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SUMMARY

Populations of Oregon chub *Oregonichthys crameri*, endemic to the Willamette Valley, have been drastically reduced. Factors in the decline of this fish include changes in flow regimes and habitat characteristics resulting from the construction of flood control dams, revetments, channelization, diking, and the drainage of wetlands. The Oregon chub is further threatened by predation and competition by non-native species such as largemouth bass *Micropterus salmoides*, smallmouth bass *M. dolomieui*, crappies *Pomoxis* sp., sunfishes *Lepomis* sp., bullheads *Ameiurus sp.*, and western mosquitofish *Gambusia affinis*. We surveyed in the Willamette River drainage in April-October 2000 to quantify existing Oregon chub populations, search for unknown populations, evaluate potential introduction sites, and monitor introduced populations.

We sampled a total of 77 sites in 2000. We collected Oregon chub for the first time from Barnard Slough in the Middle Fork Willamette drainage. Oregon chub were last collected from this location in 1983 (Bond 1984). Thirty-one of the 77 sites were new sites that were sampled for the first time in 2000. Forty-six sites, sampled in 1991-1999, were revisited. Three sites were sampled twice.

We confirmed the continued existence of Oregon chub at 20 locations. These include naturally occurring populations in the Santiam drainage (Geren Island, Santiam Conservation Easement, Gray Slough, Santiam I-5 backwaters, Pioneer Park backwater, Santiam Public Works Pond), Mid-Willamette drainage (Finley Gray Creek Swamp) and Middle Fork Willamette drainage (Dexter Reservoir Alcoves, East Fork Minnow Creek Pond, Shady Dell Pond, Buckhead Creek, Oakridge Slough, Elijah Bristow State Park, Rattlesnake Creek, and Hospital Pond) and introduced populations in the Middle Fork Willamette (Wicopee Pond, Fall Creek Spillway Ponds), Santiam (Foster Pullout Pond), and Mid-Willamette drainages (Dunn Wetland, Finley Display Pond).

Oregon chub were not found at several locations (Jasper Park Slough, Wallace Slough, East Ferrin Pond, Dexter East Alcove, Hospital Impoundment Pond, Logan Slough, Green's Bridge Backwater, Camas Swale) where they were collected on at least one occasion between 1991-1999 (Scheerer et. al. 1992; 1993; 1994; 1995; 1996; 1998; 1999; 2000; Scheerer and Jones 1997).

Non-native fish were common in off-channel habitats that were surveyed in the Willamette River drainage. Non-native fish were collected from 23 of the 31 new sites sampled in 1999 (74%); no fish were collected at three locations (10%). Western mosquitofish and centrarchids (largemouth bass and bluegill) were the most common non-native fish collected.

Oregon chub were introduced into Menear's Bend Pond in the Santiam River drainage in the October 2000. Additional Oregon chub were introduced into Foster Pullout Pond in October 2000, to supplement the 85 fish introduced in 1999. In the summer of 2000, a habitat enhancement project creating new habitat to benefit Oregon chub was completed in the Long Tom drainage (Mid-Willamette River).

Seven potential Oregon chub reintroduction sites were monitored and evaluated. These included four sites in the Mid-Willamette River drainage (Finley National Wildlife Refuge Beaver and Cattail Ponds, Ankeny National Wildlife Refuge Dunlin-Woodduck Pond, Long Tom Ranch Pond), one site in the Santiam River drainage (Menear's Bend Pond), one site in the McKenzie River drainage (Russell Pond), and one site in the Coast Fork Willamette drainage (Layng Pond).

Estimates of abundance were obtained for naturally occurring populations of Oregon chub in East Fork Minnow Creek Pond, Shady Dell Pond, Elijah Bristow State Park Sloughs,

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Hospital Pond, Dexter Reservoir Alcoves, Buckhead Creek, Oakridge Slough, Santiam Conservation Easement Sloughs, Geren Island Ponds, and Finley Gray Creek Swamp. Five of these populations showed an increase in abundance in 2000 (East Fork Minnow Creek Pond, Shady Dell Pond, Middle Buckhead Creek, Dexter Reservoir Alcoves, Finley Gray Creek Swamp). Four populations decreased in abundance (or remain depressed) in 2000 (Geren Island, Santiam Conservation Easement, Elijah Bristow Sloughs, Oakridge Slough) (Table 1).

Abundance estimates for introduced populations of Oregon chub were also obtained. The Oregon chub population in East Ferrin Pond declined from 7,200 fish in 1997 to 0 fish in 2000, and is presumed extinct. The Oregon chub population in the Fall Creek Spillway Pond totaled 5,030 fish in 2000, compared to 6,300 fish in 1999. The Oregon chub population in Wicopee Pond expanded dramatically from ~50 fish in 1999 to 4,580 fish in 2000. The Oregon chub population in the Dunn Wetland Ponds increased from 4,860 fish in 1999 to 14,090 fish in 2000. The Oregon chub population in Finley Display Pond increased from 360 fish in 1999 to 1,750 fish in 2000. Three of the four largest populations in 2000 were introduced populations.

The Middle Fork Willamette River drainage supported the largest number of Oregon chub populations (n=12), followed by the Santiam drainage (n=8), and the Mid-Willamette drainage (n=5). The most abundant Oregon chub populations were found in the Middle Fork Willamette and Mid-Willamette drainages.

The Oregon Chub Recovery Plan (U.S. Fish and Wildlife Service 1998) set a recovery goal for downlisting the species to "threatened" and for delisting the species. The criteria for downlisting the species was to establish and manage ten populations of at least 500 adult fish. All populations must exhibit a stable or increasing trend for five years. At least three populations must be located in each of the three sub-basins (Middle Fork Willamette River, Santiam River, Mid-Willamette River tributaries). In 2000, there were 11 populations totaling 500 or more individuals and six of these populations exhibited a stable or increasing trend for the past five years (Table 1). Five of these six populations were located in the Middle Fork Willamette drainage.

In summary, Oregon chub remain at risk due to their limited distribution compared with their historic geographic range in the Willamette Valley, the loss of suitable habitat and the continued threats posed by the proliferation of non-native fishes, illegal water withdrawals, unauthorized fill and removal operations, and potential chemical spills or careless pesticide applications.

Objectives for 2000-2001

The purpose of this investigation was to determine the status of Oregon chub populations and their habitat in the Willamette River basin, to monitor and evaluate reintroductions of Oregon chub, to introduce Oregon chub into suitable habitats, to locate and evaluate additional reintroduction sites, to protect and enhance Oregon chub habitats, and to evaluate the impacts of activities affecting Oregon chub and their habitats.

Objective 1: Establish new populations at one or two sites. Sites adjacent to Foster Reservoir in the Santiam River drainage, near Cougar Reservoir in the McKenzie River drainage, and at Finley National Wildlife Refuge are leading candidates.

						2002					
	Basin	1992	1993	1994	1995	1996	1997	1998	1999	2000	
and Ponds*	MILL							460	4860	14090	
Minnow Creek Pond	MFW		8800	7500	7100	4500	4020	4440	4780	5050	
Spillway Ponds*	MFW						475	1400	6300	5030	
ond*	MFW	ы			0	, T	6	25	16	4580	
Pond	MFW		1600	4800	3800	4200	3790	3650	2860	3830	
khead Creek	MFW								3010	3570	
puc	MFW		690		780		3160	3030	3020	2980	
ow State Park Sloughs	MFW		4000		1900		2010	5350	3780	2360	
ervoir Alcoves	MFW	780			140	40	2250	1280	1180	2320	
vlay Pond*	WILL								360	1750	
/ Creek Swamp	WILL		600	460	470	520	620	620	510	730	
pr.	SANT					8340	8700	1830	860	360	
slough	MFW			4	8		2	21	480	140	
out Pond*	SANT									80	
5 Backwaters	SANT						5	2	ę	13	
onservation Easement	SANT			1250		830	300	250	13	4	
ht	SANT				2	ო	2	0	13	4	
Creek Enhancement Ponds**	MFW								4	4	
slough	MFW	0								ຕັ	
e Creek	MFW	7			9				-	2	
irk Backwater	SANT						2	0	0	2	
ublic Works Pond	SANT							ę	4	-	
· Creek	MILL			26			2		denied	access	
reek	MILL		5			5			denied	access	
idge	SANT		5			2	5	0	7	0	
<pre>npoundment Pond**</pre>	MFW				9	0	-	0	.	0	
u d r	SANT						7			0	
ale	CFW	-	7	0		0			0	0	
ו Pond*	MFW				3500	5600	7200	3500	60	0	
ough	MFW						e	0	0	0	
st Alcove	MFW	40				0	0	0		0	
rk Slough	MFW			ო		0		0	0	0	
uction site											
enhancement project				ŗ							
				ſ							

Oregon chub population abundance, status , and trends from 1992-2000. Mark-recapture estimates were obtained at sites where were >40 fish. (Basins: MFW- Middle Fork Willamette SANT- Santiam JANI I ANIA JANIACE STIMINE OF T

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- Objective 2: Evaluate sites for future Oregon chub reintroductions. Monitor temperature regimes. Evaluate quantity and quality of aquatic vegetation. Determine the presence of non-native species. Determine site stability (includes vulnerability to drying, spills, introductions of non-native species, other?). Determine site ownership and make landowner contacts.
- Objective 3: Determine the status and estimate the population size of Oregon chub populations.
 - Task 3.1: Obtain population estimates of Oregon chub and other fish species in the Middle Fork Willamette drainage (East Fork Minnow Creek Pond, Elijah Bristow State Park Sloughs, Shady Dell Pond, Dexter Reservoir Alcoves), Santiam drainage (Geren Island, Santiam Conservation Easement Sloughs), and Mid-Willamette drainage (Finley Gray Creek Swamp).
 - Task 3.2 Monitor Oregon chub introductions and habitat enhancement projects in the Middle Fork Willamette drainage (Fall Creek Spillway Ponds, Wicopee Pond, East Ferrin Pond), Santiam drainage (Foster Pullout Pond, Geren Island), and Mid-Willamette drainage (Dunn Wetland Ponds, Finley National Wildlife Refuge Cattail and Display Ponds, Ankeny National Wildlife Refuge, Long Tom Ranch).
- Task 3.3Determine the status (confirm presence) of small populations of Oregon chub in
the Santiam drainage (Gray Slough, Public Works Pond, I-5 Backwaters, Green's
Bridge, Logan Slough) and Middle Fork Willamette drainage (Rattlesnake Creek).
- Objective 4: Investigate sites (off-channel habitats) for the presence of previously unknown Oregon chub populations in the Willamette River basin (Santiam, Middle Fork Willamette, and mainstem Willamette River off-channel habitats). Describe the habitat characteristics and fish communities at these locations.
- Objective 5: Evaluate the impacts of activities (currently unknown) that affect Oregon chub and their habitats in the Willamette River drainage.

Accomplishments in 2000-2001

Objective 1 was accomplished. Oregon chub were introduced into Menear's' Bend and Foster Pullout Pond in the Santiam River drainage. Objective 2 was accomplished. Objective 3 was accomplished. Additional population estimates were made in Oakridge Slough, Buckhead Creek, and Hospital Pond in the Middle Fork Willamette River drainage. The status of small populations was determined at additional sites in the Middle Fork Willamette drainage (Wallace Slough, Dexter West Alcove, Jasper Park Slough). Objective 4 was accomplished. Several activities affecting Oregon chub populations or habitat (Objective 5) were monitored in 2000. These activities include bridge replacement on Highway 58, potential expansion of a gravel mining operation, replacement of an irrigation dam on the Long Tom River, impacts of land application of biosolids near Oakridge Slough, and a diesel spill at Geren Island.

Findings in 2000-2001

- In 2000, we sampled 77 sites in the Willamette Valley. Oregon chub were collected from 21 locations where they were collected in prior years. Oregon chub were not found at eight locations where they had been collected on one or more occasions between 1991-1999 (only small numbers of Oregon chub were collected at seven of these sites between 1991-1999).
- Oregon chub population estimates were obtained at Dunn Wetland Ponds (n=14,090), East Fork Minnow Creek Pond (n=5,050), Fall Creek Spillway Ponds (n=5,030), Wicopee Pond (n=4,580), Shady Dell Pond (n=3,830), Middle Buckhead Creek (n=3,570), Hospital Pond (n=2,980), Elijah Bristow State Park Sloughs (n=2,360), Dexter Reservoir Alcoves (n=2,320), Finley Gray Creek Swamp (n=730) and Display Pond (n=1,750), Geren Island Ponds (n=360), Oakridge Slough (n=140), Foster Pullout Pond (n=80), and Santiam Conservation Easement Sloughs (n=4 captured).
- A habitat enhancement project was completed in the Long Tom River drainage in 2000. This project created habitat suitable for Oregon chub and will be monitored as a potential introduction site.
- 4. Oregon chub were introduced into a new location in the Santiam River drainage (Menear's Bend). Additional Oregon chub were introduced to supplement the population introduced in 1999 in Foster Pullout Pond in the South Santiam drainage.
- 5. Oregon chub were generally absent from suitable habitat where non-native fishes were collected. Of the sites visited for the first time in 2000, non-native fish were collected from 74% of the sites. Several locations with declining Oregon chub populations (Geren Island, Santiam Conservation Easement Sloughs, East Ferrin Pond) showed an increase in the numbers of, or were recently invaded by, non-native fish. Non-native fish were absent from those locations that supported the seven most abundant chub populations.
- 6. Oregon chub were found inhabiting silted, shallow pools containing an abundance of aquatic vegetation and off-channel ponds that have little or no water velocity. The fish were often associated with beaver ponds.
- 7. Seven locations were evaluated for the potential reintroduction of Oregon chub in the Willamette Valley. Evaluations included fish sampling, monitoring of temperature regimes and water levels, and quantification / classification of the aquatic vegetation.
- 8. Oregon chub remain at risk due to the loss of suitable habitat, continued threats to existing populations, and continued proliferation of non-native fish in suitable habitats.

INTRODUCTION

Oregon chub are endemic to the Willamette River drainage of western Oregon (Markle et al. 1991). This species was formerly distributed throughout the Willamette River Valley (Snyder 1908) in off-channel habitats such as beaver ponds, oxbows, stable backwater sloughs, and flooded marshes (Figure 1). These habitats usually have little or no water flow, have silty and organic substrate, and have considerable aquatic vegetation and cover for hiding and spawning. In the last 100 years, these habitats have disappeared because of changes in seasonal flows resulting from the construction of dams throughout the basin, channelization of the Willamette River and its tributaries, and agricultural practices. This loss of habitat combined with the introduction of non-native species to the Willamette Valley resulted in a sharp decline in Oregon chub abundance.

The reduction of habitat and the restricted distribution of the Oregon chub resulted in a determination of "endangered" status under the federal endangered species act (Markle and Pearsons 1990; Rhew 1993). To evaluate Oregon chub population abundance and distribution, the Oregon Department of Fish and Wildlife conducted surveys in April - October 2000. Similar surveys were conducted in 1991-1999. The objectives of the surveys were to collect information on the status, distribution, and abundance of Oregon chub, the presence of non-native and native species, the characteristics of historic Oregon chub habitats, the characteristics of potential reintroduction sites, and to evaluate Oregon chub reintroductions. In addition, evaluation and reviews of projects or activities with potential impacts on Oregon chub and their habitat were provided to the U.S. Fish and Wildlife Service.

METHODS

Surveys were conducted at locations throughout the Willamette Valley (Figures 2-3). Sampling was conducted using a 1 m x 5 m seine with 64 mm mesh. When seining was impractical due to water depth or impenetrable aquatic vegetation, fish were collected using dip nets, experimental gill nets, baited minnow traps, and/or by snorkeling. We sampled approximately 20% of the surface area of each site and counted and measured all Oregon chub collected. Other fish species were identified, counted, and their length recorded in 25-millimeter increment categories. The presence of amphibian and reptile species and their life stages was recorded.

