

# Collecting Exotic Asian Freshwater Shrimp in Oregon

~~~~~  
by

Dan Logan and Pat McDonald

On 9 September 1995, many Pacific Northwest NANFA members went to Sauvie Island on a collecting trip (see the Winter 1996 *American Currents* for more details on this trip), during which we had one special find: freshwater shrimps in Big McNary Lake. None of the participants had ever seen freshwater shrimp in this region before—a life first for us all! I (Oregon NANFA member Dan Logan) wanted to keep some shrimp for my home aquarium, but I did not have appropriate collecting permits. So I released the specimens back to the lake. After returning to Oregon State University, I asked around for more information, but found no records of freshwater shrimps in Oregon. Also, I found out that there is *no* permit requirement for collecting invertebrates in Oregon except tide pool animals. Can you guess where I am going with this? Yep, back to Sauvie Island. On 24 November, Pat McDonald (NANFA Oregon) and I returned to collect more freshwater shrimp. My nephew Michael Tanner joined us.

Sauvie Island is at the confluence of the Columbia River and the Willamette River, about 10 miles northwest of Portland, Oregon. Big McNary Lake is one of several shallow lakes within the Sauvie Island Wildlife Area (SIWA). The lake is 1.29 km long, 0.37 km wide, and shallow. Nearly all of the lake is less than two meters deep.

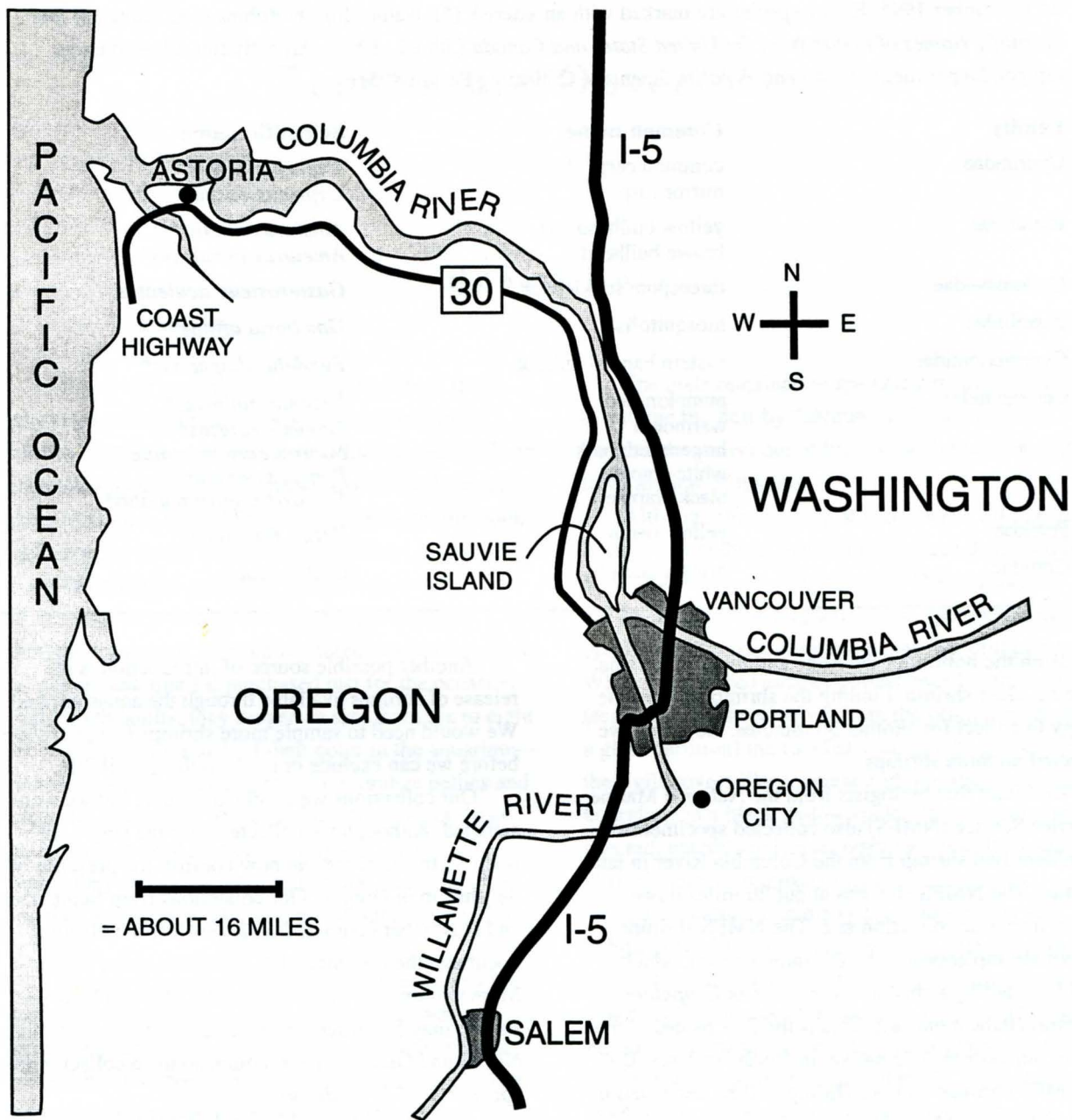
There are two constraints to collecting at this time of year at SIWA: waterfowl hunting and weather. Oregon Department of Fish and Wildlife (ODFW) manages SIWA as a waterfowl hunting area and we

undertook this trip in the middle of hunting season. ODFW restricts access to the area and entry is based upon a lottery permit system. We arrived at the SIWA east side check-in station at 9:30 a.m. and were given special entry permits for the area surrounding Big McNary Lake.

