Collecting in Ponds in Clackamas County, Oregon

by Daniel J. Logan, Oregon State University, Corvallis, Oregon

Many of my teenage summer afternoons were spent fishing in my favorite farm ponds south of Portland, Oregon. The ponds were secluded havens for wildlife. When the fish weren't biting, there were excellent opportunities for watching and photographing wildlife and plants, and for peaceful contemplation.

The ponds are a diked secondary channel of the Clackamas River and subdivided into three ponds by beaver activities and a road. The land surrounding the ponds is used for agriculture and the ponds are used for irrigation. The ponds, together, are approximately 1275m (4144') in length, 32-48m (100-150') wide and generally shallow, with an average depth of less than 1m (3'). A trench is present in the largest pond where the maximum depth is approximately 2.5m (8'). The substrate is primarily cobble and rubble, and there are many submerged trees. The pond margins are characterized by fine sediments, organic ooze, submergent and emergent vegetation, and a moderate riparian tree assemblage of Black Cottonwood, Red Alder, and Oregon Ash.

While fishing in these ponds in my youth, the typical catch was Largemouth Bass (*Micropterus salmoides*), Bluegill (*Lepomis macrochirus*), Common Carp (*Cyprinus carpio*), and Brown Bullhead (*Ameiurus nebulosus*). These species, not native to Oregon, are commonly stocked in farm ponds across the U.S.. Rarely, a Rainbow Trout (*Oncorhynchus mykiss*) or Mountain Whitefish (*Prosopium williamsoni*) would show up in the catch. During normal high-water events, the ponds are connected to the Clackamas River by a culvert. The Rainbow Trout and Mountain Whitefish probably reached the ponds through the culvert.

I have always been fascinated with streams and lakes. I had many aquaria full of fish and thought that it would be nice to diversify and set up a community tank of invertebrates. In 1986, after a fishing trip to these ponds, I went to the pond's margin to collect invertebrates. I lifted up pieces of cobble and, using a small aquarium dipnet, I scooped around in the muck for small crustaceans, insects, and worms. The specimens were numerous and varied, and I looked forward to setting up my invertebrate tank. In one scoop of the net I noticed two small animals squirming in the ooze. The animals were less than 50mm (2") long and were quite thin. I plucked them out of the ooze and dropped them in a glass jar with clear water to get a better look. I was amazed to see that these small animals were fish! The fish were small, thin, and possessed ten barbels around the mouth.

Superficially the fish resembled young bullhead catfish, but they weren't black. They were very thin. I recognized the fish as Oriental Weatherfish (*Misgurnus anguillicaudatus*). Weatherfish are medium-sized anguilliform cobitids or loaches, native to Asia (Berg 1949), not North America. They are light brown and have profuse dark brown speckling (Figure 1). They are commonly imported for the pet trade. Hurriedly, I turned over rocks looking for more specimens, and within minutes I had collected three more. I took the specimens to the local office of the Oregon Department of Fish and Wildlife. The biologist didn't recognize the fish. He took the specimens to forward them to Oregon State University (OSU) to have the identification confirmed and the specimens cataloged.

In 1992, while enrolled at OSU, I was lucky enough to have a job working in the OSU Fish Collection Museum. During a free moment, I went to find the bottle of weatherfish I had collected in 1986. It wasn't there. I checked the Museum data base; the specimens weren't out on loan. I called the biologist I gave the specimens to and he said that the bottle had been misplaced and not sent to the University. I told the story to the University Collection Curator and he suggested I return to the ponds and search for the weatherfish. I gathered up some equipment, my collection permit, and several friends, and headed north to hunt for weatherfish.

Since the collecting trip would be a good opportunity to see what other fish species were in the ponds, several devices were used to increase the likelihood of collecting a variety of species. My friends and I divided up into collection teams. One team used hook-and-line, one team used a beach seine, and one team used dipnets. Of these devices, the only one that had much chance of collecting weatherfish was the dipnet. Weatherfish live in the spaces in the rocky sediment--making them very difficult to seine--and have small mouths--making them nearly impossible to catch with hook-and-line. Everyone switched groups every hour or so in order to try all the collection gear. Our plan was to identify the fish to species and return them to the ponds right away. The exception was weatherfish; we intended to retain all collected.