Physical and biological habitat parameters recorded at each site included substrate, aquatic vegetation, depth, temperature, and total surface area. Each new site was photographed when sampled. A unique map code was assigned to each site. Map codes begin with several capital letters followed by a number. For example, the first site sampled at a location was given the code "XXX1", the second site visited at that location was given the code "XXX1" was revisited, the first time it was revisited the capital letter "A" was added to the map code (i.e. XXX1A). If the site was revisited the following year the capital letter "B" replaced the "A" (i.e. XXX1B), and so on. To distinguish sites sampled in the fall from those sampled in the spring, we added an asterisk (*) to the end of the sites sampled in the fall. We made this distinction because of differences in habitat conditions (water temperature, pond area, vegetation, depth, etc.) that occur as water levels receded during the summer months. Hence, if site "XXX1B" was revisited in May of the following year it was assigned a map code "XXX1C". If the site was revisited in September, rather than May, the asterisk was added and the map code was "XXX1C*".



Figure 1. Historical range of Oregon chub in the Willamette Valley, Oregon (adapted from Markle et. al. 1991).



Figure 2. Survey locations for Oregon chub in the Santiam and Mid-Willamette River drainages in 2000.





Minnow traps, measuring 23 by 46 centimeters with 64-millimeter mesh, were used to obtain mark-recapture population estimates of all fish species at selected sites. These traps were baited with a half slice of bread and set for 3-18 hours. We measured a subsample of the fish collected in the traps, gave all of them a partial caudal fin clip, and returned them to the water. This procedure was repeated for several days. Each subsequent day we marked all unmarked fish and counted all previously marked fish in the sample. Population estimates were made each day and the ratio of the number marked to the total estimate was compared to determine the approximate percentage of the total population that was marked. Fish were marked until approximately 15 percent of the population was marked. Fish were returned to the water. Population size was estimated using single-sample mark-recapture procedures (Ricker 1975). To calculate population abundance, we used the total number of marked fish, and the catch and recaptures from the last sample date. Confidence intervals were calculated using a Poisson approximation (Ricker 1975). Fish smaller than ~30 millimeters in length were not captured by the minnow traps, and were not included in the estimates. Excluded were all age 0 and some age 1 Oregon chub (Scheerer and McDonald 2000).

Bullfrogs were captured by angling at Fall Creek Spillway Pond on July 26-27, 2000 to determine their diet. Frogs were placed on ice in field, then frozen. Frogs were later thawed, sexed, snout-vent length was measured, and stomach contents were determined.

Water quality was monitored bi-monthly at Finley Gray Creek from September 1999 through October 2000. Water temperature and pH were recorded using an Orion[®] portable pH meter (model 250A). Dissolved oxygen was recorded using a YSI[®] Oxygen meter (model 57). Hourly readings of temperature and dissolved oxygen were taken on August 23, 2000 and September 20, 2000 for 24-hour periods using a Hydrolab[®] multimeter.

RESULTS

Sampling for Oregon chub was conducted throughout the middle and upper Willamette River basin (Figures 2-3). Detailed descriptions of habitat characteristics and the fish species present at each sample site are presented in **APPENDIX A**.

Santiam River Drainage

Thirty-four sites in the Santiam River drainage were sampled in 2000 (Figure 2). We confirmed the continued presence of Oregon chub at six locations in the basin (Geren Island, Santiam Conservation Easement, Gray Slough, Pioneer Park backwater, Santiam Public Works Pond, and Santiam I-5 backwaters). No Oregon chub were collected in 2000 from Logan Slough or Green's Bridge backwater, locations where they had been collected in 1997 and 1999, respectively. Non-native fish were collected from 21 of the 34 sites (62%) sampled in the drainage, including Geren Island, Green's Bridge backwater, Santiam I-5 backwaters, Santiam Public Works Pond, and the Santiam Conservation Easement sloughs. Nineteen new sites were sampled in the Santiam drainage in 2000. None contained Oregon chub and 14 contained non-native fish (74%).

Oregon chub abundance continued to decline at Geren Island in the North Santiam drainage. Non-native bluegill and bullhead were abundant, particularly in the North Pond. This increase in non-native fish abundance was first observed in August 1997. We believe these fish were not originally present at the site and entered during the 1996 floods.

Oregon chub population abundance continued to be depressed at the Santiam Conservation Easement sloughs in 2000. Only four Oregon chub were captured despite considerable sampling effort. The Santiam Conservation Easement is located near the confluence of the North and South Santiam Rivers. The habitat was altered by the flooding in 1996. New channels were formed, large amounts of fine sediment were deposited, aquatic vegetation was scoured or buried, and non-native fish invaded and/or expanded their range.

A concentrated effort was made to sample new locations in the South Santiam (lower 29 kilometers) and North Santiam drainages (lower 16 kilometers) to search for previously unknown populations of Oregon chub, or populations that might have become established following the 1996 floods. Off-channel habitat quality was good and beaver activity was widespread. Unfortunately, non-native fish were common and Oregon chub were not found.

A pond at Menear's Bend in the South Santiam drainage near Foster Reservoir was monitored during the summer 2000, prior to introducing Oregon chub (n=15) in October 2000. The introduced population of Oregon chub at Foster Pullout Pond was monitored and an additional 20 chub were stocked to supplement this population.

Mid-Willamette River Drainage

Twelve sites were sampled in the Mid-Willamette River drainage (Figure 2). Seven of these sites were sampled in previous years and revisited in 2000. We confirmed the continued presence of Oregon chub at Finley Gray Creek Swamp, Finley Display Pond, and Dunn Wetland Ponds. Non-native fish were collected from seven of the 12 locations (58%) surveyed in the drainage and four of the five new locations (80%) surveyed.

A large side-channel slough at Windsor Island (Marion County) was sampled. Sampling was requested prior to a proposed expansion of a gravel mining operation in the vicinity. Four sites were sampled (WIND1-3, CLAG1) including the side channel and a small tributary that enters the side-channel. No Oregon chub were collected; non-native fish were present at all sites.

Four sites in the Muddy Creek drainage (Benton County) on Finley National Wildlife Refuge were sampled. The population abundance in Gray Creek Swamp (FIN4G) was higher than that estimated in previous years (n=730). The population in Display Pond (FIN16G), location of a 1998 introduction, increased to 1,750 fish in 2000. Beaver Pond (FIN1E) and Cattail Pond (FIN7F), habitat enhancement sites and potential reintroduction sites, were also sampled. Non-native fish were collected from Cattail Pond and lower Gray Creek (FIN24A) downstream of Cattail Pond. Additional efforts to remove non-native fish (drain the pond) and to exclude non-native fish movement from lower Gray Creek are needed.

Oregon chub were introduced into the Dunn Wetland Ponds (DUNN2F*, DUNN6A*) in the Beaver Creek drainage in 1997-98. In 2000, the Dunn Wetlands supported the largest Oregon chub population (n=14,090) in the Willamette Valley. In addition, juvenile Oregon chub successfully colonized a new pond (DUNN7) that was created in the wetland in 1999.

A habitat restoration and potential introduction site was monitored at Ankeny National Wildlife Refuge. Habitat in the Dunlin-Woodduck Pond complex was enhanced in 1998. All of the newly created habitat was dry in early October. If additional water can be pumped or diverted into the ponds, the habitat will be ideal for Oregon chub.

Long Tom River Drainage

Six locations in the Long Tom drainage were sampled (Figure 3). Non-native fish were collected from five of these locations (84%). Five sloughs (STRODA1-5) on private farm land

near Monroe were sampled at the request of the U.S. Army Corps of Engineers (ACOE). We sampled to determine the presence or absence of Oregon chub, prior to the ACOE's replacement of an irrigation dam to provide better upstream passage for fluvial cutthroat trout. No Oregon chub were collected. All five sloughs contained multiple species of non-native fish (bass, bluegills, bullheads, western mosquitofish). A habitat enhancement pond on the Long Tom Ranch (LTR1*) was monitored in 1999. Stocked rainbow trout were the only fish present. Aquatic vegetation was sparse. Habitat suitability for Oregon chub will likely improve as the aquatic vegetation becomes better established.

McKenzie River Drainage

One site in the McKenzie River drainage was sampled in 2000 (Figure 3). We revisited a potential introduction site (Russell Pond) on private property in the Mohawk River drainage (RUSS1A). This site had habitat that was suitable for Oregon chub. The private landowner was open to potential future habitat enhancement work on his property. A "Safe Harbor Agreement" is in progress to permit introduction of Oregon chub into this pond, which lies outside the confirmed historic range of Oregon chub in this drainage.

Coast Fork Willamette River Drainage

One location, Camas Swale Creek (CS1E), in the Coast Fork Willamette River drainage was sampled in 2000 (Figure 3). This is the only location in the Coast Fork drainage where we have collected Oregon chub. Small numbers were collected in 1992 (n=1) and 1993 (n=2). No Oregon chub were collected in 1994, 1996, 1999, or 2000. Non-native bluegills and bullheads were common during prior sampling in this drainage.

Middle Fork Willamette River Drainage

Twenty-five sites in the Middle Fork Willamette River drainage were sampled in 2000; two sites were visited twice (Figure 3). We documented the continued presence of Oregon chub in East Fork Minnow Creek Pond (MNW1I*), Shady Dell Pond (SDP1I*), Dexter Reservoir Alcoves (PIT1H* and DEX3F*), Hospital Pond (HSP1H), Elijah Bristow State Park (EB10G, EBN1B), Oakridge Slough (OSTP1E), Wicopee Pond (WCP1I, WCP1J*), Fall Creek Spillway Ponds (FCSP1-2G*), Buckhead Creek (BCK9-11B), Middle Buckhead Enhancement Pond (BCK15A*), and Rattlesnake Creek (RTC1C*). Fish population estimates were obtained for all of these sites except Rattlesnake Creek and Middle Buckhead Enhancement Pond (see Population Estimates section). Populations of Oregon chub were generally stable or increasing in abundance at sites in the basin, with the exception of East Ferrin Pond (FP3I, FP3J*).

Three habitat enhancement ponds in the lower Buckhead Creek drainage (BCK14A*, BCK15A*, BCK16A*) were sampled in 2000. These ponds were constructed by U.S. Forest Service and the U.S. Army Corps of Engineers in September-October 1999, to provide additional off-channel habitat for Oregon chub. Oregon chub were collected from the lower pond (BCK14A*; n=1) and middle pond (BCK15A*; n=3). Fish entered the off-channel ponds during high winter flows. No fish were captured in the upper (upstream) pond (BCK16A*). The aquatic vegetation was well established in the middle and lower ponds. Habitat conditions were suitable for Oregon chub in these ponds.

Middle Buckhead Creek (BCK9-11B) was thoroughly sampled. Only small numbers were collected from this location prior to 1999. The habitat quality has improved markedly

since 1995 and Oregon chub were very abundant in 1999 and 2000 (see Population Estimates section).

No Oregon chub were collected from six locations in the Middle Fork Willamette River drainage where they were collected on at least one occasion between 1991-1999. These locations included Dexter Reservoir East Alcove (DEX1D; last collected in 1992), Jasper Slough (CAP1E*; last collected in 1994), Wallace Slough (WALL1C*; last collected in 1997), Elijah Bristow Gravel Pits (EB13C*, EB15C*; last collected in 1998), and Hospital Impoundment Pond (HI1G*; last collected in 1999).

Three Oregon chub were collected from Barnhard Slough. This slough is located near the former Ferrin Campground near Oakridge. We sampled the slough because of proposed bridge reconstruction on Highway 58 adjacent to the slough. Oregon chub were last collected from this location in 1983. We did not find Oregon chub when we sampled this site in 1992.

Non-native fish were collected from eight of the 25 sites (32%) sampled in this basin in 2000, including Rattlesnake Creek, Wallace Slough, Jasper Slough, East Ferrin Pond, Elijah Bristow Beaver Pond and Gravel Pits, and Hospital Impoundment Pond.

Population Estimates

In 2000, we obtained population estimates for Oregon chub at fifteen locations in the Mid-Willamette, Santiam, and Middle Fork Willamette River drainages (Table 2).

We estimated the population abundance of Oregon chub at nine locations in the Middle Fork Willamette River drainage. Oregon chub were most abundant at East Fork Minnow Creek Pond (n=5,050). The second largest population was at Fall Creek Spillway Ponds (n=5,030), site of a 1996 introduction. Other abundant populations include Wicopee Pond (n=4,580; site of a 1988 introduction), Shady Dell Pond (n=3,830), Middle Buckhead Creek (n=3,570), Hospital Pond (n=2,980), Elijah Bristow State Park (n=2,360), Dexter Reservoir Alcoves (n=2,320), and Oakridge Slough (n=140).

The Oregon chub population in East Ferrin Pond, site of a 1994 reintroduction, continued to decline. We were unable to capture any Oregon chub in May or September 2000, despite substantial sampling effort. The population declined from 7,200 chub in 1997 to 3,500 chub in 1998 and 60 chub in 1999. Largemouth bass were collected for the first time from this pond in 1998 and increased in both numbers and size in 1999.

We estimated the population abundance of Oregon chub at three locations in the Santiam River drainage. The Oregon chub population at Geren Island continued to decline (n=360). We estimated the Oregon chub population at 8,660 fish in 1997, 1,830 fish in 1998, and 860 fish in 1999. Non-native fish (bluegills and bullheads) were abundant in the North Pond and collected in the North Channel. The Oregon chub population in the Santiam Conservation Easement sloughs remained depressed. Only four Oregon chub were collected in 2000; thirteen chub were collected in 1999. This population totaled 1,250 Oregon chub in 1994 and declined substantially following the 1996 floods. The Oregon chub population, introduced in 1999 into the Foster Pullout Pond, remained stable (85 fish were introduced in 1999 and the 2000 estimate was 80 fish).

We estimated the population abundance of Oregon chub at three locations in the Mid-Willamette River drainage. The Oregon chub population in Gray Creek Swamp (Finley National Wildlife Refuge) was estimated to be 730 fish, higher than estimates in 1993-1999. The Oregon chub population introduced in 1998 into Display Pond (Finley National Wildlife Refuge) increased from 360 fish in 1999 to 1,750 fish in 2000. The Oregon chub population estimate in

Location	Date	Estimate	95% Confidenc lower	e Intervals upper	
	Santiam River Drai	nage			
Santiam Conservation	May 1994	1,250	1,010	1,660	
Easement (SCE1-4, SCE7)	May 1996	830	580	1,430	
	May 1997	300	200	460	
	May 1998	250	160	530	
	May 1999	13 captured	l, no estimate possible		
	April 2000	4 captured	l, no estimate possible		
Geren Island (GER4, GER6)	May 1996	3,430	2,900	4,220	
	November 1996 ¹	8,340	5,450	16,100	
	May 1997	8,700	7,420	10,440	
	May 1998	1,830	1,170	4,350	
	May 1999	860	580	1,580	
	April 2000	360	210	1,230	
Foster Pullout Pond ² (FOS2)	October 2000 80 40		40	320	
	Mid-Willamette River Drainage				
Finley Gray Creek Swamp	May 1993 ³ 370		300	480	
(FIN4)	September 1994	600	460	860	
	September 1995	460	340	710	
	September 1996	470	340	740	
	October 1997	520	420	680	
	October 1998	620	460	930	
	September 1999	510	270	2,320	
	April 2000	730	540	1,150	

Table 2. Estimates of the population abundance of Oregon chub at locations in the Willamette Valley, Oregon from 1992-2000.

Table 2. (continued).

Location	Date	Estimate	95% Confide	95% Confidence Intervals		
			lower			
Finley Display Pond [*] (FIN16)	September 1999	360	240	790		
	October 2000	1,750	1,060	5,050		
Dunn Wetland Ponds⁵ (DUNN2.6)	October 1998	460	290	1,000		
(,-)	September 1999	4,860	3,070	11,690		
	October 2000	14,090	11,500	18,210		
	Middle Fork Willan	nette River Drainag	e			
Dexter Reservoir Alcoves ⁶	May 1992	780	560	1,100		
(PITT, DEX3)	May 1995	140	80	400		
	September 1996	40	20	200		
	September 1997	2,250	1,740	3,230		
	September 1998	1,280	970	1,950		
	September 1999	1,180	940	1,570		
	September 2000	2,230	1,610	4,220		
Elijah Bristow State Park (EB10, EBN1)	May 1993	4,000	3,200	5,400		
(EB10, EBN1)	May 1995	1,900	1,400	3,200		
	May 1997	2,010	1,700	2,440		
	May 1998	5,350	4,010	8,060		
	May 1999	3,780	2,920	5,360		
	May 2000	2,360	1,840	3,600		
Hospital Pond (HSP1)	May 1993	690	470	1,300		
	May 1995	780	510	1,390		
	May 1997	3,160	2,480	4,370		
	May 1998	3,030	2,050	5,780		
	May 1999	3,020	2,330	4,290		
	May 2000	2,980	2,050	5,410		

Table 2. (continued).

