

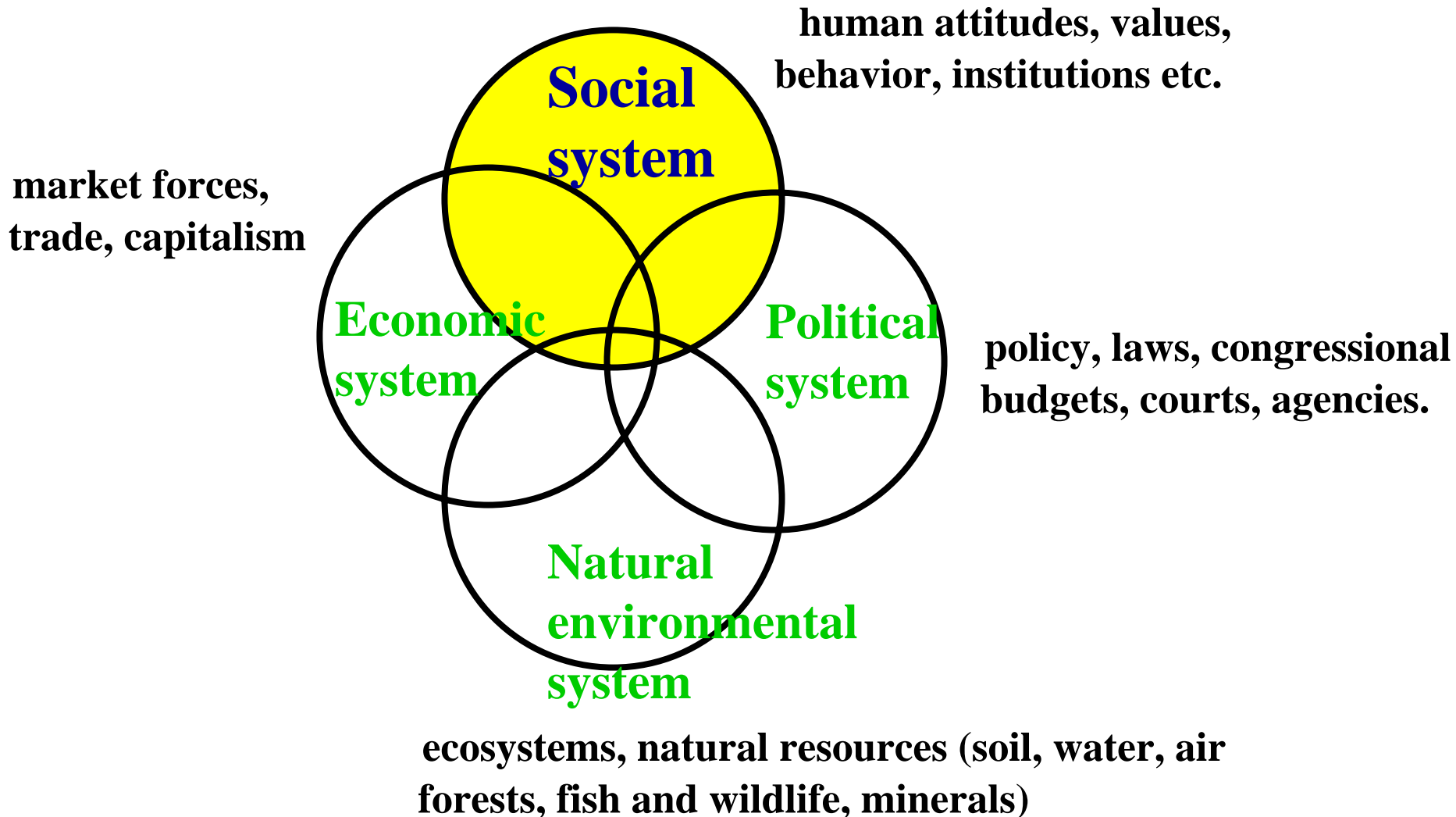
# **Anglers' Attitudes Towards Marine Protected Areas**

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NMFS Fisheries Statistics F/ST1**

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NOAA Fisheries Economics & Social Research Brown Bag**

