

# PROGRESS REPORTS

2005



**FISH DIVISION**  
**Oregon Department of Fish and Wildlife**

Sand Roller Investigations in the Willamette River Drainage

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ANNUAL PROGRESS REPORT  
FISH RESEARCH PROJECT  
OREGON

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## SUMMARY

The purpose of this investigation was to determine the status and distribution of sand roller *Percopsis transmontana* populations in the Willamette River basin. Sand rollers are rare and endemic to the lower Columbia River drainage, including the Willamette River and its tributaries. Historical records are scarce. In 1945, R.E. Dimick and F. Merryfield found sand rollers to be localized in the Willamette River from Albany to Springfield, Santiam River, Rickreall Creek, Mary's River, and the Coast Fork Willamette River. The Oregon State University museum collection has samples from the following Willamette River drainages: Coast and Middle Forks of the Willamette River, Mary's River, Luckiamute River, Molalla River, Mill Creek, Long Tom River, and Santiam River. Their preferred habitat is quiet backwaters and pool margins of small to large rivers, usually near vegetation and woody debris over sand. The Oregon Department of Fish and Wildlife surveyed historic and recently documented locations in 2005 to determine the current status and distribution of sandrollers in the Willamette River basin. Sand rollers were collected from at least one location in most of the major Willamette River subbasins sampled.

## INTRODUCTION

The sand roller, *Percopsis transmontana*, is one of two species of teleost fish belonging to the family Percopidae. The widespread trout-perch *P. omiscomaycus*, is found from the upper Mississippi drainage and the Great Lakes to the Yukon (Scott and Crossman 1973). The sand roller is endemic to the Columbia River drainage and has been collected from western Idaho (Pratt and Whitt 1952), southern Washington (Gray and Dauble 1979; Mongillo and Hallock 1995; Wydoski and Whitney 2003), and northern and western Oregon (Dimick and Merryfield 1945; Reimers 1963; Reimers and Bond 1967). In Oregon, the sand roller has been collected from the Columbia River, the Willamette River and several of its tributaries.

The sand roller is a small perch-like fish with spiny rays and speckles on the sides and fins. This is a small species, rarely reaching 10 cm (4 inches) long. Sand rollers have blue-green coloration, coarse (ctenoid) scales, and an incomplete lateral line. An unusual feature of this fish is that it has an adipose fin. Males tend to be smaller and more slender than the females (Katula 1992).

These fish are active nocturnally and are most often found in pool margins of low gradient reaches of small to large rivers (Gray and Dauble 1976; 1979). They are found around submerged roots, complex woody debris and brush, and undercut banks over sandy or rocky substrates (Reimers and Bond 1967; Gray and Dauble 1979). They are also found near vegetation over sand. During the day, they have been found in pools up to four meters deep in small depressions over sandy substrates (Gray and Dauble 1976). In deep rivers, observations indicate that sand rollers may exhibit diel periodicity, moving into deep waters as cover during the day and into shallow waters at night (Wydoski and Whitney 2003). Because of its secretive daytime behavior, it is not commonly encountered.

Sand roller spawning commences in the spring and continues through mid-summer (Gary and Dauble 1979; Katula 1992). Sand rollers have small (0.14-0.17 mm diameter) adhesive eggs (Carlander 1969) and are thought to spawn on gravel or other

rocky substrates (Katula 1992). Egg numbers range between approximately 1,100 and 3,400 for females 76 to 91 mm (3.0-3.6 inches) FL (Gray and Dauble 1979). Sand rollers in the Columbia River mature beginning at age 2; all were mature at age 3 (Gray and Dauble 1979). They feed principally on aquatic insect larvae (Diptera and Trichoptera) and crustacean zooplankton (Gray and Dauble 1979).

The purpose of this investigation was to determine the status and distribution of sand rollers in the Willamette River basin, to describe sand roller habitat preferences, to describe fish communities at locations where sand rollers were collected (and not collected), and to assess the effectiveness of various sampling gears/protocols.

## METHODS

The Oregon Department of Fish and Wildlife's Native Fish Investigations Project conducted surveys at 56 locations in the Willamette River drainage in 2005 (Figure 1). We sampled low gradient stream habitats using baited minnow traps (23 by 46 cm with 64 mm mesh), a 1 m x 5 m seine with 64 mm mesh, or a 0.6 m diameter hoop net (3 m long consisting of 7 hoops with 32 mm mesh screening). Due to the reported nocturnal habits of sand rollers, most sampling was conducted using minnow traps fished overnight (24 minnow traps fished for approximately 18 hours). Traps were set approximately 10 meters apart, at stream locations that included the variety of cover types present at each sampling site. We identified and counted all fish captured. We measured total lengths (TL) of the sand rollers we collected at each site. We compared the numbers of sand rollers collected from traps fished during the day (4 hour set) to those fished overnight (18 hour set) at four locations containing sand rollers. We also compared the numbers of sand rollers collected using a seine with numbers collected in traps fished overnight at four locations that contained sand rollers. We measured both total length and fork length (FL) on a sample of 49 sand rollers from the Mary's River. We ran a linear regression of fork length on total length to convert our measurements to fork lengths. With these conversions, we compared our length (TL) frequency data with length-at-age (FL) data from Gray and Dauble (1979).

We recorded physical and biological habitat parameters at each site including mean water depth, maximum water depths, water temperature (°C), total wetted surface area (m<sup>2</sup>), dominant and subdominant substrate types, types of physical cover present (large woody debris, root wads, off-channel pools, submerged aquatic vegetation, overhanging terrestrial vegetation, undercut banks, pools deeper than 1.5 meters, large boulders, and bedrock channels). We also recorded the types of cover where sand rollers were collected. We used a Global Positioning System (GPS) to record site locations (UTM coordinates) and photographed each site.

We used baited minnow traps to obtain mark-recapture population estimates of sand roller at two locations. We fished the traps overnight, marked all sand rollers captured with a partial caudal fin clip, and returned them to the water. Approximately one week later, we again fished the traps overnight and recorded the total number of marked and unmarked sand rollers captured. We estimated population abundance using single-sample mark-recapture procedures (Ricker 1975). We calculated 95% confidence intervals using a Poisson approximation (Ricker 1975). Population estimates were used to estimate trapping efficiency (numbers of fish captured divided by the estimated total sand roller abundance). No block nets were used, which likely violated

the assumption of no fish immigration or emigration between the marking and recapture events.

## RESULTS

Sand rollers were collected from 23 of 56 locations sampled (41%) including sites in the following subbasins: Yamhill River, Molalla River, Santiam River, Luckiamute River, Calapooia River, Muddy Creek (Linn County), Mary's River, McKenzie River, Coast Fork Willamette River, and Middle Fork Willamette River (Table 1; Figure 1; APPENDIX A).

Native fish species collected at locations containing sand rollers included (percent occurrence in parentheses): sculpins *Cottus* spp. (91%), redbreast shiners *Richardsonius balteatus* (83%), speckled dace *Rhinichthys osculus* (57%), northern pikeminnows *Ptychocheilus oregonensis* (48%), threespine sticklebacks *Gasterosteus aculeatus* (30%), largescale suckers *Catostomus macrocheilus* (22%), longnose dace *Rhinichthys cataractae* (17%), Oregon chub *Oregonichthys crameri* (17%), cutthroat trout *Oncorhynchus clarki* (9%), chiselmouth *Acrocheilus alutaceus* (4%), and rainbow trout *Oncorhynchus mykiss* (4%). Nonnative fish species collected at locations containing sand rollers included: bluegills *Lepomis macrochirus* (22%), black crappies *Pomoxis nigromaculatus* (9%), brown bullheads *Ameiurus nebulosus* (9%), pumpkinseeds *Lepomis gibbosus* (9%), largemouth bass *Micropterus salmoides* (4%), and western mosquitofish *Gambusia affinis* (4%). Crayfish were also common (67% occurrence) at locations where sand rollers were present.

Nonnative fish were present at five of the 23 locations where sand rollers were collected (22%) compared to 19 of the 33 locations where sand rollers were not collected (58%). At sand roller locations where only native fish were collected, we captured significantly larger numbers of sand rollers ( $\mu = 9.8$ ;  $SD = 3.4$ ) than at sites where nonnative fish were also present ( $\mu = 0.8$ ;  $SD = 0.4$ ) (two-tailed test,  $p < 0.01$ ). To minimize bias related to different gear efficiencies, only those sites where minnow traps were fished overnight were included in this comparison.

When we compared the number of sand rollers captured using minnow traps fished during the day and overnight, larger numbers of sand rollers were captured overnight ( $\mu = 8.0$ ;  $SD = 6.1$ ) than during the day ( $\mu = 1.8$ ;  $SD = 2.9$ ) (two-tailed test,  $p < 0.1$ ). Also, at two of these locations, no sand rollers were captured during the day sets. Seining was conducted at four locations where sand rollers were collected in minnow traps; no sand rollers were captured in the seines at these locations. Evidence of differential gear efficiency in the capture of sand rollers is apparent in our data; sand rollers were collected from 22 of 46 locations (48%) where minnow traps were fished overnight, compared to 2 of 6 locations (33%) where minnow traps were fished during the day and 1 of 8 locations (13%) where seines were used.

The length-frequency distributions of sand rollers in the Willamette Basin varied by location (Figure 2). Fish ranged in size from 42-95 mm TL (39-87 mm FL). We found a very strong relationship between TL and FL measurements (Figure 3). Although most locations had only one definitive peak for measured lengths, these peaks frequently occurred around 45-50 mm and 60-65 mm FL. These peaks are similar to the mean sizes of age 1 (45 mm FL) and age 2 (67 mm FL) sand rollers in the lower Columbia

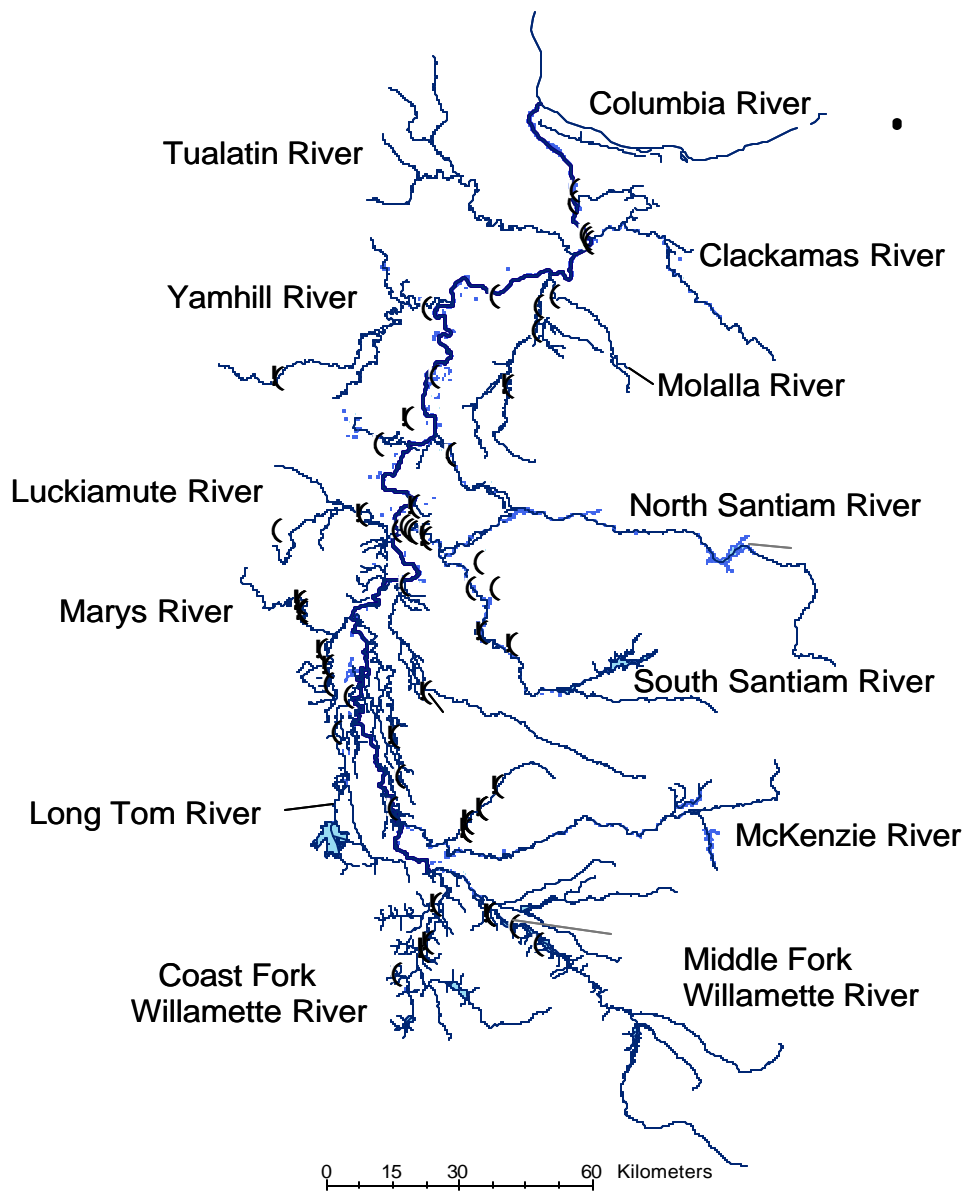


Figure 1. Survey locations for sand rollers in the Willamette River drainage in 2005. Open circles indicate sample locations where no sand rollers were collected. Closed circles indicate sample locations where sand rollers were collected.

Table 1. Numbers of sand rollers collected and presence of nonnative fish at locations surveyed in the Willamette River drainage in 2005. Sampling gear types are as follows: ON- minnow traps fished overnight, D- minnow traps fished during day, S- seine, and ON/H- hoop net fished overnight.

Location	Map code	Subbasin	Number of sandrollers	Nonnative fish	Gear
Cedar Island Alcove	CEDARISL1	Lower Willamette River	0	no	ON
Champoeg Creek	CHAMPOEG1	Lower Willamette River	0	no	ON
Goat Island	GOATISL1	Lower Willamette River	0	no	ON
Meldrum	MELDRUM1	Lower Willamette River	0	yes	ON
Mission Slough	MISS2A	Lower Willamette River	0	yes	ON
Rocky Beach	ROCKY1	Lower Willamette River	0	yes	ON
Ross Island Channel	ROSS1	Lower Willamette River	0	yes	ON
Yamhill River	YAMHILL1	Yamhill River	0	yes	ON
South Yamhill River	SYAMHILL1	Yamhill River	52	no	ON
Molalla River	MOLALLA1	Molalla River	0	no	ON
Pudding River 1	PUDDING1	Molalla River	0	no	ON
Pudding River 2	PUDDING2	Molalla River	0	no	ON
Pudding River 3	PUDDING3	Molalla River	7	no	ON
Sidney Ditch	SIDNEY2	Lower Willamette River	1	no	ON
Rickreall Creek	RICKREALL1	Rickreall Creek	0	yes	ON
Mill Creek	MILL3	Mill Creek	0	no	S
Mirth Lake	MILL4	Mill Creek	0	yes	S
Santiam River 1	I5BW2F	Santiam River	5	yes	ON
Santiam River 2	SANT6	Santiam River	0	yes	S
Santiam River 3	SANT3A	Santiam River	0	yes	S
Santiam River 4	SANT7	Santiam River	0	no	S
Santiam River 5	SANT8	Santiam River	0	yes	S
Santiam River 6	SANT9	Santiam River	0	yes	S
South Santiam River 1	SSR1A	South Santiam River	0	yes	ON
South Santiam River 2	SSAN3	South Santiam River	1	yes	S
Beaver Creek	BEAVSANT1	South Santiam River	0	yes	ON
Hamilton Creek	HAM1	South Santiam River	21	no	ON
Thomas Creek	THOMAS1	South Santiam River	0	yes	ON
Luckiamute River	LUCK4A	Luckiamute River	21	no	ON
Rittner Creek	RITNER1	Luckiamute River	0	no	ON
Calapooia River 1	CAL5	Calapooia River	0	yes	ON
Calapooia River 2	CAL4A	Calapooia River	3	yes	ON
Muddy Creek	EMUD5A	Muddy Creek (Linn County)	1	no	ON
Dry Muddy Creek 1	DMC4A	Muddy Creek (Linn County)	12	no	ON
Dry Muddy Creek 2	DMC5A	Muddy Creek (Linn County)	0	no	ON
Marys River 1	MARY1	Marys River	80	no	ON
Marys River 1	MARY1A	Marys River	1093 <sup>a</sup>	no	ON
Marys River 2	MARY2	Marys River	9	no	ON
Marys River 3	MARY3	Marys River	0	no	ON
Beaver Creek	BEAVER1	Marys River	2	no	ON
Bull Run Creek	BULLR2	Marys River	2	no	ON
Muddy Creek	MUDDY1	Marys River	0	yes	ON
Long Tom River 1	LTOM1	Long Tom River	0	no	D
Long Tom River 2	LTOM2	Long Tom River	0	yes	D
Cedar Creek 1	CED1	McKenzie River	40	no	ON
Cedar Creek 1	CED1A	McKenzie River	451 <sup>a</sup>	no	ON
Mohawk River 1	MOH1	McKenzie River	0	no	D
Mohawk River 1	MOH1A	McKenzie River	9	no	ON
Mohawk River 2	MOH2	McKenzie River	1	no	D
Mohawk River 2	MOH2A	McKenzie River	2	no	ON
Mohawk River 3	MOH3	McKenzie River	0	no	D
Mohawk River 3	MOH3A	McKenzie River	5	no	ON
Mohawk River 4	MOH4	McKenzie River	1	no	ON
Green Island	GREEN1	McKenzie River	0	yes	ON
Coast Fork Willamette River	CF11C	Coast Fork Willamette River	1	yes	ON
Camas Swale	CS4C	Coast Fork Willamette River	4	yes	ON
Silk Creek	SILK3	Coast Fork Willamette River	0	no	ON
Lynx Hollow	LYNX1	Coast Fork Willamette River	6	yes	D
Lynx Hollow	LYNX1A	Coast Fork Willamette River	16	no	ON
Dexter Reservoir	DEX11B	Middle Fork Willamette River	0	yes	ON/H
Rolling Riffle Arm, Lookout Pt. Reservoir	RR1C	Middle Fork Willamette River	0	no	ON/H
Lost Creek	LOST1	Middle Fork Willamette River	3	no	ON

