

Education and Outreach

Aquatic Invaders: Sea Grant/AZA project explains pathways to zoo and aquarium audiences

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Abstract

University researchers and government agency scientists can join new allies in efforts to increase public understanding of aquatic invasive species. More than 200 “free choice learning” centers accredited by the Association of Zoos and Aquariums, along with Sea Grant programs across the United States, have received *Aquatic Invaders* program toolkits as part of an outreach project funded by NOAA’s National Sea Grant College Program. Surveys results show that the AZA educators have already reached audiences totaling at least 10,000 with messages to limit the introduction and spread of AIS. The educators also report significant increases in their own understanding of invasive species. The kit reflects a successful project that brought together scientists and educators for a program designed on a national scale, yet can be adapted for local use/emphasis.

Key words: AIS outreach, free choice learning, AZA educators, Sea Grant, pathways

Visitors to zoos and aquariums are taking home more than photos and souvenirs. They now have tips to avoid introducing and spreading aquatic invasive species (AIS). The 20-minute *Aquatic Invaders* informal education program focuses on pathways by which invaders spread. It answers questions including: What harm can a little goldfish do? How should I get rid of leftover fishing bait? Why clean my boat hull between outings?

Funded by the U.S. National Oceanic and Atmospheric Administration’s National Sea Grant College Program’s Aquatic Invasive Species Outreach Competition, the *Aquatic Invaders* outreach project drew upon expertise in state-based Sea Grant programs and the Association of Zoos and Aquariums (AZA), formerly known as the American Association of Zoos and Aquariums. The 200-plus AZA institutions — which draw more than 140 million total visitors annually — vary in size and location, and in use of the tool kit materials.

Each site can tailor a “storyline” highlighting relevant species, pathways and waterways. Some educators use the extensive materials for special workshops or classes. AZA leaders cite the project as a partnership to bring critical and useful information to audiences who are eager to be environmentally aware in their actions. The project team included representatives from North Carolina Sea Grant, Georgia Sea Grant, the University of Georgia Marine Extension Service, North Carolina Aquariums and AZA. The team also worked with the Institute for Learning Innovation (ILI).

Often members of the public unintentionally introduce invasive species — including but not limited to red lionfish, zebra mussels and numerous aquatic plants — into local habitats. Now, AZA audiences can begin to identify invasive species and, more importantly, to avoid releasing potential invaders into new ecosystems. *Aquatic Invaders* shares a consistent message regarding specific pathways of species

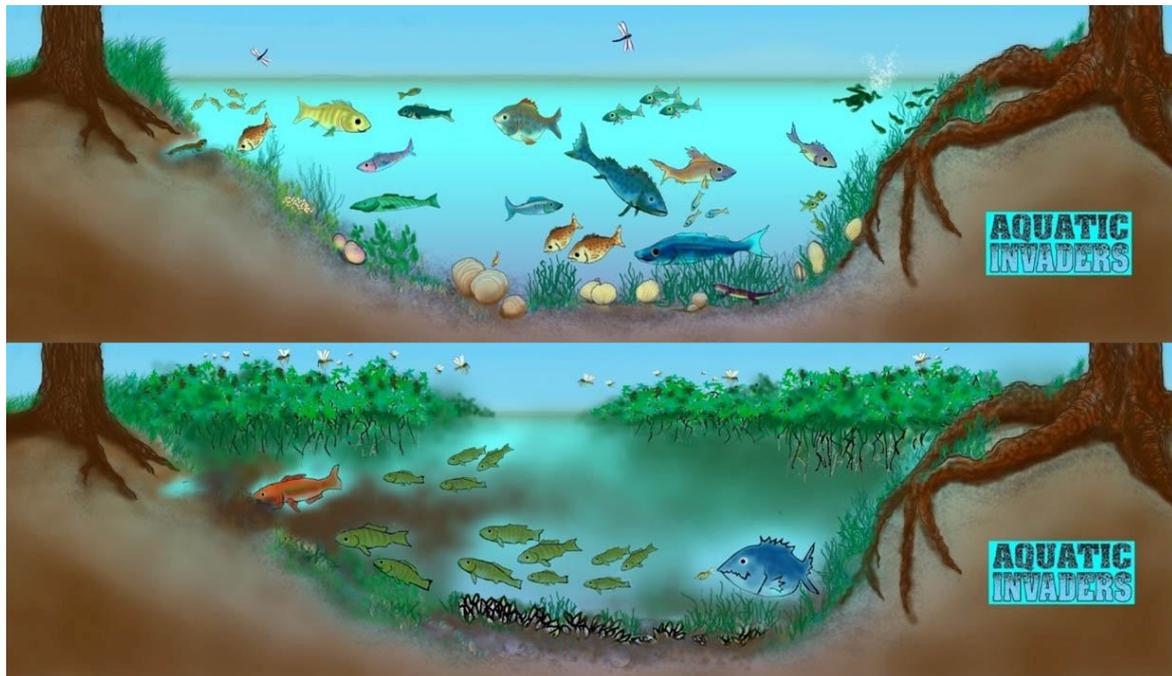


Figure 1. The two-layer banner shows a diverse aquatic ecosystem that changes once invaders arrive.