# Natural Resource Management

A Conceptual Model (Kennedy & Thomas 1995)



**Social  
system**

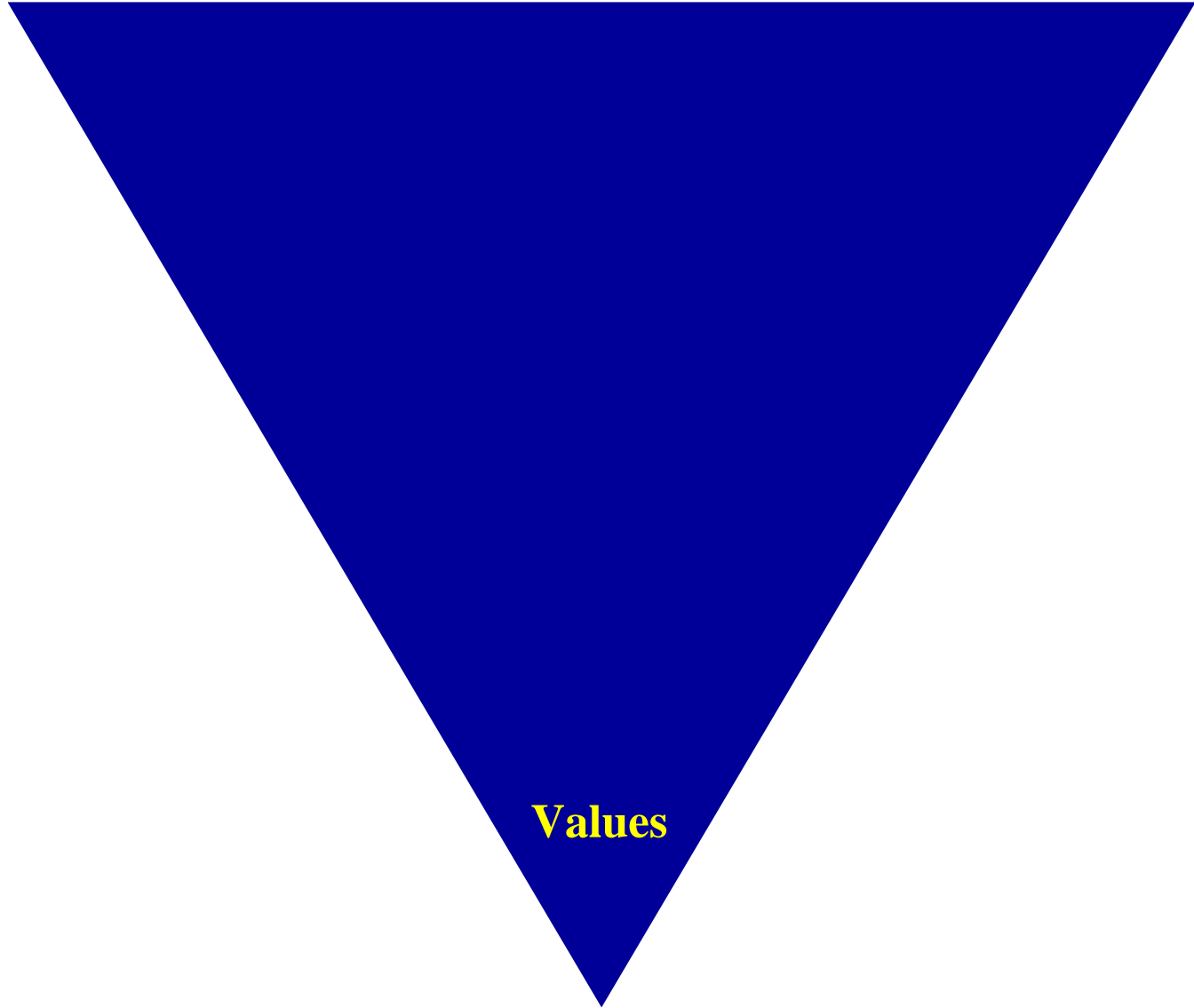
**Economic  
system**

**Political  
system**

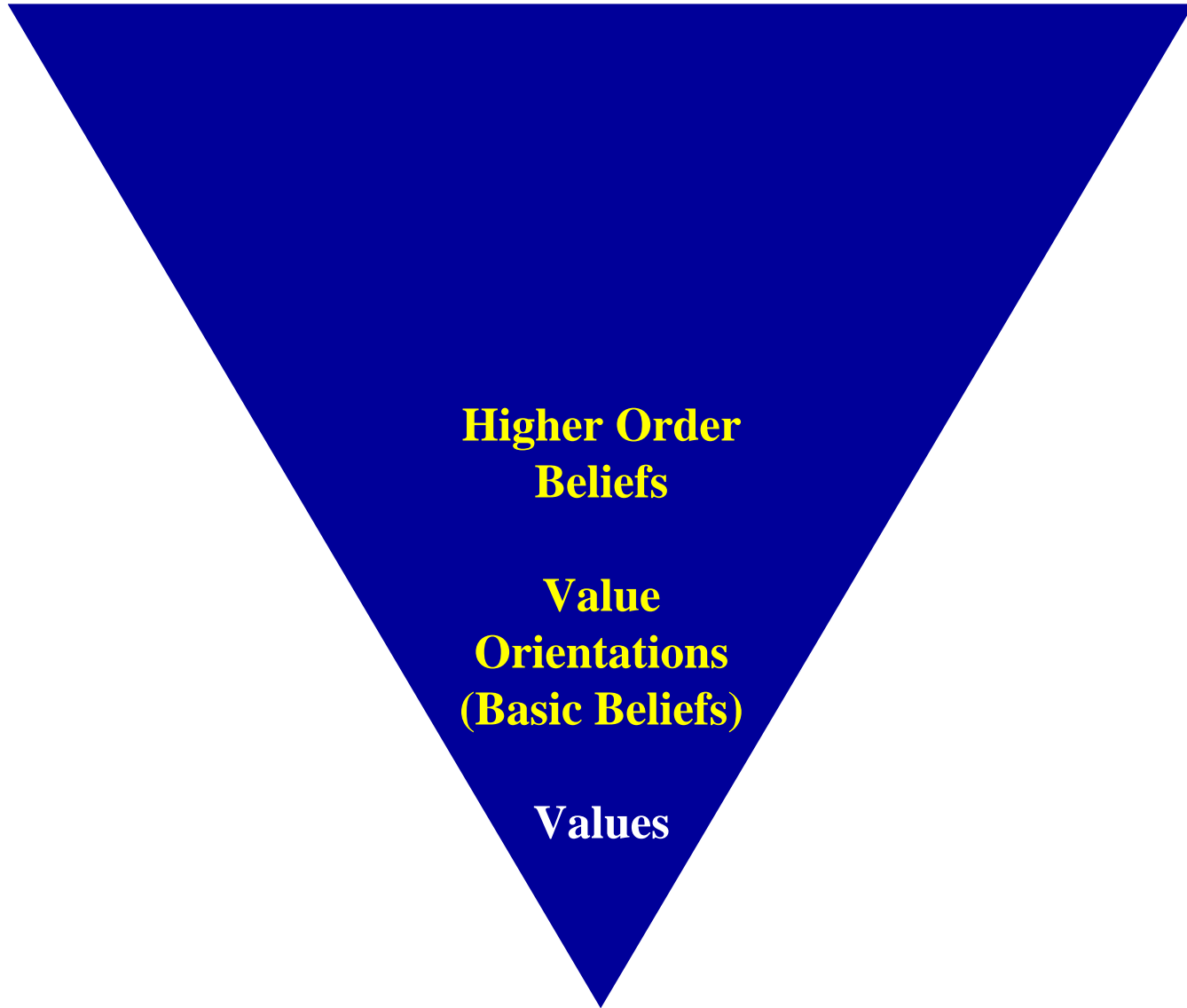
**Natural  
environmental  
system**



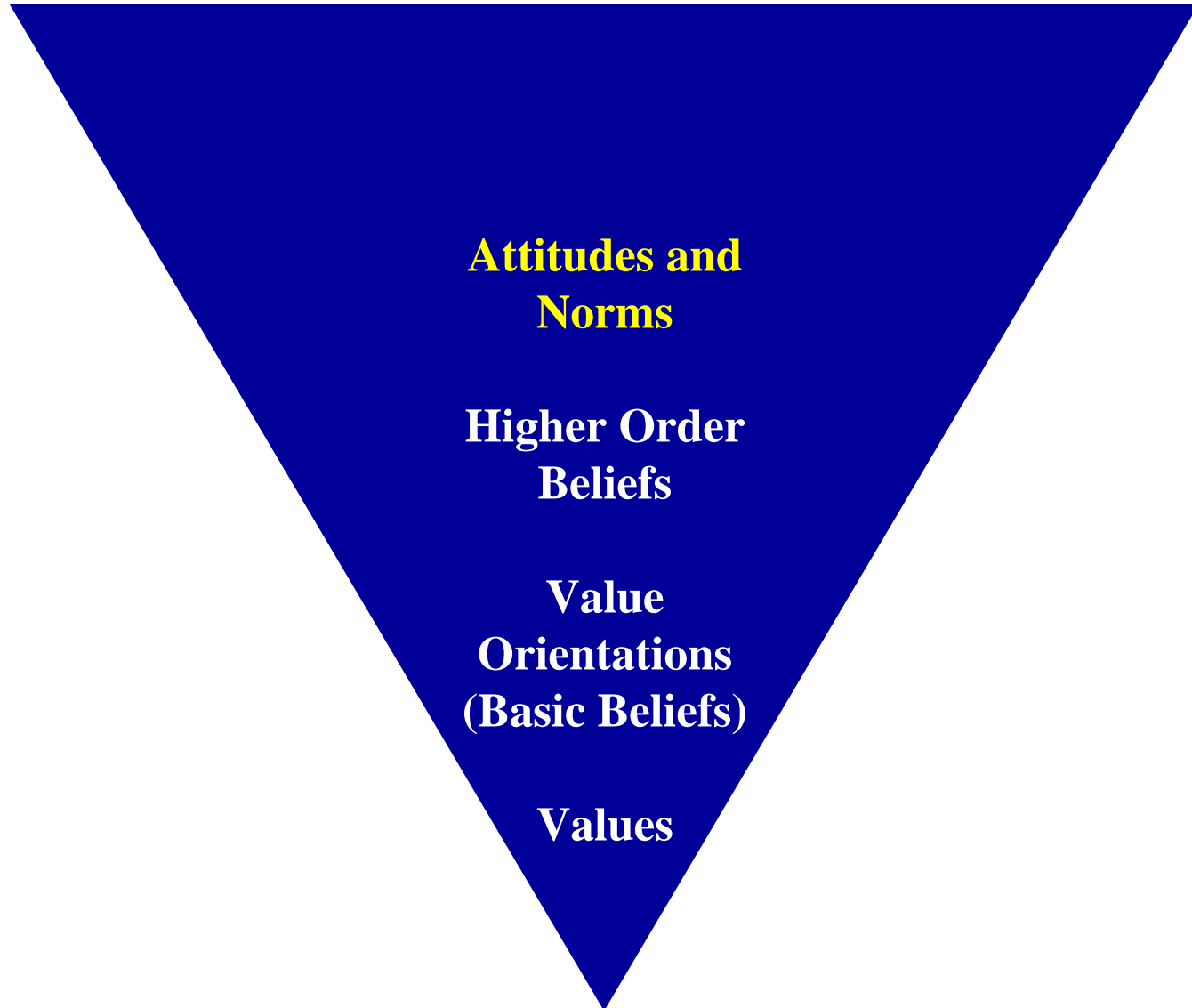