The SIWA manager asked us not to sample within several hundred yards of a hunter's blind or spread of decoys. If hunters were set up on Big McNary Lake, we could not collect at the same location where we collected shrimps in September. Also, the manager asked us not to have too many people in our group and encouraged us to wear camouflaged clothing. About the weather: Rain and more rain! Flooding and more flooding! Oh well, we took our chances and headed out for Big McNary with our camo waders and rain coats, and a beach seine. Also, part of the SIWA road system was closed to vehicles. During the 9 September trip we could drive to the site; on this trip we had to walk the last mile to Big McNary Lake.

Luckily, no hunters had set up on the lake and we could go to the same location where we collected shrimps in September. We used a 6.1 m x 1.8 m beach seine with 5 mm mesh to sample for the shrimp. After the first pull of the seine, we were a little concerned. First, there were no shrimp, and second, there were few fish. Last summer we caught hundreds of fish in only two pulls of the seine at this location. This time we had collected only two or three white crappies, a few pieces of cow dung and some mud. But things got better in a

Detail of Oregon Map showing location  
of Sauvie Island and surroundings.



hurry. On the next pull we caught lots of fish. After two hours of seining, we had collected specimens from 13 species of fish from eight families (Table 1). Just as with the 9 September trip, most of the fish we collected were exotic to Oregon. We collected hundreds of specimens of the exotic species along with a single native prickly sculpin and a handful of native threespine sticklebacks. Still, we did not find one shrimp. Perhaps

I had released the only shrimps in the lake on the 9 September trip.

It was noon and we were going to give up. We were tired of pulling the seine and emptying the seine, pulling the seine and emptying the seine, without seeing a shrimp. On what was to be our final pull of the seine we found what we were looking for. Pat brushed aside a small pile of leaves, seeds, twigs and



**Table 1.** Families and names of all fish species collected in Big McNary Lake, Columbia County, Oregon on 24 November 1995. Exotic species are marked with an asterisk (\*). Names follow Robins et al, *Common and Scientific Names of Fishes from the United States and Canada* (5th ed., 1991). All activities allowed under Oregon Department of Fish and Wildlife Scientific Collecting Permit #9516.

| Family          | Common name              | Scientific name                 |
|-----------------|--------------------------|---------------------------------|
| Cyprinidae      | common carp              | <i>Cyprinus carpio</i> *        |
|                 | mirror carp              | <i>Cyprinus carpio</i> *        |
| Ictaluridae     | yellow bullhead          | <i>Ameiurus natalis</i> *       |
|                 | brown bullhead           | <i>Ameiurus nebulosus</i> *     |
| Gasterosteidae  | threespine stickleback   | <i>Gasterosteus aculeatus</i>   |
| Poeciliidae     | mosquitofish             | <i>Gambusia affinis</i> *       |
| Cyprinodontidae | eastern banded killifish | <i>Fundulus diaphanus</i> *     |
| Centrarchidae   | pumpkinseed              | <i>Lepomis gibbosus</i> *       |
|                 | warmouth                 | <i>Lepomis gulosus</i> *        |
|                 | largemouth bass          | <i>Micropterus salmoides</i> *  |
|                 | white crappie            | <i>Pomoxis annularis</i> *      |
|                 | black crappie            | <i>Pomoxis nigromaculatus</i> * |
| Percidae        | yellow perch             | <i>Perca flavescens</i> *       |
| Cottidae        | prickly sculpin          | <i>Cottus asper</i>             |

bark from the bottom of the seine and there was a small (52 mm) clear shrimp. Finding the shrimp gave us the energy to collect for another 30 minutes. However, we collected no more shrimps.

We found that biologists from the National Marine Fisheries Service (NMFS) also collected specimens of an unidentified shrimp from the Columbia River in late summer. The NMFS site was about 20 miles downstream from our collection site. The NMFS shrimps and our shrimp appear to be the same species, which was identified by a shrimp taxonomist as *Exopalaemon modestus* (Palaemonidae). This is the first record of the species, an eastern Asia native, in North America. Both the NMFS shrimps and our shrimp will be deposited in the Smithsonian Museum.

How did the shrimp make its way from Asia to Oregon? Our best guess is ballast water. The Port of Portland ships a lot of grain to freshwater Asian ports. Sometimes the ships return to Portland without cargo and therefore fill ballast tanks with freshwater (and organisms) in Asia. When the ships fill with grain in Portland, they dump the water (and any organism contained therein) into the Willamette River.

Another possible source of introduction is the release of shrimps available through the aquarium trade. We would need to sample more shrimps from pet shops before we can exclude or confirm this possibility.

Our collections were not exhaustive, but we were satisfied. Although we collected only the single specimen on this trip, we can now confirm the presence of the shrimp in Oregon. Our collections from September and November combined with the NMFS collection document the presence of *E. modestus* in the region. More shrimp may be present in Big McNary Lake and shrimp may be present in other lakes on Sauvie Island. NMFS and ODFW have encouraged us to collect more specimens of *E. modestus*.

**Ed. note** Norman D. Edelen, Jr. (OR) has bred the shrimp, and will report on his success in a future issue.

**Erratum** Due to an editing error, a reference to the above article in "A Summer Full of Collecting in Oregon" (Winter 1996 *American Currents*, p. 7) directed the reader to the Fall 1995 *American Currents* by mistake. The reference should have been to this, the Spring 1997 issue.