MPAs as a Restoration Option
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Restoring America’s Estuaries
The Challenge

• Increasing importance of restoring damaged or degraded ecosystems
• Demonstrating cost effectiveness and success of restoration efforts, particularly in a changing climate
What is Restoration?

Allowing ecosystems to recover

Intervention to “fix” damaged ecosystems
A Broader Perspective

Allowing ecosystems to recover

Intervention to “fix” damaged ecosystems
Marine Protected Areas: A Key Tool for Restoration

- Long term protection helps ensure long term restoration outcomes
- Focused management provides tools and resources for long-term restoration, research and monitoring
- Particularly well suited for lower input / lower cost restoration (e.g. exclusion areas)
- Can provide resources (funding, volunteers) for monitoring and assessment
- May have authority to require restoration of damage (e.g. levy fines for ship groundings)
- Can serve as reference areas
Terminology

Marine Protected Area (MPA)

- Marine – high tide mark to EEZ, and Great Lakes
- Protected – legally protected by federal, state or tribal authority
- Area - has defined geographic boundaries
Long Term Protection for Resource Conservation

- Permanent protection
- Long term commitment to management and monitoring
- Can serve as reference sites
- Can help protect natural processes, supporting restoration outside MPA boundaries
MPAs with an Ecosystem Focus

- Focal Resource: 38%
- Ecosystem: 62%
An Ecosystem Approach to Management

• Many MPAs have broad based authority and management expertise that foster an ecosystem approach.
Ecosystem Approach to Management - Seagrasses

• Restoration actions:
  – Restoring water quality
  – Replanting
  – Perches for seabirds to fertilize seagrass areas
Marine Reserves: Protecting Living Resources within the Reserve

Average changes (green bars) in fishes, invertebrates and seaweeds within marine reserves around the world. Although changes varied among reserves (black dots), most reserves had positive changes. Data: Lester et al. (2009) Marine Ecology Progress Series.
Marine Reserves: Protecting Larger Fish
Marine Reserves: Promoting Spillover

- Benefits for adults, juveniles and larvae
- Potential benefits for restoring depleted fisheries

The estimated average distances traveled by young invertebrates (51 species), fishes (26 species), and seaweeds (13 species) prior to settling at their adult homes. Distances are based on genetic analysis of species around the world.

Data: Kinlan & Gaines (2003) Ecology
Marine Reserves: Research on Ecosystem Function

• Early research in Channel Islands revealed key role of predators (lobster, sheephead) in controlling sea urchin predation on kelp forests
Dry Tortugas Ecological Reserves

- Large offshore reserves protect healthy corals and larval and juvenile fish.
National Estuarine Research Reserves: Research on Ecosystem Function

• Sentinel Site Program -- Understanding impacts of sea level change on coastal habitats
• Builds on long term system-wide monitoring program

Courtesy: Narragansett Bay NERR
Long Term Monitoring

• Project level monitoring
• Broader environmental monitoring provides context
Existing Agency & Community Partnerships

• Interagency and community partnerships can support restoration efforts
Education and Outreach

- Educates users and the general public about the value of restoration
- Fosters a stewardship ethic
Damage Assessment and Recovery

• Some MPAs have ability to collect fines to pay for restoring damage to protected resources.
Deepwater Horizon – MPAs as Mitigation?

• Suggested through public comment process
• Would need to address specific injuries due to incident
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