# Cognitive Hierarchy Model



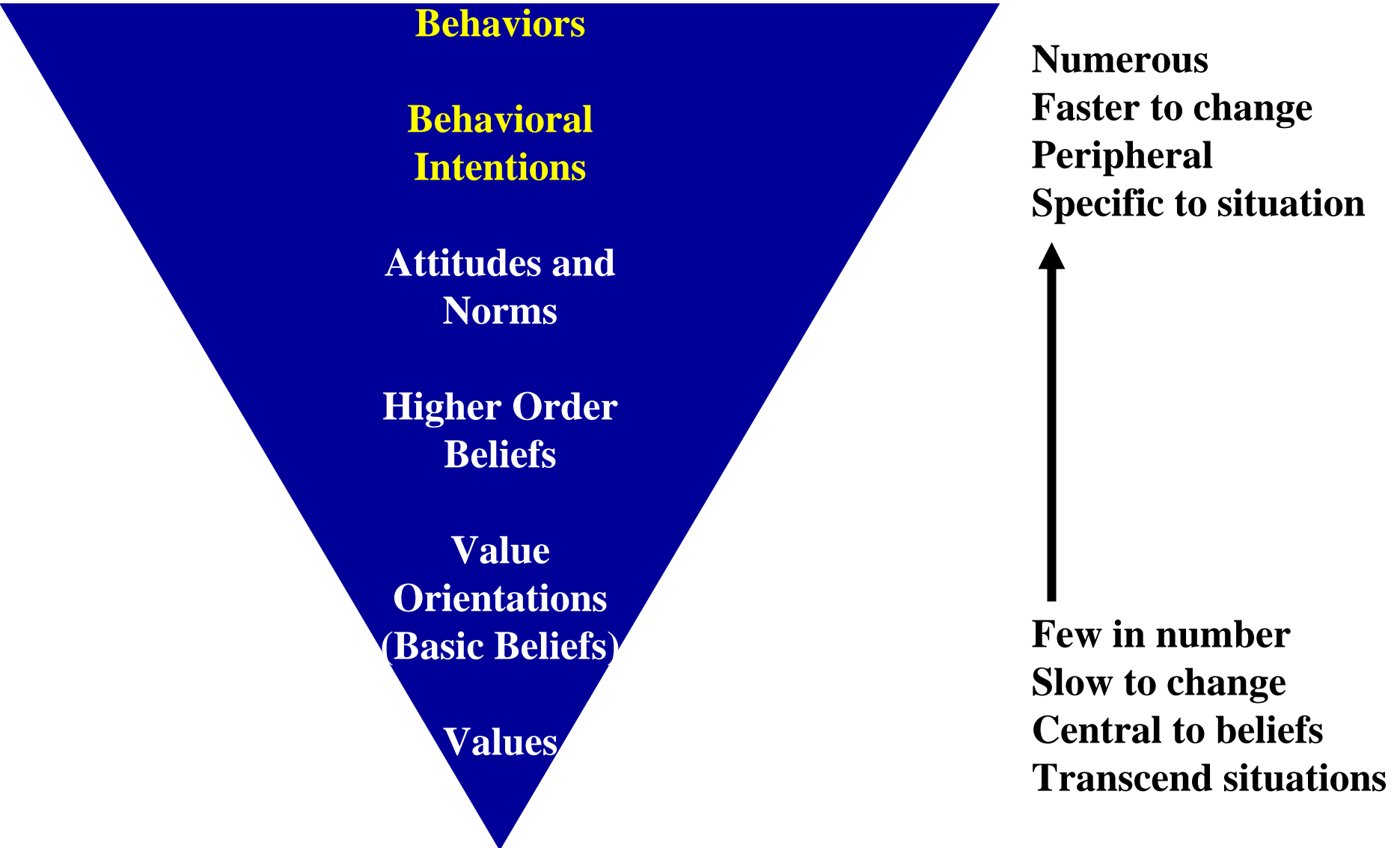
# Cognitive Hierarchy Model



# Cognitive Hierarchy Model



# Cognitive Hierarchy Model



# Marine Protected Areas



## A Hot Issue



- **Proposed benefits**
  - Fisheries related
  - Ecological
  - Other social/economic benefits
- **Potential social/economic impacts**
- **Clinton MPA Executive Order**
- **Recent Designations: Florida Keys, NW Hawaiian Islands, Channel Islands**



## Freedom to Fish webpage



*“It is inappropriate to implement ill-conceived no-fishing zones when other less drastic, yet equally effective options are available”*

# Stakeholder Group of Interest: Saltwater Anglers

- Numerous (approx. 17 million in US)
- Potential impact on marine environment
- Politically influential
- Economic importance
- Diverse interests and opinions