After about two hours, we took a break to rest and discuss the types of fish the groups had captured. Every method collected a variety of species. Using hook-and-line and various live baits, we collected several Largemouth Bass, a single Common Carp, a few Brown Bullheads, more Bluegills than you could shake a worm at, and a single Mountain Whitefish. Mountain Whitefish are salmonids, though they don't look like the typical trout or salmon. Their scales are larger than most salmonids' and their mouths are small and downturned. Regardless, they have all the right parts to be a salmonid. Mountain Whitefish are native to the northwestern portion of the United States as well as British Columbia and

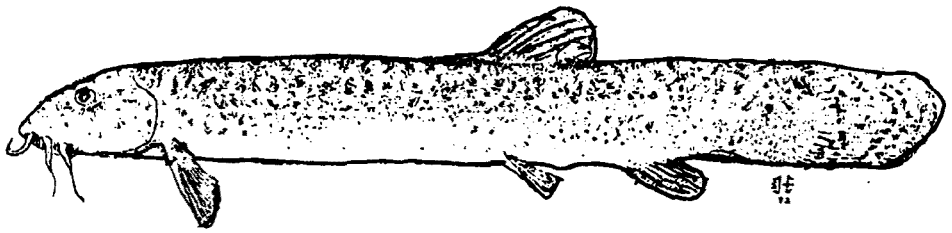
Alberta, and they are common in the Clackamas River drainage. The whitefish we collected was 302mm (12")long, standard length.

Beach-seining the edges of the largest pond collected hundreds of young Bluegills and Largemouth Bass, two adult Common Carp and a single Western Pond Turtle (*Clemmys marmorata*). Dipnetting the edges of the smaller ponds collected young Bluegill, Largemouth Bass and Brown Bullheads. I was happy to see that no weatherfish had been collected by these techniques. Since exotic species can be detrimental to an aquatic system, I had hoped that the weatherfish had not persisted and had died out naturally.

Seeing none, I brought out an electrofisher. We used the it in the complex habitats near the edges of the ponds. We collected more species with the electrofisher than with any the other gear (Table 1). We collected fish as soon as we began electrofishing. Unfortunately, the first fish we collected was a weatherfish. They were very abundant in the ponds; 112 specimens were collected. Many additional specimens were observed but not collected. Many size classes were present; standard lengths ranged from 12.5 to 165mm (½"-6½"). The weatherfish were generally found in shallow water, usually less than 200mm (8") deep with either thick muddy sediments and dense vegetation or with cobble substrates. The cobble substrate provided abundant escape cover.

The weatherfish, especially juveniles, were very abundant but difficult to capture, because of the complex habitat, turbid water, and the fish's escape abilities. The very small size of the juveniles facilitated escape through the mesh of the collection nets. Also, the contents of a bucket containing several hours worth of collections of weatherfish were accidentally spilled back into the pond when one of the collectors slipped and fell in. Along the margins of the ponds, we collected many Oriental Weatherfish, Largemouth Bass, Bluegills, and Brown Bullheads with the electrofisher.

A beaver dam separates ponds 1 and 2. Below the beaver dam and between the ponds was an unusual habitat--a small trickle of a stream flowing out beneath the center of the dam. The stream was small, less than 150mm (6") deep and about 1m (3') wide, and flowed about 25m (75') until it poured out into the second pond. We used the electrofisher in this stream and collected a number of fish not collected in the ponds. Also, only native species were collected in this stream habitat. One Rainbow Trout, one Coho Salmon (*Oncorhynchus kisutch*), two Speckled Dace (*Rhinichthys osculus*), and four Prickly Sculpins (*Cottus asper*), were collected in this small stream.



Oriental Weatherfish
Sketch by Sue Ellen Hunter

Rainbow Trout are native to the western United States and Canada, but they have been stocked around the world. Rainbow Trout are relatively common in the Clackamas River and other local streams. They are typical trout or salmon, yet easy to differentiate from others by the shape of the anal fin and the length of the upper jaw. We collected a small juvenile 85mm (3¼") standard length. It was silver with an olive back, and profusely spotted.

Coho are native to the north Pacific Rim, from Japan to California. Adults are seasonally present in the Clackamas River drainage. Cohos are large fish, generally up to 610mm (24"), though they can reach over 900mm (36"). The specimen we collected was a juvenile, 110mm (4¼") standard length. It was silver with a bluish back and fine spotting. Parr marks were obvious. The anal and dorsal fins were light orange with white edges. Coho are easy to differentiate from the other western salmonids by the shape of anal and dorsal fins. The salmonids are very attractive, it is easy to see why they are such a popular group.

Speckled dace are common and widespread minnows in western North America, including most western Oregon streams. They superficially resemble other dace. The specimens we collected were small, about 65mm (2½") standard length.