Location	Date	Estimate	95% Confide Iower	nce Intervals upper
E. Fork Minnow Creek Pond	May 1993	8,800	8,300	9,300
(MNW1)	September 1994	7,500	6,400	8,600
	September 1995	7,100	6,300	8,100
	September 1996	4,500	4,000	5,200
	September 1997	4,000	3,400	4,900
	September 1998	4,440	3,940	5,100
	September 1999	4,780	4,100	5,720
	September 2000	5,050	4,130	6,490
Shady Dell Pond (SDP1)	May 1993	1,600	1,400	1,900
	September 1994	4,800	4,300	5,400
	September 1995	3,800	3,400	4,300
	September 1996	4,200	3,800	4,800
	September 1997	3,800	3,400	4,300
	September 1998	3,650	3,170	4,300
	September 1999	2,860	2,520	3,300
	September 2000	3,830	3,260	4,650
Middle Buckhead Creek	May 1999	3,010	2,620	3,540
(BCK9-11)	May 2000	3,570	2,950	4,530
Oakridge Slough (OSTP1)	May 1999	480	310	1,050
	May 2000	140	70	420
Fall Creek Spillway Ponds ⁷	September 1997	475	400	590
(FUSP1-2)	September 1998	1,400	960	2,660
	September 1999	6,300	5,460	7,450
	September 2000	5,030	4,060	6,620

Table 2. (continued).

Location	Date	Estimate	95% Confide	nce Intervals
			lower	upper
East Ferrin Pond ⁸ (FP3)	September 1995	3,500	2,700	5,000
	September 1996	5,600	4,800	6,800
	September 1997	7,200	6,200	8,500
	September 1998	3,500	2,320	7,080
	May 1999	60	28	90
	May 2000	0		
Wicopee Pond (WCP1)9	September 2000	4,580	3,600	6,290

¹A total of 4,654 Oregon chub were relocated from Geren Island channels and filters to North Pond prior to this estimate.

²A total of 105 Oregon chub were introduced from Geren Island to Foster Pullout Pond in 1999 (n=85) and 2000 (n=20).

³The 1992 estimate includes only the National Wildlife Refuge portion of the swamp and not the portion on private land.

⁴A total of 105 Oregon chub were moved from Gray Creek Swamp to Display Pond in 1998 (n=60) and 1999 (n=45).

⁵A total of 573 Oregon chub were introduced to this site: 200 from Elijah Bristow in 1997, 300 from Geren Island in 1998, and 73 from Shady Dell Pond in 1998. The latter fish were first used for laboratory spawning experiments in 1997-1998.

⁶Prior to 1997, no estimates were made in site "DEX3" due to small numbers of Oregon chub captured.

⁷A total of 500 Oregon chub were introduced from Shady Dell Pond (n=150) and East Fork Minnow Creek Pond (n=350) in 1996.

⁸A total of 574 Oregon chub were introduced from East Fork Minnow Creek Pond in 1994.

⁹A total of 50 fish were introduced from Dexter Reservoir Alcove "PIT1" in 1988.

Dunn Wetland Ponds was 14,090 fish, up from 4,860 fish in 1999.

The fish community assemblages at locations containing Oregon chub were studied to better understand the factors that favored abundant Oregon chub populations. Beginning in 1997, we obtained estimates of the population abundance for all species of fish that occurred at Oregon chub sites (Table 3, Figure 4). We determined which species were present and determined their abundance relative to Oregon chub in order to monitor changes that occur in the fish communities from year to year. In 2000, Oregon chub were the most abundant fish species at 11 locations. Nine of these 11 locations supported adult Oregon chub populations totaling 1,000 or more individuals. At locations where Oregon chub were not the numerically dominant species, only one site (Middle Buckhead Creek) had an Oregon chub population that exceeded 1,000 fish. At several locations where Oregon chub were not the numerically dominant species, the Oregon chub population experienced a recent decline in abundance (Santiam Conservation Easement, Geren Island, East Ferrin Pond). Non-native fish increased in abundance relative to that of the other fish species at these locations.

Bullfrog Diet Analysis

Bullfrog diets were analyzed to determine whether fish, particularly Oregon chub, were consumed by adult bullfrogs. Forty-nine bullfrogs were captured, ranging in size from 7-14.5 cm. More females (n=33; 67%) were captured than males (n=10; 20%) or immature juveniles (n=6; 12%). Fish were found in the stomachs of four bullfrogs (8%). Two fish were identified as Oregon chub (4% of stomachs) and two were unidentified fish. Other items in the diet included northwest salamanders, juvenile bullfrogs, snails, a young rodent, annelids, terrestrial insects, and aquatic insects.

Water Quality Monitoring at Gray Creek, Finley Refuge

Water quality has been a concern in Gray Creek on Finley National Wildlife Refuge for several years. Dead fish, found with mouths open and gills flared (indicating respiratory stress), have been found in minnow traps set for as little as two hours. In 1999, water levels in the creek were low and an orange color was found throughout the beaver ponds and channels in upper Gray Creek. Analyses of water samples found high iron levels in the water and the presence of iron bacteria. Dissolved oxygen levels were found to be low (<35% saturation). Conditions of high iron and low oxygen were typical of waters with substantial spring water influx. It is assumed this was the cause of the orange color and low dissolved oxygen in Gray Creek. Water quality monitoring showed that oxygen levels were lowest in late summer months (Table 4). When we sampled hourly over a 24-hour period, we found that dissolved oxygen levels were lowest in the morning hours (Table 5).

DISCUSSION

The Oregon Chub Recovery Plan set recovery goals for downlisting the species to "threatened" and for delisting the species (U.S. Fish and Wildlife Service 1998). The criteria for downlisting the species was to establish and manage ten self-sustaining populations of at least 500 adult fish. All populations must exhibit a stable or increasing trend for five years. At least three populations must be located in each of the three sub-basins (Middle Fork Willamette River, Santiam River, Mid-Willamette River tributaries). Currently there are 11 populations totaling 500 or more individuals (Table 1). Six of these populations have exhibited a stable or increasing

Location	Species	Estimate	95% Confide lower	nce Intervals upper
	Santiam River drair	nage		
Geren Island	Oregon chub	360	210	1,230
	redside shiners	440	240	2,190
	bluegills	>1,000		
	bullheads	>100		
Santiam Conservation	Oregon chub only	4 captured		
Easement	threespine sticklebac	cks 9,550	4,820	38,180
	sculpins	390	180	1,060
	western mosquitofish	n >1,000		
	sculpins	>50		
	northern pikeminnow	>20		
	redside shiners	>25		
Foster Pullout Pond	Oregon chub	80	40	320
	Mid-Willamette Rive	er drainage		
Finley Gray Creek Swamp	Oregon chub	730	540	1,150
	redside shiners	4,080	3,560	4,800
	specked dace	2,100	1,640	2,910
	threespine sticklebac	cks 3,090	1,450	9,270
Finley Display Pond	Oregon chub	1,750	1,060	5,050
Dunn Wetland Ponds	Oregon chub	14,090	11,500	18,210
	Middle Fork Willam	ette River drainag	e	
E. Fork Minnow Creek Pond	Oregon chub	5,050	4,130	6,490
	redside shiners	1,460	930	3,360
	speckled dace	1,870	1,490	2,520

Table 3. Estimates of population abundance of Oregon chub and other fish species at locations in the Willamette Valley, Oregon in 2000. Estimates without confidence limits are approximations.

Table 3. (continued).

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Location	Species	Estimate	95% Confide lower	nce Intervals upper
Shady Dell Pond	Oregon chub	3,830	3,260	4,650
	redside shiners	2,900	2,070	4,830
	speckled dace	650	420	1,420
East Ferrin Pond	Oregon chub	0		
	western mosquitofis	h >50,000		
	largemouth bass	>100		
Hospital Pond	Oregon chub	2,980	2,050	5,410
	redside shiners	980	490	3,900
	sculpins	>30		
Dexter Reservoir Alcoves	Oregon chub	2,320	1,610	4,220
	northern pikeminnov	v >20		
Middle Buckhead Creek	Oregon chub	3,570	2,950	4,530
	redside shiners	3,590	3,090	4,270
	speckled dace	1,770	1,370	2,470
Oakridge Slough	Oregon chub	140	60	420
	speckled dace	>40		
	redside shiners	>40		
Wicopee Pond	Oregon chub	4,580	3,600	6,290
-	speckled dace	790	550	1,440
Fall Creek Spillway Ponds	Oregon chub	5,030	4,060	6,620
	speckled dace	3,090	2,430	4,270
Elijah Bristow State Park	Oregon chub	2,360	1,840	3,600
	redside shiners	510	270	3,670
	speckled dace	340	250	530
	threespine stickleba	icks >30		





Population abundance of fish species collected at sites containing Oregon chub in 1997 (left bar), 1998 and 1999 (midc) and 2000 (right bar). Site Codes: DUNN= Dunn Wetland Ponds, MNW= East Fork Minnow Creek Pond, FCSP= Fall Creek way Ponds, WCP= Wicopee Pond, SDP= Shady Dell Pond, BCK= Buckhead Creek, HSP= Hospital Pond, EB= Elijah Bristow e Park Sloughs, DEX= Dexter Reservoir Alcoves, FIN16= Finley Display Pond, FIN4= Finley Gray Creek Swamp, GER= Ger nd, OSTP= Oakridge Slough, FOS= Foster Pullout Pond, SCE= Santiam Conservation Easement, FP= East Ferrin Pond. lre 4.

Table 4. Water quality measurements from Gray Creek, Finley National Wildlife Refuge. Site 1 was in a beaver pond where the staff gauge was located. Site 2 was a beaver pond located ~400 meters upstream of site 1. Site 3 was in the creek channel ~800 meters upstream of site 2. Dissolved oxygen (DO) is shown in milligrams per liter.

Date		Site 1	Site 2	Site 3	weather/staff
9-23-99	temp pH		12.2 - 13.5 7.1 2 3 - 4 5		sunny
	bo		2.5 - 4.5		
10-13-99	temp	14.4	13.8	15.8	staff=1.35'
	pН	6.9	7.1	7.2	sunny
	DO	2.3	2.6	5.6	
10-27-99	temp	9.0	8.1	8.0	staff=1.45'
	pH	7.7	7.8	8.1	rainy
	DO	4.0	2.9	6.3	
11-10-99	temp	10.9	10.9	10.9	staff=2.60'
	Hq	7.1	7.8	8.1	rainy
	DO	5.2	6.6	7.4	,
11_24_99	temp	94	93	9.4	staff=2.70'
11-24-00	pH	7 1	7.5	7.6	rainy
	DO	5.5	6.4	6.3	
12-9-99	temp	10.0	10 1	10 1	staff=2.80'
12 0 00	pH	7.3	7.4	7.3	rainv
	DO	6.8	6.2	5.9	
12-24-99	temp	7.3	7.1	7.2	staff=2.75'
	pH	7.3	7.5	7.4	cloudy
	DO	6.2	6.6	6.5	
1-4-00	temp	8.5	8.5	8.5	staff=2.80'
	pH	6.9	7.1	7.2	rainy
	DO	6.8	6.7	6.8	
1-21-00	temp	8.7	8.6	8.7	staff=2.80'
	pH	7.3	7.1	7.8	rainy
	DO	6.6	7.1	7.6	
2-2-00	temp	9.3	9.2	9.1	staff=2.80'
	pH	7.1	7.3	7.2	clear
	DO	6.4	7.3	6.3	
2-19-00	temp	8.0	8.0	8.3	staff=2.75'
	рН	7.4	7.5	7.3	rainy
	DO	7.2	6.9	6.7	
3-2-00	temp	10.3	10.2	10.1	staff=2.75'
	pH	6.6	7.2	6.9	
	DO	6.6	6.8	6.3	
3-17-00	temp	8.4	8.5	9.4	staff=2.70'
	pH	7.1	7.4	7.4	rainy
	DO	5.6	6.4	5.9	
4-1-00	temp	15.1	13.0	11.2	staff=2.70'
	рH	6.5	6.9	6.5	sunny
	DO	5.6	7.2	6.8	

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Date		Site 1	Site 2	Site 3	weather/staff
4-14-00	temp	13.4	11 4	11.9	staff=2 75'
	nH	6.6	74	7.5	clear
	DO	5.1	5.7	6.4	
4-28-00	temp	11.9	12.1	12.1	staff=2.75'
	μ	7.0	7.1	7.3	showers
	DO	5.0	7.2	6.8	
5-11-00	temp	8.9	8.8	8.9	staff=2.80'
	pН	6.4	7.3	6.8	showers
	DO	5.9	6.8	6.3	
5-22-00	temp	16.5	16.3	16.3	staff=2.80'
	pН	7.4	7.4	7.2	sunny
	DO	3.2	3.8	4.2	
6-8-00	temp	15.1	14.9	13.6	staff=2.85'
	pH	7.0	7.2	7.0	showers
	DO	2.7	4.0	5.9	
6-22-00	temp	19.3	19.6	18.2	staff=2.80'
	pН	7.3	7.5	7.4	sunny & warm
	DO	3.5	5.4	6.3	
7-9-00	temp	22.5	22.5	18.2	staff=2.70'
	pН	7.2	7.2	7.2	cloudy, rain prior
	DO	3.0	5.6	5.9	
7-25-00	temp	22.4	20.4	17.3	staff=2.55'
	pН	7.3	7.4	7.4	sunny, dry, warm
	DO	3.2	4.6	4.7	
8-7-00	temp	25 .7	24.3	19.8	staff=2.50'
	pН	• 7.1	7.1	7.4	sunny, dry, warm
	DO	3.2	3.0	4.2	orange at site #2
8-24-00	temp	23.5	21.9	18.4	staff=2.10'
	pН	6.7	7.1	7.3	sunny, warm
	DO	3.6	3.8	5.0	orange downstream site #1
9-7-00	temp	19.8	17.5	16.1	staff=2.30'
	pH	7.4	7.3	7.1	sunny, warm (rain week before)
	DO	2.0	2.1	1.9	orange at sites #1 and #2
9-20-00	temp	23.2	20.3	18.1	staff= 2.00'
	pH	7.5	7.7	(.8 1.0	partly cloudy
	DO	-	4.5	4.9	orange at sites #1 and #2
10-11-00	temp	13.8	14.1	12.7	staff=2.70'
	рН	8.0	8.1	8.1	cloudy, light rain
	DO	5.0	7.4	7.9	no orange color

Table 5. Hourly temperature and dissolved oxygen measurements at Gray Creek, Finley National Wildlife Refuge, on August 23-24, 2000 and September 20-21, 2000.

Date: Augus	st 23-24, 2000			Date: September 20-21, 2000				
_		Dissolved Oxygen				Dissolved Oxygen		
Time	Temperature (C)	% saturation	mg/l	Time	Temperature (C)	% saturation	mg/l	
3:00 PM	21.4	44.1	3.9					
4:00 PM	22.8	34.3	2.9					
5:00 PM	23.5	40.7	3.4					
6:00 PM	23.3	49.9	4.2	6:00 PM	18.9	67	6.2	
7:00 PM	22.9	52.6	4.5	7:00 PM	19.0	61	5.5	
8:00 PM	22.2	47.3	4.1	8:00 PM	19.0	55	5.0	
9:00 PM	21.3	50.2	4.4	9:00 PM	18.7	49	4.5	
10:00 PM	20.5	43.8	3.9	10:00 PM	18.6	45	4.1	
12:00 PM	19.9	36.9	3.3	12:00 PM	18.4	41	3.8	
12:00 AM	19.4	35.0	3.2	12:00 AM	18.2	38	3.6	
1:00 AM	19.0	30.6	2.8	1:00 AM	17.9	35	3.3	
2:00 AM	18.6	29.5	2.7	2:00 AM	17.6	32	3.0	
3:00 AM	18.2	27.1	2.5	3:00 AM	17.4	29	2.8	
4:00 AM	17.9	27.4	2.6	4:00 AM	17.2	26	2.5	
5:00 AM	17.6	28.5	2.7	5:00 AM	17.0	23	2.2	
6:00 AM	17.4	26.9	2.6	6:00 AM	16.8	20	1.9	
7:00 AM	17.3	28.3	2.7	7:00 AM	16.7	22	2.2	
8:00 AM	17.2	27.5	2.6	8:00 AM	16.7	25	2.4	
9:00 AM	17.1	26.4	2.5	9:00 AM	16.6	30	2.9	
10:00 AM	17.1	26.4	2.5	10:00 AM	16.6	31	3.0	
11:00 AM	17.4	27.3	2.6	11:00 AM	16.6	34	3.3	
12:00 PM	17.8	33.3	3.1	12:00 PM	16.7	38	3.7	
1:00 PM	18.7	38.5	3.6	1:00 PM	16.8	40	3.9	
2:00 PM	19.8	43.6	3.9	2:00 PM	17.0	44	4.2	
3:00 PM	20.6	45.0	4.0	3:00 PM	17.3	49	4.7	
4:00 PM	21.2	44.5	3.9	4:00 PM	17.6	57	5.5	
				5:00 PM	17.8	63	6.1	

trend for the past five years. The criteria for delisting the species was to establish 20 selfsustaining populations of at least 500 adult fish. All populations must exhibit a stable or increasing trend for seven years. At least four populations must be located in each of the three sub-basins.