# Study Objectives

- **Investigate saltwater anglers' attitudes toward different MPA types**
  - varying restrictions
  - different ocean areas
- **Explore differences in MPA attitudes across angler subgroups**
  - state of residence
  - species preference
  - fishing club membership
- **Implications for marine resource management**

# Methods

- **Sampling**
  - private boat saltwater anglers
  - 5 northeastern states
  - Stratified random sample (MRFSS sample design)
  - 704 addresses obtained
- **Developed and pre-tested mail survey instrument**
- **Implemented mail survey (Dillman method)**
  - Response rate 62.3% (N=419 surveys returned)
- **Avidity bias check**
- **Weighted data for representativeness across states**

# Marine Protected Area Attitudes

- **Four hypothetical MPAs ranging from less to more restrictive**
- **20% of the ocean locations you “typically fish in most often”**
- **Measured on 7-point scale (strongly oppose/strongly favor)**
- **Compare with “no action” alternative (status quo) not against other alternatives**

# Marine Protected Area Types

Less Restrictive  More Restrictive

Activity	Type A	Type B	Type C	Type D
All commercial activities (including fishing)	Not Allowed	Not allowed	Not allowed	Not allowed
Scientific research and monitoring	Allowed	Allowed	Allowed	Allowed

Recreational harvest	Allowed	Not allowed	Not allowed	Not allowed
Recreational catch and release	Allowed	Allowed	Not allowed	Not allowed
Motorized boating	Allowed	Allowed	Allowed	Not allowed

# Anglers' MPA Attitudes Overall

<u>Ocean Location</u>	<u>MPA Type</u>			
	<u>Less Restrictive-----More Restrictive</u>			
	<u>Type A</u>	<u>Type B</u>	<u>Type C</u>	<u>Type D</u>
All 3 combined	5.34	3.78	2.62	2.44
Beyond 3 Miles	4.92	4.06	2.89	2.69
Within 3 Miles	5.51	3.80	2.64	2.36
Enclosed waters	5.65	3.49	2.39	2.28

1=strongly oppose 2= moderately oppose 3=oppose slightly 4=not sure  
5=favor slightly 6=moderately favor 7=strongly favor

# MPA Attitudes by Region of Residence

<u>MPA Type</u>	<u>Region of Residence</u>		<u>T-test value</u> <u>prob.&gt;  t </u>
	<u>New York /</u> <u>New Jersey</u>	<u>New England</u> <u>(RI, MA, NH)</u>	
<b>Type A (combined)</b>	<b>5.61</b>	<b>4.99</b>	<b>0.001</b>
<b>Beyond 3 Miles</b>	<b>5.34</b>	<b>4.73</b>	<b>0.004</b>
<b>Within 3 Miles</b>	<b>5.70</b>	<b>5.14</b>	<b>0.011</b>
<b>Enclosed waters</b>	<b>5.72</b>	<b>5.13</b>	<b>0.009</b>
<b>Type B (combined)</b>	<b>3.78</b>	<b>3.33</b>	<b>0.051</b>
<b>Beyond 3 Miles</b>	<b>4.15</b>	<b>3.42</b>	<b>0.003</b>
<b>Within 3 Miles</b>	<b>3.75</b>	<b>3.33</b>	<b>0.103</b>
<b>Enclosed waters</b>	<b>3.45</b>	<b>3.23</b>	<b>0.375</b>

