

The following is designed to serve as an example of a story line for the Aquatic Invaders program as it is conducted in the Southwest. Please take some time to become familiar with species of concern in your region by browsing through the Aquatic Invaders CD-ROM. For example, facilities in inland areas may change the story to talk about releasing invasive crayfish in streams through bait buckets or introducing Quagga mussels by bringing a boat into a lake without cleaning it. Feel free to adapt the story to reflect invasive species and pathways of introduction and spread for your area. Inland facilities may treat the 'bay' as a pond or lake.

EDUCATOR: How many people here today are from the Southwest? Where? For those who don't live along the coast, where do you live? Which state do you live in or visit because you enjoy the beaches, mountains, deserts, lakes, streams, rivers or other outdoor areas? If you like being outdoors in the Southwest, you may be interested to know that these places are changing.

I want to tell you a story, and I'll need the help of some volunteers to help you understand how our outdoor places are changing and what that means to us.

Select 6 volunteers from the audience.

EDUCATOR: Each of our volunteers represents a native southwestern species. Who can name some native plants and animals?

Place a blue N around the neck of each volunteer. Introduce them as you place the letters.

EDUCATOR: Each empty chair represents a niche, or home, for our native species. There are six niches and six species. Is everyone familiar with musical chairs? When I begin the music, our volunteers will begin the game. There is no need to rush, since we know there is a niche for everyone.

Make sure to emphasize NO RUNNING or PUSHING. Start track two on Biodiversity & Billy B., the Biodiversity song. Stop the music when you are ready for volunteers to sit.

EDUCATOR: While our native species get comfortable in their niches, let me tell you about the habitat where they live. It is a few blocks from my house. It is bay that has been changed by humans but is still very beautiful. There are several marinas and always lots of people out biking, jogging and skating on the boardwalk. There are also a few protected wetland areas, tidal flats and salt marshes. People love to look for interesting birds in and around the bay. (*Point to the banner and talk about shorebirds and what they eat, such as white sea bass, California halibut, surf perch, sand bass and young rockfishes.*) In fact, I like marine environments so much that I have an aquarium at home that reminds me of our last vacation in Hawaii. How many of you have a home aquarium?

If you own an aquarium, you know how much work it can be to keep it clean and feed the fish. I decided last time I went on vacation that it was too much trouble to ask someone else to care for my aquarium. I thought it would be a great idea to release my fish and all the plants into the bay near my house. That way I could still visit my fish!

Hold up your 'aquarium' and remove a fish and some Caulerpa. (Note: Caulerpa is a marine species so the fish species you chose need to be marine, too. You can pick a tropical fish such as lionfish, which is invasive in Florida but not here in California, but please do not use goldfish as an example since it is freshwater.) Ask for two more volunteers from the audience. Introduce the volunteers when they arrive and hang a red 'I' around each of them. Explain that one person represents the introduced fish and one represents the introduced plant. 'I' stands for introduced. Have the six 'N's stand with the two new 'I's and explain there will be another round of musical chairs. There is still the same amount of habitat available, but new species have been introduced. NO PUSHING or RUNNING! Start the music and complete another round.

IF BOTH OF THE VOLUNTEERS WITHOUT A CHAIR ARE AN 'N,' SKIP TO '✳'.

IF ONE OF THE VOLUNTEERS WITHOUT A CHAIR IS AN 'I' AND IS THE CAULERPA:

EDUCATOR: It looks like the introduced aquarium seaweed didn't find a home. In reality this species spreads very quickly – faster than native plants such as eelgrass and surfgrass. (Explain briefly that California has already had two *Caulerpa* infestations, likely caused by people dumping home aquariums into nearby waterways. It cost several million dollars to clean up and could have been a disaster if the infestations had spread to the open coast. You should also mention that it is now illegal to possess *Caulerpa taxifolia* and several other similar invasive seaweeds.)

EDUCATOR: *Caulerpa* has such an advantage over native species that we need to give it an advantage in this game, too. The 'I's now represents an invasive species, because it is able to take over native habitat after being introduced. In fact, because *Caulerpa* is such a powerful invader, the 'I' gets to go to any 'N' in a chair and take its seat.

IF BOTH OF THE VOLUNTEERS WITHOUT A CHAIR ARE NOW AN 'N,' SKIP TO '✳'

IF ONE OF THE VOLUNTEERS WITHOUT A CHAIR IS AN 'I' AND IS THE LIONFISH:

EDUCATOR: Lionfish have an amazing ability to adapt to new conditions. Even though our bay is cold, much colder than what a normal tropical fish might enjoy, our introduced species is a threat. It could take hold and spread. We need to show it is a threat in this game, too. It gets to go to any 'N' in a chair and take its seat.