Monitoring Naturally Occurring Populations

We monitored the status and trends of known populations of Oregon chub by obtaining estimates of population abundance (Table 2). These estimates allowed us to assess the status of Oregon chub in relation to recovery goals stated in the Oregon Chub Recovery Plan. Currently, a major recovery effort has focused on the reintroduction of Oregon chub into suitable habitat within their historic range. We used abundance estimates to monitor the status of natural populations and to determine which populations of Oregon chub were the best candidates (least risk) as donor populations for reintroduction efforts. We subsequently determined the maximum number of fish that could safely be removed from a site in any year. Oregon Department of Fish and Wildlife policy states that a maximum of 10% of a population may be removed for an introduction in any one year. Typically, a minimum of 300 fish have been introduced when establishing a new population to avoid genetic bottlenecks.

In 2000, seven naturally occurring populations of Oregon chub totaled 500 or more individuals. Six of these populations were located in the Middle Fork Willamette River drainage. These include populations in East Fork Minnow Creek Pond (n=5,050), Shady Dell Pond (n=3,830), Middle Buckhead Creek (n=3,570), Hospital Pond (n=2,980), Elijah Bristow State Park (n=2,360), Dexter Reservoir Alcoves (n=2,320), and Finley Gray Swamp (n=730).

The Middle Fork Willamette River populations were generally stable or increasing in abundance. In contrast, the populations in the Santiam River drainage decreased in abundance in recent years. Many locations in the Santiam drainage were impacted by the 1996 floods and the habitats were invaded by non-native fish. The abundance of Oregon chub at Geren Island declined dramatically during the period from 1997-2000. The Oregon chub population abundance in the Santiam Conservation Easement sloughs also declined following the 1996 floods and remains depressed. Only 4 Oregon chub were collected from the Santiam Conservation Easement sloughs in 2000, despite substantial sampling effort.

The 2000 population estimate for Oregon chub in Gray Creek Swamp (Finley National Wildlife Refuge) was 730 fish. The population abundance in Gray Creek Swamp has remained stable since estimates were first obtained in 1993. We obtained population estimates in May 2000 instead of September (the usual month for population estimates at this location) to minimize the stress on the fish. The water levels and dissolved oxygen levels were higher in the spring. In 1996-1999, dead fish were occasionally found in the minnow traps. The cause of death was unknown, although poor water quality (low dissolved oxygen) was the suspected cause. In the summers of 1999 and 2000, the water in the swamp had a deep orange color, due to the presence of iron and iron bacteria. Springs contributed the bulk of the inflow in the late summer. Spring water can be anoxic and contain large amounts of iron. Between September 1999 and October 2000, we monitored water quality (temperature, dissolved oxygen, and pH) bi-monthly at three locations in the upper Gray Creek drainage. We documented the late summer decline in dissolve oxygen levels in the swamp (Table 4). Despite these conditions in 1999, the Oregon chub population increased slightly in abundance, suggesting an inherent tolerance to low oxygen conditions.

Despite finding several new populations of Oregon chub in recent years, recovery has been slowed by concurrent losses or declines of other populations. Oregon chub have not been collected in recent years from several sites where they were previously found. These include Dexter Reservoir East Alcove, Jasper Park Slough, Elijah Bristow Northeast Slough, Wallace Slough, Logan Slough, and Camas Swale (Table 1). In addition, non-native fish either colonized or were illegally introduced into Elijah Bristow beaver pond and two previously considered reintroduction sites (Morgan Lake at Ankeny Refuge and Fairbanks Ponds).

Monitoring Introductions and Restoration Sites

Several Oregon chub reintroductions and habitat restoration projects were monitored in 2000. These include East Ferrin Pond, Hospital Impoundment Pond, Finley National Wildlife Refuge restoration projects in the Gray Creek drainage (Display, Cattail, and Beaver Ponds), Dunn Wetland Ponds, Wicopee Pond, the Lower Buckhead Enhancement Ponds, and the Long Tom Ranch Pond.

The Ferrin Ponds were the site of a habitat restoration project completed by the U.S. Forest Service in 1993. These former borrow pits were deepened and permanent water control structures were constructed. Attempts were made to remove non-native fish (largemouth bass. western mosquitofish, crappies) using a rotenone treatment. Oregon chub were introduced into West Ferrin Pond (n=525) and East Ferrin Pond (n=573) in 1994. Oregon chub were collected from both ponds in May 1995. No Oregon chub have been collected in West Ferrin Pond since May 1995. The rotenone treatment was ineffective in eliminating the western mosquitofish. Western mosquitofish first reappeared in 1995 and quickly became abundant in both ponds. Other scientists attempting to recover endangered fish (ex.- Meffe 1983, 1984) have also found chemical treatments to be ineffective in the removal of western mosquitofish. In 1997, we estimated the Oregon chub population abundance in East Ferrin Pond at 7,200 fish. In 1998, the Oregon chub population dropped to 3,500. In 1999, the population was estimated at 60 fish. No Oregon chub were collected in 2000. Largemouth bass, some exceeding 30cm in length, were observed in the pond for the first time in 1998. Observations suggest they were larger and more abundant in 1999 and 2000. The bass were illegally stocked into the pond. The rapid increase in size of the Oregon chub population between 1994-1997 was encouraging, showing the potential of Oregon chub to rapidly colonize new habitats when conditions are suitable. However, the recent collapse of the population illustrates the continued threat that non-native predators (ex.-largemouth bass) pose to Oregon chub survival and recovery.

The Hospital Impoundment Pond in Lookout Point Reservoir was constructed by the U.S. Forest Service and the U.S. Army Corps of Engineers in October 1994. This pond was excavated in a former railroad grade, in the drawdown zone of the reservoir. The outflow from Hospital Pond was diverted into the pond. The project was designed to benefit western pond turtles and Oregon chub. The fish community in this pond varies each year, depending on which species enter the pond from Lookout Point Reservoir or Hospital Pond. Non-native fish, which originate from the reservoir, were collected in 1995, 1997, 1998, 1999 and 2000. Only a few Oregon chub were collected in 1995, 1997, and 1999. The pond appears to provide few benefits for Oregon chub.

A multi-year habitat enhancement project is in progress in the middle Gray Creek drainage on Finley National Wildlife Refuge. The goal was to make the middle Gray Creek drainage more suitable for Oregon chub by restricting upstream movement of non-native fish from Cabell Marsh (lower Gray Creek) and Muddy Creek into Cattail and Beaver Ponds, and to deepen the ponds to prevent them from drying up in the summer months. Both Cattail Pond and Display Pond (located on a small tributary to Gray Creek) were drained in the summer of 1996 to remove the non-native fish. In 1998, Cattail Pond was drained, the dike was repaired, the water control structure was replaced, and the pond was deepen and enlarged. A selective fish bypass system will be constructed at the water control structure in 2001. Ideally, it will allow passage of fluvial cutthroat trout while preventing passage of non-native fish. The bypass structure will be adjustable and a trap will be incorporated to assess the effectiveness and to modify the structure, if necessary. Non-native fish were collected in Cattail Pond in 1999 and 2000, suggesting that the water control structure does not currently prevent movement of non-native fish from lower Gray Creek. Future enhancement work is planned to repair the dike and to deepen Beaver Pond, which is located upstream of Cattail Pond. We will continue to monitor the ponds to determine whether the selective bypass structure is effective and if Oregon chub colonize the site from upper Gray Creek. In 1998-1999, Oregon chub (n=105) were introduced into Display Pond from Gray Creek Swamp. The population expanded to 1,750 adults in 2000.

A large habitat enhancement project, designed to benefit waterfowl, was completed on the Dunn property in the Benton County in 1994. Approximately 12 hectares of wetland were restored and several ponds were constructed. One spring fed pond (DUNN2G*) was determined to be suitable for Oregon chub in 1996. Oregon chub were introduced into this pond in October 1997 (n=200) and May 1998 (n=300). A second habitat enhancement project on the Dunn property in the Benton County was completed in September 1997. A spring fed, 0.8 hectare, shallow water pond (DUNN6B*) was constructed adjacent to pond DUNN2G*. The ponds were connected during the winter months. Seventy-three Oregon chub were introduced into this pond in 1998. In October 2000, the Oregon chub population totaled 14,090 individuals (6,420 in DUNN2G* and 7,660 in DUNN6B*) and was the largest population in the valley. In addition, Oregon chub colonized a new 0.3 hectare pond that was created in 1999 (n=22 juveniles collected).

Wicopee Pond was the site of a 1988 introduction of 50 Oregon chub from the Dexter Reservoir Alcove "PIT1". It was a former borrow pit adjacent to Salt Creek in the Middle Fork Willamette River drainage. Small numbers of Oregon chub were collected from the pond between 1992 and 1999. The population increased dramatically in 2000 (estimate=4,580). Most of the fish collected were of a small size suggesting good survival and growth of a strong 1999 year class. The conditions leading to this sudden, dramatic increase are unknown.

Three shallow off-channel ponds, with surface areas of 300-500 m² each, were constructed by the U.S. Forest Service in 1998 in the lower Buckhead Creek drainage. These ponds were created to enhance the off-channel habitat available for Oregon chub. Oregon chub were collected from the lower (n=1) and middle ponds (n=3) in 2000. The habitat conditions improved in 2000 (aquatic vegetation became more established) due, in part, to selective thinning of the adjacent canopy by the U.S. Forest Service to decrease shading of the pond.

A wetland restoration project in the Long Tom drainage was completed in 1999. One pond, designed to hold water year round, was created for the potential introduction of Oregon chub. This pond (LTR1*) is approximately 1,500 square meters with a maximum depth of ~2.5 meters. Little aquatic vegetation had become established by October 2000. No non-native fish were collected in 2000. We will continue to monitor this pond in future years.

Identification and Evaluation of Potential Introduction Sites

Potential Oregon chub introduction sites were identified and evaluated using the following guidelines:

- 1. Restrict introductions to the historic distribution of Oregon chub.
- 2. Restrict introductions to protected sites that are secure from imminent or future threats of habitat destruction (*invasion by warmwater fish is included in this category*).
- 3. Restrict introductions to sites where the potential for dispersal has been determined and is acceptable (all proposed sites meet this criterion).

- 4. Restrict introductions to sites that likely fulfill life history requirements. Features include small ponds, less than 1,000 meters elevation, depositional substrate, gradually sloping banks, varied and abundant aquatic vegetation, little or no water velocity, mostly less than 2 meters deep, limited use or access by the public, no non-native fish species, and summer water temperature exceeding 16°C. Site manipulations to comply with this guideline are permissible. Introductions and site manipulations will be coordinated with landowners of proposed sites. A site management plan will be developed prior to introduction and coordination will occur with the landowner and/or managing agencies.
- 5. Restrict introductions to sites that contain sufficient habitat to support a genetically viable population (*all proposed sites meet this criterion*).
- 6. Prohibit introductions into areas where other rare or endemic taxa could be adversely affected (all proposed sites meet this criterion because Oregon chub are not a known threat to any rare or endemic taxa).

The following is a description of those locations being considered as potential reintroduction sites for Oregon chub. Jamplaski Pond was added to the list in 2000.

- 1. Beaver and Cattail Ponds (Gray Creek)- These sites are located on the Finley National Wildlife Refuge in Benton County. Habitat enhancement work in Cattail Pond was completed in 1998. The dike was reconstructed, the pond was deepened, and the water control structure was replaced. In 2001, a fish passage structure will be constructed that would allow the upstream movement of fluvial cutthroat trout while preventing the upstream movement of non-native fish. Cattail Pond was drained in 1996 and 1997 to eliminate bullheads, bluegills, and bullfrog tadpoles. Non-native fish invaded the site in 1999. The habitat will need to be drained to remove them. Oregon chub were not collected, but could colonize the pond from upper Gray Creek in the future. Beaver Pond, located between Cattail Pond and Gray Creek Swamp, dries up almost every summer. The habitat is similar to that in Cattail Pond. Oregon chub were collected in Beaver Pond in 1990 (personal communication, Dr. Douglas Markle, Oregon State University). Future habitat enhancement is planned to reconstruct the dike on Beaver Pond and to deepen the pond to maintain water levels throughout the summer months. Monitoring of the habitat condition and fish communities in these ponds will continue in the future.
- 2. Brown Creek Swamp- This site is located on Finley National Wildlife Refuge in Benton County. It consists of a series of beaver dams and ponds. Sculpins and redlegged frogs are present. The site has good quality Oregon chub habitat in the lower beaver ponds; aquatic vegetation is abundant. The site is large, approximately 700 meters long with varying widths. Since 1995, the habitat has improved as cattle grazing was eliminated and beaver expanded their activity into the western portion of the creek. Water levels were quite low in the summers of 1997-1999 and the wetted surface area was reduced ~80 percent.
- 3. Gray Slough- This slough is located on private land in the North Santiam River drainage in Marion County. The landowners have proposed a gravel mining operation on their land and plan to enhance and create additional habitat for Oregon chub on the site. Oregon chub, threespine sticklebacks, sculpins, cutthroat trout, redlegged frogs, northwest salamanders, western pond turtles, and roughskin newts have been collected from the slough. Only a handful of chub were collected in 1995 (n=2), 1996 (n=3), 1997 (n=2), 1999 (n=13), and 2000 (n=4). No non-native fish or amphibians have been collected. The site has high quality Oregon chub habitat (abundant aquatic vegetation, depositional substrate, negligible

flow, depth 0.4-1.5 meters). The habitat enhancement project is currently on hold, due to an illness of one of the landowners.

- 4. South Fork McKenzie Ponds- This site is located downstream of Cougar Reservoir on a side channel to the South Fork McKenzie River. The ponds are large and moderately deep (average depth- 1.5 meters). Habitat is suitable for Oregon chub (depositional substrate, abundant vegetation). A habitat enhancement project to create more shallow water habitat was completed in 2000. Speckled dace, sculpins, and cutthroat were collected in 1998. The site is located on U.S. Forest Service property. Since this site is outside of the "confirmed" historic range, an introduction would not occur until a "Safe Harbor Agreement" is approved.
- 5. Magne Pond- This site is located on private property in the McKenzie River drainage. The pond is located on a small unnamed tributary and is approximately 75 meters by 20 meters, with a maximum depth of ~2.5 meters (range 0.1-2.5). Aquatic vegetation is abundant and the substrate is depositional. Cutthroat trout were the only fish species collected from the pond. Since this site is outside of the "confirmed" historic range, an introduction would not occur until a "Safe Harbor Agreement" is approved.
- 6. South-Dunlin-Woodduck Ponds- This site is located on Ankeny National Wildlife Refuge in Marion County. The site was first sampled in 1991. Originally, the habitat was marginally suitable for Oregon chub, due to a lack of aquatic vegetation. A major habitat enhancement project was completed in 1998. The site was first drained to remove non-native fish. Then, the site was recontoured, deepened, and a new dike and water control structure were constructed. The enhancement project created abundant shallow water vegetated habitat. The dike reconstruction and water control structure should prevent invasion by non-native fish. Summer water levels were low in 1999 and little new habitat, nor additional aquatic vegetation, was available for fish in late summer and fall. No fish were collected. The site was dry when visited in October 2000. An additional source of water (wells, diversion) is needed to make this site suitability for Oregon chub.
- 7. Russell Pond- This site is located on private property in the McKenzie River (Mohawk River) drainage. A small farm pond (~800 square meters) has suitable habitat for Oregon chub. No fish were collected in 2000. A temperature monitor was deployed in 1999-2000 and temperatures were suitable for Oregon chub. The landowner is considering a habitat enhancement project to create additional habitat for Oregon chub. Since this site is outside of the "confirmed" historic range, an introduction would not occur until a "Safe Harbor Agreement" is approved.
- 8. Long Tom Ranch- This site is located near the confluence of Amazon Creek and the Long Tom River. A large wetland restoration project was completed in 1999. Partners for Wildlife funds were used to create a large pond for Oregon chub. The pond was monitored in 2000; aquatic vegetation was sparse. The site will continue to be monitored in the future to determine suitability for chub.
- 9. *Jamplaski Ponds* This site is located in the Amazon Creek subbasin of the Long Tom River. A large wetland restoration project was completed in 2000. Construction was not completed when the site was visited in 2000. The site will be monitored in the future.