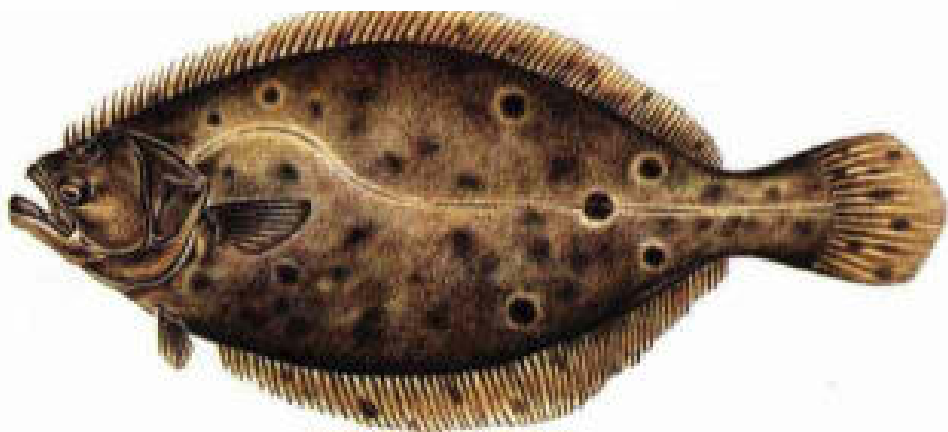
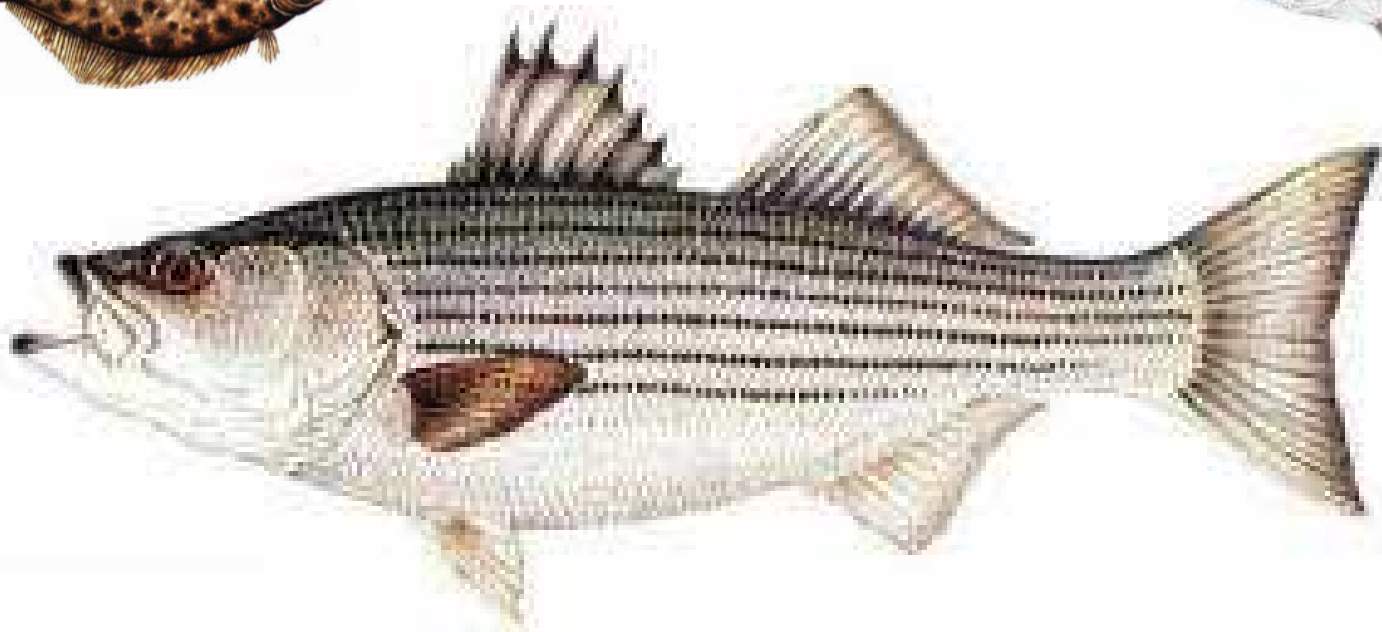
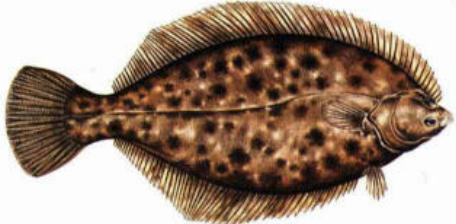
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# MPA Attitudes by Region of Residence

