choose policy

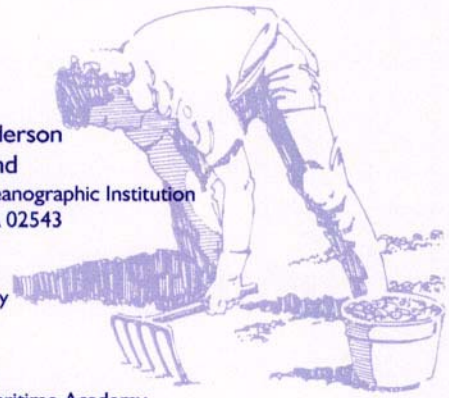


DANGER
Area Closed

Shellfish (oysters, clams, mussels, and other bivalve molluscs) in the area described below contain paralytic toxins and are not safe for use as food.

WHOI-2000-11

Estimated Annual Economic Impacts from Harmful Algal Blooms (HABs) in the United States



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Technical Report

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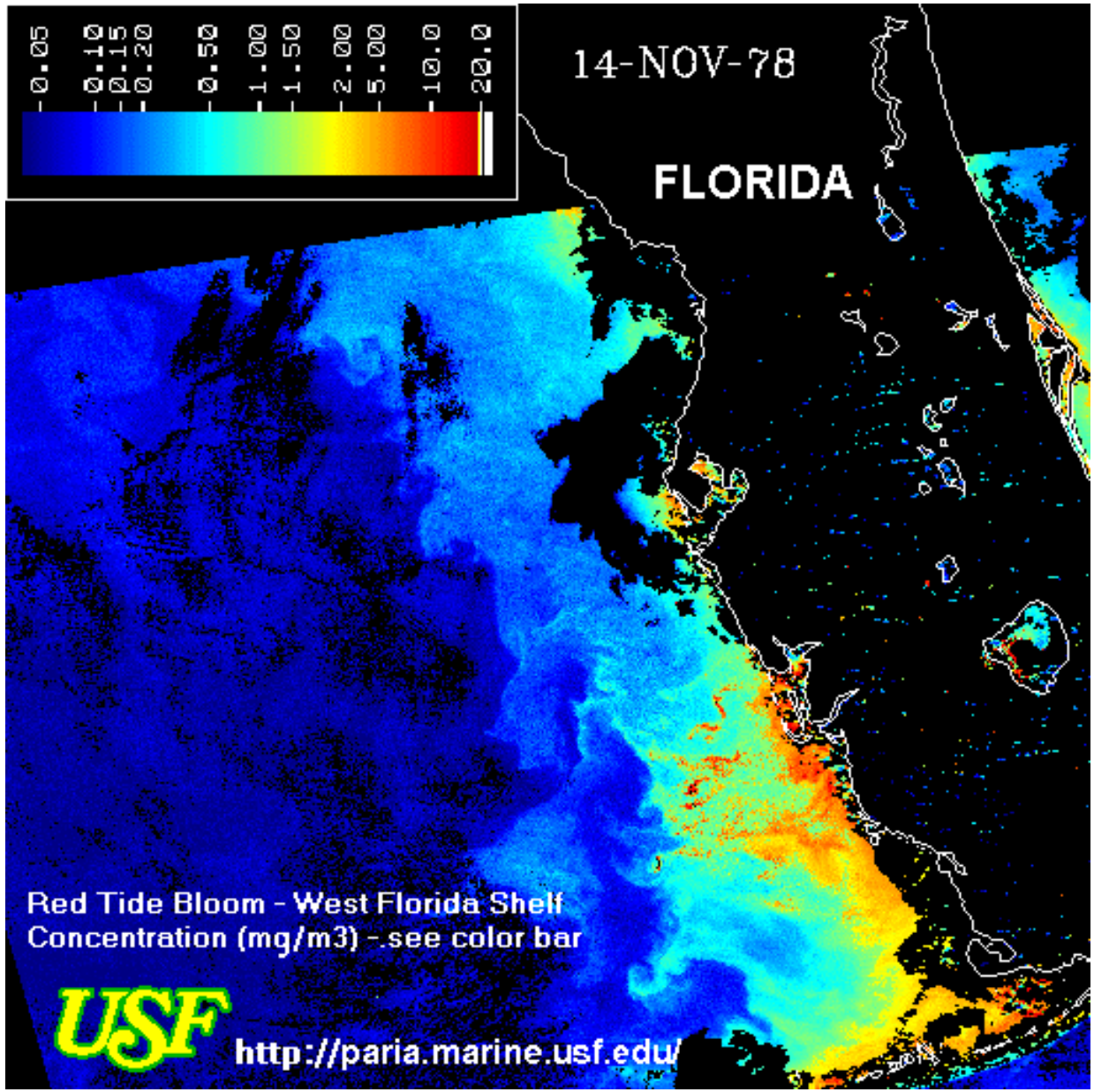

