The Fish and Wildlife Service and Genetic Biocontrol of Aquatic Invasive Species

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USFWS Authorities Pertaining to GMOs

• Introduction Into the Environment
  – National Environmental Policy Act
  – Endangered Species Act
  – Executive Order 13112

• Regulating GMOs
  – Lacey Act (Injurious Wildlife)

• Use for AIS Control
  – Nonindigenous Aquatic Nuisance Prevention and Control Act
National Environmental Policy Act

- Strict requirements to assess impacts of federal actions
- Statutory threshold - Significantly affecting the quality of the human environment
- DOI Manual Requirements
- USFWS willing to help
- Transboundary Effects
Endangered Species Act

- Genetic biocontrol programs may have both beneficial and adverse effects on listed species

- Effects of any Federal involvement are subject to evaluation under section 7 of ESA

- Non-Federal programs may require permits under section 10 of ESA for effects on listed species

- Both processes provide means for balancing positive and negative effects on listed species
EO 13112 and the National Invasive Species Council

- Created National Invasive Species Council and National Invasive Species Management Plan
  - NISMP - Closest approximation to national policy on invasive species.
- Directed Federal Agencies to:
  - Prevent introductions of invasive species
  - Not fund or carry out actions likely to introduce or spread invasives
- Directives would certainly apply to any Federal proposal to release transgenic fish for biocontrol
The Injurious Wildlife Provisions of the Lacey Act

- FWS can regulate GMOs so long as the organism meets the standards for injuriousness under the Lacey Act (Injurious Wildlife; 18 USC 42).

- Injurious Wildlife cannot be imported into the U.S. or transported across state lines.
Nonindigenous Aquatic Nuisance Prevention and Control Act (1990)

- Created the Aquatic Nuisance Species Task Force
- Facilitated creation of USFWS Aquatic Invasive Species Program
- Intentional Introduction Policy Review
  - One of the few foundational national policy documents regarding intentional introductions
  - Conclusion: there are risk associated with intentional introductions
- Authority to establish control programs
  - Unclear whether this authority will support FWS introduction of GMOs into the environment
Other Laws

• State Laws
  – Growing number of State laws specific to transgenic fish

• Native American Tribal Policy and Law
  – Tribes implement their own programs
  – Any federal transgenic fish biocontrol effort could be affected by trust responsibilities to individual tribes

• International Laws
  – In internationally shared waters, bilateral and multi-lateral agreements and treaties could apply to transgenic fish biocontrol
Policy and Regulatory Considerations

- Not many policies/regulations regarding release of triploid/transgenic fish for biocontrol
- An emerging area of public policy
- A window of opportunity
- Any biocontrol effort involving genetic methods must comply with relevant federal, state, and tribal environmental policies
FWS Use of Biocontrols
“On the Ground”

Fish & Wildlife Conservation Offices

- Sea Lamprey Control Program
  - Highly successful, 90% reduction of sea lamprey populations
  - Conducted in partnership with Great Lakes Fisheries Commission, Canadian counterparts, States & universities
- Sterile male release technique
FWS Use of Biocontrols
“On the Ground”

Fish Technology Centers

• Triploid Grass Carp Certification & Inspection Program
  – Standards for USFWS Inspectors
  – Standards for Grass Carp Producers
  – Checklist for Inspectors and Producers
  – Standards for Collection and Fees.
  – New MOA requirement for Producers

• Collaborating with USGS to develop genetic monitoring techniques for quagga and zebra mussel – “E-DNA monitoring”
What’s Next?

- Service is on the cutting edge of using these tools

- Committed to staying engaged as an active partner and participant in exploring the future technical aspects & risks involved with these tools