Prickly Sculpins are typical sculpins. They are restricted to the eastern Pacific rim from Alaska south to California. Two of the specimens from this collection were about 150mm (6") standard length, fairly large for this species, and two were about 35mm (1¼") standard length.

We collected two native cyprinids near the margin of the pond downstream of the beaver dam where the small stream enters

the second pond: Northern Squawfish (*Ptychocheilus oregonensis*), and Redside Shiners (*Richardsonius balteatus*). Northern Squawfish are predatory minnows that can reach standard lengths of over 360mm (24") and weights over 13 kg (25 lbs.)! That's some minnow. The specimens we collected were much smaller--about 150mm (6") long, standard length. Squawfish are western minnows; this species is restricted to the Pacific Northwest and is common in the Clackamas River.

Redside Shiners are small, typical-looking minnows native to the Pacific Northwest. They are common in the Clackamas River. The Redside shiners we collected were gorgeous and true to their name--they had an attractive red-orange wash to their sides.

By the end of the day, we collected 12 species of fish representing five families and 11 genera (Table 2). Although the Clackamas site had typical native species, the exotic species at the site far outnumbered them (Table 3). In fact, native species were uncommon--one Mountain Whitefish, one Rainbow Trout, one Coho Salmon, two Northern Squawfish, two Speckled Dace, four Prickly Sculpins and 12 Redside Shiners. By contrast we collected more than a hundred exotic Bluegills, Largemouth Bass, and Oriental Weatherfish. Fifty-two Brown Bullheads and three adult Common Carp were collected. Many more adult Common Carp were observed in the ponds but they eluded capture.

Our collections indicate that Oriental Weatherfish are established in these ponds. They have persisted in these ponds since at least 1986, and multiple age classes, including juveniles, are present. Oriental Weatherfish have been listed as members of the fauna of Oregon (Logan et al., in press) and are included in the most recent edition of Keys to Oregon Freshwater Fishes (Bond in press). It is not known if this Clackamas population is localized or if the weatherfish have dispersed from this habitat. Perhaps this should be the impetus for another collecting trip.

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Literature Cited

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Robins, C.R., R.M. Bailey, C.E. Bond, J.R. Brooker, E.A. Lachner, R.N. Lea and W.B.Scott. 1991. Common and scientific names of fishes in the United States and Canada, fifth edition. Special Publication number 20. American Fisheries Society, Bethesda, Maryland. 183 pages.

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Table 1. Common names of fish collected in Clackamas County farm ponds by gear type. Effort and fishing locations were not similar among gear types. Names of all species follow Robins et al. (1991). All collections authorized by Oregon Department of Fish and Wildlife collection permit.

Species	Hook-and-line	Beach seine	dipnet	electrofisher
coho salmon				X
mountain whitefish	X			
rainbow trout				X
common carp	X	X		
northern squawfish				X
oriental weatherfish				X
redside shiner				X
speckled dace				X
bluegill	X	X	X	X
largemouth bass	X	X	X	X
brown bullhead	X		X	X
prickly sculpin				X

Table 2. Families and common and scientific names of fish collected in Clackamas County farm ponds. Names of all species follow Robins et al. (1991). Asterisk (*) denotes nonnative species and exclamation point (!) denotes continental exotic species. All collections authorized by Oregon Department of Fish and Wildlife collection permit.

Salmonidae		
	coho salmon	Oncorhynchus kisutch
	mountain whitefish	Prosopium williamsoni
	rainbow trout	Oncorhynchus mykiss
Cyprinidae		
	common carp*	Cyprinus carpio
	northern squawfish	Ptychocheilus oregonensis
	oriental weatherfish!	Misgurnus anguillicaudatus
	redside shiner	Richardsonius balteatus
	speckled dace	Rhinichthys osculus
Centrarchidae		
	bluegill*	Lepomis macrochirus
	largemouth bass*	Micropterus salmoides
Ictaluridae		
	brown bullhead*	Ameiurus nebulosus
Cottidae		
	prickly sculpin	Cottus asper

Table 3. Common names of fish collected in Clackamas County farm ponds collected by all gear types combined. Survey design did not allow for estimation of true or relative abundance. Names of all species follow Robins et al. (1991). All collections authorized by Oregon Department of Fish & Wildlife collection permit.

native species	0-5	5-25	25-100	>100
coho salmon	X			
mountain whitefish	X			
rainbow trout	X			
northern squawfish	X			
redside shiner		X		
speckled dace	X			
prickly sculpin	X			
nonnative species				
common carp	X			
oriental weatherfish				X
bluegill				X
largemouth bass				X
brown bullhead			X	

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