0.05
0.10
0.15
0.20
0.50
1.00
1.50
2.00
5.00
10.0
20.0
14-NOV-78
FLORIDA
Red Tide Bloom - West Florida Shelf
Concentration (mg/m3) -.see color bar
USF
http://paria.marine.usf.edu/

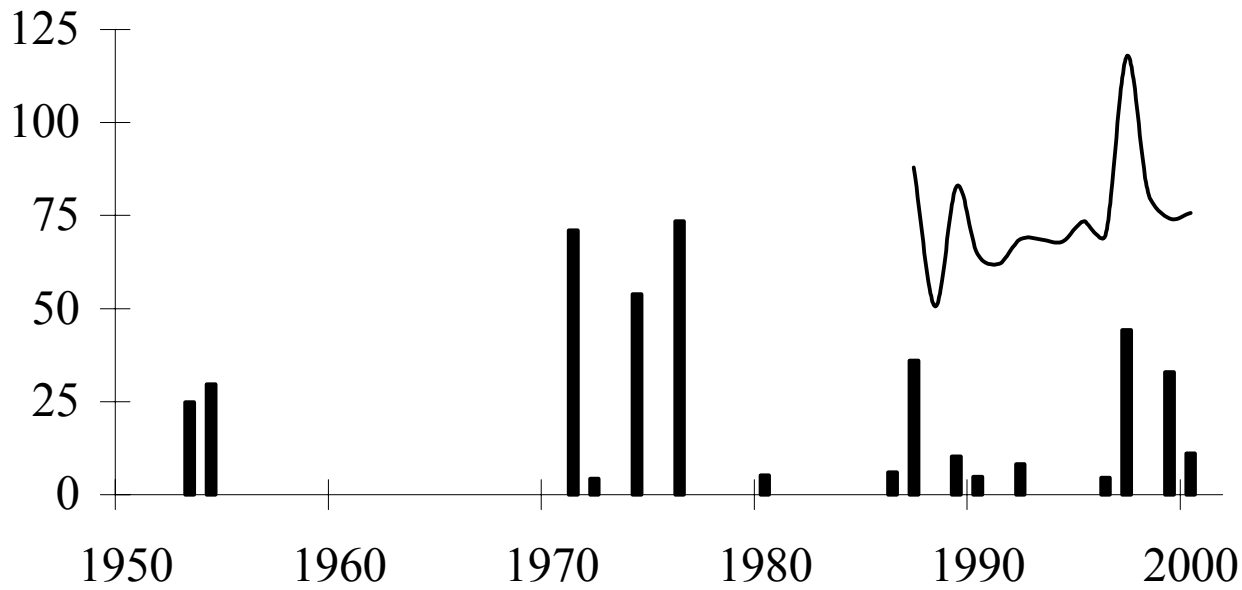


Fig. 1: Estimate of average annual direct economic impacts from HAB events in the United States and estimates of the scale of historical HAB events with major economic impacts: 1950-2000 (2001 $ millions).

- What are the policy alternatives?