<u>MPA Type</u>	<u>Region of Residence</u>		<u>T-test value</u> <u>prob.&gt;  t </u>
	<u>New York /</u> <u>New Jersey</u>	<u>New England</u> <u>(RI, MA, NH)</u>	
<b>Type C (combined)</b>	<b>2.77</b>	<b>2.34</b>	<b>0.032</b>
<b>Beyond 3 Miles</b>	<b>3.19</b>	<b>2.52</b>	<b>0.005</b>
<b>Within 3 Miles</b>	<b>2.76</b>	<b>2.30</b>	<b>0.037</b>
<b>Enclosed waters</b>	<b>2.39</b>	<b>2.19</b>	<b>0.329</b>
<b>Type D (combined)</b>	<b>2.52</b>	<b>2.03</b>	<b>0.014</b>
<b>Beyond 3 Miles</b>	<b>2.82</b>	<b>2.12</b>	<b>0.003</b>
<b>Within 3 Miles</b>	<b>2.46</b>	<b>1.96</b>	<b>0.015</b>
<b>Enclosed waters</b>	<b>2.27</b>	<b>2.03</b>	<b>0.238</b>

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# MPA Attitudes by Species Preference

- Compared summer flounder and striped bass anglers
- In general, striped bass anglers were more opposed to “no take” MPAs (Types C & D)
- May partially explain regional differences
  - However, no significant differences for MPA Types A & B



# Marine Protected Area Types

Less Restrictive  More Restrictive

Activity	Type A	Type B	Type C	Type D
All commercial activities (including fishing)	Not Allowed	Not allowed	Not allowed	Not allowed
Scientific research and monitoring	Allowed	Allowed	Allowed	Allowed

Recreational harvest	Allowed	Not allowed	Not allowed	Not allowed
Recreational catch and release	Allowed	Allowed	Not allowed	Not allowed
Motorized boating	Allowed	Allowed	Allowed	Not allowed

# Attitudes by Fishing Organization or Club Membership Status

<u>MPA Type</u>	<u>Member</u>	<u>Non-member</u>	<u>T-test value prob.&gt;  t </u>
Type A (combined)	4.81	5.40	0.011
Beyond 3 Miles	4.56	5.13	0.020
Within 3 Miles	4.96	5.52	0.028
Enclosed waters	4.95	5.53	0.028
Type B (combined)	3.15	3.65	0.060
Beyond 3 Miles	3.19	3.93	0.009
Within 3 Miles	3.08	3.66	0.045
Enclosed waters	3.22	3.36	0.642

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# Attitudes by Fishing Organization or Club Membership Status

<u>MPA Type</u>	<u>Member</u>	<u>Non-member</u>	<u>T-test value prob.&gt;  t </u>
Type C (combined)	2.05	2.68	0.002
Beyond 3 Miles	2.37	2.95	0.033
Within 3 Miles	1.93	2.69	0.002
Enclosed waters	1.83	2.42	0.006
Type D (combined)	1.88	2.37	0.017
Beyond 3 Miles	2.01	2.56	0.021
Within 3 Miles	1.81	2.30	0.039
Enclosed waters	1.80	2.24	0.039

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# Results Summary

- **Angler support for MPAs decreases with increasing level of restrictiveness**
- **More support for MPAs sited in offshore waters than in nearshore waters**
- **More opposition to MPAs in New England than NY/NJ**
- **More opposition to “no-take” MPAs from striped bass anglers than summer flounder anglers**
- **More opposition to MPAs from fishing club/organization members**



# Discussion / Management Implications

- **In general, northeast anglers are not quite ready to accept “no fishing” zones as a tool to limit recreational catch**
  - **However, opposition to MPAs not quite as strong as sportfishing interest groups stance**
  - **Some positive signs for MPA proponents**
- **More support for “catch and release” fishing zones**
- **Managers should consider attitudinal differences among sub-groups of anglers when designing MPAs**
- **This study provides managers with baseline attitudinal information that can be used in the future to analyze trends in anglers’ MPA attitudes**

- **Fisheries Article:**  
[www.fisheries.org/html/fisheries/F2906/F290610-17.pdf](http://www.fisheries.org/html/fisheries/F2906/F290610-17.pdf)
- **Dissertation:**  
[www2.mpa.gov/mpa/mpaservices/virtual\\_library/Action.Lasso](http://www2.mpa.gov/mpa/mpaservices/virtual_library/Action.Lasso)
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**Questions?**