

Allocation of Fiscal Resources to American Shad Conservation in USFWS, Region 5



July 25, 2008

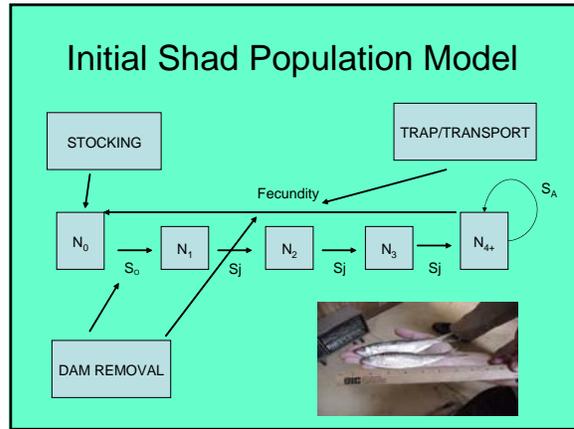
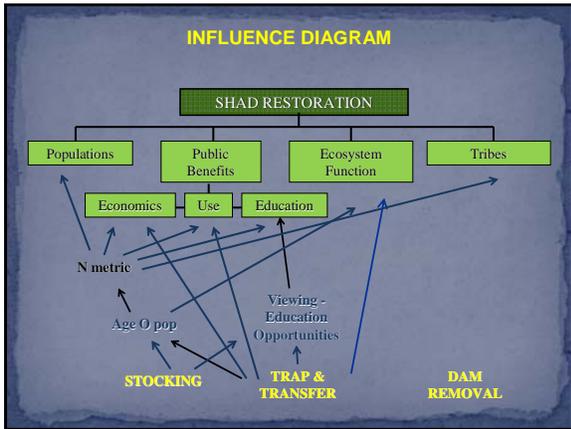
The Problem

R5 Fisheries Program needs to develop a tool to support allocating externally-determined budgets to best assist meeting shared USFWS and partner management objectives for American shad populations on a Region-wide scale.

- ### OBJECTIVES
- Population (N)
 - Population Size by River range-wide
 - Public Benefit
 - Economic (\$/yr)
 - Use and Appreciation (# anglers/yr)
 - Education (# visitor contacts/yr)
 - Ecosystem Function
 - Index (% hist. habitat opened X % pop. goal met)
 - Tribal Trust Responsibility
 - Tech Assistance (# of requests addressed)

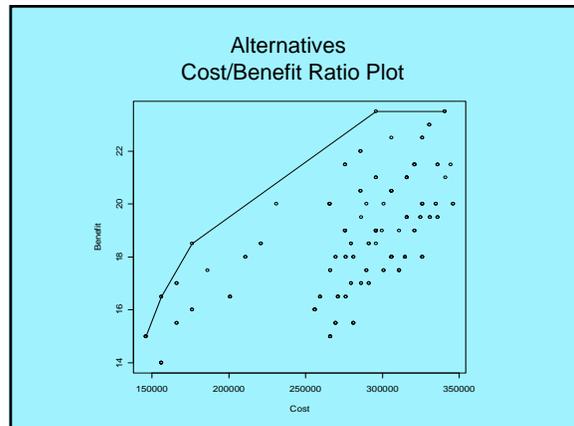
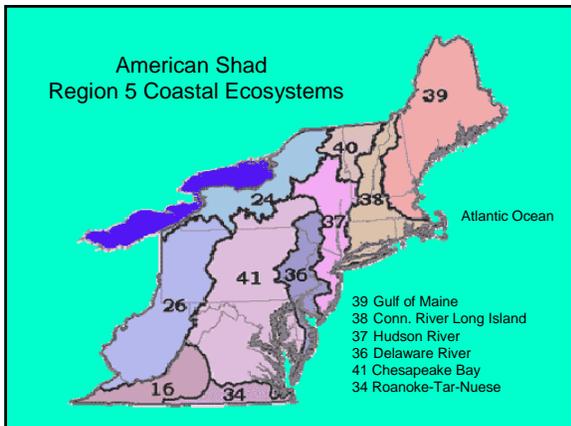
- ### Actions
- Culture
 - Trap and Transport
 - Fish Passage
 - Habitat Restoration
 - Dam Removal
 - Monitoring and Assessment
 - Technical Assistance
 - Cooperative Agreement/grants
 - Policy Board, ASMFC
 - Outreach and Education
 - Applied Research and Development

- ### CONSEQUENCES
- Analyze Effects of Alternatives (Sets of Activities) on Objectives
 - Developed an Influence Diagram
 - Focused on a Population Metric (N)
 - Focused on an Ecological Metric



- ### ISSUES
- Model Complexity and Data Demands
 - Too Complex / Insufficient Quantitative Data
 - Too Simple / Overly Subjective
 - Internal / External Credibility
 - We Chose a Qualitative Model
 - Assisted in Prototyping
 - Requires Further Development

- ### QUALITATIVE MODEL
- Activities in Six Coastal Ecosystems
 - Subjectively Rated Activity Effects on:
 - Population Benefit (N)
 - Ecological Benefit (Broad Perspective)
 - Weighting Exercise = Benefit Score
 - Considered All Combinations Activities
 - Alternatives Yielding Highest Benefit Score
 - Constraints
 - Within Budget (\$350 K)
 - Minimum of One Activity/Ecosystem



Actions Within Ecosystems and Qualitative Benefits

Alternative 1					
Benefit			23.5		
Cost	\$	340,833.00			
Ecoregion	Project	Category	Cost	Ecological Benefit	N benefit
Chesapeake Bay	James R.	Dam Removal	\$6,100	4	3
Chesapeake Bay	Rappahannock R.	Culture	\$119,733	4	6
Conn. Rvr. Long Island	Conn. R.	Trap & Truck	\$25,000	2	3
Delaware Rvr.	Muskie 1	Dam Removal	\$45,000	2	3
Delaware Rvr.	Muskie 2	Dam Removal	\$55,000	1	2
Gulf of Maine	Merr/Souhegan R.	Dam Removal	\$40,000	2	4
Hudson Rvr.	Hudson R.	Fish Passage	\$20,000	2	2
Hudson Rvr.	Hudson R.	Fish Passage	\$20,000	2	2
Roanoke Tar Neuse	Tributary	Fish Passage - permit	\$10,000	2	1
Alternative 2					
Benefit			23.5		
Cost	\$	295,833.00			
Ecoregion	Project	Category	Cost	Ecological Benefit	N benefit
Chesapeake Bay	James R.	Dam Removal	\$6,100	4	3
Chesapeake Bay	Rappahannock R.	Culture	\$119,733	4	6
Conn. Rvr. Long Island	Conn. R.	Trap & Truck	\$25,000	2	3
Delaware Rvr.	Muskie 1	Dam Removal	\$45,000	2	3
Gulf of Maine	Merr/Souhegan R.	Dam Removal	\$40,000	2	4
Hudson Rvr.	Hudson R.	Fish Passage	\$20,000	2	2
Hudson Rvr.	Hudson R.	Fish Passage	\$20,000	2	2
Roanoke Tar Neuse	Tributary	Fish Passage - permit	\$10,000	2	1
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Next Steps – Refine the Model

- Improve Predictive Capability for Population and Ecological Benefits
- Additional Considerations
 - Various Dedicated Cost Structures
 - Development Cost: Time and Staff
 - Human Capital and Capabilities