<sup>a</sup> Mark-recapture population estimate

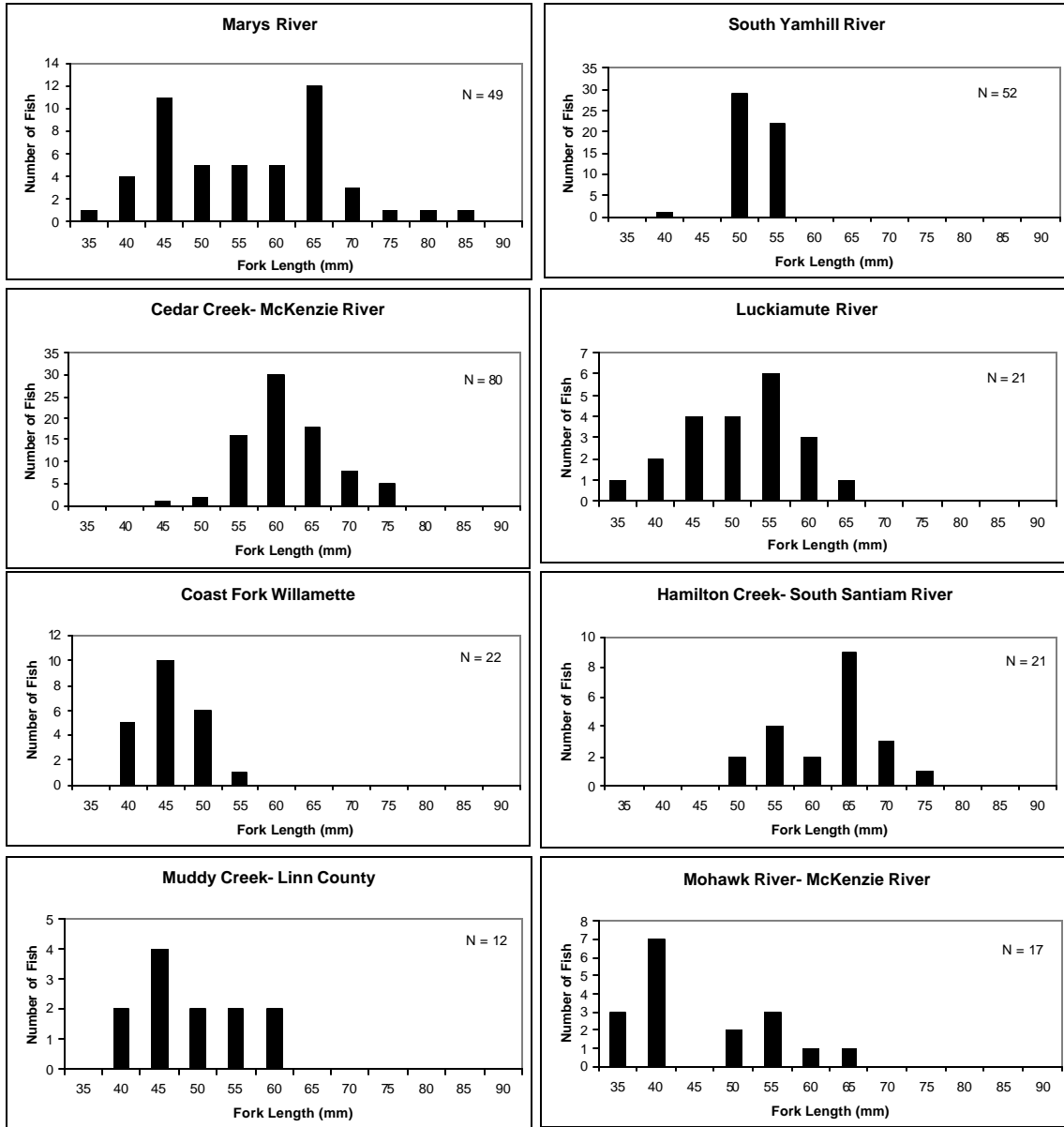


Figure 2. Length-frequency histograms for sand rollers collected using minnow traps from eight locations in the Willamette River drainage.

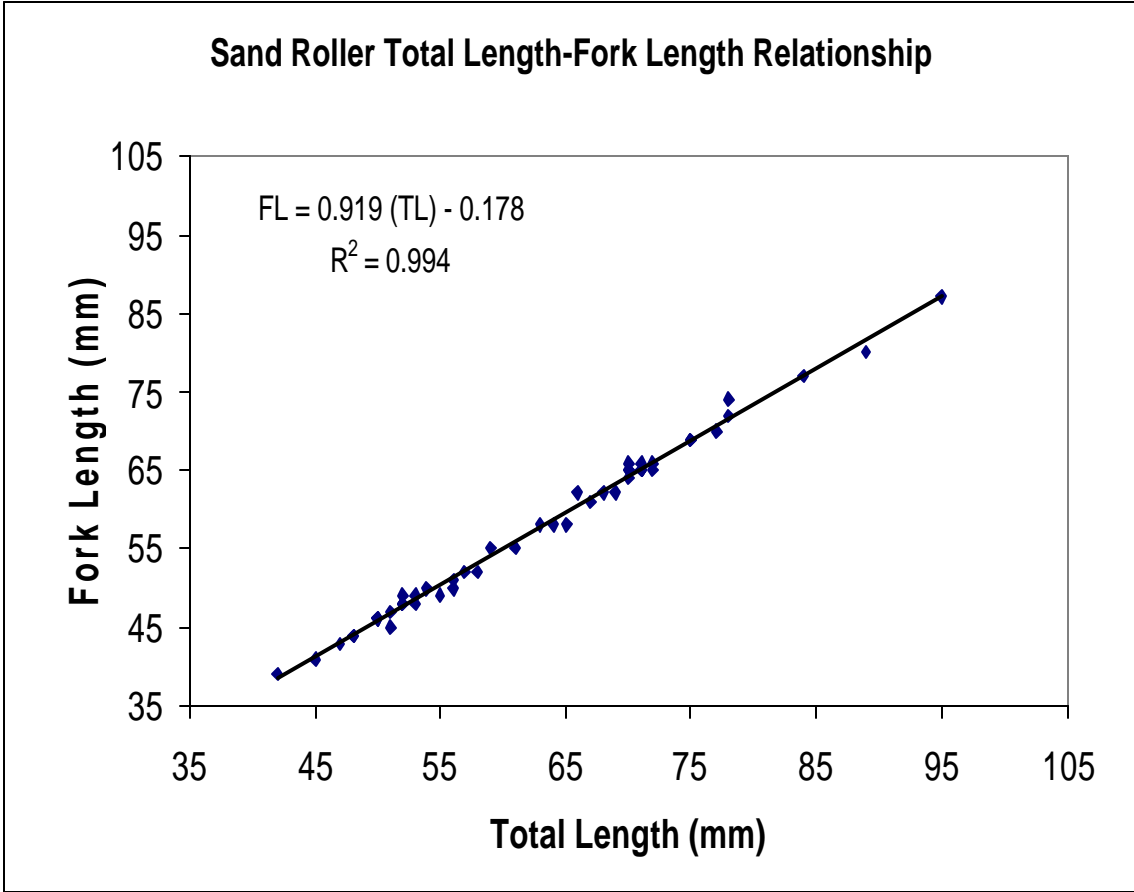


Figure 3. Relationship between fork length and total length of sand rollers collected in the Mays River drainage.

River (Gray and Dauble 1979). Likely overlap in length-at-age complicates interpretation of the length histograms.

Population estimates obtained in segments of Cedar Creek and the Mary's River indicate that our trapping methods (24 minnow traps fished overnight) captured a small proportion of the total population. We estimated 451 sand rollers (95% CI: 183-902) in Cedar Creek, but captured only 40 (8.9% of estimate) when we marked fish and 43 (9.5% of the estimate) when obtained our estimate. We estimated 1,093 sand rollers (95% CI: 542-2,049) in the Mary's River, but captured only 80 (7.3% of estimate) when we marked fish and 101 (9.2% of the estimate) when obtained our estimate. These results suggest that our trapping protocols were not very efficient at capturing sand rollers and that fish may be locally abundant at some locations, despite our low capture rates.

Sand rollers were captured primarily near large wood, rootwads, and undercut banks (Figure 4). These cover types were common at the locations sampled. Sand rollers were occasionally captured in off-channel pools, deep pools (>1.5 m), and associated with submerged vegetation. In many cases, a combination of cover types was present (i.e. rootwads and deep pools, or undercut banks and overhanging vegetation) where sand rollers were captured. Sand rollers were primarily associated with sand or gravel substrates, typical of the low gradient stream segments sampled (Figure 5).

## DISCUSSION

Sand rollers were collected from locations throughout the Willamette River Basin. Our sampling targeted areas where sand rollers had been collected in the past, including locations for sand rollers catalogued in the OSU museum collection, as well as locations reported (mostly unpublished) by other fisheries biologists working in the drainage.

Minnow traps fished overnight appeared to be an effective method for determining the presence of sand rollers in small to medium sized low gradient tributaries to the Willamette River. This is consistent with reports that sand rollers are active nocturnally and infrequently encountered during daylight hours (Gray and Dauble 1976; 1979). Minnow traps fished during the day and seining were less effective. These methods did not capture sand rollers at several sites where their presence was confirmed using minnow traps fished overnight. We did not capture any sand rollers from locations sampled in the mainstem Willamette River. Other fisheries biologists have reported collecting them in recent years from these habitats using backpack electrofishing (Randy Wildman OSU, personal communication), boat electrofishing (Friesen et al. 2003), or large beach seines (Schroeder and Kenaston 2004). Minnow traps may be less effective in these large mainstem habitats than the gears employed by these biologists. However, electrofishing can be more harmful to the fish and is often restricted where listed fish are present. A trade-off exists between capture efficiency and potential fish injury or mortality.

Sand rollers were frequently associated with complex cover (large wood, rootwads, or undercut banks) over sand or gravel substrates. Sites where complex cover was absent frequently yielded no sand rollers. Although others have reported sand rollers to either occur as solitary individuals or to be territorial (Gray and Dauble

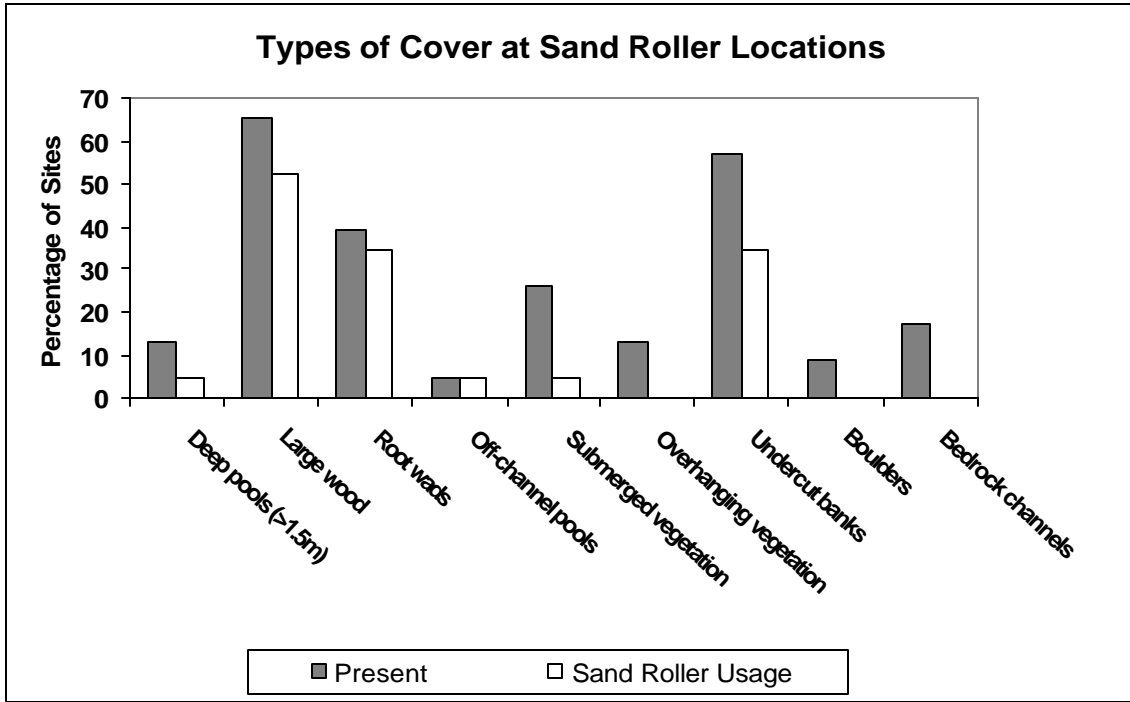


Figure 4. Types of instream cover present at locations containing sand rollers and cover utilized by sand rollers. Note: most locations had more than one type of cover present.

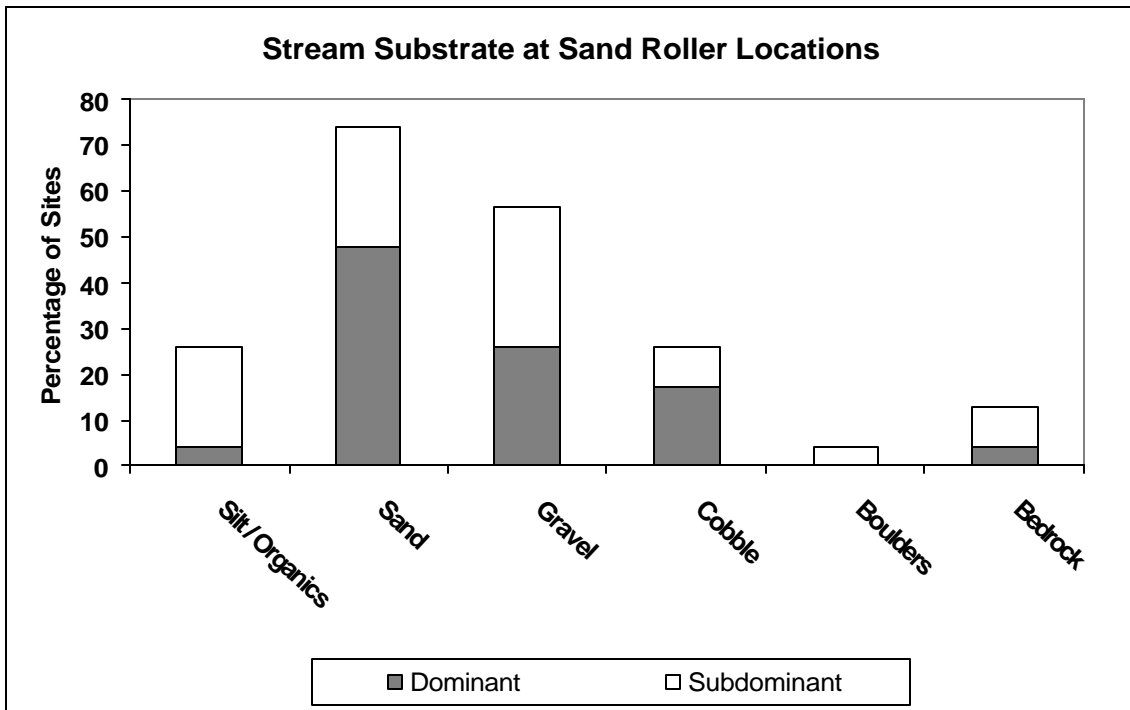


Figure 5. Dominant (most common) and subdominant (second most common) substrate types at locations occupied by sand rollers in the Willamette River drainage.

