

An Invasive Species Action Plan for OWOW

Strategy Vision Statement

This strategic action plan and its recommended actions will improve OWOW's effectiveness at countering invasive species, both aquatic and terrestrial, that impact the nation's aquatic systems. The plan promotes focused leadership and increased collaboration and education to prevent species introductions, monitor and manage the spread of invasive species, identify new opportunities, set priorities, and fully utilize all available and appropriate program tools.

I. Introduction

In March 2003, OWOW's Invasive Species Team (Team) developed an *Inventory of Existing and Possible Future Invasive Species Activities for OWOW Programs (Inventory)*. The *Inventory* laid out the following five strategic goals and included an unabridged list of current and possible future actions to address those goals, which are to:

- (1) prevent invasions affecting aquatic ecosystems,
- (2) develop rapid response and monitoring programs,
- (3) control invasives affecting aquatic ecosystems,
- (4) create education and outreach opportunities, and
- (5) develop and maintain a leadership role representing OW in the invasive species management community.

The *Inventory's Next Steps* section proposed that the Team develop ranking criteria and rank the *Inventory's* approximately 75 activities, i.e., identify those activities essential to addressing the five goals and not yet underway. The Team has completed its ranking of all potential actions, and now proposes six priority actions for OWOW programs. The actions are described in the following section. Descriptions include a list of activities to implement each action, estimated resource requirements, and evaluation criteria.

The ranking criteria developed by the Team were based on the Team's best judgment as to the most important factors to consider when proposing priority actions. An underlying principle was that while OWOW, OW, and EPA have important roles to play and unique expertise to bring to bear in the Federal agency invasive species arena, those roles have not yet been clearly defined either internally or for those outside of the agency.

The Team identified priority actions that will move EPA toward establishing and articulating its unique role in the Federal invasive species community, including taking the Federal lead on: (1) developing guidance on rapid responses approaches, and (2) developing economic estimates of aquatic nuisance species impacts. Other criteria used to rank the actions were:

Feasibility: How feasible is the action? Can the action be accomplished by OWOW?

Time: Can the action be accomplished in a timely manner?

Immediate: Is there an immediate need for the action?

Resources: Will the action be cost effective? Bang for the buck?

OWOW Specific: Is the action specific to OWOW's work?

Integration: Can the action be incorporated into other programs?

Measurable Results: Can we measure the results of the action?

The six priority actions described in the following section were identified by the Team as those that best met the criteria above. The Team recommended that before proceeding with implementation of this Action Plan, OWOW should consult with the Regions on the proposed Plan.

The Team recognized that each office within OW brings unique tools and perspectives to the task of addressing invasive species impacts on the nation's aquatic systems. While this document is an OWOW Action Plan, the Team recommended that OWOW continue its current collaboration with other OW offices on several current activities, expand that collaboration to identify priority actions relevant to other OW program offices, extend the Action Plan beyond OWOW to all parts of OW and other relevant offices, and possibly use the Plan as a model for developing an EPA-wide Action Plan.

II. Priority Actions

The actions below are not listed in order of priority.

While the Team does not anticipate implementation of all priority actions simultaneously, the Plan provides estimates of the time required to complete implementation of the actions. The Team consulted with Regional and other Program Offices on a draft version of this Plan and, where appropriate, revised the Plan to reflect comments received from those Offices. A list of ongoing invasive species activities in OWOW is provided following the six priority actions.

1. **Review Authorities and Tools: Review existing regulatory authorities and non-regulatory tools to identify opportunities for preventing the introduction and spread of invasive species.**

The Team will screen OWOW's current regulatory and non-regulatory tools and review the actions of other organizations to identify opportunities for OWOW to play a unique role in preventing the spread and introduction of invasive species. The opportunities identified will be

further explored and presented to management. Reviewers will consult with other EPA Offices and Programs, like the Office of General Counsel, to ensure recommendations for action are consistent with authorizing legislation.