Evaluating the Impacts of Activities Affecting Oregon Chub

Several activities that affected or had the potential to affect Oregon chub populations and/or their habitat were monitored in 2000. Activities included wetland mitigation and a diesel spill at Geren Island, potential expansion of a gravel mining operation at Windsor Island, bridge replacement on Highway 58, impacts of land application of biosolids near Oakridge Slough, and replacement of an irrigation structure in the Long Tom drainage.

We continued to monitor the effects of construction (expansion) at the Geren Island water treatment facility on Oregon chub and their habitat. In 1997, the City of Salem began an expansion project at their Geren Island Water Treatment Facility. The City agreed to set aside refuge areas (North Pond and North Channel) and to develop protection protocols for Oregon chub on the island. A wetland enhancement (mitigation) project on the North Pond was initiated in October 1997. The habitat enhancement project was designed to create additional shallow shoreline habitat in the pond. The northwest shoreline of the pond was graded to remove blackberries and create a shallow bench with a gradually sloping shoreline. Native riparian vegetation was planted. Survival of the planted vegetation was very low. Most of the woody species were either damaged by beavers or died due to a lack of water during the summer. The site was replanted with additional riparian trees and shrubs in 1999 and seedlings were protected by chicken wire and plastic mesh. Survival of replanted terrestrial vegetation was much better than the first attempt. Large woody debris was placed in the pond in 1999 to provide cover for fish. Survival of the original plantings of aquatic vegetation was also negligible. Additional aquatic vegetation was planted in 2000, yet survival appeared to be minimal. Currently, the mitigation project has not provided benefit for Oregon chub.

In July 2000, an accident occurred during construction of new filters at Geren Island. A contruction worker drove a large forklift into the North Channel. Diesel fuel and hydraulic fluid spilled onto riparian vegetation and some entered the pond. An environmental cleanup proceeded quickly and a disaster was averted. Concrete jersey barriers were placed between the road and channel to reduce the risk of another accident of this type.

We sampled the site of a proposed expansion of a gravel mining operation, near Windsor Island (WIND1-3, CLAG1) in the Mid-Willamette River drainage, for the presence of Oregon chub. The slough was extensive and complex. The habitat was high quality. No Oregon chub were collected. Native fish species present included native chiselmouth, sculpin, threespine stickleback, speckled dace, northern pikeminnow, juvenile chinook salmon. Nonnative western mosquitofish, bluegill, brown bullhead, largemouth bass, and white crappie were also collected.

The Oregon Department of Transportation replaced a bridge on Highway 58 near Oakridge. Prior to construction, we sampled Barnard Slough (BARN1), a slough to the Middle Fork Willamette River near the bridge. Three Oregon chub were collected from the slough. Construction activities were modified to avoid impacts on the slough.

We raised concerns regarding the land application of municipal biosolids adjacent to Oakridge Slough and the potential impacts of this activity on Oregon chub. Several site visits and meetings occurred to discuss application timing, application rates, soil and hydraulic characteristics, etc. Soil depth, soil composition, and depth of the water table were tested by Oregon Department of Environmental Quality and found to be adequate. Biosolid application rates were found to be in excess of agronomic rates and will be reduced. Additional measures to reduce impacts on Oregon chub are being considered.

The U.S. Army Corps of Engineers replaced an irrigation dam on the Long Tom River south of Monroe, Oregon. Prior to construction, we sampled adjacent sloughs (STRODA1-5) for

the presence of Oregon chub. Sculpins were the only native fish collected. Non-native fish were abundant (western mosquitofish, bluegills, bullheads, largemouth bass).

Threats to Oregon Chub and Limitations to Their Recovery

Oregon chub continue to be impacted by human activities. During the past eight years, Oregon chub populations have been threatened by illegal water withdrawals, unauthorized fill and removal activities, timber harvest, highway and pipeline construction, roadside herbicide applications, chemical spills, and routine culvert cleaning operations. In addition, the proliferation of non-native fish continues to threaten Oregon chub populations. Non-native fish were collected from 21 of the 34 sites (62 percent) sampled for the first time in 2000 and 203 of the 479 sites (42 percent) sampled in the Willamette Valley since 1991. After the 1996 floods, non-native fish invaded several Oregon chub sites in the Santiam River drainage. Illegal planting of largemouth bass into an introduction site in the Middle Fork Willamette River drainage caused the collapse of a Oregon chub population that had once totaled >7,000 fish. Non-native fish are well established throughout the Willamette Valley. They threaten to invade sites containing Oregon chub populations and limit the ability of Oregon chub to migrate from existing sites and colonize suitable habitats elsewhere.

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APPENDIX A

Fish Species and Habitat Characteristics at Each Survey Location ¹Vegetation types are expressed as a percentage of the total surface area of the site. The sum of all vegetation types cannot exceed 100 percent.

² Vegetation Codes:

ACER	Big leaf maple (Acer macrophyllum)
ALIS	Water plantain (Alisma sp.)
ALNU	Alder (Alnus sp.)
AZOL	Water velvet (Azolla sp.)
CALI	Water starwort (Callitriche sp.)
CARE	Sedge (Carex sp.)
CERA	Coontail (Ceratophyllum sp.)
CHAR	Stonewort (Chara sp.)
DOWN	Box elengia (<i>Downingia elegans</i>)
ELAT	Waterwort (<i>Elatine</i> sp.)
ELEO	Spike rush (<i>Eleocharis</i> sp.)
ELOD	Waterweed (<i>Elodea</i> sp.)
FILA	Filamentous Algae
FONT	Water moss (<i>Fontinalis</i> sp.)
FRAX	Oregon ash (<i>Fraxinus latifolia</i>)
GRAM	Grasses (Gramineae)
IRIS	Yellow iris (<i>Iris pseudacorus</i>)
JUNC	Rush (<i>Juncas</i> sp.)
LEMN	Duckweed (Lemna minor)
LUDW	Water Purslane (Ludwigia palustris)
LYSI	Skunk cabbage (Lysichiton americanum)
MENT	Mint (Mentha sp.)
MYRI	Water milfoil (Myriophyllum sp.)
NONE	No aquatic vegetation
NUPH	Yellow water lily (Nuphar sp.)
OENA	Water celery (Oenanthe sp.)
POLY	Smartweed (Polygonum sp.)
POTA	Pondweed (Potamogeton sp.)
SALI	Willow (Salix sp.)
SAGI	Arrowhead (Sagittaria sp.)
SCIR	Bullrush (Scirpus sp.)
SCOT	Scot's broom (Cytisus scoparius)
SOLA	Nightshade (Solanum ducamara)
SPAR	Burr reed (Sparganium sp.)
TYPH	Cattail (Typha sp.)
VALI	Water celery (Vallisneria sp.)
VERO	Speedwell (Veronica sp.)

³Salmonid Codes: CH = chinook salmon; CO = coho salmon; CT = cutthroat trout; RB = rainbow trout.

⁴Centrarchid Codes: BG = bluegill; LB = largemouth bass; PK = pumpkinseed; C = crappie.

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Site Name	FOSTER PULLOUT	POND	Map Code	FOS2E
Basin	SANTIAM RIVER		Sample Date	05/22/00
Subbasin	MIDDLE SANTIAM		Location	T13S-R1E-24SW
Surface Are	ea	2405 m ²	Native Fish Spec	cies Collected:
Average Dep	pth	1.1 m		
Water Tempe	erature	13.0 [°] C	Oregon chub	2
Percent Org	ganic Substrate	100%	Cottids	0
			Dace	0
Types of Ac	quatic Vegetation		Redside shine:	ns 0
Submerger	ht	60%	Northern piken	ninnow 0
Emergent		40%	Largescale suc	ckers 0
Floating		0%	Sandrollers	0
Algae		0%	Threespine sti	icklebacks 0
			Salmonids-	0
	TOTAL	100%	Pacific lampre	ey 0
Aquatic veg	getation genera ²		Non-native Fish	Species Collected:
GRAM		10%		
SALI		10	Western Mosqui	tofish 0
JUNC		3	Centrarchids-	0
ELEO		2	Bullheads	0
SPAR		35	Carp	0
POTA		30		
ELOD		10	OTHER :	
<u> </u>				
Site Name	FOSTER PULLOUT	POND	Map Code	FOS2F*
		\$ 	-	
Basin	SANTIAM RIVER		Sample Date	09/28/00
Subbasin	MIDDLE SANTIAM		Location	T13S-R1E-24SW
Curfage Are		$2405 m^2$	Native Fich Spec	ies Collected.
Average Det	th	2405 m	Mative Fish Spec	TED COTTECCED.
Water Tempe	erature	12 0 °C	Oregon chub	80
Percent Or	anic Substrate	100%	Cottids	0
rereene erg		2001	Dace	0
Types of Ac	quatic Vegetatio	1 ¹	Redside shine:	cs 0
Submerger	nt -	0%	Northern piker	ninnow 0
Emergent		80%	Largescale suc	ckers 0
Floating		20%	Sandrollers	0
Algae		0%	Threespine sti	icklebacks 0
			Salmonids-	. 0
	TOTAL	100%	Pacific lampre	еу 0
Amatic vo	retation genera ²		Non-native Fich	Species Collected.
POTA	Securion Referra	80%		
SPAR		10	Western Mosqui	itofish 0
SALT		10	Centrarchide-	0
			Bullheads	0
			Carp	0
			OTHER:	

Site Name	GEREN ISLAND NO	DRTH POND	Map Code	GER4E
Basin	SANTIAM RIVER		Sample Date	05/22/00
Subbasin	NORTH SANTIAM		Location	T9S-R1W-13NW
Surface Are	a	4469 m ²	Native Fish Speci	es Collected:
Average Dep	th	1.2 m	-	
Water Tempe	rature	18.0 °C	Oregon chub	199
Percent Org	anic Substrate	100%	Cottids	. 0
5			Dace	0
Types of Aq	uatic Vegetation	, 1	Redside shiners	437
Submergen	t	25%	Northern pikemi	nnow 0
Emergent		33%	Largescale suck	ers 0
Floating		2%	Sandrollers	0
Algae		0 %	Threespine stic	klebacks 0
-	-		Salmonids-	0
	TOTAL	60%	Pacific lamprey	0
Aquatic veg	etation genera ²		Non-native Fish S	pecies Collected:
GRAM		25%		
AZOL		2	Western Mosquit	ofish 0
JUNC		5	Centrarchids-BG	32
CARE		1	Bullheads	0
SALI		l	Carp	0
IRIS		l		
ELOD		25	OTHER :	
Site Name Basin	GEREN ISLAND NO	NTH INTAKE CHNL	Map Code Sample Date	GER6E - 05/22/00
Subbasin	NORTH SANTIAM		Location	198-RIW-13NW
Surface Are	a	20625 m ²	Native Fish Speci	es Collected:
Average Dep	th	1.5 m		
Water Tempe:	rature	11.0 °C	Oregon chub	155
Percent Org	anic Substrate	95%	Cottids	5
		1	Dace	0
Types of Aq	uatic Vegetation	<u>,</u> –	Redside shiners	3
Submergen	t	25%	Northern pikemi	nnow 1
Emergent		19%	Largescale suck	ers 1
Floating		1%	Sandrollers	0
Algae		0%	Threespine stic	klebacks 0
	-		Salmonids-	0
	TOTAL	45%	Salmonids- Pacific lamprey	0 0
Aquatic veg	- TOTAL etation genera ²	45%	Salmonids- Pacific lamprey Non-native Fish S	0 0 pecies Collected:
Aquatic veg MYRI	TOTAL	45%	Salmonids- Pacific lamprey Non-native Fish S	0 O Decies Collected:
Aquatic veg MYRI ELOD	TOTAL	45% 15% 10	Salmonids- Pacific lamprey Non-native Fish S Western Mosquit	0 0 pecies Collected: ofish 0
Aquatic veg MYRI ELOD GRAM	TOTAL	45% 15% 10 15	Salmonids- Pacific lamprey Non-native Fish S Western Mosquit Centrarchids-	0 0 pecies Collected: ofish 0 0
Aquatic veg MYRI ELOD GRAM ELEO	- TOTAL	45% 15% 10 15 2	Salmonids- Pacific lamprey Non-native Fish S Western Mosquit Centrarchids- Bullheads	0 0 pecies Collected: ofish 0 0 0
Aquatic veg MYRI ELOD GRAM ELEO JUNC	- TOTAL	45% 15% 10 15 2 2	Salmonids- Pacific lamprey Non-native Fish S Western Mosquit Centrarchids- Bullheads Carp	0 0 pecies Collected: ofish 0 0 0 0
Aquatic veg MYRI ELOD GRAM ELEO JUNC LEMN	TOTAL	45% 15% 10 15 2 2 1	Salmonids- Pacific lamprey Non-native Fish S Western Mosquit Centrarchids- Bullheads Carp OTHER:	0 0 Decies Collected: Dfish 0 0 0 0

