

# “Brazilian Waterweed, the plant that ate the Delta” and other NIS

*“The solution of any problem -- work, love, money, whatever-- is to go fishing, and the worse the problem is, the longer the trip should be.”*

John Gierach

Every month there is a problem in deciding about what issue in conservation is most pressing and one that will be interesting and affects our clubs fishing experience. This month it was easy. The third week in February, I was watching a local newscast and saw a story about biology research students from the University of Nevada (UN) working with our Department of Fish and Wildlife (DFW) collecting non-native invasive species (NIS) at Lake Tahoe. They had located a group of 15 goldfish in a shallow area near shore. The fish were probably getting ready to spawn.

Lake Tahoe's excellent water clarity. The goldfish's excrement is rich in nutrients that cause algae blooms and will make the lake far less clear.

In June of 2011, three days of shocking yielded hundreds of bass, bluegill and crappie with the average bass weight from 1 1/2 to 3 pounds, some going to 6 pounds. Bass were found in Lake Tahoe in the 1960's and now they are well established. They live in the keys and in weed and marshy area close to shore. When these and other NIS have been collected, their stomach contents are sent to UN and examined to see how the fish are affecting the ecosystem. DFW feels the NIS cannot be eradicated from Tahoe but contained. It is felt that the source of the NIS warm water species in Tahoe is due to aquarium dumping.



*A four pound Lake Tahoe goldfish. Photo courtesy U.N.R.*

is over 90% of the biomass.

The Delta today is not the Delta that existed when the only inhabitants of the state were Native Americans. The NIS were brought here both intentionally and unintentionally. Ships were probably one of the first sources of NIS. A good example of this is in Suisan Bay. In the mid 1980's college students collected three clams never before seen in either the San Francisco Bay or the Delta. Returning the next year, the clam (the Asian or "overbite" clam) was found to be the most common bottom dwelling species in the area. They are less than 50 mm in size; about the size of your



*The Asian or “overbite” clam, a Delta invasive species. Photo courtesy of U.C. Davis.*

The surprising thing about the fish was that they are not the normal size goldfish that we think about but much larger fish. The largest specimens were 18" in length and weighted over 4 pounds. DFW and UN have been working on non-native fish in Lake Tahoe for several years and have collected both large and smallmouth bass, brown bullfish, bluegill, and crappie. These warm water fish are also non-natives that are having a negative effect on Tahoe's ecosystem. The researchers are also concerned about the goldfish's effect on

After doing some research on the Tahoe fishery, I became interested

in what is happening to the Delta and its NIS problems. Unfortunately, we have more than our share of problems to deal with. Along with loss of habitat, the NIS are leading causes of the loss of the Delta's biodiversity. The Delta has over 750 species of plants and animals. However, over 250 species of the flora and fauna are NIS. In some areas, the non-native species of both plants and animals



*Water hyacinth (Eichhornia crassipes) and other aquatic weeds have significant impact on wildlife, recreation, and water conveyance, especially in the Sacramento River Delta (Photo: Bob Case, [Sacramento River Watershed Program](#))*

(Continued on page 2)

(Continued from page 1)

thumbnail. The population has grown to the point where 50,000 of them live in an area one meter square. After their introduction, they have changed



***Egeria Densa in Old River. Originally from Brazil and sold as a decorative plant for aquariums. Someone emptied their aquarium into the delta and this is the result. Photo courtesy of Delta Fly Fishers.***

San Francisco Bay and parts of the Delta from a pelagic (mid-water) to a benthic (bottom) environment. Since the clam filters water efficiently, high levels of selenium have been found in its tissue and have become a major problem in the ecosystems food chain. One of the major problems it causes is bio-fouling power plants and irrigation systems. The site where the Asian clams were first located has at least 23 other NIS that have been identified.

Another major NIS problem in the Delta has been the invasion of two plants we have to deal with. Both the Water Hyacinth and Brazilian Water-



***Arundo, a good source of bio-fuel or the next invasive catastrophe? USDA photo.***

weed (*Egeria Densa*) are invasive weeds that choke the Delta. Anyone who has fished, swam, or boated in the Delta is well aware of the problems they cause. Those of us in Delta Fly Fishers, who were on the clubs first trip to Discovery Bay, last year, have had a personal experience with Brazilian Waterweed. The waterweed has been in the Delta for about 40 years. It is an aquarium plant and was probably introduced by someone dumping his or her aquarium into the Delta. It has turned out to be a major problem especially in Discovery Bay. It can be treated with fluridone from April to October. It is safe for pets

and other animals but fish in the treated area leave

until the chemical dissipates, as those of us who fished that day now understand. Water Hyacinth can be treated with 2,4-D or glyphosate. With constant control measures, both the Hyacinth and the Brazilian Waterweed may be contained. Once these plants have become established, they have never been eradicated. They will always be part of the Delta.

The water Hyacinth came into California, probably as an ornamental plant, in the early 1900's. It has proven to be totally noxious. Many feel it is the most rapidly growing plant in the world. It does not reproduce like most plants but rather metastasizes. When conditions are right for the hyacinth, it can double its size in 10 days forming a mat from 4 to 6 feet deep. It is a major

problem for Delta fishers in that it can rapidly deplete the oxygen available. In a recent TV news story, California is trying a new approach for control of the plant by releasing insects that eat hyacinth leaves in three areas of the Delta. Hopefully they are not introducing another NIS.

The intentional introduction of NIS into America has some disastrous effects. The kudzu plant was introduced to the United States in 1876 at the [Centennial Exposition in Philadelphia](#). The South suffered from serious erosion problems and much of the land was being lost to farming. The USDA subsidized farmers to plant the kudzu. The plant thrived in the warm, humid South and not only pre-



***Kudzu, the plant that ate the South. USDA Photo***

vented erosion but has taken over. It can grow over foot a night and is referred to as, "the plant that ate the South."

More recently, the Environmental Protection Agency is in the final stages of giving incentives to companies that want to import a plant called Arundo, a giant reed grass that can grow to 30 feet tall and grows in clumps. It is to be used for bio-fuel production. Arundo is on the World's 100 Worst Invasive Species list. Those who want the plant call it the "finest bio-energy crop available". The National Wildlife Federation and representatives of local, state, and national groups including universities have urged several federal agencies "to avoid this potentially invasive feedstock". Arundo in Alabama is doing

(Continued on page 3)

*(Continued from page 2)*

"irreparable damage to the states natural ecosystems". The federal government's decision will be made soon.

The Delta and San Francisco Bay

are not the ecosystems we knew 30 or 40 years ago. They will never return to the a native ecosystem. With the continued introduction of non-native species, both systems will remain in a constant state of flux. Last year, non-native invasive species cost

the United States \$120 billion.

Ron Forbes  
Conservation Chair