introduction, including home aquaria, water gardens, fishing and boating. Youngsters enjoy being part of the program. By the end of a program in North Carolina, the audience suggested unwanted goldfish should be given to a friend and unused live bait should be shared not dumped.

The project team worked with many partners to develop a program to complement, rather than duplicate, existing AIS outreach, such as *Nab the Aquatic Invaders*, *Habitattitude* and *Stop Aquatic Hitchhikers*. The toolkit was designed in particular for educators at “free choice learning” centers — including zoos, aquariums, museums and parks — that draw audiences seeking information on science, ecosystems, history and/or other topics.

The final *Aquatic Invaders* toolkit is the result of beta testing, which showed that the program design, materials and messages are appropriate for audiences at AZA institutions in varied locations. The North Carolina Aquariums, Florida Aquarium, South Carolina Aquarium, Roger Williams Park Zoo in Rhode Island, Shedd Aquarium in Illinois, and the Aquarium of the Pacific in California were among initial test sites. Using these early evaluations and an

outside evaluation by ILI, the project team adapted the materials, including more specific regional scripts to describe how to reduce the introduction/spread of relevant AIS.

The kits were provided to more than 200 AZA member sites, as well as one kit to each Sea Grant program. The kits include the centerpiece two-layer banner (Figure 1), along with a notebook with a sample script for the program that features audience participation, a species matrix and fact sheets, and other program materials including graphics files. Education directors across the country, such as those at Zoo Montana and the Mesker Park Zoo and Botanic Garden in Indiana, now use the program.

A survey of toolkit recipients/users reports that the kit provides for an engaging program that works with audiences of various sizes, age ranges, and knowledge levels. In 2008-09, the project team worked with ILI to develop an evaluation of the kit through a survey of AZA and Sea Grant educators who had received the kits. The team received 88 responses of the 260 requests. About half of the respondents were using the toolkit. Of the remaining respondents, many had reviewed the kit and anticipated using it. Current and future uses include summer

campus, public programs, special events, teacher training, etc. Overall, the kit was found to be versatile, with the large, two-layer banner a big hit. From just 34 respondents, the team documented a total audience of more than 10,000 in less than a year.

Educators who had not used the kit cited lack of space, or lack of an AIS focus in their particular program or institution. Educators and staff members who used the kits reported significant increases in their understanding of the AIS pathways and how to limit new introductions and to reduce the spread of AIS.

All elements of the kit received high marks, with more than half of those using the kit giving each piece a rating of 6 or 7 on a 7-point scale. The highest rating was given to the banner, for which 76 percent gave a rating of 6 or 7. More than 50 percent of those using the kits gave high marks on the appeal and ease of use. In addition to the success of the specific *Aquatic Invaders* presentations and materials, the team anticipates that the project will encourage new or expanded partnerships with scientists and “free choice learning” sites.

Based on the total experience of developing, distributing and evaluating the toolkit, the team also developed a list of suggestions for colleagues interested in similar collaborative projects to bring science to the public through AZA locations and other informal settings.

*DO bring together strong partners and their representative scientists and educators.

*DO evaluate before, during and after project development — and make adaptations based on evaluation results.

*DO try to meet the needs of project stakeholders: researchers, informal educators and program audiences.

*DO establish as many individual contacts as possible for toolkit delivery, implementation, and evaluation.

*DO allow time for ongoing evaluation of the product/project over several years, as the actual implementation timeline will vary across a wide range of recipients.

The *Aquatic Invaders* project was introduced to the International Conference on Aquatic Invasive Species (ICAIS) via a poster in 2007. In 2009, a presentation to the ICAIS meeting in Montreal shared responses for the project evaluation. That presentation is available online at http://icaais.org/pdf/2009abstracts/Katie_Patterson.pdf. Electronic files for the toolkit have been posted on the *Nab the Aquatic Invaders* Site. (<http://www.sgnis.org/kids/AItoolkit/AItoolkit.htm>).

The *Aquatic Invaders* kit earned honors from the Coastal America program, the AZA 2009 national meeting, and the N.C. Association of Government Information Officers. It was a cover story for North Carolina Sea Grant’s Coastwatch magazine’s High Season issue in 2008.