1976, Wydoski and Whitney 2003), at locations where we captured larger numbers of sand rollers (>20 fish), it was common for us to capture ten or more fish in a single trap. This may suggest that sand rollers school and/or exhibit substantial movement during the night.

This species is highly vulnerable to predation because of its small size, especially if adequate cover is lacking. Zimmerman (1999) and Poe et al. (1991) reported predation on sand rollers by walleye *Stizostedion vitreum*, smallmouth bass, northern pikeminnows, and channel catfish *Ictalurus punctatus*. We captured larger numbers of sand rollers in habitats where nonnative fish were not collected, and captured substantially lower numbers in habitats where nonnative fish were present.

In summary, sand rollers were found in medium to large, low gradient streams over sand and gravel stream substrates. Large woody debris, rootwads, and undercut banks were identified as important habitat types. Management practices to protect sand roller habitats should minimize land use activities that would reduce the presence of large wood, roots, and undercut banks. Restricting the introduction and movements of nonnative fish is also advised. Future research and monitoring should include periodic surveys to reassess sand roller distribution and further testing of alternate gear types to improve sampling efficiency.

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## **APPENDIX A**

### **Fish Species and Habitat Characteristics at Each Survey Location**

Sites are sorted by subbasin then listed alphabetically by map code. Codes for salmonids are:  
CT= cutthroat trout *Oncorhynchus clarki* and RB= rainbow trout *O. mykiss*.

## Sand Roller Sampling Summary

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SITE NAME	COAST FORK WILLAMETTE SIDE CHN	MAP CODE	CF11C
BASIN	COAST FORK WILLAMETTE RIVER	ZONE:	10T
SUBBASIN		EASTING	498954
DATE	7/11/2005	NORTHING	4857992
ACCESS	I-5 BRIDGE XING S OF CRESWELL	GEAR:	MINNOW TRAPS (OVERNIGHT)

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### Habitat Characteristics:

SURFACE AREA (m2)	1344		
AVERAGE DEPTH (m)	0.6	DOMINANT SUBSTRATE	COBBLE
WATER TEMPERATURE (C)	18.5	SUBDOMINANT SUBSTRATE	BOULDER
COMMENTS:	MARGIN HABITAT DOWNSTREAM OF CHUB SITE		
AVAILABLE COVER:			

LARGE WOOD

SUBMERGED VEGETATION

OFF-CHANNEL POOL

### Sand Roller Habitat Preferences:

LARGE WOOD

OFF-CHANNEL POOL

---

### Native Fish Species Present:

SAND ROLLERS	1	LARGESCALE SUCKERS	
OREGON CHUB		THREESPINE STICKLEBACKS	22
COTTIDS		CHISELMOUTH	
REDSIDE SHINERS	9	LAMPREY	
SPECKLED DACE	39	SALMONIDS	
LONGNOSE DACE			
N. PIKEMINNOW	14		

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### Non-native Fish Species Present:

BLUEGILL	1	BULLHEADS	
PUMPKINSEED		COMMON CARP	
CRAPPIE		W. MOSQUITOFISH	
LARGEMOUTH BASS		BANDED KILLIFISH	
SMALLMOUTH BASS			

### Other:

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## Sand Roller Sampling Summary

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SITE NAME	<b>LYNX HOLLOW</b>	MAP CODE	LYNX1
BASIN	COAST FORK WILLAMETTE RIVER	ZONE:	10T
SUBBASIN		EASTING	498103
DATE	7/11/2005	NORTHING	4856295
ACCESS	STATE PARK, HWY 99 DAVIDSON RD	GEAR:	MINNOW TRAPS (3-4 HRS)

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### Habitat Characteristics:

SURFACE AREA (m2)	4780		
AVERAGE DEPTH (m)	0.7	DOMINANT SUBSTRATE	GRAVEL
WATER TEMPERATURE (C)	18	SUBDOMINANT SUBSTRATE	COBBLE
COMMENTS:	STATE PARK GREENWAY SITE		

#### AVAILABLE COVER:

- LARGE WOOD
- UNDERCUT BANKS
- SUBMERGED VEGETATION

### Sand Roller Habitat Preferences:

- LARGE WOOD
- SUBMERGED VEGETATION

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### Native Fish Species Present:

<b>SAND ROLLERS</b>	<b>6</b>	LARGESCALE SUCKERS	2
OREGON CHUB	2	THREESPINE STICKLEBACKS	8
COTTIDS		CHISELMOUTH	
REDSIDE SHINERS		LAMPREY	
SPECKLED DACE	4	SALMONIDS	
LONGNOSE DACE			
N. PIKEMINNOW	1		

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### Non-native Fish Species Present:

BLUEGILL	2	BULLHEADS	
PUMPKINSEED		COMMON CARP	
CRAPPIE		W. MOSQUITOFISH	
LARGEMOUTH BASS		BANDED KILLIFISH	
SMALLMOUTH BASS			

### Other:

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## Sand Roller Sampling Summary

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SITE NAME	<b>LYNX HOLLOW</b>	MAP CODE	LYNX1A
BASIN	COAST FORK WILLAMETTE RIVER	ZONE:	10T
SUBBASIN		EASTING	498103
DATE	7/12/2005	NORTHING	4856295
ACCESS	STATE PARK, HWY 99 DAVIDSON RD	GEAR:	MINNOW TRAPS (OVERNIGHT)

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### Habitat Characteristics:

SURFACE AREA (m2)	4780		
AVERAGE DEPTH (m)	0.7	DOMINANT SUBSTRATE	GRAVEL
WATER TEMPERATURE (C)	18	SUBDOMINANT SUBSTRATE	COBBLE
COMMENTS:	STATE PARK GREENWAY SITE, OVERNIGHT		

#### AVAILABLE COVER:

LARGE WOOD  
UNDERCUT BANKS  
SUBMERGED VEGETATION

### Sand Roller Habitat Preferences:

LARGE WOOD  
SUBMERGED VEGETATION

---

### Native Fish Species Present:

<b>SAND ROLLERS</b>	<b>16</b>	LARGESCALE SUCKERS	<b>3</b>
OREGON CHUB		THREESPINE STICKLEBACKS	<b>1</b>
COTTIDS	1	CHISELMOUTH	
REDSIDE SHINERS	1	LAMPREY	
SPECKLED DACE	8	SALMONIDS	
LONGNOSE DACE			
N. PIKEMINNOW	11		

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### Non-native Fish Species Present:

BLUEGILL	BULLHEADS
PUMPKINSEED	COMMON CARP
CRAPPIE	W. MOSQUITOFISH
LARGEMOUTH BASS	BANDED KILLIFISH
SMALLMOUTH BASS	

### Other:

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## Sand Roller Sampling Summary

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SITE NAME	<b>CAMAS SWALE</b>	MAP CODE	CS4C
BASIN	COAST FORK WILLAMETTE RIVER	ZONE:	10T
SUBBASIN	CAMAS SWALE	EASTING	500716
DATE	7/11/2005	NORTHING	4866815
ACCESS	SHORT MOUNTAIN LANDFILL	GEAR:	MINNOW TRAPS (OVERNIGHT)

---

### Habitat Characteristics:

SURFACE AREA (m2)	1374		
AVERAGE DEPTH (m)	0.7	DOMINANT SUBSTRATE	GRAVEL
WATER TEMPERATURE (C)	21	SUBDOMINANT SUBSTRATE	SAND
COMMENTS:	SHORT MOUNTAIN LANDFILL		

#### AVAILABLE COVER:

LARGE WOOD  
BOULDERS  
UNDERCUT BANKS

### Sand Roller Habitat Preferences:

UNDERCUT BANKS  
LARGE WOOD

---

### Native Fish Species Present:

<b>SAND ROLLERS</b>	<b>4</b>	LARGESCALE SUCKERS	
OREGON CHUB	2	THREESPINE STICKLEBACKS	1
COTTIDS	1	CHISELMOUTH	
REDSIDE SHINERS	7	LAMPREY	
SPECKLED DACE	10	SALMONIDS	
LONGNOSE DACE			
N. PIKEMINNOW	1		

---

### Non-native Fish Species Present:

BLUEGILL	20	BULLHEADS	
PUMPKINSEED	61	COMMON CARP	
CRAPPIE	1	W. MOSQUITOFISH	10
LARGEMOUTH BASS		BANDED KILLIFISH	
SMALLMOUTH BASS			

### Other:

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## Sand Roller Sampling Summary

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SITE NAME	<b>SILK CREEK</b>	MAP CODE	SILK3
BASIN	COAST FORK WILLAMETTE RIVER	ZONE:	10T
SUBBASIN	SILK CREEK	EASTING	491911
DATE	7/11/2005	NORTHING	4850129
ACCESS	COTTAGE GROVE-LORANE HIGHWAY	GEAR:	MINNOW TRAPS (OVERNIGHT)

---

### Habitat Characteristics:

SURFACE AREA (m2)	325		
AVERAGE DEPTH (m)	0.4	DOMINANT SUBSTRATE	SAND
WATER TEMPERATURE (C)	21	SUBDOMINANT SUBSTRATE	BOULDER
COMMENTS:	LORANE HIGHWAY		
AVAILABLE COVER:			
	LARGE WOOD		
	UNDERCUT BANKS		

### Sand Roller Habitat Preferences:

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### Native Fish Species Present:

<b>SAND ROLLERS</b>		LARGESCALE SUCKERS
OREGON CHUB		THREESPINE STICKLEBACKS
COTTIDS	11	CHISELMOUTH
REDSIDE SHINERS	1	LAMPREY
SPECKLED DACE		SALMONIDS
LONGNOSE DACE		
N. PIKEMINNOW		

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### Non-native Fish Species Present:

BLUEGILL	BULLHEADS
PUMPKINSEED	COMMON CARP
CRAPPIE	W. MOSQUITOFISH
LARGEMOUTH BASS	BANDED KILLIFISH
SMALLMOUTH BASS	

### Other:

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## Sand Roller Sampling Summary

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SITE NAME	<b>CEDAR ISLAND ALCOVE</b>	MAP CODE	CEDARISL1
BASIN	LOWER WILLAMETTE RIVER	ZONE:	10T
SUBBASIN		EASTING	529241
DATE	7/25/2005	NORTHING	5025876
ACCESS	MAINSTEM, RM 23.2	GEAR:	MINNOW TRAPS (OVERNIGHT)

---

### Habitat Characteristics:

SURFACE AREA (m2)	100		
AVERAGE DEPTH (m)	0.9	DOMINANT SUBSTRATE	SAND
WATER TEMPERATURE (C)	25	SUBDOMINANT SUBSTRATE	GRAVEL
COMMENTS:	SAMPLED WITH ODFW DISTRICT BY SLED		
AVAILABLE COVER:			
	LARGE WOOD		

### Sand Roller Habitat Preferences:

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### Native Fish Species Present:

<b>SAND ROLLERS</b>	LARGESCALE SUCKERS
OREGON CHUB	THREESPINE STICKLEBACKS
COTTIDS	CHISELMOUTH
REDSIDE SHINERS	LAMPREY
SPECKLED DACE	SALMONIDS
LONGNOSE DACE	
N. PIKEMINNOW	

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### Non-native Fish Species Present:

BLUEGILL	BULLHEADS
PUMPKINSEED	COMMON CARP
CRAPPIE	W. MOSQUITOFISH
LARGEMOUTH BASS	BANDED KILLIFISH
SMALLMOUTH BASS	

**Other:** NO FISH

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## Sand Roller Sampling Summary

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SITE NAME	CHAMPOEG CREEK	MAP CODE	CHAMPOEG1
BASIN	LOWER WILLAMETTE RIVER	ZONE:	10T
SUBBASIN		EASTING	509560
DATE	7/26/2005	NORTHING	5010626
ACCESS	CHAMPOEG STATE PARK	GEAR:	MINNOW TRAPS (OVERNIGHT)

---

### Habitat Characteristics:

SURFACE AREA (m2)	360		
AVERAGE DEPTH (m)	0.8	DOMINANT SUBSTRATE	SAND
WATER TEMPERATURE (C)	22	SUBDOMINANT SUBSTRATE	SILT/ORGANICS
COMMENTS:	CHAMPOEG STATE PARK		
AVAILABLE COVER:			
	LARGE WOOD		
	UNDERCUT BANKS		

### Sand Roller Habitat Preferences:

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#### Native Fish Species Present:

SAND ROLLERS		LARGESCALE SUCKERS
OREGON CHUB		THREESPINE STICKLEBACKS
COTTIDS	11	CHISELMOUTH
REDSIDE SHINERS		LAMPREY
SPECKLED DACE		SALMONIDS
LONGNOSE DACE		
N. PIKEMINNOW		

---

#### Non-native Fish Species Present:

BLUEGILL	BULLHEADS
PUMPKINSEED	COMMON CARP
CRAPPIE	W. MOSQUITOFISH
LARGEMOUTH BASS	BANDED KILLIFISH
SMALLMOUTH BASS	

**Other:** CRAYFISH

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## Sand Roller Sampling Summary

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SITE NAME	GOAT ISLAND	MAP CODE	GOATISL1
BASIN	LOWER WILLAMETTE RIVER	ZONE:	10T
SUBBASIN		EASTING	530338
DATE	7/25/2005	NORTHING	5024038
ACCESS	MAINSTEM, RM 24	GEAR:	MINNOW TRAPS (OVERNIGHT)

---

### Habitat Characteristics:

SURFACE AREA (m2)	900		
AVERAGE DEPTH (m)	0.4	DOMINANT SUBSTRATE	GRAVEL
WATER TEMPERATURE (C)	24.5	SUBDOMINANT SUBSTRATE	BOULDER
COMMENTS:	SAMPLED WITH ODFW DISTRICT BY SLED		
AVAILABLE COVER:			
	LARGE WOOD		
	BOULDERS		

### Sand Roller Habitat Preferences:

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### Native Fish Species Present:

SAND ROLLERS	LARGESCALE SUCKERS
OREGON CHUB	THREESPINE STICKLEBACKS
COTTIDS	CHISELMOUTH
REDSIDE SHINERS	LAMPREY
SPECKLED DACE	SALMONIDS
LONGNOSE DACE	
N. PIKEMINNOW	

---

### Non-native Fish Species Present:

BLUEGILL	BULLHEADS
PUMPKINSEED	COMMON CARP
CRAPPIE	W. MOSQUITOFISH
LARGEMOUTH BASS	BANDED KILLIFISH
SMALLMOUTH BASS	

**Other:** NO FISH

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## Sand Roller Sampling Summary

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SITE NAME	<b>MELDRUM</b>	MAP CODE	MELDRUM1
BASIN	LOWER WILLAMETTE RIVER	ZONE:	10T
SUBBASIN		EASTING	529916
DATE	7/25/2005	NORTHING	5025058
ACCESS	MAINSTEM, RM 25	GEAR:	MINNOW TRAPS (OVERNIGHT)

---

### Habitat Characteristics:

SURFACE AREA (m2)	600		
AVERAGE DEPTH (m)	0.4	DOMINANT SUBSTRATE	SAND
WATER TEMPERATURE (C)	23	SUBDOMINANT SUBSTRATE	GRAVEL
COMMENTS:	SAMPLED WITH ODFW DISTRICT BY SLED		
AVAILABLE COVER:			
	LARGE WOOD		
	BOULDERS		

### Sand Roller Habitat Preferences:

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#### Native Fish Species Present:

<b>SAND ROLLERS</b>	LARGESCALE SUCKERS
OREGON CHUB	THREESPINE STICKLEBACKS
COTTIDS	CHISELMOUTH
REDSIDE SHINERS	LAMPREY
SPECKLED DACE	SALMONIDS
LONGNOSE DACE	
N. PIKEMINNOW	8

---

#### Non-native Fish Species Present:

BLUEGILL	BULLHEADS	
PUMPKINSEED	COMMON CARP	
CRAPPIE	W. MOSQUITOFISH	
LARGEMOUTH BASS	BANDED KILLIFISH	22
SMALLMOUTH BASS		

#### Other:

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## Sand Roller Sampling Summary

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SITE NAME	MISSION LAKE SLOUGH	MAP CODE	MISS2A
BASIN	LOWER WILLAMETTE RIVER	ZONE:	10T
SUBBASIN		EASTING	496527
DATE	7/27/2005	NORTHING	4991681
ACCESS	UPSTREAM MISSION LAKE	GEAR:	MINNOW TRAPS (OVERNIGHT)

---

### Habitat Characteristics:

SURFACE AREA (m2)	4500		
AVERAGE DEPTH (m)	1	DOMINANT SUBSTRATE	SAND
WATER TEMPERATURE (C)	26	SUBDOMINANT SUBSTRATE	SILT/ORGANICS
COMMENTS:	MISSION STATE PARK		
AVAILABLE COVER:			
LARGE WOOD			
SUBMERGED VEGETATION			