✳ The 'I' now represents an invasive species, because it is able to take over native habitat after being introduced. The displaced 'N's can help us see how our bay is changing by each removing a piece of habitat and standing to the side.

Each displaced 'N' removes a section of the banner's top layer, thus exposing a section of the bottom layer to show the habitat has been changed.

(You may want to briefly mention that a popular home aquarium fish called the sailfin molly, a freshwater species, has become invasive in some freshwater and brackish waters in California, including some salt marshes. Killifish are another group of freshwater species that I have been told have high tolerances to cold and can live in estuaries, but again these would be in a freshwater tank. Note also, ballast water has introduced Japanese yellowfin goby in San Francisco Bay and elsewhere. The yellowfin goby is also sold live as bait for recreational striped bass fishing and has become invasive in places.)

Now, I've so enjoyed the free time I have without the burden of caring for my aquarium, I've decided to work on making my backyard more beautiful. So many exotic plants thrive in our mild

Mediterranean climate. I think I am going to plant some beautiful ornamental flowers. Have you heard of purple loosestrife? It is a beautiful purple flowering plant. We have native plants I could plant, but I think the exotics are prettier. What do you think?

Select two more volunteers from the audience. Introduce the volunteers when they arrive and hang a red 'I' around each of them. Explain that they represent two exotic ornamental landscaping plants. Have the four 'N's and two 'I's stand with the two new 'I's and explain there will be another round of musical chairs. There is still the same amount of habitat available, but new species have been introduced. NO PUSHING or RUNNING! Start the music and complete another round.

EDUCATOR: If there are any 'I's left standing, guess what they get to do? Why? (These new introduced species are invasive.) How can a plant in your backyard be invasive? Even if your house is miles from water, seeds can be dispersed really far by birds and winds. (Mention briefly that purple loosestrife, in particular, has thrived in the arid Southwest and has taken over a million acres of wetlands.)

The displaced 'N's can help us see how our bay is changing by each removing a piece of habitat and standing to the side.

You know what I also really like doing? Boating. I think it is time to go on a long trip now that I have a pretty yard and no fish to take care of. I wish the bottom of my boat were clean. Have you ever seen the bottom of a boat that is kept in a marina? (*Explain what fouling organisms are and that boat hulls are a vector for spreading invasive species like tubeworms, barnacles and the seaweed Undaria.*)

Select two more volunteers from the audience. Introduce the volunteers when they arrive and hang a red 'I' around each of them. Explain that one person represents the invasive tubeworm that will be spread wherever the boat goes. The other represents the invasive Undaria seaweed that the boat will become infested with and bring back to its homeport, introducing it to the area for the first time. Have the two 'N's and four 'I's stand with the two new 'I's and explain there will be another round of musical chairs. There is still the same amount of habitat available, but new species have been introduced. NO PUSHING or RUNNING! Start the music and complete another round.

EDUCATOR: If there are any 'I's left standing guess what they get to do? Why? The displaced 'N's can help us see how our bay is changing by each removing a piece of habitat and standing to the side.

I went out to my bay today and noticed it had completely changed. Mention that most of the invasive species discussed were plants not animals. But, when you change plants in a habitat all the animals become affected, too.

Why did it change? *Audience responses: YOU introduced new species!*

- *NEVER introduce plants or animals into the wild.*

What could I have done instead of putting my pets and plants into the pond?

Audience responses: They may or may not recognize solutions here and can be prompted to:

- *Check with local pet stores to take unwanted pets.*
- *Put water plants in a plastic bag and freeze, then discard them.*
- *Dispose of unused bait in the garbage.*

- *When possible use native plants and bait so you don't have this problem!*
- *Clean your boat and drain your bilge before moving your boat to a different body of water.*

EDUCATOR: Let's give our volunteers a round of applause and let them take a seat. (*Give volunteers bookmarks and/or stickers as they leave to reward them!*) The introduction of new species to native habitats is a threat to ecosystems worldwide.

No matter where you are from there are things you can do to be part of solving this problem. Please take one of these bookmarks with resources to inform you about introduced species that become invaders in your area. These 'invasive' species not only change the way your backyard wilderness looks, BUT ALSO they can impact your local economy and change your way of life.

Please take a moment to complete the evaluation cards and drop them by the door as you exit.

Thanks for coming – and help spread the word!

THE END