Action Plan

- Convene a workgroup with one representative from each Division of OWOW to screen OWOW's regulatory and non-regulatory tools for opportunities to prevent the spread and introduction of invasive species. This step will require significant cooperation with OGC to assess the extent of our legal authorities.
- Review summary documents describing activities of EPA Program Offices and of other Federal, State, and local organizations, some of whose activities target invasive species.
- Compare OWOW's tools with the activities other organizations are conducting to identify gaps or areas where OWOW can play a unique role to combat invasive species. For example, provide information about the potential for introduction and spread of invasives to other Federal agencies that make permitting and licensing decisions as well as States and Tribes that issue permits and licenses.
- Explore the potential implications and the utility of using the unique tools and strengths identified, including using CWA (CWA) Section 401 certifications to consider the potential impacts of invasives as a result of proposed Federal permitting and licensing actions.
- Develop a white paper describing the tools that can be used to prevent the introduction and spread of invasive species and the potential implications of using those tools.
- Brief management on the white paper's contents.
- Implement actions to utilize the tools identified.
- Estimated time to complete: nine months

2. Monitoring: Encourage the inclusion of invasive species in existing monitoring programs (some ongoing).

The availability of good monitoring data is key to sound decision making, enables decision makers to evaluate the effectiveness of water quality programs and the effective use of resources, and can be used to educate the public about the condition of the Nation's waters. Monitoring, at present, includes physical and chemical measurements as well as measurements of biological communities and habitat. Increasingly, EPA supports monitoring efforts that are focused on a holistic approach that examines the interaction of all media within a single watershed. This approach allows for the identification of changes in water quality, determining the effectiveness of management activities, and identifying how to respond to an emergency situation. Increasing the number of State and local monitoring groups that include monitoring for invasive species in aquatic ecosystems as part of their monitoring protocol would help achieve CWA goals.

Action Plan

- Determine the scope of existing methods and efforts that monitor invasive species by

working with other Federal agencies through the Aquatic Nuisance Species Task Force and the National Invasive Species Council staff to inventory existing Federal, State, local, academic, and volunteer-based monitoring programs.

- By working with OWOW's monitoring program staff, EPA Regional Offices, EPA's Nonindigenous Species Working Group, watershed programs, and other entities engaging in water quality monitoring, promote the inclusion of invasive species in existing monitoring programs and help build capacity for the increased monitoring of invasive species in State, Tribal, local, and inter-state water quality monitoring programs (where appropriate).
- Develop guidance and other mechanisms to assist programs to incorporate invasive species into existing or planned efforts and to promote development of early detection monitoring programs for those areas at high risk for invaders.
- ? Estimated time to complete: one year

3. Education and Outreach: Prevent Introductions/Control the Spread of Invasive Species and Promote Public Understanding Using Education and Outreach Tools.

Since it is very difficult to prevent the spread of, and to eradicate, an exotic nuisance species once it has become established, preventing introductions by reaching out to and educating the public about invasive species is an important role that OWOW can play. The Team identified a range of opportunities on which OWOW can play a leadership role preventing exotic species introductions and raising public awareness about invasive species.

Action Plan

- Review current Federal and State invasive species outreach and education strategies; identify appropriate actions in those strategies that EPA can implement (e.g., the Aquatic Nuisance Species Task Force Communications Strategy).
- Partner with other Federal, State, Tribal, and local agencies, other EPA programs, and non-profits (e.g., Civilian Conservation Corps, Trout Unlimited, National Wildlife Federation) to disseminate information about the causes of invasions and environmentally safe management and control methods.
- Expand upon current education/outreach efforts focusing on development of traditional public outreach tools (e.g., fact sheets, websites) by exploring innovative approaches and partnerships. Results of these efforts would include development of unique educational materials and activities (e.g., Coastal America Learning Centers and special aquaria exhibits) targeting invasive species at the regional and local level.
- Reach out to segments of the public and to various industries (e.g., the pet and aquarium store owners, bait shop owners and suppliers) that could be instrumental in preventing invasions.
- Explore education and outreach tools used by other nations (e.g., Australia and New Zealand) that face major challenges from invasive species.
- Ensure that where appropriate, National Estuary Program workplans include actions to address invasive species challenges.

- Fund the re-printing and expanded distribution of currently-existing invasives public outreach material and ensure that the EPA invasives website is kept current and appeals to a broad audience.
- Estimated time to complete: ongoing

4. Barriers to Rapid Response: Take the lead role in the identification and analysis of barriers (statutory, regulatory, policy) to rapid response.

Rapid response methods, including the use of biocides, may require the issuance of permits or trigger the use of other regulatory tools prior to their legal application. Since the process of obtaining a required permit can be time-consuming, permits and other regulatory tools can be obstacles to carrying out a rapid response effort. In fact, some States are reluctant to “pull the trigger” and implement a rapid response action because they do not have all the information they need about the regulatory framework in which they would act to halt the spread of an invasive species. This action calls for a survey to be conducted to produce a comprehensive document of legal and policy requirements that natural resource managers must consider before taking a rapid response approach. The document would be made available to State, Tribal, and local natural resource managers and decision makers.