### Sand Roller Habitat Preferences:

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#### Native Fish Species Present:

SAND ROLLERS	LARGESCALE SUCKERS
OREGON CHUB	THREESPINE STICKLEBACKS
COTTIDS	CHISELMOUTH
REDSIDE SHINERS	LAMPREY
SPECKLED DACE	SALMONIDS
LONGNOSE DACE	
N. PIKEMINNOW	

---

#### Non-native Fish Species Present:

BLUEGILL	77	BULLHEADS	
PUMPKINSEED		COMMON CARP	
CRAPPIE		W. MOSQUITOFISH	100
LARGEMOUTH BASS	5	BANDED KILLIFISH	
SMALLMOUTH BASS			

#### Other:

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## Sand Roller Sampling Summary

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SITE NAME	<b>ROCKY BEACH</b>	MAP CODE	ROCKY1
BASIN	LOWER WILLAMETTE RIVER	ZONE:	10T
SUBBASIN		EASTING	526567
DATE	7/25/2005	NORTHING	5033444
ACCESS	PIONEER PARK UPSTREAM, RM 16.7	GEAR:	MINNOW TRAPS (OVERNIGHT)

---

### Habitat Characteristics:

SURFACE AREA (m2)	850		
AVERAGE DEPTH (m)	0.8	DOMINANT SUBSTRATE	SAND
WATER TEMPERATURE (C)	24.5	SUBDOMINANT SUBSTRATE	GRAVEL
COMMENTS:	SAMPLED WITH ODFW DISTRICT BY SLED		
AVAILABLE COVER:			
	BOULDERS		

### Sand Roller Habitat Preferences:

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#### Native Fish Species Present:

<b>SAND ROLLERS</b>	LARGESCALE SUCKERS
OREGON CHUB	THREESPINE STICKLEBACKS
COTTIDS	CHISELMOUTH
REDSIDE SHINERS	LAMPREY
SPECKLED DACE	SALMONIDS
LONGNOSE DACE	
N. PIKEMINNOW	

---

#### Non-native Fish Species Present:

BLUEGILL	BULLHEADS	
PUMPKINSEED	COMMON CARP	
CRAPPIE	W. MOSQUITOFISH	
LARGEMOUTH BASS	BANDED KILLIFISH	25
SMALLMOUTH BASS		

#### Other:

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## Sand Roller Sampling Summary

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SITE NAME	ROSS ISLAND CHANNEL	MAP CODE	ROSS1
BASIN	LOWER WILLAMETTE RIVER	ZONE:	10T
SUBBASIN		EASTING	526947
DATE	7/25/2005	NORTHING	5036026
ACCESS	RM 14, PORTLAND PIONEER PK DS	GEAR:	MINNOW TRAPS (OVERNIGHT)

---

### Habitat Characteristics:

SURFACE AREA (m2)	3500		
AVERAGE DEPTH (m)	0.8	DOMINANT SUBSTRATE	SAND
WATER TEMPERATURE (C)	12	SUBDOMINANT SUBSTRATE	SILT/ORGANICS
COMMENTS:	SAMPLED WITH ODFW DISTRICT BY SLED		
AVAILABLE COVER:	LARGE WOOD		

### Sand Roller Habitat Preferences:

---

#### Native Fish Species Present:

SAND ROLLERS		LARGESCALE SUCKERS
OREGON CHUB		THREESPINE STICKLEBACKS
COTTIDS	1	CHISELMOUTH
REDSIDE SHINERS		LAMPREY
SPECKLED DACE		SALMONIDS
LONGNOSE DACE		
N. PIKEMINNOW		

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#### Non-native Fish Species Present:

BLUEGILL		BULLHEADS
PUMPKINSEED		COMMON CARP
CRAPPIE		W. MOSQUITOFISH
LARGEMOUTH BASS		BANDED KILLIFISH
SMALLMOUTH BASS	1	

**Other:** SHAD

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## Sand Roller Sampling Summary

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SITE NAME	<b>SIDNEY DITCH</b>	MAP CODE	SIDNEY2
BASIN	LOWER WILLAMETTE RIVER	ZONE:	10T
SUBBASIN		EASTING	493060
DATE	7/20/2005	NORTHING	4960736
ACCESS	SIDNEY ROAD, W OF ANKENY NWR	GEAR:	MINNOW TRAPS (OVERNIGHT)

---

### Habitat Characteristics:

SURFACE AREA (m2)	630		
AVERAGE DEPTH (m)	1.2	DOMINANT SUBSTRATE	SAND
WATER TEMPERATURE (C)	22	SUBDOMINANT SUBSTRATE	SILT/ORGANICS
COMMENTS:	SIDNEY ROAD / WATER DIVERSION		
AVAILABLE COVER:			

- UNDERCUT BANKS
- BEDROCK CHANNELS
- OVERHANGING VEGETATION

### Sand Roller Habitat Preferences:

- UNDERCUT BANKS

---

### Native Fish Species Present:

<b>SAND ROLLERS</b>	1	LARGESCALE SUCKERS
OREGON CHUB		THREESPINE STICKLEBACKS
COTTIDS	2	CHISELMOUTH
REDSIDE SHINERS	3	LAMPREY
SPECKLED DACE	1	SALMONIDS
LONGNOSE DACE		
N. PIKEMINNOW		

---

### Non-native Fish Species Present:

BLUEGILL	BULLHEADS
PUMPKINSEED	COMMON CARP
CRAPPIE	W. MOSQUITOFISH
LARGEMOUTH BASS	BANDED KILLIFISH
SMALLMOUTH BASS	

**Other:**    CRAYFISH

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## Sand Roller Sampling Summary

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SITE NAME	MILL CREEK 1	MAP CODE	MILL3
BASIN	LOWER WILLAMETTE RIVER	ZONE:	10T
SUBBASIN	MILL CREEK	EASTING	500637
DATE	7/19/2005	NORTHING	4973163
ACCESS	CASCADE GATEWAY PARK	GEAR:	SEINE

---

### Habitat Characteristics:

SURFACE AREA (m2)	1500		
AVERAGE DEPTH (m)	0.8	DOMINANT SUBSTRATE	GRAVEL
WATER TEMPERATURE (C)	20.5	SUBDOMINANT SUBSTRATE	SAND
COMMENTS:	CASCADE GATEWAY PARK		
AVAILABLE COVER:			
LARGE WOOD			
UNDERCUT BANKS			

### Sand Roller Habitat Preferences:

---

#### Native Fish Species Present:

SAND ROLLERS		LARGESCALE SUCKERS	
OREGON CHUB		THREESPINE STICKLEBACKS	
COTTIDS		CHISELMOUTH	
REDSIDE SHINERS	10	LAMPREY	
SPECKLED DACE		SALMONIDS	RB 1
LONGNOSE DACE			
N. PIKEMINNOW	50		

---

#### Non-native Fish Species Present:

BLUEGILL	BULLHEADS
PUMPKINSEED	COMMON CARP
CRAPPIE	W. MOSQUITOFISH
LARGEMOUTH BASS	BANDED KILLIFISH
SMALLMOUTH BASS	

#### Other:

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## Sand Roller Sampling Summary

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SITE NAME	MILL CREEK 2	MAP CODE	MILL4
BASIN	LOWER WILLAMETTE RIVER	ZONE:	10T
SUBBASIN	MILL CREEK	EASTING	500637
DATE	7/19/2005	NORTHING	4973193
ACCESS	CASCADE GATEWAY PARK	GEAR:	SEINE

---

### Habitat Characteristics:

SURFACE AREA (m2)	700		
AVERAGE DEPTH (m)	0.6	DOMINANT SUBSTRATE	GRAVEL
WATER TEMPERATURE (C)	20	SUBDOMINANT SUBSTRATE	SAND
COMMENTS:	MIRTH LAKE		
AVAILABLE COVER:			
	LARGE WOOD		

### Sand Roller Habitat Preferences:

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### Native Fish Species Present:

SAND ROLLERS	LARGESCALE SUCKERS
OREGON CHUB	THREESPINE STICKLEBACKS
COTTIDS	CHISELMOUTH
REDSIDE SHINERS	LAMPREY
SPECKLED DACE	SALMONIDS
LONGNOSE DACE	
N. PIKEMINNOW	

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### Non-native Fish Species Present:

BLUEGILL	16	BULLHEADS	1
PUMPKINSEED		COMMON CARP	
CRAPPIE		W. MOSQUITOFISH	
LARGEMOUTH BASS	4	BANDED KILLIFISH	
SMALLMOUTH BASS			

### Other:

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## Sand Roller Sampling Summary

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SITE NAME	MOLALLA RIVER	MAP CODE	MOLALLA1
BASIN	LOWER WILLAMETTE RIVER	ZONE:	10T
SUBBASIN	MOLALLA RIVER	EASTING	523025
DATE	7/25/2005	NORTHING	5011225
ACCESS	HIGHWAY 99E CROSSING, CANBY	GEAR:	MINNOW TRAPS (OVERNIGHT)

---

### Habitat Characteristics:

SURFACE AREA (m2)	1900		
AVERAGE DEPTH (m)	0.8	DOMINANT SUBSTRATE	COBBLE
WATER TEMPERATURE (C)	26	SUBDOMINANT SUBSTRATE	BOULDER
COMMENTS:	HIGHWAY 99E		
AVAILABLE COVER:			
	BOULDERS		
	LARGE WOOD		

### Sand Roller Habitat Preferences:

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### Native Fish Species Present:

<b>SAND ROLLERS</b>		LARGESCALE SUCKERS
OREGON CHUB		THREESPINE STICKLEBACKS
COTTIDS	70	CHISELMOUTH
REDSIDE SHINERS		LAMPREY
SPECKLED DACE		SALMONIDS
LONGNOSE DACE		
N. PIKEMINNOW		

---

### Non-native Fish Species Present:

BLUEGILL	BULLHEADS
PUMPKINSEED	COMMON CARP
CRAPPIE	W. MOSQUITOFISH
LARGEMOUTH BASS	BANDED KILLIFISH
SMALLMOUTH BASS	

**Other:** CRAYFISH

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## Sand Roller Sampling Summary

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SITE NAME	PUDDING RIVER 1	MAP CODE	PUDDING1
BASIN	LOWER WILLAMETTE RIVER	ZONE:	10T
SUBBASIN	PUDDING RIVER	EASTING	519648
DATE	7/25/2005	NORTHING	5008710
ACCESS	HIGHWAY 99E CROSSING, AURORA	GEAR:	MINNOW TRAPS (OVERNIGHT)

---

### Habitat Characteristics:

SURFACE AREA (m2)	720		
AVERAGE DEPTH (m)	1.2	DOMINANT SUBSTRATE	SAND
WATER TEMPERATURE (C)	24.5	SUBDOMINANT SUBSTRATE	SILT/ORGANICS
COMMENTS:	HIGHWAY 99E		
AVAILABLE COVER:	LARGE WOOD		

### Sand Roller Habitat Preferences:

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### Native Fish Species Present:

SAND ROLLERS		LARGESCALE SUCKERS
OREGON CHUB		THREESPINE STICKLEBACKS
COTTIDS		CHISELMOUTH
REDSIDE SHINERS	2	LAMPREY
SPECKLED DACE		SALMONIDS
LONGNOSE DACE		
N. PIKEMINNOW		

---

### Non-native Fish Species Present:

BLUEGILL	BULLHEADS
PUMPKINSEED	COMMON CARP
CRAPPIE	W. MOSQUITOFISH
LARGEMOUTH BASS	BANDED KILLIFISH
SMALLMOUTH BASS	

### Other:

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## Sand Roller Sampling Summary

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SITE NAME	PUDDING RIVER 2	MAP CODE	PUDDING2
BASIN	LOWER WILLAMETTE RIVER	ZONE:	10T
SUBBASIN	PUDDING RIVER	EASTING	519404
DATE	7/26/2005	NORTHING	5002782
ACCESS	WHISKEY HILL ROAD	GEAR:	MINNOW TRAPS (OVERNIGHT)

---

### Habitat Characteristics:

SURFACE AREA (m2)	480		
AVERAGE DEPTH (m)	1	DOMINANT SUBSTRATE	SAND
WATER TEMPERATURE (C)	22	SUBDOMINANT SUBSTRATE	SILT/ORGANICS
COMMENTS:	WHISKEY HILL ROAD, S. OF AURORA		
AVAILABLE COVER:			
	LARGE WOOD		

### Sand Roller Habitat Preferences:

---

### Native Fish Species Present:

SAND ROLLERS	LARGESCALE SUCKERS
OREGON CHUB	THREESPINE STICKLEBACKS
COTTIDS	CHISELMOUTH
REDSIDE SHINERS	LAMPREY
SPECKLED DACE	SALMONIDS
LONGNOSE DACE	
N. PIKEMINNOW	

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### Non-native Fish Species Present:

BLUEGILL	BULLHEADS
PUMPKINSEED	COMMON CARP
CRAPPIE	W. MOSQUITOFISH
LARGEMOUTH BASS	BANDED KILLIFISH
SMALLMOUTH BASS	

**Other:** NO FISH

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## Sand Roller Sampling Summary

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SITE NAME	PUDDING RIVER 3	MAP CODE	PUDDING3
BASIN	LOWER WILLAMETTE RIVER	ZONE:	10T
SUBBASIN	PUDDING RIVER	EASTING	513487
DATE	7/26/2005	NORTHING	4989806
ACCESS	SARATOGA ROAD BRIDGE	GEAR:	MINNOW TRAPS (OVERNIGHT)

---

### Habitat Characteristics:

SURFACE AREA (m2)	361		
AVERAGE DEPTH (m)	0.9	DOMINANT SUBSTRATE	SAND
WATER TEMPERATURE (C)	21	SUBDOMINANT SUBSTRATE	SILT/ORGANICS
COMMENTS:	SARATOGA RD/CHURCH RD, MT. ANGEL		
AVAILABLE COVER:			
LARGE WOOD			
BOULDERS			

### Sand Roller Habitat Preferences:

LARGE WOOD

---

### Native Fish Species Present:

SAND ROLLERS	7	LARGESCALE SUCKERS
OREGON CHUB		THREESPINE STICKLEBACKS
COTTIDS		CHISELMOUTH
REDSIDE SHINERS	6	LAMPREY
SPECKLED DACE		SALMONIDS
LONGNOSE DACE		
N. PIKEMINNOW	25	

---

### Non-native Fish Species Present:

BLUEGILL	BULLHEADS
PUMPKINSEED	COMMON CARP
CRAPPIE	W. MOSQUITOFISH
LARGEMOUTH BASS	BANDED KILLIFISH
SMALLMOUTH BASS	

**Other:** CRAYFISH

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## Sand Roller Sampling Summary

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SITE NAME	RICKREALL CREEK	MAP CODE	RICKREALL1
BASIN	LOWER WILLAMETTE RIVER	ZONE:	10T
SUBBASIN	RICKREALL CREEK	EASTING	484527
DATE	7/27/2005	NORTHING	4974872
ACCESS	MORROW ROAD NEAR RICKREALL	GEAR:	MINNOW TRAPS (OVERNIGHT)

---

### Habitat Characteristics:

SURFACE AREA (m2)	598		
AVERAGE DEPTH (m)	0.7	DOMINANT SUBSTRATE	GRAVEL
WATER TEMPERATURE (C)	24.5	SUBDOMINANT SUBSTRATE	SAND
COMMENTS:	MORROW ROAD CROSSING, EAST OF RICKREALL		
AVAILABLE COVER:			
	LARGE WOOD		
	BOULDERS		

### Sand Roller Habitat Preferences:

---

### Native Fish Species Present:

SAND ROLLERS		LARGESCALE SUCKERS	1
OREGON CHUB		THREESPINE STICKLEBACKS	
COTTIDS	3	CHISELMOUTH	1
REDSIDE SHINERS		LAMPREY	
SPECKLED DACE	1	SALMONIDS	
LONGNOSE DACE			
N. PIKEMINNOW	4		

---

### Non-native Fish Species Present:

BLUEGILL	1	BULLHEADS	
PUMPKINSEED		COMMON CARP	
CRAPPIE		W. MOSQUITOFISH	
LARGEMOUTH BASS		BANDED KILLIFISH	
SMALLMOUTH BASS			

### Other:

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## Sand Roller Sampling Summary

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SITE NAME	<b>SOUTH YAMHILL RIVER</b>	MAP CODE	SYAMHILL1
BASIN	LOWER WILLAMETTE RIVER	ZONE:	10T
SUBBASIN	YAMHILL RIVER	EASTING	461547
DATE	7/27/2005	NORTHING	4990246
ACCESS	HIGHWAY 18, MCMINNVILLE	GEAR:	MINNOW TRAPS (OVERNIGHT)

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### Habitat Characteristics:

