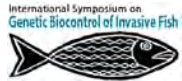


The Fish and Wildlife Service and Genetic Biocontrol of Aquatic Invasive Species



International Symposium on Genetic Biocontrol of
Invasive Fish
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Minneapolis, Minnesota

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USFWS Authorities Pertaining to GMOs

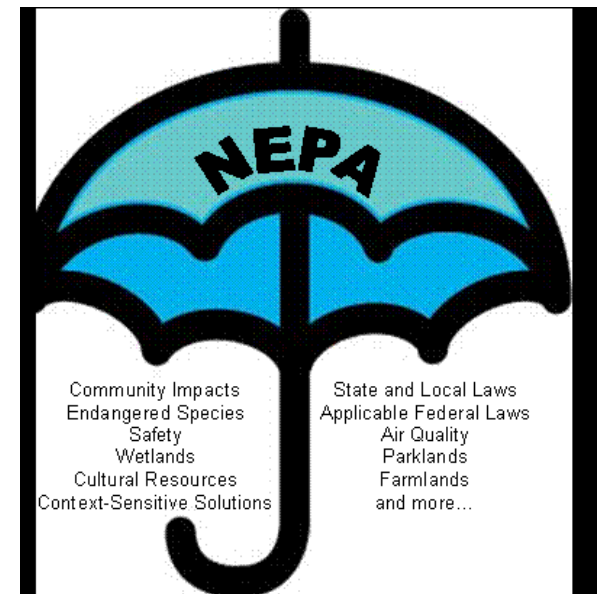
- Introduction Into the Environment
 - National Environmental Policy Act
 - Endangered Species Act
 - Executive Order 13112
- Regulating GMOs
 - Lacey Act (Injurious Wildlife)
- Use for AIS Control
 - Nonindigenous Aquatic Nuisance Prevention and Control Act





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”





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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