Action Plan

- Survey Federal and State requirements for the use of biocides and other rapid response methods on the major taxa of invasive species (bacteria/viruses, algae, plants, invertebrates, vertebrates).
- Develop guidance, based on the information collected, on the legal and policy barriers to rapid response.
- Explore enforcement issues associated with rapid response with the Office of General Counsel, the Office of Enforcement and Compliance, and other appropriate program offices.
- Estimated time to complete: one year

5. Review OWOW Project Funding: Review all uses of OWOW funding, both to ensure that OWOW does not fund activities that cause or promote invasions and to explore using OWOW assistance agreements to target invasive species problems impacting aquatic systems.

Executive Order (EO) 13112 mandates that Federal agencies shall prevent the introduction and control the spread of invasives as well as not authorize, fund, or implement actions that would likely cause or promote invasives’ establishment or spread. Currently, several OWOW assistance agreements fund on-the-ground prevention, control, management, and education/outreach activities in compliance with the EO. But many other OWOW assistance agreements are silent on invasive species issues, which could result in OWOW funding activities that inadvertently lead to the establishment and spread of invasives. Implementation of this priority action would ensure compliance with EO 13112 by: (1) verifying that all OWOW-funded

activities do not inadvertently cause or promote the establishment and spread of invasive species; and (2) using OWOW-funded assistance agreements to fund activities that directly target prevention of introductions, management, or control of, and education/outreach about, invasive species.

Action Plan

- Collect and review all OWOW assistance agreements' Statement of Work and Special Conditions Statements.
- Discuss and validate with individual OWOW Project Officers the relevance of invasive species issues to their agreements' Scope of Work; raise awareness about and promote consideration of invasive species issues, including the potential for issuing assistance agreements whose Statement of Work target invasive species prevention, management, control, and education.
- Prepare assistance agreement Special Condition language requiring recipients to ensure that project design and implementation would not result in the introduction and/or spread of invasive species; circulate language for review and comment throughout OWOW.
- Notify all OWOW staff that assistance agreements must (where applicable) include a Special Condition targeting invasives' prevention and control.
- Work with the Grants Administration Division to include information about non-indigenous species introductions in assistance agreement Project Officer training.
- ? Estimated time to complete: one year

6. Economic Impact: Estimate the economic impacts of invasive species affecting the aquatic environment.

There are no good estimates of the economic impact of invasive species on the aquatic environment. Additionally, as GAO cited in its 2003 report, few models exist for analyzing the economic impacts of invasive species, costs and benefits of alternative control or eradication mechanisms, or the impacts of potential future invasions. Such information and analyses can serve to help decision makers evaluate alternative control approaches and to educate and inform the public about the severity of the problem. This action has two long-term objectives: to (1) develop a national estimate of the economic impacts of invasive species affecting the aquatic environment; and (2) develop models for assessing the economic costs and benefits of alternative invasive species control mechanisms for specific ecosystems, with economic costs including the costs of impacts on ecosystems. Phases I and II of this action would target the first objective, and Phase III the second objective.

Action Plan

Phase I:

- Publicize effort within EPA, eliciting interest from Program Offices that could provide support in the form of staff and/or funding. For example, invite OPEI economists to

participate in the effort, and work with ORD to ensure that this action is raised during its annual planning process. Form an Agency workgroup chaired by OWOW/OW.

- Work with Federal partners on the Aquatic Nuisance Species Task Force and with National Invasive Species Council staff and other contacts to identify other Federal agency efforts and approaches to this issue.
- Conduct literature search to ascertain what data, studies, and models currently exist for estimating economic costs and for assessing the economic costs and benefits of alternative invasive species control mechanisms in specific ecosystems and/or to control specific invasive species.
- Convene national experts in a workshop to discuss data and information collected and to identify major methodological issues related to development of pilot and national estimates of aquatic nuisance species impacts and for evaluating

Phase II

- Develop plans for conducting one or several regional/local pilot projects
- Conduct pilot projects using one or several methodologies for estimating impacts
- Evaluate pilot results; refine methodology/ies for use at a state or regional level
- Conduct a peer review of methodologies

Phase III

- Prepare guidance for States and EPA Regions that provides appropriate models for: (1) estimating State or Regional costs of invasive species impacts on aquatic environments, and (2) assessing the economic costs and benefits of alternative invasive species control mechanisms in specific ecosystems and/or to control specific invasive species

Phase IV

- Develop a national estimate of invasive species impacts on the aquatic environment
- Develop estimates of the economic costs and benefits of alternative invasive species control mechanisms in specific ecosystems and/or to control specific invasive species
- Estimated time to complete all phases: one to two years

III. Ongoing OWOW Invasive Species Activities

Goal 1. Prevent Invasions Affecting Aquatic Ecosystems

- Working with Coast Guard on ballast water management and discharge standard regulations.
- Serving on U.S. delegation to the IMO to negotiate a ballast water treaty.