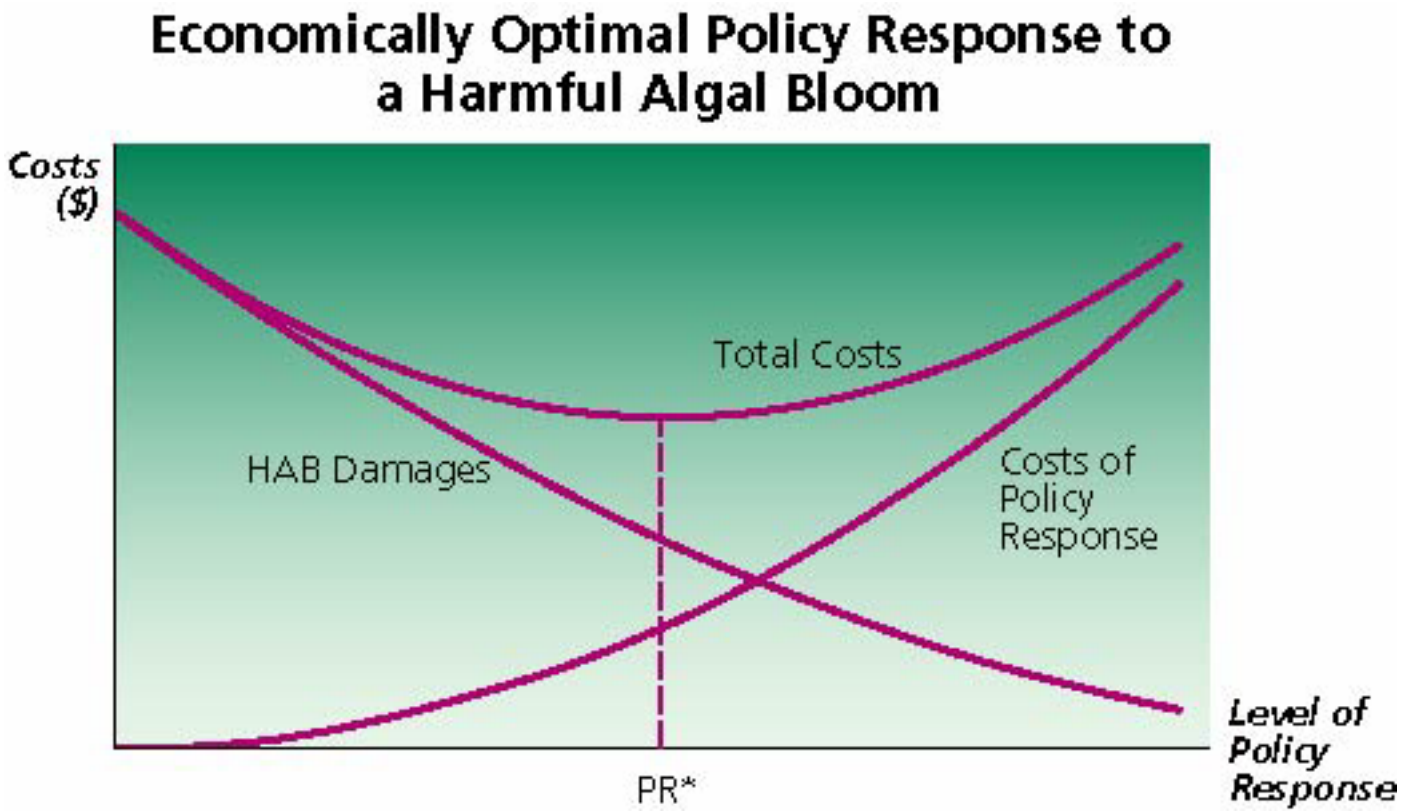
Table 1: Existing and Prospective Policy Responses for HAB Events

[Key: ● = response in wide use; □ = response in limited use; O = response feasible but not now in use]

Policy Response	Commercial Fisheries	Aqua-culture	Seafood Retail	Recreational Fishing	Tourism Services	Health Services	Coastal Recreation	Real Estate	Protected Species
Public Information	●	●	●	●	●	●	●		
Anticipatory Planning	□	□	□	□	□	□	□		
Medical Treatments and Technologies						●			O
Maintain Toxin Monitoring Program	●	●	●	●			●		
Close Shellfish Beds	●	●		●			●		
Shellfish Depuration Technologies	□	□							
Develop Real Time Toxicity Tests	O	O	O	O					
Increase Malleability of K,L	□	□			□				
Insurance	●	●	●		●	●		O	
Diversification	□	□	●	●	●		●		
Forecasting Models and Techniques	O	O		O	O		O		
Scientific Research	□	□	□	□	O	●	O	O	□
Pollution Control Practices and Technologies	O	O		O	O		O	O	O
Estimate Economic Impacts	●	●	●	□	□	□	□	O	O
Stranding Network									O
Environmental Modification	O	□			O		O	O	O

- What are the scale and scope of response(s)?

Economically Optimal Policy Response to a Harmful Algal Bloom



MPC Luce Seminar

Date	Topic	Discussion Leader
18-Sep	Introduction & Approaches to Marine Policy Analysis	Porter Hoagland
25-Sep	Marine Resource Valuation and Optimization	Di Jin
2-Oct	Decisionmaking and the Value of Information	Andy Solow
9-Oct	Fisheries Management	Hoagland
16-Oct	Marine Protected Areas	Hoagland
23-Oct	Ocean Aquaculture	Hauke Kite-Powell
30-Oct	Coastal Management	Ann Mulligan
6-Nov	Protected Species	Kite-Powell
13-Nov	Marine Minerals	Jin
20-Nov	Marine Pollution	Jin
27-Nov	Marine Transportation	Kite-Powell
4-Dec	Climate Change	Solow
11-Dec	Economic Value of the Oceans	Kite-Powell