SURFACE AREA (m2)	4200		
AVERAGE DEPTH (m)	1	DOMINANT SUBSTRATE	BEDROCK
WATER TEMPERATURE (C)	24	SUBDOMINANT SUBSTRATE	SAND
COMMENTS:	HIGHWAY 18, ANGELLA PARK		

### AVAILABLE COVER:

BOULDERS  
LARGE WOOD  
DEEP POOL

### Sand Roller Habitat Preferences:

LARGE WOOD  
DEEP POOL

---

### Native Fish Species Present:

<b>SAND ROLLERS</b>	<b>52</b>	LARGESCALE SUCKERS		
OREGON CHUB		THREESPINE STICKLEBACKS		
COTTIDS	8	CHISELMOUTH		
REDSIDE SHINERS		LAMPREY		
SPECKLED DACE		SALMONIDS	CT	1
LONGNOSE DACE				
N. PIKEMINNOW				

---

### Non-native Fish Species Present:

BLUEGILL	BULLHEADS
PUMPKINSEED	COMMON CARP
CRAPPIE	W. MOSQUITOFISH
LARGEMOUTH BASS	BANDED KILLIFISH
SMALLMOUTH BASS	

### Other:

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## Sand Roller Sampling Summary

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SITE NAME	YAMHILL RIVER	MAP CODE	YAMHILL1
BASIN	LOWER WILLAMETTE RIVER	ZONE:	10T
SUBBASIN	YAMHILL RIVER	EASTING	494573
DATE	7/27/2005	NORTHING	5007386
ACCESS	DAYTON BOAT RAMP, ALDEN PARK	GEAR:	MINNOW TRAPS (OVERNIGHT)

---

### Habitat Characteristics:

SURFACE AREA (m2)	4392		
AVERAGE DEPTH (m)	1.3	DOMINANT SUBSTRATE	SAND
WATER TEMPERATURE (C)	25	SUBDOMINANT SUBSTRATE	SILT/ORGANICS
COMMENTS:	DAYTON BOAT RAMP		
AVAILABLE COVER:	LARGE WOOD		

### Sand Roller Habitat Preferences:

---

### Native Fish Species Present:

SAND ROLLERS	LARGESCALE SUCKERS
OREGON CHUB	THREESPINE STICKLEBACKS
COTTIDS	CHISELMOUTH
REDSIDE SHINERS	LAMPREY
SPECKLED DACE	SALMONIDS
LONGNOSE DACE	
N. PIKEMINNOW	

---

### Non-native Fish Species Present:

BLUEGILL	33	BULLHEADS
PUMPKINSEED		COMMON CARP
CRAPPIE		W. MOSQUITOFISH
LARGEMOUTH BASS		BANDED KILLIFISH
SMALLMOUTH BASS		

**Other:** CRAYFISH

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## Sand Roller Sampling Summary

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SITE NAME	GREEN ISLAND	MAP CODE	GREEN1
BASIN	MCKENZIE RIVER	ZONE:	10T
SUBBASIN		EASTING	490046
DATE	7/6/2005	NORTHING	4889513
ACCESS	GREEN ISLAND RD, MCK. R. TRUST	GEAR:	MINNOW TRAPS (OVERNIGHT)

---

### Habitat Characteristics:

SURFACE AREA (m2)	19933		
AVERAGE DEPTH (m)	1	DOMINANT SUBSTRATE	SAND
WATER TEMPERATURE (C)	20.5	SUBDOMINANT SUBSTRATE	GRAVEL
COMMENTS:	OLD MCK CHANL, MCKENZIE RIVER TRUST		
AVAILABLE COVER:			
	LARGE WOOD		
	SUBMERGED VEGETATION		

### Sand Roller Habitat Preferences:

---

### Native Fish Species Present:

<b>SAND ROLLERS</b>		LARGESCALE SUCKERS	
OREGON CHUB		THREESPINE STICKLEBACKS	46
COTTIDS	5	CHISELMOUTH	
REDSIDE SHINERS	1	LAMPREY	
SPECKLED DACE	1	SALMONIDS	
LONGNOSE DACE			
N. PIKEMINNOW	1		

---

### Non-native Fish Species Present:

BLUEGILL	6	BULLHEADS	
PUMPKINSEED		COMMON CARP	10
CRAPPIE		W. MOSQUITOFISH	100
LARGEMOUTH BASS	4	BANDED KILLIFISH	
SMALLMOUTH BASS			

### Other:

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## Sand Roller Sampling Summary

---

SITE NAME	<b>CEDAR CREEK</b>	MAP CODE	CED1
BASIN	MCKENZIE RIVER	ZONE:	10T
SUBBASIN	CEDAR CREEK	EASTING	512600
DATE	7/6/2005	NORTHING	4865129
ACCESS	GEORGE GRIER PROPERTY, 66TH ST	GEAR:	MINNOW TRAPS (OVERNIGHT)

---

### Habitat Characteristics:

SURFACE AREA (m2)	5365		
AVERAGE DEPTH (m)	0.9	DOMINANT SUBSTRATE	GRAVEL
WATER TEMPERATURE (C)	18	SUBDOMINANT SUBSTRATE	SAND
COMMENTS:	GEORGE GRIER, 66TH STREET, SPRINGFIELD		

#### AVAILABLE COVER:

- SUBMERGED VEGETATION
- ROOTWAD
- LARGE WOOD

### Sand Roller Habitat Preferences:

- ROOTWAD
- LARGE WOOD

---

### Native Fish Species Present:

<b>SAND ROLLERS</b>	<b>40</b>	LARGESCALE SUCKERS	
OREGON CHUB		THREESPINE STICKLEBACKS	101
COTTIDS	2	CHISELMOUTH	
REDSIDE SHINERS	35	LAMPREY	
SPECKLED DACE	2	SALMONIDS	
LONGNOSE DACE			
N. PIKEMINNOW			

---

### Non-native Fish Species Present:

BLUEGILL	BULLHEADS
PUMPKINSEED	COMMON CARP
CRAPPIE	W. MOSQUITOFISH
LARGEMOUTH BASS	BANDED KILLIFISH
SMALLMOUTH BASS	

### Other:

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## Sand Roller Sampling Summary

---

SITE NAME	<b>CEDAR CREEK</b>	MAP CODE	CED1A
BASIN	MCKENZIE RIVER	ZONE:	10T
SUBBASIN	CEDAR CREEK	EASTING	512600
DATE	7/14/2005	NORTHING	4865129
ACCESS	GEORGE GRIER PROPERTY, 66TH ST	GEAR:	MINNOW TRAPS (OVERNIGHT)

---

### Habitat Characteristics:

SURFACE AREA (m2)	5365		
AVERAGE DEPTH (m)	0.8	DOMINANT SUBSTRATE	GRAVEL
WATER TEMPERATURE (C)	16	SUBDOMINANT SUBSTRATE	SAND
COMMENTS:	M-R POPULATION ESTIMATE		
AVAILABLE COVER:			

- SUBMERGED VEGETATION
- ROOTWAD
- LARGE WOOD

### Sand Roller Habitat Preferences:

- ROOTWAD
- LARGE WOOD

---

### Native Fish Species Present:

<b>SAND ROLLERS</b>	<b>451</b>	LARGESCALE SUCKERS	
OREGON CHUB		THREESPINE STICKLEBACKS	12
COTTIDS	3	CHISELMOUTH	
REDSIDE SHINERS	101	LAMPREY	
SPECKLED DACE	6	SALMONIDS	
LONGNOSE DACE			
N. PIKEMINNOW			

---

### Non-native Fish Species Present:

BLUEGILL	BULLHEADS
PUMPKINSEED	COMMON CARP
CRAPPIE	W. MOSQUITOFISH
LARGEMOUTH BASS	BANDED KILLIFISH
SMALLMOUTH BASS	

**Other:**

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## Sand Roller Sampling Summary

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SITE NAME	MOHAWK RIVER 1- GOLF COURSE	MAP CODE	MOH1
BASIN	MCKENZIE RIVER	ZONE:	10T
SUBBASIN	MOHAWK RIVER	EASTING	506681
DATE	7/5/2005	NORTHING	4884942
ACCESS	GOLF COURSE- SUNDERMAN RD BC	GEAR:	MINNOW TRAPS (3-4 HRS)

---

### Habitat Characteristics:

SURFACE AREA (m2)	3984		
AVERAGE DEPTH (m)	1	DOMINANT SUBSTRATE	SAND
WATER TEMPERATURE (C)	18	SUBDOMINANT SUBSTRATE	GRAVEL
COMMENTS:	NEAR GOLF COURSE		
AVAILABLE COVER:			
	LARGE WOOD		
	BEDROCK CHANNELS		

### Sand Roller Habitat Preferences:

---

### Native Fish Species Present:

SAND ROLLERS		LARGESCALE SUCKERS
OREGON CHUB		THREESPINE STICKLEBACKS
COTTIDS	1	CHISELMOUTH
REDSIDE SHINERS	2	LAMPREY
SPECKLED DACE		SALMONIDS
LONGNOSE DACE		
N. PIKEMINNOW		

---

### Non-native Fish Species Present:

BLUEGILL	BULLHEADS
PUMPKINSEED	COMMON CARP
CRAPPIE	W. MOSQUITOFISH
LARGEMOUTH BASS	BANDED KILLIFISH
SMALLMOUTH BASS	

### Other:

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## Sand Roller Sampling Summary

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SITE NAME	MOHAWK RIVER 1- GOLF COURSE	MAP CODE	MOH1A
BASIN	MCKENZIE RIVER	ZONE:	10T
SUBBASIN	MOHAWK RIVER	EASTING	506681
DATE	7/6/2005	NORTHING	4884942
ACCESS	GOLF COURSE- SUNDERMAN RD BC	GEAR:	MINNOW TRAPS (OVERNIGHT)

---

### Habitat Characteristics:

SURFACE AREA (m2)	3984		
AVERAGE DEPTH (m)	1	DOMINANT SUBSTRATE	SAND
WATER TEMPERATURE (C)	18	SUBDOMINANT SUBSTRATE	GRAVEL
COMMENTS:	NEAR GOLF COURSE, KVAL TV FILMED		
AVAILABLE COVER:			
	LARGE WOOD		
	BEDROCK CHANNELS		

### Sand Roller Habitat Preferences:

LARGE WOOD

---

### Native Fish Species Present:

SAND ROLLERS	9	LARGESCALE SUCKERS
OREGON CHUB		THREESPINE STICKLEBACKS
COTTIDS	8	CHISELMOUTH
REDSIDE SHINERS	1	LAMPREY
SPECKLED DACE		SALMONIDS
LONGNOSE DACE	1	
N. PIKEMINNOW		

---

### Non-native Fish Species Present:

BLUEGILL	BULLHEADS
PUMPKINSEED	COMMON CARP
CRAPPIE	W. MOSQUITOFISH
LARGEMOUTH BASS	BANDED KILLIFISH
SMALLMOUTH BASS	

**Other:** CRAYFISH

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## Sand Roller Sampling Summary

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SITE NAME	MOHAWK RIVER 2- JCT MCGOWAN CK	MAP CODE	MOH2
BASIN	MCKENZIE RIVER	ZONE:	10T
SUBBASIN	MOHAWK RIVER	EASTING	507219
DATE	7/6/2005	NORTHING	4886731
ACCESS	CONFLUENCE MCGOWAN CK	GEAR:	MINNOW TRAPS (3-4 HRS)

---

### Habitat Characteristics:

SURFACE AREA (m2)	4250		
AVERAGE DEPTH (m)	0.8	DOMINANT SUBSTRATE	GRAVEL
WATER TEMPERATURE (C)	18.5	SUBDOMINANT SUBSTRATE	SAND
COMMENTS:	WALTERS PROPERTY, SUNDERMAN ROAD		
AVAILABLE COVER:			
ROOTWAD			
LARGE WOOD			

### Sand Roller Habitat Preferences:

ROOTWAD

---

### Native Fish Species Present:

SAND ROLLERS	1	LARGESCALE SUCKERS
OREGON CHUB		THREESPINE STICKLEBACKS
COTTIDS	2	CHISELMOUTH
REDSIDE SHINERS		LAMPREY
SPECKLED DACE	1	SALMONIDS
LONGNOSE DACE	2	
N. PIKEMINNOW		

---

### Non-native Fish Species Present:

BLUEGILL	BULLHEADS
PUMPKINSEED	COMMON CARP
CRAPPIE	W. MOSQUITOFISH
LARGEMOUTH BASS	BANDED KILLIFISH
SMALLMOUTH BASS	

**Other:** CRAYFISH

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## Sand Roller Sampling Summary

---

SITE NAME	MOHAWK RIVER 2- JCT MCGOWAN CK	MAP CODE	MOH2A
BASIN	MCKENZIE RIVER	ZONE:	10T
SUBBASIN	MOHAWK RIVER	EASTING	507219
DATE	7/5/2005	NORTHING	4886731
ACCESS	CONFLUENCE MCGOWAN CK	GEAR:	MINNOW TRAPS (OVERNIGHT)

---

### Habitat Characteristics:

SURFACE AREA (m2)	4250		
AVERAGE DEPTH (m)	0.8	DOMINANT SUBSTRATE	GRAVEL
WATER TEMPERATURE (C)	18.5	SUBDOMINANT SUBSTRATE	SAND
COMMENTS:	WALTERS PROP., SUNDERMAN RD, OVERNIGHT		
AVAILABLE COVER:			
ROOTWAD			
LARGE WOOD			

### Sand Roller Habitat Preferences:

ROOTWAD

---

### Native Fish Species Present:

SAND ROLLERS	2	LARGESCALE SUCKERS
OREGON CHUB		THREESPINE STICKLEBACKS
COTTIDS	10	CHISELMOUTH
REDSIDE SHINERS	2	LAMPREY
SPECKLED DACE		SALMONIDS
LONGNOSE DACE	2	
N. PIKEMINNOW		

---

### Non-native Fish Species Present:

BLUEGILL	BULLHEADS
PUMPKINSEED	COMMON CARP
CRAPPIE	W. MOSQUITOFISH
LARGEMOUTH BASS	BANDED KILLIFISH
SMALLMOUTH BASS	

**Other:** CRAYFISH

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## Sand Roller Sampling Summary

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SITE NAME	MOHAWK RIVER 3- JCT PARSONS CK	MAP CODE	MOH3
BASIN	MCKENZIE RIVER	ZONE:	10T
SUBBASIN	MOHAWK RIVER	EASTING	510036
DATE	7/5/2005	NORTHING	4889862
ACCESS	CONFLUENCE PARSONS CREEK	GEAR:	MINNOW TRAPS (3-4 HRS)

---

### Habitat Characteristics:

SURFACE AREA (m2)	2883		
AVERAGE DEPTH (m)	0.8	DOMINANT SUBSTRATE	SAND
WATER TEMPERATURE (C)	18	SUBDOMINANT SUBSTRATE	BEDROCK
COMMENTS:	PENNY JORDAN 933-2867		
AVAILABLE COVER:			
	LARGE WOOD		
	UNDERCUT BANKS		

### Sand Roller Habitat Preferences:

---

### Native Fish Species Present:

<b>SAND ROLLERS</b>		LARGESCALE SUCKERS
OREGON CHUB		THREESPINE STICKLEBACKS
COTTIDS	4	CHISELMOUTH
REDSIDE SHINERS	1	LAMPREY
SPECKLED DACE	12	SALMONIDS
LONGNOSE DACE	2	
N. PIKEMINNOW		

---

### Non-native Fish Species Present:

BLUEGILL	BULLHEADS
PUMPKINSEED	COMMON CARP
CRAPPIE	W. MOSQUITOFISH
LARGEMOUTH BASS	BANDED KILLIFISH
SMALLMOUTH BASS	

**Other:** CRAYFISH

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## Sand Roller Sampling Summary

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SITE NAME	MOHAWK RIVER 3- JCT PARSONS CK	MAP CODE	MOH3A
BASIN	MCKENZIE RIVER	ZONE:	10T
SUBBASIN	MOHAWK RIVER	EASTING	510036
DATE	7/6/2005	NORTHING	4889862
ACCESS	CONFLUENCE PARSONS CREEK	GEAR:	MINNOW TRAPS (OVERNIGHT)

---

### Habitat Characteristics:

SURFACE AREA (m2)	2883		
AVERAGE DEPTH (m)	0.8	DOMINANT SUBSTRATE	SAND
WATER TEMPERATURE (C)	18	SUBDOMINANT SUBSTRATE	BEDROCK
COMMENTS:	PENNY JORDAN 933-2867, OVERNIGHT		
AVAILABLE COVER:			
	LARGE WOOD		
	UNDERCUT BANKS		

### Sand Roller Habitat Preferences:

UNDERCUT BANKS

---

### Native Fish Species Present:

SAND ROLLERS	5	LARGESCALE SUCKERS		
OREGON CHUB		THREESPINE STICKLEBACKS		
COTTIDS	8	CHISELMOUTH		
REDSIDE SHINERS	4	LAMPREY		
SPECKLED DACE	2	SALMONIDS	RB	1
LONGNOSE DACE	3			
N. PIKEMINNOW				