Goal 2. Develop Rapid Response and Monitoring Programs

- Collecting and distributing, throughout the National Estuary Program community, information about rapid assessments currently underway in many National Estuary Program (NEP) watersheds.
- States that currently have wetlands monitoring programs identify invasive species as part of those programs. They also develop eradication protocols as part of their management

- response to invasive species.
- The three Pacific Northwest NEPs are developing an invasives monitoring protocol for their region.
- Eight northeast, two mid-Atlantic, one Florida, and one Gulf of Mexico NEPs are developing invasive species early detection/rapid response plans based on recently-conducted rapid assessments.

Goal 3. Control Invasive Species Affecting Aquatic Ecosystems

- The revised Mitigation Regulatory Guidance Letter (RGL 02-2) directly references the need to address invasive species at wetland mitigation sites by stipulating that mitigation plans for invasive species include measures "for control of exotic invasive vegetation".
- As part of the Mitigation Action Plan, the NAS *Operational Guidelines for Creating or Restoring Self-Sustaining Wetlands* are being incorporated into the Mitigation and Monitoring Guidelines. These guidelines recognize that "monitoring and control of nonindigenous species" should be a part of any effective adaptive management program.
- Several NEPs include invasive species control and management actions in their annual workplans.

Goal 4. Create Education and Outreach Opportunities

- The OWOW website contains a web page with information on invasive species.
- The Watershed Academy has two modules on invasives (recently-completed).
- Through the use of written materials and cross-Program fora, the NEPs are raising awareness among and building the capacity of NEP education/outreach coordinators regarding effective invasive species prevention approaches.
- Several NEPs include invasive species education and outreach actions in their annual workplans.

Goal 5. Develop and Maintain an OWOW Leadership Role Representing OW in the Invasive Species Management Community

- Maintain an OWOW workgroup to integrate and coordinate, as appropriate, OWOW invasive species activities.
- Maintain contacts in other Federal agencies to stay current on other Federal activities.
- Serve on the Aquatic Nuisance Species Task Force.
- Serve on the National Invasive Species Council workgroup developing and implementing a North American Strategy.
- Regularly report on NEP invasive species activity to Team, the NEP and other partners.

IV. Actions OWOW Recommends for Other OW and EPA Programs

Many activities included on the *Inventory's* list of potential actions most appropriately fall under other OW and non-OW Programs' scope of work. The Team identified and discussed that subset of activities, and identified a preliminary list of those activities that are among the most essential to effectively addressing aquatic invasive species. The preliminary list appears below.

The Team recommends that OWOW raise with other OW Program Offices the opportunity to expand this OWOW Action Plan into an OW Action Plan and to identify staff to participate on the OW Team. The Team would follow-up on those discussions with line managers and staff to establish how best to implement the recommended actions.

Following expansion of the OWOW Team into an OW Team, the new Team would develop a comprehensive list of OW activities. Several activities listed below should be approached by a number of OW offices.

Recommendations for OW

1. Work with multi-office team to develop a national economic estimate of invasive species impacts, models for estimating economic impacts of invasives at the Regional and State level, and models of alternative control strategies that Regions and States could use (Priority Action 6).
2. Develop rapid response guidance for States/Regions (possibly develop a set of guidance documents that are region or ecosystem specific; Priority Action 4).

Recommendations for Other AAships

As noted above, the following list is preliminary, and the Team will work with staff in other AAships to develop a comprehensive list of activities to address invasives' impacts in aquatic environments.

ORD

1. Create formal linkages between NEPs and ORD researchers studying probability of invasions in vulnerable, degraded ecosystems; i.e., use NEPs or their subwatersheds as laboratories for ORD research on ecosystem invasion potential.
2. Improve access to emerging science and research related to invasive species detection, prevention, and control.
3. Support research and development of prevention methods.
4. Determine the link between water quality and the probability of invasions.
5. Conduct an analysis of the relative risks of eradication in a rapid response exercise vs. allowing an invasion to occur.
6. Support research and development of new tools for rapid response and monitoring.
7. Support research and development of new tools for controlling invasives species.

OPPTS

1. Survey existing methods of controlling/eradicating aquatic invasives species, including mechanical, chemical, and biological measures.

OECA

1. Explore potential for using compliance and enforcement tools in rapid response action implementation.

V. Next Step

- Finalize FY05 workplans, including resource commitments for invasives work.