Site Name GRAY SLOU	15 2	Map Code	0.011120
Basin SANTIAM R	LIVER	Sample Date	05/18/00
Subbasin NORTH SAN	MAIT	Location	T9S-R1W-20NW
Surface Area	3240 m ²	Native Fish Spec	ies Collected:
Average Depth	0.6 m		
Water Temperature	11.0 °C	Oregon chub	4
Percent Organic Subst	rate 100%	Cottids	4
		Dace	194
Types of Aquatic Vege	station	Redside shiner	s 35
Submergent	30%	Northern pikem	innow 1
Emergent	70%	Largescale suc	kers 1
Floating	0%	Sandrollers	0
Algae	0%	Threespine sti	cklebacks 25
		Salmonids-CH	l
TO	TAL 100%	Pacific lampre	у 0
Aquatic vegetation ge	enera ²	Non-native Fish	Species Collecte
GRAM	70%		
CALI	10	Western Mosqui	tofish 0
SPAR	10	Centrarchids-	0
ELOD	5	Bullheads	. 0
FONT	5	Carp	0
Cito Nono CANTTAN T	- E BACTUATED 1	OTHER:	T59W10 -
Site Name SANTIAM I	-5 BACKWATER 1	OTHER: Map Code	I5BW1C -
Site Name SANTIAM I Basin SANTIAM R	-5 BACKWATER 1 LIVER	OTHER: Map Code Sample Date	I5BW1C - 04/26/00
Site Name SANTIAM I Basin SANTIAM R Subbasin	-5 BACKWATER 1 RIVER	OTHER: Map Code Sample Date Location	I5BW1C - 04/26/00 T10S-R3W-3NW
Site Name SANTIAM I Basin SANTIAM R Subbasin Surface Area	IVER	OTHER: Map Code Sample Date Location Native Fish Spec	I5BW1C - 04/26/00 T10S-R3W-3NW ies Collected:
Site Name SANTIAM I Basin SANTIAM R Subbasin Surface Area Average Depth	I-5 BACKWATER 1 RIVER 620 m ² 1.5 m	OTHER: Map Code Sample Date Location Native Fish Spec	I5BW1C - 04/26/00 T10S-R3W-3NW ies Collected:
Site Name SANTIAM I Basin SANTIAM R Subbasin Surface Area Average Depth Water Temperature	2-5 BACKWATER 1 RIVER 620 m ² 1.5 m 12.0 °C	OTHER: Map Code Sample Date Location Native Fish Spec Oregon chub	I5BW1C 04/26/00 T10S-R3W-3NW ies Collected:
Site Name SANTIAM I Basin SANTIAM R Subbasin Surface Area Average Depth Water Temperature Percent Organic Subst	2-5 BACKWATER 1 RIVER 620 m ² 1.5 m 12.0 °C	OTHER: Map Code Sample Date Location Native Fish Spec Oregon chub Cottids	I5BW1C 04/26/00 T10S-R3W-3NW ies Collected: 5
Site Name SANTIAM I Basin SANTIAM R Subbasin Surface Area Average Depth Water Temperature Percent Organic Subst	2-5 BACKWATER 1 RIVER 620 m ² 1.5 m 12.0 ^O C crate 100%	OTHER: Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace	I5BW1C 04/26/00 T10S-R3W-3NW ies Collected: 5 10 6
Site Name SANTIAM I Basin SANTIAM R Subbasin Surface Area Average Depth Water Temperature Percent Organic Subst	620 m ² 1.5 m 12.0 °C crate 100%	OTHER: Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace Bedside shiper	I5BW1C 04/26/00 T10S-R3W-3NW ies Collected: 5 10 6
Site Name SANTIAM I Basin SANTIAM R Subbasin Surface Area Average Depth Water Temperature Percent Organic Subst Types of Aquatic Vege Submergent	E-5 BACKWATER 1 RIVER 620 m ² 1.5 m 12.0 °C rrate 100% station ¹ 70%	OTHER: Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace Redside shiner Northern pikem	I5BW1C - 04/26/00 T10S-R3W-3NW ies Collected: 5 10 6 5 58 10 6
Site Name SANTIAM I Basin SANTIAM R Subbasin Surface Area Average Depth Water Temperature Percent Organic Subst Types of Aquatic Vege Submergent Emergent	E-5 BACKWATER 1 RIVER 620 m ² 1.5 m 12.0 °C crate 100% station ¹ 70% 10%	OTHER: Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace Redside shiner Northern pikem Largescale suc	I5BW1C - 04/26/00 T10S-R3W-3NW ies Collected: 5 10 6 5 58 innow 142 kers 32
Site Name SANTIAM I Basin SANTIAM R Subbasin Surface Area Average Depth Water Temperature Percent Organic Subst Types of Aquatic Vege Submergent Emergent	1-5 BACKWATER 1 RIVER 620 m ² 1.5 m 12.0 °C crate 100% station ¹ 70% 10% 0%	OTHER: Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace Redside shiner Northern pikem Largescale suc Sandrollers	I5BW1C - 04/26/00 T10S-R3W-3NW ies Collected: 5 10 6 5 58 innow 142 kers 32 0
Site Name SANTIAM I Basin SANTIAM R Subbasin Surface Area Average Depth Water Temperature Percent Organic Subst Cypes of Aquatic Vege Submergent Emergent Floating Algae	1-5 BACKWATER 1 RIVER 620 m ² 1.5 m 12.0 °C crate 100% station ¹ 70% 10% 0% 0%	OTHER: Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace Redside shiner Northern pikem Largescale suc Sandrollers Threespine sti	I5BW1C 04/26/00 T10S-R3W-3NW ies Collected: 5 10 6 5 58 innow 142 kers 32 0 cklebacks 40
Site Name SANTIAM I Basin SANTIAM R Subbasin Surface Area Average Depth Water Temperature Percent Organic Subst Types of Aquatic Vege Submergent Emergent Floating Algae	1-5 BACKWATER 1 RIVER 620 m ² 1.5 m 12.0 °C crate 100% 9tation ¹ 70% 0%	OTHER: Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace Redside shiner Northern pikem Largescale suc Sandrollers Threespine sti Salmonide.	I5BW1C - 04/26/00 T10S-R3W-3NW ies Collected: 5 10 6 5 58 innow 142 kers 32 0 cklebacks 40
Site Name SANTIAM I Basin SANTIAM R Subbasin Surface Area Average Depth Water Temperature Percent Organic Subst Types of Aquatic Vege Submergent Emergent Floating Algae	E-5 BACKWATER 1 CIVER 620 m ² 1.5 m 12.0 °C crate 100% station ¹ 70% 0% 0% VTAL<	OTHER: Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace Redside shiner Northern pikem Largescale suc Sandrollers Threespine sti Salmonids- Pacific lampre	I5BW1C - 04/26/00 T10S-R3W-3NW ies Collected: 5 10 6 5 5 58 innow 142 kers 32 0 cklebacks 40 0 y 0
Site Name SANTIAM I Basin SANTIAM R Subbasin Surface Area Average Depth Water Temperature Percent Organic Subst Types of Aquatic Vege Submergent Emergent Floating Algae	1-5 BACKWATER 1 CIVER 620 m ² 1.5 m 12.0 °C :rate 100% station ¹ 70% 10% 0% VTAL 80%	OTHER: Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace Redside shiner Northern pikem Largescale suc Sandrollers Threespine sti Salmonids- Pacific lampre	I5BW1C 04/26/00 T10S-R3W-3NW ies Collected: 5 10 6 5 58 innow 142 kers 32 0 cklebacks 40 0 y 0 Speciet Collected
Site Name SANTIAM I Basin SANTIAM R Subbasin Surface Area Average Depth Water Temperature Percent Organic Subst Types of Aquatic Vege Submergent Emergent Floating Algae TC Aquatic vegetation ge	1-5 BACKWATER 1 RIVER 620 m ² 1.5 m 12.0 °C trate 10% 0% 0% 0% VTAL 5%	OTHER: Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace Redside shiner Northern pikem Largescale suc Sandrollers Threespine sti Salmonids- Pacific lampre Non-native Fish	I5BW1C - 04/26/00 T10S-R3W-3NW ies Collected: 5 10 6 5 5 58 innow 142 kers 32 0 cklebacks 40 0 y 0 Species Collecter
Site Name SANTIAM I Basin SANTIAM R Subbasin Surface Area Average Depth Water Temperature Percent Organic Subst Types of Aquatic Vege Submergent Emergent Floating Algae TC Aquatic vegetation ge GRAM	a 620 m ² 1.5 m 12.0 °C crate 100% etation ¹ 70% 10% 0% 0% 0% VTAL 80% seara ² 5%	OTHER: Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace Redside shiner Northern pikem Largescale suc Sandrollers Threespine sti Salmonids- Pacific lampre Non-native Fish	I5BW1C 04/26/00 T10S-R3W-3NW ies Collected: 5 10 6 5 58 innow 142 kers 32 0 cklebacks 40 0 y 0 Species Collecte tofish 22
Site Name SANTIAM I Basin SANTIAM R Subbasin Surface Area Average Depth Water Temperature Percent Organic Subst Types of Aquatic Vege Submergent Emergent Floating Algae TC Aquatic vegetation ge GRAM SPAR DOTA	a 620 m ² 1.5 m 12.0 °C crate 100% station ¹ 70% 0% 0% 0%	OTHER: Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace Redside shiner Northern pikem Largescale suc Sandrollers Threespine sti Salmonids- Pacific lampre Non-native Fish Western Mosqui	I5BW1C 04/26/00 T10S-R3W-3NW ies Collected: 5 10 6 5 58 innow 142 kers 32 0 cklebacks 40 0 y 0 Species Collecte tofish 0
Site Name SANTIAM I Basin SANTIAM R Subbasin Surface Area Average Depth Water Temperature Percent Organic Subst Types of Aquatic Vege Submergent Emergent Floating Algae TC Aquatic vegetation ge GRAM SPAR POTA	a 620 m ² 1.5 m 12.0 °C crate 100% station ¹ 70% 0% 0% 0% 0% DTAL 80% seara ² 5% 30 10	OTHER: Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace Redside shiner Northern pikem Largescale suc Sandrollers Threespine sti Salmonids- Pacific lampre Non-native Fish Western Mosqui Centrarchids-B	I5BW1C 04/26/00 T10S-R3W-3NW ies Collected: 5 10 6 5 10 6 5 10 6 5 10 6 5 10 6 5 10 6 5 10 6 5 10 6 5 10 6 5 10 6 5 10 6 5 10 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 <t< td=""></t<>
Site Name SANTIAM I Basin SANTIAM R Subbasin Surface Area Average Depth Water Temperature Percent Organic Subst Types of Aquatic Vege Submergent Emergent Floating Algae TC Aquatic vegetation ge GRAM SPAR POTA ELEO ROD	a 620 m ² 1.5 m 12.0 °C crate 100% station ¹ 70% 0% 0% DTAL 80% shera ² 5% 30 10 5 30	OTHER: Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace Redside shiner Northern pikem Largescale suc Sandrollers Threespine sti Salmonids- Pacific lampre Non-native Fish Western Mosqui Centrarchids-B Bullheads	I5BW1C - 04/26/00 T10S-R3W-3NW ies Collected: 5 10 6 5 58 innow 142 kers 32 0 cklebacks 40 0 y 0 Species Collecter tofish 0 G 1 0
Site Name SANTIAM I Basin SANTIAM R Subbasin Surface Area Average Depth Water Temperature Percent Organic Subst Types of Aquatic Vege Submergent Emergent Floating Algae TC Aquatic vegetation ge GRAM SPAR POTA ELEO ELOD DOLV	E-5 BACKWATER 1 RIVER 620 m ² 1.5 m 12.0 °C trate 100% etation ¹ 70% 0%	OTHER: Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace Redside shiner Northern pikem Largescale suc Sandrollers Threespine sti Salmonids- Pacific lampre Non-native Fish Western Mosqui Centrarchids-B Bullheads Carp	I5BW1C - 04/26/00 T10S-R3W-3NW ies Collected: 5 10 6 5 58 innow 142 kers 32 0 cklebacks 40 0 y 0 Species Collected tofish 0 G 1 0 0