---

### Non-native Fish Species Present:

BLUEGILL	BULLHEADS
PUMPKINSEED	COMMON CARP
CRAPPIE	W. MOSQUITOFISH
LARGEMOUTH BASS	BANDED KILLIFISH
SMALLMOUTH BASS	

**Other:**    CRAYFISH

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## Sand Roller Sampling Summary

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SITE NAME	MOHAWK RIVER 4- JCT SHOTGUN CK	MAP CODE	MOH4
BASIN	MCKENZIE RIVER	ZONE:	10T
SUBBASIN	MOHAWK RIVER	EASTING	513790
DATE	7/6/2005	NORTHING	4895095
ACCESS	CONFLUENCE SHOTGUN CREEK	GEAR:	MINNOW TRAPS (OVERNIGHT)

---

### Habitat Characteristics:

SURFACE AREA (m2)	2640		
AVERAGE DEPTH (m)	0.6	DOMINANT SUBSTRATE	SAND
WATER TEMPERATURE (C)	16	SUBDOMINANT SUBSTRATE	BEDROCK
COMMENTS:	LEE DOWNING PROPERTY, OVERNIGHT		

#### AVAILABLE COVER:

LARGE WOOD  
UNDERCUT BANKS  
DEEP POOL

### Sand Roller Habitat Preferences:

LARGE WOOD

---

### Native Fish Species Present:

SAND ROLLERS	1	LARGESCALE SUCKERS
OREGON CHUB		THREESPINE STICKLEBACKS
COTTIDS	12	CHISELMOUTH
REDSIDE SHINERS	7	LAMPREY
SPECKLED DACE	33	SALMONIDS
LONGNOSE DACE	7	
N. PIKEMINNOW		

---

### Non-native Fish Species Present:

BLUEGILL	BULLHEADS
PUMPKINSEED	COMMON CARP
CRAPPIE	W. MOSQUITOFISH
LARGEMOUTH BASS	BANDED KILLIFISH
SMALLMOUTH BASS	

**Other:** CRAYFISH

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## Sand Roller Sampling Summary

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SITE NAME	DEXTER RESERVOIR	MAP CODE	DEX11B
BASIN	MIDDLE FORK WILLAMETTE RIVER	ZONE:	10T
SUBBASIN	DEXTER RESERVOIR	EASTING	518251
DATE	7/6/2005	NORTHING	4862375
ACCESS	ACOE PARK DS POWERHOUSE	GEAR:	HOOP NET

---

### Habitat Characteristics:

SURFACE AREA (m2)	10000		
AVERAGE DEPTH (m)	1	DOMINANT SUBSTRATE	SILT/ORGANICS
WATER TEMPERATURE (C)	20.5	SUBDOMINANT SUBSTRATE	SAND
COMMENTS:	SET NEAR STUMPS IN NE RESERVOIR		
AVAILABLE COVER:			
	SUBMERGED VEGETATION		

### Sand Roller Habitat Preferences:

---

### Native Fish Species Present:

<b>SAND ROLLERS</b>		LARGESCALE SUCKERS
OREGON CHUB	1	THREESPINE STICKLEBACKS
COTTIDS	1	CHISELMOUTH
REDSIDE SHINERS	6	LAMPREY
SPECKLED DACE		SALMONIDS
LONGNOSE DACE		
N. PIKEMINNOW		

---

### Non-native Fish Species Present:

BLUEGILL	1	BULLHEADS
PUMPKINSEED		COMMON CARP
CRAPPIE		W. MOSQUITOFISH
LARGEMOUTH BASS		BANDED KILLIFISH
SMALLMOUTH BASS		

### Other:

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## Sand Roller Sampling Summary

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SITE NAME	LOOKOUT PT RES- ROLLING RIFFLE	MAP CODE	RR1C
BASIN	MIDDLE FORK WILLAMETTE RIVER	ZONE:	10T
SUBBASIN	LOOKOUT POINT	EASTING	523878
DATE	7/6/2005	NORTHING	4858094
ACCESS	ROLLING RIFFLE ARM	GEAR:	HOOP NET

---

### Habitat Characteristics:

SURFACE AREA (m2)	1500		
AVERAGE DEPTH (m)	0.6	DOMINANT SUBSTRATE	SAND
WATER TEMPERATURE (C)	20.5	SUBDOMINANT SUBSTRATE	SILT/ORGANICS
COMMENTS:	ROLLING RIFFLE ARM, W SIDE		
AVAILABLE COVER:	SUBMERGED VEGETATION		

### Sand Roller Habitat Preferences:

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### Native Fish Species Present:

SAND ROLLERS		LARGESCALE SUCKERS	4
OREGON CHUB		THREESPINE STICKLEBACKS	
COTTIDS		CHISELMOUTH	
REDSIDE SHINERS	1	LAMPREY	
SPECKLED DACE	3	SALMONIDS	
LONGNOSE DACE			
N. PIKEMINNOW	4		

---

### Non-native Fish Species Present:

BLUEGILL	BULLHEADS
PUMPKINSEED	COMMON CARP
CRAPPIE	W. MOSQUITOFISH
LARGEMOUTH BASS	BANDED KILLIFISH
SMALLMOUTH BASS	

### Other:

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## Sand Roller Sampling Summary

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SITE NAME	LOST CREEK	MAP CODE	LOST1
BASIN	MIDDLE FORK WILLAMETTE RIVER	ZONE:	10T
SUBBASIN	LOST CREEK	EASTING	512599
DATE	7/6/2005	NORTHING	4865131
ACCESS	ELIJAH BRISTOW STATE PARK	GEAR:	MINNOW TRAPS (OVERNIGHT)

---

### Habitat Characteristics:

SURFACE AREA (m2)	2076		
AVERAGE DEPTH (m)	0.8	DOMINANT SUBSTRATE	COBBLE
WATER TEMPERATURE (C)	18	SUBDOMINANT SUBSTRATE	GRAVEL
COMMENTS:	DOWNSTREAM BRIDGE E. BRISTOW ST. PK.		

### AVAILABLE COVER:

- UNDERCUT BANKS
- LARGE WOOD
- ROOTWAD

### Sand Roller Habitat Preferences:

- ROOTWAD
- UNDERCUT BANKS

---

### Native Fish Species Present:

SAND ROLLERS	3	LARGESCALE SUCKERS	1
OREGON CHUB		THREESPINE STICKLEBACKS	
COTTIDS	5	CHISELMOUTH	
REDSIDE SHINERS	20	LAMPREY	
SPECKLED DACE		SALMONIDS	CT 1
LONGNOSE DACE			
N. PIKEMINNOW			

---

### Non-native Fish Species Present:

BLUEGILL	BULLHEADS
PUMPKINSEED	COMMON CARP
CRAPPIE	W. MOSQUITOFISH
LARGEMOUTH BASS	BANDED KILLIFISH
SMALLMOUTH BASS	

**Other:** CRAYFISH

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## Sand Roller Sampling Summary

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SITE NAME	CALAPOOIA RIVER 1	MAP CODE	CAL5
BASIN	MID-WILLAMETTE RIVER	ZONE:	10T
SUBBASIN		EASTING	490941
DATE	7/13/2005	NORTHING	4942224
ACCESS	BRYANT ROAD, PARK AT MOUTH	GEAR:	MINNOW TRAPS (OVERNIGHT)

---

### Habitat Characteristics:

SURFACE AREA (m2)	3486		
AVERAGE DEPTH (m)	0.9	DOMINANT SUBSTRATE	SAND
WATER TEMPERATURE (C)	23	SUBDOMINANT SUBSTRATE	GRAVEL
COMMENTS:	MOUTH OF CALAPOOIA RIVER UPSTREAM		

#### AVAILABLE COVER:

- LARGE WOOD
- OVERHANGING VEGETATION
- BOULDERS

### Sand Roller Habitat Preferences:

---

#### Native Fish Species Present:

<b>SAND ROLLERS</b>		LARGESCALE SUCKERS	5
OREGON CHUB		THREESPINE STICKLEBACKS	
COTTIDS	1	CHISELMOUTH	
REDSIDE SHINERS	1	LAMPREY	
SPECKLED DACE		SALMONIDS	
LONGNOSE DACE			
N. PIKEMINNOW	60		

---

#### Non-native Fish Species Present:

BLUEGILL	11	BULLHEADS	
PUMPKINSEED		COMMON CARP	
CRAPPIE	2	W. MOSQUITOFISH	
LARGEMOUTH BASS	2	BANDED KILLIFISH	
SMALLMOUTH BASS			

#### Other:

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## Sand Roller Sampling Summary

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SITE NAME	CALAPOOIA RIVER 2	MAP CODE	CAL4A
BASIN	MID-WILLAMETTE RIVER	ZONE:	10T
SUBBASIN	CALAPOOIA RIVER	EASTING	496688
DATE	7/13/2005	NORTHING	4916828
ACCESS	LINN WEST RD, UPST SODOM DITCH	GEAR:	MINNOW TRAPS (OVERNIGHT)

---

### Habitat Characteristics:

SURFACE AREA (m2)	1925		
AVERAGE DEPTH (m)	1.1	DOMINANT SUBSTRATE	SAND
WATER TEMPERATURE (C)	24	SUBDOMINANT SUBSTRATE	GRAVEL
COMMENTS:	LINN-WEST ROAD, TURN MORSE BROS.		
AVAILABLE COVER:			

LARGE WOOD  
ROOTWAD  
BOULDERS

### Sand Roller Habitat Preferences:

LARGE WOOD  
ROOTWAD

---

### Native Fish Species Present:

SAND ROLLERS	3	LARGESCALE SUCKERS
OREGON CHUB		THREESPINE STICKLEBACKS
COTTIDS	1	CHISELMOUTH
REDSIDE SHINERS	2	LAMPREY
SPECKLED DACE	35	SALMONIDS
LONGNOSE DACE		
N. PIKEMINNOW	60	

---

### Non-native Fish Species Present:

BLUEGILL		BULLHEADS
PUMPKINSEED		COMMON CARP
CRAPPIE	1	W. MOSQUITOFISH
LARGEMOUTH BASS		BANDED KILLIFISH
SMALLMOUTH BASS		

### Other:

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## Sand Roller Sampling Summary

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SITE NAME	DRY MUDDY CREEK 2	MAP CODE	DMC4A
BASIN	MID-WILLAMETTE RIVER	ZONE:	10T
SUBBASIN	EAST MUDDY CREEK	EASTING	491226
DATE	7/11/2005	NORTHING	4981231
ACCESS	DALE RD BRIDGE CROSSING	GEAR:	MINNOW TRAPS (OVERNIGHT)

---

### Habitat Characteristics:

SURFACE AREA (m2)	344		
AVERAGE DEPTH (m)	0.6	DOMINANT SUBSTRATE	GRAVEL
WATER TEMPERATURE (C)	19.5	SUBDOMINANT SUBSTRATE	SAND
COMMENTS:	DALE ROAD BRIDGE CROSSING		
AVAILABLE COVER:			
	UNDERCUT BANKS		
	LARGE WOOD		

### Sand Roller Habitat Preferences:

UNDERCUT BANKS  
LARGE WOOD

---

### Native Fish Species Present:

SAND ROLLERS	12	LARGESCALE SUCKERS	2
OREGON CHUB	16	THREESPINE STICKLEBACKS	
COTTIDS		CHISELMOUTH	
REDSIDE SHINERS		LAMPREY	
SPECKLED DACE		SALMONIDS	
LONGNOSE DACE			
N. PIKEMINNOW	28		

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### Non-native Fish Species Present:

BLUEGILL	BULLHEADS
PUMPKINSEED	COMMON CARP
CRAPPIE	W. MOSQUITOFISH
LARGEMOUTH BASS	BANDED KILLIFISH
SMALLMOUTH BASS	

**Other:** CRAYFISH

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## Sand Roller Sampling Summary

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SITE NAME	DRY MUDDY CREEK 1	MAP CODE	DMC5A
BASIN	MID-WILLAMETTE RIVER	ZONE:	10T
SUBBASIN	EAST MUDDY CREEK	EASTING	491542
DATE	7/11/2005	NORTHING	4897108
ACCESS	BOWERS ROAD CROSSING	GEAR:	MINNOW TRAPS (OVERNIGHT)

---

### Habitat Characteristics:

SURFACE AREA (m2)	144		
AVERAGE DEPTH (m)	0.5	DOMINANT SUBSTRATE	GRAVEL
WATER TEMPERATURE (C)	21	SUBDOMINANT SUBSTRATE	SILT/ORGANICS
COMMENTS:	BOWERS ROAD BRIDGE CROSSING		
AVAILABLE COVER:			
	SUBMERGED VEGETATION		

### Sand Roller Habitat Preferences:

---

#### Native Fish Species Present:

<b>SAND ROLLERS</b>		LARGESCALE SUCKERS	
OREGON CHUB	10	THREESPINE STICKLEBACKS	2
COTTIDS	2	CHISELMOUTH	
REDSIDE SHINERS		LAMPREY	
SPECKLED DACE	2	SALMONIDS	
LONGNOSE DACE			
N. PIKEMINNOW			

---

#### Non-native Fish Species Present:

BLUEGILL	BULLHEADS
PUMPKINSEED	COMMON CARP
CRAPPIE	W. MOSQUITOFISH
LARGEMOUTH BASS	BANDED KILLIFISH
SMALLMOUTH BASS	

**Other:**    CRAYFISH

---

## Sand Roller Sampling Summary

---

SITE NAME	<b>MUDDY CREEK (LINN CO.)</b>	MAP CODE	EMUD5A
BASIN	MID-WILLAMETTE RIVER	ZONE:	10T
SUBBASIN	EAST MUDDY CREEK	EASTING	490021
DATE	7/11/2005	NORTHING	4906273
ACCESS	HIGHWAY 99 BRIDGE CROSSING	GEAR:	MINNOW TRAPS (OVERNIGHT)

---

### Habitat Characteristics:

SURFACE AREA (m2)	672		
AVERAGE DEPTH (m)	0.6	DOMINANT SUBSTRATE	COBBLE
WATER TEMPERATURE (C)	20	SUBDOMINANT SUBSTRATE	SAND
COMMENTS:	HIGHWAY 99E BRIDGE CROSSING		

#### AVAILABLE COVER:

- LARGE WOOD
- UNDERCUT BANKS
- ROOTWAD

### Sand Roller Habitat Preferences:

- UNDERCUT BANKS

---

### Native Fish Species Present:

<b>SAND ROLLERS</b>	<b>1</b>	LARGESCALE SUCKERS
OREGON CHUB		THREESPINE STICKLEBACKS
COTTIDS	7	CHISELMOUTH
REDSIDE SHINERS	5	LAMPREY
SPECKLED DACE		SALMONIDS
LONGNOSE DACE		
N. PIKEMINNOW	1	

---

### Non-native Fish Species Present:

BLUEGILL	BULLHEADS
PUMPKINSEED	COMMON CARP
CRAPPIE	W. MOSQUITOFISH
LARGEMOUTH BASS	BANDED KILLIFISH
SMALLMOUTH BASS	

**Other:**    CRAYFISH

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## Sand Roller Sampling Summary

---

SITE NAME	LONG TOM RIVER 1	MAP CODE	LTOM1
BASIN	MID-WILLAMETTE RIVER	ZONE:	10T
SUBBASIN	LONG TOM RIVER	EASTING	476575
DATE	7/14/2005	NORTHING	4906979
ACCESS	WATER TRT PLANT IN MONROE	GEAR:	MINNOW TRAPS (3-4 HRS)

---

### Habitat Characteristics:

SURFACE AREA (m2)	3360		
AVERAGE DEPTH (m)	0.6	DOMINANT SUBSTRATE	GRAVEL
WATER TEMPERATURE (C)	22	SUBDOMINANT SUBSTRATE	COBBLE
COMMENTS:	PARK OFF HIGHWAY 99		
AVAILABLE COVER:	OVERHANGING VEGETATION		

### Sand Roller Habitat Preferences:

---

### Native Fish Species Present:

SAND ROLLERS	LARGESCALE SUCKERS
OREGON CHUB	THREESPINE STICKLEBACKS
COTTIDS	CHISELMOUTH
REDSIDE SHINERS	LAMPREY
SPECKLED DACE	SALMONIDS
LONGNOSE DACE	
N. PIKEMINNOW	

---

### Non-native Fish Species Present:

BLUEGILL	BULLHEADS
PUMPKINSEED	COMMON CARP
CRAPPIE	W. MOSQUITOFISH
LARGEMOUTH BASS	BANDED KILLIFISH
SMALLMOUTH BASS	

**Other:** NO FISH

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## Sand Roller Sampling Summary

---

SITE NAME	<b>LONG TOM RIVER 2</b>	MAP CODE	LTOM2
BASIN	MID-WILLAMETTE RIVER	ZONE:	10T
SUBBASIN	LONG TOM RIVER	EASTING	479517
DATE	7/14/2005	NORTHING	4915280
ACCESS	SLOUGH NEAR MOUTH, EUREKA RD	GEAR:	MINNOW TRAPS (3-4 HRS)

---

### Habitat Characteristics:

SURFACE AREA (m2)	2464		
AVERAGE DEPTH (m)	0.6	DOMINANT SUBSTRATE	BOULDER
WATER TEMPERATURE (C)	21	SUBDOMINANT SUBSTRATE	SAND
COMMENTS:	EUREKA ROAD, SLOUGH NEAR MOUTH		
AVAILABLE COVER:			
	BOULDERS		
	LARGE WOOD		

### Sand Roller Habitat Preferences:

---

### Native Fish Species Present:

<b>SAND ROLLERS</b>	LARGESCALE SUCKERS
OREGON CHUB	THREESPINE STICKLEBACKS
COTTIDS	CHISELMOUTH
REDSIDE SHINERS	LAMPREY
SPECKLED DACE	SALMONIDS
LONGNOSE DACE	
N. PIKEMINNOW	

---

### Non-native Fish Species Present:

BLUEGILL	11	BULLHEADS	
PUMPKINSEED		COMMON CARP	1
CRAPPIE		W. MOSQUITOFISH	
LARGEMOUTH BASS		BANDED KILLIFISH	
SMALLMOUTH BASS			

### Other:

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## Sand Roller Sampling Summary

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SITE NAME	LUCKIAMUTE RIVER	MAP CODE	LUCK4A
BASIN	MID-WILLAMETTE RIVER	ZONE:	10T
SUBBASIN	LUCKIAMUTE RIVER	EASTING	481183
DATE	7/19/2005	NORTHING	4958440
ACCESS	HELMICK STATE PARK, HWY 99W	GEAR:	MINNOW TRAPS (OVERNIGHT)

---

### Habitat Characteristics:

SURFACE AREA (m2)	37835		
AVERAGE DEPTH (m)	0.9	DOMINANT SUBSTRATE	SAND
WATER TEMPERATURE (C)	23.5	SUBDOMINANT SUBSTRATE	SILT/ORGANICS
COMMENTS:	HELMICK STATE PARK		
AVAILABLE COVER:			

LARGE WOOD

ROOTWAD

OVERHANGING VEGETATION

### Sand Roller Habitat Preferences:

ROOTWAD

LARGE WOOD

---

### Native Fish Species Present:

<b>SAND ROLLERS</b>	<b>21</b>	LARGESCALE SUCKERS
OREGON CHUB		THREESPINE STICKLEBACKS
COTTIDS	2	CHISELMOUTH
REDSIDE SHINERS	18	LAMPREY
SPECKLED DACE	5	SALMONIDS
LONGNOSE DACE		
N. PIKEMINNOW	16	

---

### Non-native Fish Species Present:

BLUEGILL	BULLHEADS
PUMPKINSEED	COMMON CARP
CRAPPIE	W. MOSQUITOFISH
LARGEMOUTH BASS	BANDED KILLIFISH
SMALLMOUTH BASS	

**Other:** CRAYFISH

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## Sand Roller Sampling Summary

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SITE NAME	RITTNER CREEK	MAP CODE	RITNER1
BASIN	MID-WILLAMETTE RIVER	ZONE:	10T
SUBBASIN	LUCKIAMUTE RIVER	EASTING	462011
DATE	7/19/2005	NORTHING	4953989
ACCESS	GAGE ROAD, KESECKER PROPERTY	GEAR:	MINNOW TRAPS (OVERNIGHT)

---

### Habitat Characteristics:

SURFACE AREA (m2)	904		
AVERAGE DEPTH (m)	0.2	DOMINANT SUBSTRATE	BEDROCK
WATER TEMPERATURE (C)	18	SUBDOMINANT SUBSTRATE	SAND
COMMENTS:	BURBANK ROAD, GAGE ROAD		
AVAILABLE COVER:			
	BOULDERS		

### Sand Roller Habitat Preferences:

---

### Native Fish Species Present:

SAND ROLLERS		LARGESCALE SUCKERS		
OREGON CHUB		THREESPINE STICKLEBACKS		
COTTIDS	5	CHISELMOUTH		
REDSIDE SHINERS	11	LAMPREY		
SPECKLED DACE	31	SALMONIDS	CT	1
LONGNOSE DACE				
N. PIKEMINNOW				

---

### Non-native Fish Species Present:

BLUEGILL	BULLHEADS
PUMPKINSEED	COMMON CARP
CRAPPIE	W. MOSQUITOFISH
LARGEMOUTH BASS	BANDED KILLIFISH
SMALLMOUTH BASS	

**Other:**    CRAYFISH

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## Sand Roller Sampling Summary

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SITE NAME	BEAVER CREEK	MAP CODE	BEAVER1
BASIN	MID-WILLAMETTE RIVER	ZONE:	10T
SUBBASIN	MARYS RIVER	EASTING	474646
DATE	7/12/2005	NORTHING	4922587
ACCESS	TYEE WINERY, GREENBERRY ROAD	GEAR:	MINNOW TRAPS (OVERNIGHT)

---

### Habitat Characteristics:

SURFACE AREA (m2)	714		
AVERAGE DEPTH (m)	0.6	DOMINANT SUBSTRATE	SAND
WATER TEMPERATURE (C)	18	SUBDOMINANT SUBSTRATE	SILT/ORGANICS
COMMENTS:	GREENBERRY ROAD, DAVE BUCHANAN		

#### AVAILABLE COVER:

- LARGE WOOD
- UNDERCUT BANKS
- SUBMERGED VEGETATION

### Sand Roller Habitat Preferences:

- UNDERCUT BANKS

---

### Native Fish Species Present:

SAND ROLLERS	2	LARGESCALE SUCKERS
OREGON CHUB		THREESPINE STICKLEBACKS
COTTIDS	8	CHISELMOUTH
REDSIDE SHINERS		LAMPREY
SPECKLED DACE		SALMONIDS
LONGNOSE DACE		
N. PIKEMINNOW		

---

### Non-native Fish Species Present:

BLUEGILL	BULLHEADS
PUMPKINSEED	COMMON CARP
CRAPPIE	W. MOSQUITOFISH
LARGEMOUTH BASS	BANDED KILLIFISH
SMALLMOUTH BASS	

**Other:** CRAYFISH

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## Sand Roller Sampling Summary

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SITE NAME	BULL RUN CREEK	MAP CODE	BULLR2
BASIN	MID-WILLAMETTE RIVER	ZONE:	10T
SUBBASIN	MARYS RIVER	EASTING	473047
DATE	5/11/2005	NORTHING	4926122
ACCESS	BELLFOUNTAIN ROAD- T. MURPHY	GEAR:	MINNOW TRAPS (OVERNIGHT)

---

### Habitat Characteristics:

SURFACE AREA (m2)	1265		
AVERAGE DEPTH (m)	0.8	DOMINANT SUBSTRATE	SAND
WATER TEMPERATURE (C)	12.5	SUBDOMINANT SUBSTRATE	SILT/ORGANICS
COMMENTS:	TOM MURPHY'S PROPERTY		

#### AVAILABLE COVER:

- LARGE WOOD
- UNDERCUT BANKS
- OVERHANGING VEGETATION

### Sand Roller Habitat Preferences:

- LARGE WOOD

---

### Native Fish Species Present:

SAND ROLLERS	2	LARGESCALE SUCKERS	
OREGON CHUB		THREESPINE STICKLEBACKS	31
COTTIDS	8	CHISELMOUTH	
REDSIDE SHINERS	13	LAMPREY	
SPECKLED DACE		SALMONIDS	
LONGNOSE DACE			
N. PIKEMINNOW			

---

### Non-native Fish Species Present:

BLUEGILL	BULLHEADS
PUMPKINSEED	COMMON CARP
CRAPPIE	W. MOSQUITOFISH
LARGEMOUTH BASS	BANDED KILLIFISH
SMALLMOUTH BASS	

### Other:

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## Sand Roller Sampling Summary

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SITE NAME	MARYS RIVER 1	MAP CODE	MARY1
BASIN	MID-WILLAMETTE RIVER	ZONE:	10T
SUBBASIN	MARYS RIVER	EASTING	467887
DATE	7/12/2005	NORTHING	4837598
ACCESS	CARDWELL HILL ROAD, PEARCY'S	GEAR:	MINNOW TRAPS (OVERNIGHT)

---

### Habitat Characteristics:

SURFACE AREA (m2)	2088		
AVERAGE DEPTH (m)	1	DOMINANT SUBSTRATE	COBBLE
WATER TEMPERATURE (C)	18.5	SUBDOMINANT SUBSTRATE	GRAVEL
COMMENTS:	24362 CARDWELL HILL RD, FIN CLIPS, PATHO		
AVAILABLE COVER:			

UNDERCUT BANKS  
LARGE WOOD  
ROOTWAD

### Sand Roller Habitat Preferences:

UNDERCUT BANKS  
ROOTWAD

---

### Native Fish Species Present:

<b>SAND ROLLERS</b>	<b>80</b>	LARGESCALE SUCKERS
OREGON CHUB		THREESPINE STICKLEBACKS
COTTIDS	7	CHISELMOUTH
REDSIDE SHINERS		LAMPREY
SPECKLED DACE	5	SALMONIDS
LONGNOSE DACE		
N. PIKEMINNOW	4	

---

### Non-native Fish Species Present:

BLUEGILL	BULLHEADS
PUMPKINSEED	COMMON CARP
CRAPPIE	W. MOSQUITOFISH
LARGEMOUTH BASS	BANDED KILLIFISH
SMALLMOUTH BASS	

**Other:** CRAYFISH

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## Sand Roller Sampling Summary

---

SITE NAME	MARYS RIVER 1	MAP CODE	MARY1A
BASIN	MID-WILLAMETTE RIVER	ZONE:	10T
SUBBASIN	MARYS RIVER	EASTING	467887
DATE	7/21/2005	NORTHING	4837598
ACCESS	CARDWELL HILL ROAD, PEARCY'S	GEAR:	MINNOW TRAPS (OVERNIGHT)

---

### Habitat Characteristics:

SURFACE AREA (m2)	2088		
AVERAGE DEPTH (m)	1	DOMINANT SUBSTRATE	COBBLE
WATER TEMPERATURE (C)	19	SUBDOMINANT SUBSTRATE	GRAVEL
COMMENTS:	M-R POPULATION ESTIMATE		

#### AVAILABLE COVER:

UNDERCUT BANKS  
LARGE WOOD  
ROOTWAD

### Sand Roller Habitat Preferences:

UNDERCUT BANKS  
ROOTWAD

---

### Native Fish Species Present:

<b>SAND ROLLERS</b>	<b>1093</b>	LARGESCALE SUCKERS
OREGON CHUB		THREESPINE STICKLEBACKS
COTTIDS	6	CHISELMOUTH
REDSIDE SHINERS	6	LAMPREY
SPECKLED DACE	6	SALMONIDS
LONGNOSE DACE		
N. PIKEMINNOW	6	

---

### Non-native Fish Species Present:

BLUEGILL	BULLHEADS
PUMPKINSEED	COMMON CARP
CRAPPIE	W. MOSQUITOFISH
LARGEMOUTH BASS	BANDED KILLIFISH
SMALLMOUTH BASS	

**Other:** CRAYFISH

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## Sand Roller Sampling Summary

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SITE NAME	MARYS RIVER 2	MAP CODE	MARY2
BASIN	MID-WILLAMETTE RIVER	ZONE:	10T
SUBBASIN	MARYS RIVER	EASTING	468299
DATE	7/12/2005	NORTHING	4935253
ACCESS	KIRK SCHROEDER, MARYS RIVR EST	GEAR:	MINNOW TRAPS (OVERNIGHT)

---

### Habitat Characteristics:

SURFACE AREA (m2)	425		
AVERAGE DEPTH (m)	0.9	DOMINANT SUBSTRATE	SAND
WATER TEMPERATURE (C)	19.5	SUBDOMINANT SUBSTRATE	GRAVEL
COMMENTS:	IRIS CIRCLE, MARYS RIVER ESTATES		

### AVAILABLE COVER:

UNDERCUT BANKS  
LARGE WOOD  
ROOTWAD

### Sand Roller Habitat Preferences:

ROOTWAD  
UNDERCUT BANKS

---

### Native Fish Species Present:

<b>SAND ROLLERS</b>	<b>9</b>	LARGESCALE SUCKERS
OREGON CHUB		THREESPINE STICKLEBACKS
COTTIDS	2	CHISELMOUTH
REDSIDE SHINERS	1	LAMPREY
SPECKLED DACE	9	SALMONIDS
LONGNOSE DACE		
N. PIKEMINNOW	2	

---

### Non-native Fish Species Present:

BLUEGILL	BULLHEADS
PUMPKINSEED	COMMON CARP
CRAPPIE	W. MOSQUITOFISH
LARGEMOUTH BASS	BANDED KILLIFISH
SMALLMOUTH BASS	

**Other:** CRAYFISH

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## Sand Roller Sampling Summary

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SITE NAME	MARYS RIVER 3	MAP CODE	MARY3
BASIN	MID-WILLAMETTE RIVER	ZONE:	10T
SUBBASIN	MARYS RIVER	EASTING	468411
DATE	7/12/2005	NORTHING	4935595
ACCESS	JANET LEHMAN, MARYS RIVER EST	GEAR:	MINNOW TRAPS (OVERNIGHT)

---

### Habitat Characteristics:

SURFACE AREA (m2)	780		
AVERAGE DEPTH (m)	0.4	DOMINANT SUBSTRATE	BEDROCK
WATER TEMPERATURE (C)	19.5	SUBDOMINANT SUBSTRATE	GRAVEL
COMMENTS:	IRIS CIRCLE, MARYS RIVER ESTATES		
AVAILABLE COVER:			
	BEDROCK CHANNELS		
	DEEP POOL		

### Sand Roller Habitat Preferences:

---

### Native Fish Species Present:

SAND ROLLERS		LARGESCALE SUCKERS
OREGON CHUB		THREESPINE STICKLEBACKS
COTTIDS	5	CHISELMOUTH
REDSIDE SHINERS	1	LAMPREY
SPECKLED DACE	9	SALMONIDS
LONGNOSE DACE		
N. PIKEMINNOW		

---

### Non-native Fish Species Present:

BLUEGILL	BULLHEADS
PUMPKINSEED	COMMON CARP
CRAPPIE	W. MOSQUITOFISH
LARGEMOUTH BASS	BANDED KILLIFISH
SMALLMOUTH BASS	

### Other:

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## Sand Roller Sampling Summary

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SITE NAME	<b>MUDDY CREEK</b>	MAP CODE	MUDDY1
BASIN	MID-WILLAMETTE RIVER	ZONE:	10T
SUBBASIN	MARYS RIVER	EASTING	474661
DATE	7/12/2005	NORTHING	4918441
ACCESS	FINLEY NWR BRIDGE, REFUGE RD	GEAR:	MINNOW TRAPS (OVERNIGHT)

---

### Habitat Characteristics:

SURFACE AREA (m2)	1232		
AVERAGE DEPTH (m)	1	DOMINANT SUBSTRATE	SAND
WATER TEMPERATURE (C)	20.5	SUBDOMINANT SUBSTRATE	SILT/ORGANICS
COMMENTS:	FINLEY REFUGE ROAD, BRIDGE CROSSING		
AVAILABLE COVER:			
	LARGE WOOD		
	UNDERCUT BANKS		

### Sand Roller Habitat Preferences:

---

#### Native Fish Species Present:

<b>SAND ROLLERS</b>		LARGESCALE SUCKERS
OREGON CHUB		THREESPINE STICKLEBACKS
COTTIDS	2	CHISELMOUTH
REDSIDE SHINERS		LAMPREY
SPECKLED DACE		SALMONIDS
LONGNOSE DACE		
N. PIKEMINNOW		

---

#### Non-native Fish Species Present:

BLUEGILL		BULLHEADS	
PUMPKINSEED		COMMON CARP	4
CRAPPIE		W. MOSQUITOFISH	
LARGEMOUTH BASS		BANDED KILLIFISH	
SMALLMOUTH BASS			

#### Other:

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## Sand Roller Sampling Summary

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SITE NAME	<b>SANTIAM RIVER 1 (INTERSTATE 5)</b>	MAP CODE	I5BW2F
BASIN	SANTIAM RIVER	ZONE:	10T
SUBBASIN		EASTING	496051
DATE	5/18/2005	NORTHING	4953491
ACCESS	HIGHWAY I-5 MP 240.66	GEAR:	MINNOW TRAPS (OVERNIGHT)