Site Name SANTIAM I-5 B	ACKWATER 2	Map Code	I5BW2A	
Basin SANTIAM RIVER		Sample Date	04/26/00	
Subbasin		Location	T10S-R3W-3NV	A
Surface Area	2800 m ²	Native Fish Spec	cies Collected	1:
Average Depth	1.0 m			
Water Temperature	12.0 °C	Oregon chub		8
Percent Organic Substrate	50%	Cottids		2
		Dace		2
Types of Aquatic Vegetatio	¹	Redside shiner	rs	37
Submergent	35%	Northern piken	ninnow '	88
Emergent	40%	Largescale suc	ckers	5
Floating	0%	Sandrollers		0
Algae	0%	Threespine sti	icklebacks	З
		Salmonids-CH		l
TOTAL	75%	Pacific lampre	≥y	0
				_
Aquatic vegetation genera		Non-native Fish	Species Colle	ected:
GRAM	10%			_
ELEO	20	Western Mosqui	ltofish	0
SPAR	10	Centrarchids-E	3G	1
SALI	10	Bullheads		0
POLY	25	Carp		0
		OTHER :		
•			···	
Site Name MENEAR'S BEND		Map Code	MENELB	
Site Name MENEAR'S BEND		Map Code Sample Date	MENELB	
Site Name MENEAR'S BEND Basin SANTIAM RIVER Subbasin SOUTH SANTIAM		Map Code Sample Date Location	MENE1B 05/22/00 T135-B2E-295	3
Site Name MENEAR'S BEND Basin SANTIAM RIVER Subbasin SOUTH SANTIAM		Map Code Sample Date Location	MENE1B 05/22/00 T13S-R2E-295	5
Site Name MENEAR'S BEND Basin SANTIAM RIVER Subbasin SOUTH SANTIAM	1000 m ²	Map Code Sample Date Location Native Fish Spec	MENELB 05/22/00 T13S-R2E-29S	5 1=
Site Name MENEAR'S BEND Basin SANTIAM RIVER Subbasin SOUTH SANTIAM Surface Area	1000 m ² 0.8 m	Map Code Sample Date Location Native Fish Spec	MENELB 05/22/00 T13S-R2E-295 ties Collected	5 1:
Site Name MENEAR'S BEND Basin SANTIAM RIVER Subbasin SOUTH SANTIAM Surface Area Average Depth Water Temperature	1000 m ² 0.8 m 14.5 [°] C	Map Code Sample Date Location Native Fish Spec	MENELB 05/22/00 T13S-R2E-295 ties Collected	5 1: 0
Site Name MENEAR'S BEND Basin SANTIAM RIVER Subbasin SOUTH SANTIAM Surface Are- Average Depth Water Temperature Percent Organic Substrate	1000 m ² 0.8 m 14.5 [°] C 100%	Map Code Sample Date Location Native Fish Spec Oregon chub Cottids	MENELB 05/22/00 T13S-R2E-29S ties Collected	5 1: 0 0
Site Name MENEAR'S BEND Basin SANTIAM RIVER Subbasin SOUTH SANTIAM Surface Area Average Depth Water Temperature Percent Organic Substrate	1000 m ² 0.8 m 14.5 °C 100%	Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace	MENELB 05/22/00 T13S-R2E-29S cies Collected	5 1: 0 0 0
Site Name MENEAR'S BEND Basin SANTIAM RIVER Subbasin SOUTH SANTIAM Surface Area Average Depth Water Temperature Percent Organic Substrate	1000 m ² 0.8 m 14.5 °C 100%	Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace Redside shiner	MENELB 05/22/00 T13S-R2E-29S cies Collected	5 1: 0 0 0 0
Site Name MENEAR'S BEND Basin SANTIAM RIVER Subbasin SOUTH SANTIAM Surface Area Average Depth Water Temperature Percent Organic Substrate Types of Aquatic Vegetation Submergent	1000 m ² 0.8 m 14.5 [°] C 100% m ¹ 25%	Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace Redside shiner Northern pikem	MENELB 05/22/00 T13S-R2E-29S eies Collected	5 1: 0 0 0 0 0
Site Name MENEAR'S BEND Basin SANTIAM RIVER Subbasin SOUTH SANTIAM Surface Area Average Depth Water Temperature Percent Organic Substrate Types of Aquatic Vegetation Submergent Emergent	1000 m ² 0.8 m 14.5 [°] C 100% m ¹ 25% 11%	Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace Redside shiner Northern piken Largescale suc	MENELB 05/22/00 T13S-R2E-29S sies Collected	5 1: 0 0 0 0 0 0
Site Name MENEAR'S BEND Basin SANTIAM RIVER Subbasin SOUTH SANTIAM Surface Area Average Depth Water Temperature Percent Organic Substrate Types of Aquatic Vegetatic Submergent Emergent Floating	1000 m ² 0.8 m 14.5 °C 100% m ¹ 25% 11% 20%	Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace Redside shiner Northern piken Largescale suc Sandrollers	MENELB 05/22/00 T13S-R2E-29S cies Collected	5 1: 0 0 0 0 0 0 0 0 0
Site Name MENEAR'S BEND Basin SANTIAM RIVER Subbasin SOUTH SANTIAM Surface Area Average Depth Water Temperature Percent Organic Substrate Types of Aquatic Vegetatic Submergent Emergent Floating Algae	1000 m ² 0.8 m 14.5 °C 100% m ¹ 25% 11% 20% 0%	Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace Redside shiner Northern piker Largescale suc Sandrollers Threespine sti	MENELB 05/22/00 T13S-R2E-29S cies Collected sis minnow ckers .cklebacks	5 1: 0 0 0 0 0 0 0 0 0 0 0
Site Name MENEAR'S BEND Basin SANTIAM RIVER Subbasin SOUTH SANTIAM Surface Area Average Depth Water Temperature Percent Organic Substrate Types of Aquatic Vegetation Submergent Emergent Floating Algae	1000 m ² 0.8 m 14.5 ^o C 100% m ¹ 25% 11% 20% 0%	Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace Redside shiner Northern piker Largescale suc Sandrollers Threespine sti Salmonids-	MENEIB 05/22/00 T13S-R2E-29S ties Collected ties Collected ties ties ties cklebacks	5 1: 0 0 0 0 0 0 0 0 0 0 0 0 0
Site Name MENEAR'S BEND Basin SANTIAM RIVER Subbasin SOUTH SANTIAM Surface Area Average Depth Water Temperature Percent Organic Substrate Types of Aquatic Vegetatic Submergent Emergent Floating Algae	1000 m ² 0.8 m 14.5 °C 100% m ¹ 25% 11% 20% 0% 56%	Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace Redside shiner Northern piken Largescale suc Sandrollers Threespine sti Salmonids- Pacific lampre	MENELB 05/22/00 T13S-R2E-29S ties Collected ties Collected ties chinnow tkers .cklebacks	5 1: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Site Name MENEAR'S BEND Basin SANTIAM RIVER Subbasin SOUTH SANTIAM Surface Area Average Depth Water Temperature Percent Organic Substrate Types of Aquatic Vegetation Submergent Emergent Floating Algae	1000 m ² 0.8 m 14.5 °C 100% m ¹ 25% 11% 20% 0% 56%	Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace Redside shiner Northern piken Largescale suc Sandrollers Threespine sti Salmonids- Pacific lampre	MENELB 05/22/00 T13S-R2E-29S eies Collected sies Collected ckers cklebacks	3 1: 0 0 0 0 0 0 0 0 0 0 0 0 0
Site Name MENEAR'S BEND Basin SANTIAM RIVER Subbasin SOUTH SANTIAM Surface Area Average Depth Water Temperature Percent Organic Substrate Types of Aquatic Vegetation Submergent Floating Algae TOTAL	1000 m ² 0.8 m 14.5 °C 100% m ¹ 25% 11% 20% 0% 56%	Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace Redside shiner Northern piker Largescale suc Sandrollers Threespine sti Salmonids- Pacific lampre	MENELB 05/22/00 T13S-R2E-29S eies Collected iss collected ckers .cklebacks ey Species Colle	5 1: 0 0 0 0 0 0 0 0 0 0 0 0 0
Site Name MENEAR'S BEND Basin SANTIAM RIVER Subbasin SOUTH SANTIAM Surface Area Average Depth Water Temperature Percent Organic Substrate Types of Aquatic Vegetation Submergent Floating Algae TOTAL	1000 m ² 0.8 m 14.5 °C 100% m ¹ 25% 11% 20% 0% 56% 10%	Map Code Sample Date Location Native Fish Spect Oregon chub Cottids Dace Redside shiner Northern piken Largescale suc Sandrollers Threespine sti Salmonids- Pacific lampre Non-native Fish	MENELB 05/22/00 T13S-R2E-29S eies Collected iss collected ckers .cklebacks ey Species Collec	5 1: 0 0 0 0 0 0 0 0 0 0 0 0 0
Site Name MENEAR'S BEND Basin SANTIAM RIVER Subbasin SOUTH SANTIAM Surface Area Average Depth Water Temperature Percent Organic Substrate Types of Aquatic Vegetation Submergent Floating Algae TOTAL	1000 m ² 0.8 m 14.5 °C 100% m ¹ 25% 11% 20% 0% 56% 10% 1	Map Code Sample Date Location Native Fish Spect Oregon chub Cottids Dace Redside shiner Northern piker Largescale suc Sandrollers Threespine sti Salmonids- Pacific lampre Non-native Fish Western Mosqui	MENELB 05/22/00 T13S-R2E-29S eies Collected ss ninnow kers .cklebacks ey Species Colle	5 1: 0 0 0 0 0 0 0 0 0 0 0 0 0
Site Name MENEAR'S BEND Basin SANTIAM RIVER Subbasin SOUTH SANTIAM Surface Area Average Depth Water Temperature Percent Organic Substrate Types of Aquatic Vegetation Submergent Floating Algae TOTAL	1000 m ² 0.8 m 14.5 °C 100% m ¹ 25% 11% 20% 0% 56% 10% 1 5	Map Code Sample Date Location Native Fish Spect Oregon chub Cottids Dace Redside shiner Northern piker Largescale suc Sandrollers Threespine sti Salmonids- Pacific lampre Non-native Fish Western Mosqui Centrarchids-	MENEIB 05/22/00 T13S-R2E-29S ties Collected ties Collected ties cklebacks cklebacks y Species Collected tofish	5 1: 0 0 0 0 0 0 0 0 0 0 0 0 0
Site Name MENEAR'S BEND Basin SANTIAM RIVER Subbasin SOUTH SANTIAM Surface Area Average Depth Water Temperature Percent Organic Substrate Types of Aquatic Vegetation Submergent Emergent Floating Algae TOTAL	1000 m ² 0.8 m 14.5 °C 100% m ¹ 25% 11% 20% 0% 56% 10% 1 5 10	Map Code Sample Date Location Native Fish Spect Oregon chub Cottids Dace Redside shiner Northern piker Largescale suc Sandrollers Threespine sti Salmonids- Pacific lampre Non-native Fish Western Mosqui Centrarchids- Bullheads	MENEIB 05/22/00 T13S-R2E-29S ties Collected ties Collected ties Collected ties Collected ties Collected ties Collected ties Collected ties Collected ties Collected ties Collected	5 1: 0 0 0 0 0 0 0 0 0 0 0 0 0
Site Name MENEAR'S BEND Basin SANTIAM RIVER Subbasin SOUTH SANTIAM Surface Area Average Depth Water Temperature Percent Organic Substrate Types of Aquatic Vegetation Submergent Emergent Floating Algae TOTAL	1000 m ² 0.8 m 14.5 °C 100% m ¹ 25% 11% 20% 0% 	Map Code Sample Date Location Native Fish Spect Oregon chub Cottids Dace Redside shiner Northern piken Largescale suc Sandrollers Threespine sti Salmonids- Pacific lampre Non-native Fish Western Mosqui Centrarchids- Bullheads Carp	MENELB 05/22/00 T13S-R2E-29S sies Collected sies Collected cs innnow ckers .cklebacks ey Species Collected .tofish	5 1: 0 0 0 0 0 0 0 0 0 0 0 0 0
Site Name MENEAR'S BEND Basin SANTIAM RIVER Subbasin SOUTH SANTIAM Surface Area Average Depth Water Temperature Percent Organic Substrate Types of Aquatic Vegetation Submergent Floating Algae TOTAL Acer GRAM MENT CALI SPAR LEMN	1000 m ² 0.8 m 14.5 °C 100% m ¹ 25% 11% 20% 0% 56% 10% 1 5 10 10 10 10 10	Map Code Sample Date Location Native Fish Spect Oregon chub Cottids Dace Redside shiner Northern piken Largescale suc Sandrollers Threespine sti Salmonids- Pacific lampre Non-native Fish Western Mosqui Centrarchids- Bullheads Carp	MENELB 05/22/00 T13S-R2E-29S eies Collected sies Collected cs innow ckers .cklebacks ey Species Collected .tofish	3 1: 0 0 0 0 0 0 0 0 0 0 0 0 0

Site Name	MARKS SLOUGH B	EAVER POND MOUTH	Map Code	MKS3*
Basin	SANTIAM RIVER		Sample Date	10/12/00
Subbasin	SOUTH SANTIAM		Location	T12S-R2W-1NW
Surface Ar		2560 m ²	Native Fich Sn.	cies Collected.
Average De	oth	1 2 m		cores corrected.
Water Temp	erature	12 0 00	Oregon chub	0
Percent Or	canic Substrate	12.0	Cottida	4
rerectic or		1000	Dace	14
Types of A	matic Vegetatio	,1	Redside shin	11
Submerger	nt	508	Northern nik	
Emergent		303 358	Largescale st	uckers 3
Elosting		2.5 %	Sandrollers	0
Algae		05	Threespine	ticklebackc 2
Argue			Selmonide-	n n
	TOTAT	1008	Pacific lamp	
	IOIAL	1003	Facilité lamp.	Ley 0
Aquatic veg	getation genera ²		Non-native Fis	h Species Collected:
ELOD		10%		
SPAR		20	Western Mosqu	uitofish 0
MYRI		50	Centrarchids	-LB 2
TYPH		10	Bullheads	0
LEMN		5	Carp	0
ĒLEO		2		
GRAM		3	OTHER :	
			Non Cala	NG1 4 5
Site Name	GREEN'S BRIDGE	BACKWATER	мар соде	NS14F
Basin	SANTIAM RIVER		Sample Date	04/25/00
Subbasin	NORTH SANTIAM		Location	T10S-R2W-7SE
Surface Ar	ea	2100 m ²	Native Fish Spo	ecies Collected:
Average De	pth	1.8 m	-	
Water Temp	erature	12.0 °C	Oregon chub	0
Percent Or	ganic Substrate	95%	Cottids	5
	_		Dace	130
Types of A	quatic Vegetatio	_ ¹	Redside shine	ers 92

Submergent	3%
Emergent	25%
Floating	0%
Algae	0%

TOTAL 28%

AquaticvegetationgeneralGRAM20%ELOD3SALI20JUNC1ELEO2

Cottids5Dace130Redside shiners92Northern pikeminnow32Largescale suckers3Sandrollers0Threespine sticklebacks23Salmonids-0Pacific lamprey0

Non-native Fish Species Collected:

Western Mosquitofish	0
Centrarchids-LB PK	2
Bullheads	0
Carp	0
OTHER:	

SANTIAM RIVER BASIN

Site Name	LOGAN SLOUGH		Map Code	NS17A*	
Basin	SANTIAM RIVER		Sample Date	08/30/00	
Subbasin	NORTH SANTIAM		Location	T9S-R2W-35SW	
0		5400 m ²	Mathian Wish 6-		
Surface Are	ea	5400 m	Native Fish Spe	ecies Collected:	
Water Terms		1.0 m	Orogon shub	,	0
Water rempe	erature			100	-
Percent org	ganic Substrate	50%	Dese	195	2
	metic Theotheric	1	Dace Podeido abiac	13	3
Types of Ad	quatic vegetation	10%	Northern pike		/ -
Submerger	10	12%			L
Emergent		734	Largescare st	ickers (J
Floating		0%	Sandroilers	ichlebeche 110	-
Algae		0.5	Inreespine st	ICKIEDACKS III	2
	-		Salmonids-))
	TOTAL	238	Pacific lampr	cey (J
Aquatic veg	getation genera ²		Non-native Fish	Species Collect	ted:
ELOD		10%			
GRAM		5	Western Mosqu	uitofish 0	С
ELEO		5	Centrarchids-	. C	С
SPAR		1	Bullheads	C	C
SCIR		1	Carp	C	С
RANU		l			
			OTHER:		
Site Name	WISEMAN ISLAND	BACKWATER	Map Code	NS19A*	
Basin	SANTIAM RIVER		Sample Date	08/30/00	
Subbasin	NORTH SANTIAM		Location	T10S-R2W-9C	
Surface Are		$(00 m^2)$	Nativo Fich Coo	aing Collogtod.	
Average Der	th	0.6 m	Macrie Ling ape	cies corrected.	
Water Tempe			Oregon chub	0	
Borgort Org	ania Substrate	10.0 C	Cottide	10	,
reicent org	Janie Subsciace		Dace	10	, ,
The set a	matic Vocatation	1	Pace Padeida shina		•
Submargan	Hatic Vegetation	20%	Northern nike	minnow 0	
Emergent		72	Largescale su	ckers 2	, >
Electing		02	Sandrollere	0	
Algae		02	Threespine st	icklebacks 65	,
widac.	_	0.0	Salmonide-	ICRIEDICKS 05	,)
	TOTAL	27%	Pacific lampr	ey 0)
				-	
Aquatic veg	etation genera ²		Non-native Fish	Species Collect	ed:
ELOD		20%			
ELEO		5	Western Mosqu	itofish 0	ţ
RANU		2	Centrarchids-	0	ł
			Bullheads	0	1
			Carp	0	1
			OTHER -		
			01112111		

Site Name	NORTH SANTIAM	BACKWATER	Map Code	NS21*
Basin	SANTIAM RIVER		Sample Date	08/30/00
Subbasin	NORTH SANTIAM		Location	T10S-R3W-18SE
Surface Are	ea	7500 m ²	Native Fish Spe	cies Collected:
Average Dep	pth	1.3 m		
Water Tempe	erature	19.5 [°] C	Oregon chub	0
Percent Org	ganic Substrate	50%	Cottids	45
			Dace	11
Types of Ac	quatic Vegetation	a ¹	Redside shine	ers 3
Submerger	nt	45%	Northern pike	minnow 2
Emergent		20%	Largescale su	ckers 0
Floating		0%	Sandrollers	0
Algae		0%	Threespine st	icklebacks 3
	-		Salmonids-	0
	TOTAL	65%	Pacific lampr	ey 0
Aquatic veg	getation genera ²		Non-native Fish	Species Collected:
IRIS		10%		-
ELOD		40	Western Mosqu	itofish 8
SPAR		5	Centrarchids-	0
MYRI		5	Bullheads	0
RANU		5	Carp	0
			OTHER :	
Site Name	NORTH SANTIAM 1	BACKWATER	Map Code	NS22*
Basin	SANTIAM RIVER		Sample Date	08/30/00
Subbasin	NORTH SANTIAM		Location	T10S-R3W-13SE
Surface Are	a	2000 m ²	Native Fish Spe	cies Collected:
Average Der	oth	1.5 m	-	
Water Tempe	erature	22.0 ⁰ C	Oregon chub	0
Percent Org	ganic Substrate	100%	Cottids	6
			Dace	7
Types of Ac	quatic Vegetation	1	Redside shine	rs 3
Submerger	nt	59%	Northern pike	minnow 3
Emergent		20%	Largescale su	ckers 8
Floating		0%	Sandrollers	0
Algae		0%	Threespine st	icklebacks 22
	-		Salmonids-	0
	TOTAL	79%	Pacific lampr	ey O
Aquatic veg	getation genera ²		Non-native Fish	Species Collected:
ELOD	-	50%		
SPAR		10	Western Mosqu	itofish 0
IRIS		10	Centrarchids-	LB 10
POTA		2	Bullheads	0
MYRI		5	Carp	. 0
CALI		2		
			OTHER:	