---

### Habitat Characteristics:

SURFACE AREA (m2)	6000		
AVERAGE DEPTH (m)	1.5	DOMINANT SUBSTRATE	SILT/ORGANICS
WATER TEMPERATURE (C)	13	SUBDOMINANT SUBSTRATE	GRAVEL
COMMENTS:	POPULATION ESTIMATE		
AVAILABLE COVER:			
	SUBMERGED VEGETATION		
	LARGE WOOD		

### Sand Roller Habitat Preferences:

SUBMERGED VEGETATION

---

### Native Fish Species Present:

<b>SAND ROLLERS</b>	<b>5</b>	LARGESCALE SUCKERS	10
OREGON CHUB	580	THREESPINE STICKLEBACKS	49
COTTIDS	8	CHISELMOUTH	14
REDSIDE SHINERS	6	LAMPREY	
SPECKLED DACE		SALMONIDS	
LONGNOSE DACE			
N. PIKEMINNOW			

---

### Non-native Fish Species Present:

BLUEGILL	16	BULLHEADS	1
PUMPKINSEED	5	COMMON CARP	
CRAPPIE		W. MOSQUITOFISH	
LARGEMOUTH BASS		BANDED KILLIFISH	
SMALLMOUTH BASS			

### Other:

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## Sand Roller Sampling Summary

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SITE NAME	<b>SANTIAM RIVER 6</b>	MAP CODE	SANT 9
BASIN	SANTIAM RIVER	ZONE:	10T
SUBBASIN		EASTING	498091
DATE	7/21/2005	NORTHING	494932
ACCESS	FLOAT I-5 BC TO BUENA VISTA	GEAR:	SEINE

---

### Habitat Characteristics:

SURFACE AREA (m2)	3933		
AVERAGE DEPTH (m)	0.7	DOMINANT SUBSTRATE	SILT/ORGANICS
WATER TEMPERATURE (C)	19.5	SUBDOMINANT SUBSTRATE	GRAVEL
COMMENTS:	BACKWATER AND BEAVER POND LEFT BANK		
AVAILABLE COVER:			
	LARGE WOOD		
	SUBMERGED VEGETATION		

### Sand Roller Habitat Preferences:

---

### Native Fish Species Present:

<b>SAND ROLLERS</b>		LARGESCALE SUCKERS	12
OREGON CHUB		THREESPINE STICKLEBACKS	85
COTTIDS	61	CHISELMOUTH	54
REDSIDE SHINERS	27	LAMPREY	
SPECKLED DACE		SALMONIDS	
LONGNOSE DACE			
N. PIKEMINNOW	51		

---

### Non-native Fish Species Present:

BLUEGILL	9	BULLHEADS	
PUMPKINSEED		COMMON CARP	
CRAPPIE		W. MOSQUITOFISH	50
LARGEMOUTH BASS		BANDED KILLIFISH	
SMALLMOUTH BASS			

### Other:

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## Sand Roller Sampling Summary

---

SITE NAME	<b>SANTIAM RIVER 3</b>	MAP CODE	SANT3A
BASIN	SANTIAM RIVER	ZONE:	10T
SUBBASIN		EASTING	492589
DATE	7/21/2005	NORTHING	4954560
ACCESS	FLOAT I-5 BC TO BUENA VISTA	GEAR:	SEINE

---

### Habitat Characteristics:

SURFACE AREA (m2)	1584		
AVERAGE DEPTH (m)	0.8	DOMINANT SUBSTRATE	SILT/ORGANICS
WATER TEMPERATURE (C)	19	SUBDOMINANT SUBSTRATE	SAND
COMMENTS:	DOWNSTREAM OF RR CROSSING		
AVAILABLE COVER:			
	LARGE WOOD		

### Sand Roller Habitat Preferences:

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### Native Fish Species Present:

<b>SAND ROLLERS</b>		LARGESCALE SUCKERS	9
OREGON CHUB		THREESPINE STICKLEBACKS	1906
COTTIDS	18	CHISELMOUTH	
REDSIDE SHINERS		LAMPREY	
SPECKLED DACE		SALMONIDS	
LONGNOSE DACE			
N. PIKEMINNOW	30		

---

### Non-native Fish Species Present:

BLUEGILL	2	BULLHEADS	
PUMPKINSEED		COMMON CARP	4
CRAPPIE		W. MOSQUITOFISH	10
LARGEMOUTH BASS	1	BANDED KILLIFISH	
SMALLMOUTH BASS			

### Other:

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## Sand Roller Sampling Summary

---

SITE NAME	<b>SANTIAM RIVER 2</b>	MAP CODE	SANT6
BASIN	SANTIAM RIVER	ZONE:	10T
SUBBASIN		EASTING	495266
DATE	7/21/2005	NORTHING	4954802
ACCESS	FLOAT I-5 BC TO BUENA VISTA	GEAR:	SEINE

---

### Habitat Characteristics:

SURFACE AREA (m2)	2640		
AVERAGE DEPTH (m)	0.8	DOMINANT SUBSTRATE	SILT/ORGANICS
WATER TEMPERATURE (C)	16	SUBDOMINANT SUBSTRATE	SAND
COMMENTS:	NEAR MORGAN CREEK CONFLUENCE		
AVAILABLE COVER:			
	LARGE WOOD		

### Sand Roller Habitat Preferences:

---

#### Native Fish Species Present:

<b>SAND ROLLERS</b>		LARGESCALE SUCKERS	21
OREGON CHUB		THREESPINE STICKLEBACKS	262
COTTIDS	75	CHISELMOUTH	
REDSIDE SHINERS		LAMPREY	
SPECKLED DACE	3	SALMONIDS	
LONGNOSE DACE			
N. PIKEMINNOW	1		

---

#### Non-native Fish Species Present:

BLUEGILL		BULLHEADS	
PUMPKINSEED		COMMON CARP	
CRAPPIE		W. MOSQUITOFISH	120
LARGEMOUTH BASS		BANDED KILLIFISH	
SMALLMOUTH BASS			

#### Other:

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## Sand Roller Sampling Summary

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SITE NAME	<b>SANTIAM RIVER 4</b>	MAP CODE	SANT7
BASIN	SANTIAM RIVER	ZONE:	10T
SUBBASIN		EASTING	491743
DATE	7/21/2005	NORTHING	4955110
ACCESS	FLOAT I-5 BC TO BUENA VISTA	GEAR:	SEINE

---

### Habitat Characteristics:

SURFACE AREA (m2)	10000		
AVERAGE DEPTH (m)	1.1	DOMINANT SUBSTRATE	GRAVEL
WATER TEMPERATURE (C)	19	SUBDOMINANT SUBSTRATE	SAND
COMMENTS:	BACKWATER RIGHT SIDE		
AVAILABLE COVER:			
	SUBMERGED VEGETATION		

### Sand Roller Habitat Preferences:

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### Native Fish Species Present:

<b>SAND ROLLERS</b>		LARGESCALE SUCKERS	360
OREGON CHUB		THREESPINE STICKLEBACKS	4
COTTIDS	3	CHISELMOUTH	155
REDSIDE SHINERS	5	LAMPREY	
SPECKLED DACE		SALMONIDS	
LONGNOSE DACE			
N. PIKEMINNOW	145		

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### Non-native Fish Species Present:

BLUEGILL	BULLHEADS
PUMPKINSEED	COMMON CARP
CRAPPIE	W. MOSQUITOFISH
LARGEMOUTH BASS	BANDED KILLIFISH
SMALLMOUTH BASS	

### Other:

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## Sand Roller Sampling Summary

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SITE NAME	<b>SANTIAM RIVER 5</b>	MAP CODE	SANT8
BASIN	SANTIAM RIVER	ZONE:	10T
SUBBASIN		EASTING	490774
DATE	7/21/2005	NORTHING	4956001
ACCESS	FLOAT I-5 BC TO BUENA VISTA	GEAR:	SEINE

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### Habitat Characteristics:

SURFACE AREA (m2)	16835		
AVERAGE DEPTH (m)	0.8	DOMINANT SUBSTRATE	SILT/ORGANICS
WATER TEMPERATURE (C)	20.5	SUBDOMINANT SUBSTRATE	SAND
COMMENTS:	BACKWATER RIGHT BANK		
AVAILABLE COVER:			
	LARGE WOOD		
	SUBMERGED VEGETATION		

### Sand Roller Habitat Preferences:

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### Native Fish Species Present:

<b>SAND ROLLERS</b>		LARGESCALE SUCKERS	18
OREGON CHUB		THREESPINE STICKLEBACKS	31
COTTIDS	124	CHISELMOUTH	77
REDSIDE SHINERS	87	LAMPREY	
SPECKLED DACE		SALMONIDS	
LONGNOSE DACE			
N. PIKEMINNOW	119		

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### Non-native Fish Species Present:

BLUEGILL		BULLHEADS	
PUMPKINSEED		COMMON CARP	3
CRAPPIE		W. MOSQUITOFISH	53
LARGEMOUTH BASS	2	BANDED KILLIFISH	
SMALLMOUTH BASS			

### Other:

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## Sand Roller Sampling Summary

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SITE NAME	BEAVER CREEK	MAP CODE	BEAVSANT1
BASIN	SANTIAM RIVER	ZONE:	10T
SUBBASIN	SOUTH SANTIAM	EASTING	511616
DATE	7/18/2005	NORTHING	4942036
ACCESS	FISH HATCHERY ROAD	GEAR:	MINNOW TRAPS (OVERNIGHT)

---

### Habitat Characteristics:

SURFACE AREA (m2)	304		
AVERAGE DEPTH (m)	0.8	DOMINANT SUBSTRATE	SAND
WATER TEMPERATURE (C)	21	SUBDOMINANT SUBSTRATE	GRAVEL
COMMENTS:	FISH HATCHERY ROAD		
AVAILABLE COVER:			
	LARGE WOOD		

### Sand Roller Habitat Preferences:

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### Native Fish Species Present:

SAND ROLLERS		LARGESCALE SUCKERS	
OREGON CHUB		THREESPINE STICKLEBACKS	
COTTIDS		CHISELMOUTH	
REDSIDE SHINERS	2	LAMPREY	
SPECKLED DACE		SALMONIDS	
LONGNOSE DACE			
N. PIKEMINNOW	1		

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### Non-native Fish Species Present:

BLUEGILL		BULLHEADS	5
PUMPKINSEED	1	COMMON CARP	
CRAPPIE		W. MOSQUITOFISH	
LARGEMOUTH BASS		BANDED KILLIFISH	
SMALLMOUTH BASS			

**Other:**    CRAYFISH

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## Sand Roller Sampling Summary

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SITE NAME	HAMILTON CREEK	MAP CODE	HAM1
BASIN	SANTIAM RIVER	ZONE:	10T
SUBBASIN	SOUTH SANTIAM	EASTING	516137
DATE	7/18/2005	NORTHING	4928716
ACCESS	BELLANGER SCALE ROAD	GEAR:	MINNOW TRAPS (OVERNIGHT)

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### Habitat Characteristics:

SURFACE AREA (m2)	550		
AVERAGE DEPTH (m)	0.6	DOMINANT SUBSTRATE	GRAVEL
WATER TEMPERATURE (C)	21	SUBDOMINANT SUBSTRATE	COBBLE
COMMENTS:	BELANGER SCALE ROAD		

### AVAILABLE COVER:

LARGE WOOD  
ROOTWAD  
DEEP POOL

### Sand Roller Habitat Preferences:

ROOTWAD  
LARGE WOOD

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### Native Fish Species Present:

<b>SAND ROLLERS</b>	<b>21</b>	LARGESCALE SUCKERS
OREGON CHUB		THREESPINE STICKLEBACKS
COTTIDS	12	CHISELMOUTH
REDSIDE SHINERS	8	LAMPREY
SPECKLED DACE	4	SALMONIDS
LONGNOSE DACE		
N. PIKEMINNOW	2	

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### Non-native Fish Species Present:

BLUEGILL	BULLHEADS
PUMPKINSEED	COMMON CARP
CRAPPIE	W. MOSQUITOFISH
LARGEMOUTH BASS	BANDED KILLIFISH
SMALLMOUTH BASS	

**Other:** CRAYFISH

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## Sand Roller Sampling Summary

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SITE NAME	<b>SOUTH SANTIAM RIVER 2</b>	MAP CODE	SSAN3
BASIN	SANTIAM RIVER	ZONE:	10T
SUBBASIN	SOUTH SANTIAM	EASTING	508918
DATE	7/14/2005	NORTHING	4931410
ACCESS	LEBANON BOAT RAMP	GEAR:	SEINE

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### Habitat Characteristics:

SURFACE AREA (m2)	900		
AVERAGE DEPTH (m)	0.5	DOMINANT SUBSTRATE	SAND
WATER TEMPERATURE (C)	18	SUBDOMINANT SUBSTRATE	GRAVEL
COMMENTS:	BOAT RAMP IN LEBANON		
AVAILABLE COVER:			
	LARGE WOOD		

### Sand Roller Habitat Preferences:

LARGE WOOD

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### Native Fish Species Present:

<b>SAND ROLLERS</b>	<b>1</b>	LARGESCALE SUCKERS	<b>2</b>
OREGON CHUB		THREESPINE STICKLEBACKS	<b>28</b>
COTTIDS	<b>42</b>	CHISELMOUTH	
REDSIDE SHINERS		LAMPREY	
SPECKLED DACE		SALMONIDS	
LONGNOSE DACE			
N. PIKEMINNOW			

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### Non-native Fish Species Present:

BLUEGILL	<b>6</b>	BULLHEADS	
PUMPKINSEED		COMMON CARP	
CRAPPIE		W. MOSQUITOFISH	
LARGEMOUTH BASS	<b>2</b>	BANDED KILLIFISH	
SMALLMOUTH BASS			

**Other:** CRAYFISH

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## Sand Roller Sampling Summary

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SITE NAME	<b>SOUTH SANTIAM RIVER 1</b>	MAP CODE	SSR1A
BASIN	SANTIAM RIVER	ZONE:	10T
SUBBASIN	SOUTH SANTIAM	EASTING	506031
DATE	7/18/2005	NORTHING	4941804
ACCESS	HIGHWAY 226, SANDERSON BRIDGE	GEAR:	MINNOW TRAPS (OVERNIGHT)

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### Habitat Characteristics:

SURFACE AREA (m2)	4822		
AVERAGE DEPTH (m)	0.7	DOMINANT SUBSTRATE	GRAVEL
WATER TEMPERATURE (C)	18.5	SUBDOMINANT SUBSTRATE	SAND
COMMENTS:	SANDERMAN BRIDGE, HWY 226, SLOUGH		
AVAILABLE COVER:			
	SUBMERGED VEGETATION		
	LARGE WOOD		

### Sand Roller Habitat Preferences:

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#### Native Fish Species Present:

<b>SAND ROLLERS</b>		LARGESCALE SUCKERS	25
OREGON CHUB		THREESPINE STICKLEBACKS	317
COTTIDS	21	CHISELMOUTH	
REDSIDE SHINERS	5	LAMPREY	
SPECKLED DACE		SALMONIDS	
LONGNOSE DACE			
N. PIKEMINNOW	42		

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#### Non-native Fish Species Present:

BLUEGILL	1	BULLHEADS	
PUMPKINSEED		COMMON CARP	
CRAPPIE		W. MOSQUITOFISH	
LARGEMOUTH BASS		BANDED KILLIFISH	
SMALLMOUTH BASS			

**Other:**    CRAYFISH

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## Sand Roller Sampling Summary

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SITE NAME	THOMAS CREEK	MAP CODE	THOMAS1
BASIN	SANTIAM RIVER	ZONE:	10T
SUBBASIN	SOUTH SANTIAM	EASTING	507759
DATE	7/18/2005	NORTHING	4948117
ACCESS	GILKEY COVERED BRIDGE	GEAR:	MINNOW TRAPS (OVERNIGHT)

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### Habitat Characteristics:

SURFACE AREA (m2)	2244		
AVERAGE DEPTH (m)	1.8	DOMINANT SUBSTRATE	SAND
WATER TEMPERATURE (C)	23	SUBDOMINANT SUBSTRATE	BOULDER
COMMENTS:	GILKEY COVERED BRIDGE		
AVAILABLE COVER:			
	BOULDERS		
	UNDERCUT BANKS		

### Sand Roller Habitat Preferences:

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#### Native Fish Species Present:

SAND ROLLERS	LARGESCALE SUCKERS
OREGON CHUB	THREESPINE STICKLEBACKS
COTTIDS	CHISELMOUTH
REDSIDE SHINERS	LAMPREY
SPECKLED DACE	SALMONIDS
LONGNOSE DACE	
N. PIKEMINNOW	

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#### Non-native Fish Species Present:

BLUEGILL	11	BULLHEADS
PUMPKINSEED		COMMON CARP
CRAPPIE		W. MOSQUITOFISH
LARGEMOUTH BASS		BANDED KILLIFISH
SMALLMOUTH BASS		

**Other:** CRAYFISH

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**3406 Cherry Ave. NE  
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