Site Name PIONEER PA	ARK BACKWATER	Map Code	PION3C
Basin SANTIAM RI	IVER	Sample Date	05/18/00
Subbasin NORTH SANT	TIAM	Location	T9S-R1W-11SW
Surface Area	1500 m ²	Native Fish Speci	es Collected:
Average Depth	, 1.0 m		
Water Temperature	10.5 °C	Oregon chub	2
Percent Organic Substr	rate 75%	Cottids	1
		Dace	0
Types of Aquatic Veget	cation ¹	Redside shiners	57
Submergent	15%	Northern pikemi	nnow 9
Emergent	10%	Largescale suck	ers 0
Floating	0%	Sandrollers	0
Algae	0%	Threespine stic	klebacks 0
		Salmonids-CO	1
TOT	TAL 25%	Pacific lamprey	· · 0
Aquatic vegetation gen	pera ²	Non-native Fish S	pecies Collect
ELOD	15%		
GRAM	5	Western Mosquit	ofish 0
ELEO	5	Centrarchids-	0
		Bullheads	0
		Carp	0
		OTHER :	
Site Name SANTIAM BA	CKWATER	Map Code .	SANT5*
Site Name SANTIAM BA	CKWATER	Map Code .	SANT5*
Site Name SANTIAM BA Basin SANTIAM RI	CKWATER WER	Map Code . Sample Date	SANT5 ★ 08/30/00
Site Name SANTIAM BA Basin SANTIAM RI Subbasin	CCWATER IVER	Map Code . Sample Date Location	SANT5★ 08/30/00 T10S-R3₩-24N₩
Site Name SANTIAM BA Basin SANTIAM RI Subbasin Surface Area	NCKWATER IVER 360 m ²	Map Code . Sample Date Location Native Fish Speci	SANT5* 08/30/00 T10S-R3W-24NW es Collected:
Site Name SANTIAM BA Basin SANTIAM RI Subbasin Surface Area Average Depth	ACKWATER EVER 360 m ² 0.8 m	Map Code . Sample Date Location Native Fish Speci	SANT5* 08/30/00 T10S-R3W-24NW es Collected:
Site Name SANTIAM BA Basin SANTIAM RI Subbasin Surface Area Average Depth Water Temperature	ACKWATER EVER 360 m ² 0.8 m 20.0 °C	Map Code . Sample Date Location Native Fish Speci Oregon chub	SANT5* 08/30/00 T10S-R3W-24NW es Collected: 0
Site Name SANTIAM BA Basin SANTIAM RI Subbasin Surface Area Average Depth Water Temperature Percent Organic Substr	360 m ² 0.8 m 20.0 °C	Map Code . Sample Date Location Native Fish Speci Oregon chub Cottids	SANT5* 08/30/00 T10S-R3W-24NW es Collected: 0 23
Site Name SANTIAM BA Basin SANTIAM RI Subbasin Surface Area Average Depth Water Temperature Percent Organic Substr	ACKWATER SVER 360 m ² 0.8 m 20.0 ^O C Tate 75%	Map Code . Sample Date Location Native Fish Speci Oregon chub Cottids Dace	SANT5* 08/30/00 T10S-R3W-24NW es Collected: 0 23 6
Site Name SANTIAM BA Basin SANTIAM RI Subbasin Surface Area Average Depth Water Temperature Percent Organic Substr	ACKWATER $360 m^2$ 0.8 m 20.0 °C rate 75% ation ¹	Map Code . Sample Date Location Native Fish Speci Oregon chub Cottids Dace Redside shipers	SANT5* 08/30/00 T10S-R3W-24NW es Collected: 0 23 6 0
Site Name SANTIAM BA Basin SANTIAM RI Subbasin Surface Area Average Depth Water Temperature Percent Organic Substr Types of Aquatic Veget Submergent	ACKWATER 360 m ² 0.8 m 20.0 °C rate 75% ation ¹ 20%	Map Code . Sample Date Location Native Fish Speci Oregon chub Cottids Dace Redside shiners Northern pikemi	SANT5* 08/30/00 T10S-R3W-24NW es Collected: 0 23 6 0
Site Name SANTIAM BA Basin SANTIAM RI Subbasin Surface Area Average Depth Water Temperature Percent Organic Substr Types of Aquatic Veget Submergent Emergent	ACKWATER 360 m ² 0.8 m 20.0 °C rate 75% ation ¹ 20% 15%	Map Code . Sample Date Location Native Fish Speci Oregon chub Cottids Dace Redside shiners Northern pikemi Largescale suck	SANT5* 08/30/00 T10S-R3W-24NW es Collected: 0 23 6 0 0 0 23 6 0 0 0 0 0 0 0 0 0 0 0 0 0
Site Name SANTIAM BA Basin SANTIAM RI Subbasin Surface Area Average Depth Water Temperature Percent Organic Substr Types of Aquatic Veget Submergent Emergent	ACKWATER 360 m ² 0.8 m 20.0 °C rate 75% ation ¹ 20% 15% 0%	Map Code . Sample Date Location Native Fish Speci Oregon chub Cottids Dace Redside shiners Northern pikemi Largescale suck Sandrollers	SANT5* 08/30/00 T10S-R3W-24NW es Collected: 0 23 6 0 nnow 0 ers 0 0
Site Name SANTIAM BA Basin SANTIAM RI Subbasin Surface Area Average Depth Water Temperature Percent Organic Substr Types of Aquatic Veget Submergent Emergent Floating	ACKWATER 360 m ² 0.8 m 20.0 °C rate 75% ation ¹ 20% 15% 0% 0%	Map Code . Sample Date Location Native Fish Speci Oregon chub Cottids Dace Redside shiners Northern pikemi Largescale suck Sandrollers	SANT5* 08/30/00 T10S-R3W-24NW es Collected: 0 23 6 0 0 0 ers 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Site Name SANTIAM BA Basin SANTIAM RI Subbasin Surface Area Average Depth Water Temperature Percent Organic Substr Types of Aquatic Veget Submergent Emergent Floating Algae	ACKWATER 360 m ² 0.8 m 20.0 °C Pate 75% Sation ¹ 20% 15% 0% 0%	Map Code Sample Date Location Native Fish Speci Oregon chub Cottids Dace Redside shiners Northern pikemi Largescale suck Sandrollers Threespine stic	SANT5* 08/30/00 T10S-R3W-24NW es Collected: 0 23 6 0 nnow 0 ers 0 0 klebacks 24
Site Name SANTIAM BA Basin SANTIAM RI Subbasin Surface Area Average Depth Water Temperature Percent Organic Substr Types of Aquatic Veget Submergent Emergent Floating Algae	ACKWATER 360 m ² 0.8 m 20.0 °C rate 75% sation ¹ 20% 15% 0% 0% 0% 2% 15%	Map Code . Sample Date Location Native Fish Speci Oregon chub Cottids Dace Redside shiners Northern pikemi Largescale suck Sandrollers Threespine stic Salmonids- Pacific lamprey	SANT5* 08/30/00 T10S-R3W-24NW es Collected: 0 23 6 0 10 23 6 0 23 6 0 23 6 0 23 6 0 23 6 0 23 6 0 23 6 0 23 6 0 23 6 0 23 6 0 23 6 0 23 6 0 23 6 0 23 6 0 0 23 6 0 0 23 6 0 0 0 23 6 0 0 0 23 6 0 0 0 0 0 0 0 0 0 0 0 0 0
Site Name SANTIAM BA Basin SANTIAM RI Subbasin Surface Area Average Depth Water Temperature Percent Organic Substr Types of Aquatic Veget Submergent Emergent Floating Algae TOT.		Map Code . Sample Date Location Native Fish Speci Oregon chub Cottids Dace Redside shiners Northern pikemi Largescale suck Sandrollers Threespine stic Salmonids- Pacific lamprey	SANT5* 08/30/00 T10S-R3W-24NW es Collected: 0 23 6 0 13 6 0 13 6 0 0 23 6 0 0 23 6 0 0 10 23 6 0 0 23 6 0 0 23 6 0 0 23 6 0 0 23 6 0 0 23 6 0 0 23 6 0 0 23 0 0 23 0 0 23 0 0 0 0 0 0 0 0 0 0 0 0 0
Site Name SANTIAM BA Basin SANTIAM RI Subbasin Surface Area Average Depth Water Temperature Percent Organic Substr Types of Aquatic Veget Submergent Emergent Floating Algae TOT.	ACKWATER 360 m ² 0.8 m 20.0 °C rate 75% Sation ¹ 20% 15% 0% 0% 0% 2% 15% 0% 0% 15% 0% 0% 0% 15% 0% 0% 0% 10%	Map Code . Sample Date Location Native Fish Speci Oregon chub Cottids Dace Redside shiners Northern pikemi Largescale suck Sandrollers Threespine stic Salmonids- Pacific lamprey Non-native Fish S	SANT5* 08/30/00 T10S-R3W-24NW es Collected: 0 23 6 0 23 0 23 0 23 0 23 0 23 0 23 0 23 0 0 23 0 23 0 23 0 23 0 23 0 23 0 23 0 23 0 23 0 23 0 23 0 23 0 23 0 23 0 0 23 0 0 23 0 0 23 0 0 23 0 0 23 0 0 23 0 0 24 0 0 24 0 0 24 0 0 0 24 0 0 0 24 0 0 24 0 0 24 0 0 24 0 0 0 24 0 0 0 24 0 0 24 0 0 24 0 0 0 24 0 0 0 24 0 0 0 24 0 0 0 0 24 0 0 0 0 0 0 0 0 0 0 0 0 0
Site Name SANTIAM BA Basin SANTIAM RI Subbasin Surface Area Average Depth Water Temperature Percent Organic Substr Types of Aquatic Veget Submergent Emergent Floating Algae TOT. Aquatic vegetation gen CALI	ACKWATER 360 m ² 0.8 m 20.0 °C rate 75% Sation ¹ 20% 15% 0% 0% 0% 2% 15% 0% 0% 15% 0% 0% 0% 10% 10%	Map Code Sample Date Location Native Fish Speci Oregon chub Cottids Dace Redside shiners Northern pikemi Largescale suck Sandrollers Threespine stic Salmonids- Pacific lamprey Non-native Fish S	SANT5* 08/30/00 T10S-R3W-24NW es Collected: 0 23 6 0 23 0 0 23 0 0 23 0 0 23 0 0 23 0 0 23 0 0 24 0 0 24 0 0 0 24 0 0 24 0 0 0 24 0 0 0 24 0 0 0 24 0 0 24 0 0 0 24 0 0 0 24 0 0 0 24 0 0 0 24 0 0 0 0 24 0 0 0 0 24 0 0 0 0 0 0 24 0 0 0 0 0 24 0 0 0 0 0 0 0 0 0 0 0 0 0
Site Name SANTIAM BA Basin SANTIAM RI Subbasin Surface Area Average Depth Water Temperature Percent Organic Substr Types of Aquatic Veget Submergent Emergent Floating Algae TOT. Aquatic vegetation gen CALI ELOD	NCKWATER $360 m^2$ 0.8 m 20.0 °C rate 75% 20% 15% 0% 0% 0% 0% 2% PAL 35% Hera ² 10% 10% 10	Map Code Sample Date Location Native Fish Speci Oregon chub Cottids Dace Redside shiners Northern pikemi Largescale suck Sandrollers Threespine stic Salmonids- Pacific lamprey Non-native Fish S Western Mosquit	SANT5* 08/30/00 T10S-R3W-24NW es Collected: 0 23 6 0 23 6 0 23 6 0 23 6 0 23 6 0 23 6 0 23 6 0 23 6 0 23 6 0 23 6 0 23 6 0 23 6 0 23 6 0 23 6 0 23 6 0 23 6 0 0 23 6 0 0 23 6 0 0 23 6 0 0 23 6 0 0 23 6 0 0 0 23 6 0 0 0 0 0 0 0 0 0 0 0 0 0
Site Name SANTIAM BA Basin SANTIAM RI Subbasin Surface Area Average Depth Water Temperature Percent Organic Substr Types of Aquatic Veget Submergent Emergent Floating Algae TOT. Aquatic vegetation gen CALI ELOD RANU	ACKWATER $360 m^2$ 0.8 m 20.0 °C rate 75% 20% 15% 0% 0% 0% PAL 35% Action 1 10%	Map Code . Sample Date Location Native Fish Speci Oregon chub Cottids Dace Redside shiners Northern pikemi Largescale suck Sandrollers Threespine stic Salmonids- Pacific lamprey Non-native Fish S Western Mosquit Centrarchids-	SANT5* 08/30/00 T10S-R3W-24NW es Collected: 0 23 6 0 23 6 0 23 6 0 23 6 0 23 6 0 23 6 0 23 6 0 23 6 0 23 6 0 23 6 0 23 6 0 23 6 0 23 6 0 23 6 0 23 6 0 0 23 6 0 0 23 6 0 0 23 6 0 0 23 6 0 0 23 6 0 0 23 6 0 0 0 0 0 0 0 0 0 0 0 0 0
Site Name SANTIAM BA Basin SANTIAM RI Subbasin Surface Area Average Depth Water Temperature Percent Organic Substr Types of Aquatic Veget Submergent Emergent Floating Algae TOT. Aquatic vegetation gen CALI ELOD RANU SPAR	ACKWATER $360 m^2$ 0.8 m 20.0 °C rate 75% 20% 15% 0% 0% 0% PAL 35% Hera ² 10% 10 10 5	Map Code . Sample Date Location Native Fish Speci Oregon chub Cottids Dace Redside shiners Northern pikemi Largescale suck Sandrollers Threespine stic Salmonids- Pacific lamprey Non-native Fish S Western Mosquit Centrarchids- Bullheads	SANT5* 08/30/00 T10S-R3W-24NW es Collected: 0 23 6 0 23 6 0 23 6 0 23 6 0 23 6 0 23 6 0 23 6 0 23 6 0 23 6 0 23 6 0 23 6 0 23 6 0 23 6 0 23 6 0 23 6 0 23 6 0 0 23 6 0 0 23 6 0 0 23 6 0 0 23 6 0 0 23 6 0 0 0 0 0 0 0 0 0 0 0 0 0
Site Name SANTIAM BA Basin SANTIAM RI Subbasin Surface Area Average Depth Water Temperature Percent Organic Substr Types of Aquatic Veget Submergent Emergent Floating Algae TOT. Aquatic vegetation gen CALI ELOD RANU SPAR	ACKWATER EVER $360 m^2$ 0.8 m 20.0 °C Pate 75% 35% 0%	Map Code . Sample Date Location Native Fish Speci Oregon chub Cottids Dace Redside shiners Northern pikemi Largescale suck Sandrollers Threespine stic Salmonids- Pacific lamprey Non-native Fish S Western Mosquit Centrarchids- Bullheads Carp	SANT5* 08/30/00 T10S-R3W-24NW es Collected: 0 23 6 0 23 6 0 0 23 6 0 0 23 6 0 0 23 6 0 0 23 6 0 23 6 0 0 23 6 0 0 23 6 0 0 23 6 0 0 23 6 0 0 23 6 0 0 23 6 0 0 23 6 0 0 23 6 0 0 23 6 0 0 23 6 0 0 23 6 0 0 0 0 0 0 0 0 0 0 0 0 0

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Site Name SAM	NTIAM CONS. EASEMENT SCE1/4	Map Code	SCE1-4C
Basin SAN	NTIAM RIVER	Sample Date	04/26/00
Subbasin NOF	RTH SANTIAM	Location	T10S-R2W-7SE
Surface Area	16300 m ²	Native Fish Sp	ecies Collected:
Average Depth	1.0 m		
ater Temperatu	12.0 °C	Oregon chub	1
Percent Organic	c Substrate 95%	Cottids	33
		Dace	1
ypes of Aquati	ic Vegetation ¹	Redside shin	ers 6
Submergent	81%	Northern pik	eminnow 17
Emergent	2%	Largescale s	uckers 6
Floating	2%	Sandrollers	. 0
Algae	0%	Threespine s	ticklebacks 9545
2		Salmonids-CH	1
	TOTAL 85%	Pacific lamp	rey 1
Aquatic vegetat	tion genera ²	Non-native Fis	h Species Collecte
MYRI	60%		
ELOD	15	Western Mosa	witofish 0
POTA	2	Centrarchids	- 0
GRAM	2	Bullheads	1
SPAR	4	Carp	0
LEMN	2	0 <u>-</u> F	-
1 1 1 1 1 1 1 1	2		
Site Name SAN	NTIAM CONS. EASEMENT SCE7	OTHER: Map Code	SCE7E
Site Name SAN Basin SAN	NTIAM CONS. EASEMENT SCE7	OTHER: Map Code Sample Date	SCE7E 04/27/00
Site Name SAN Basin SAN Subbasin NOF	NTIAM CONS. EASEMENT SCE7 NTIAM RIVER RTH SANTIAM	OTHER: Map Code Sample Date Location	SCE7E 04/27/00 T10S-R3W-24NE
Site Name SAN Basin SAN Subbasin NOF Surface Area	NTIAM CONS. EASEMENT SCE7 NTIAM RIVER RTH SANTIAM 4000 m ²	OTHER: Map Code Sample Date Location Native Fish Sp	SCE7E 04/27/00 T10S-R3W-24NE Decies Collected:
Site Name SAM Basin SAM Subbasin NOF Surface Area Average Depth	NTIAM CONS. EASEMENT SCE7 NTIAM RIVER RTH SANTIAM 4000 m ² 1.2 m	OTHER: Map Code Sample Date Location Native Fish Sp	SCE7E 04/27/00 T10S-R3W-24NE Decies Collected:
Site Name SAN Basin SAN Subbasin NOF Surface Area Average Depth Water Temperatu	NTIAM CONS. EASEMENT SCE7 NTIAM RIVER RTH SANTIAM 4000 m ² 1.2 m ure 12.0 °C	OTHER: Map Code Sample Date Location Native Fish Sp Oregon chub	SCE7E 04/27/00 T10S-R3W-24NE Decies Collected: 3
Site Name SAN Basin SAN Subbasin NOF Surface Area Average Depth Water Temperatu Percent Organic	NTIAM CONS. EASEMENT SCE7 NTIAM RIVER RTH SANTIAM 4000 m ² 1.2 m ure 12.0 °C c Substrate 100%	OTHER: Map Code Sample Date Location Native Fish Sp Oregon chub Cottids	SCE7E 04/27/00 T10S-R3W-24NE Decies Collected: 3 14
Site Name SAN Basin SAN Subbasin NOF Surface Area Average Depth Water Temperatu Percent Organic	NTIAM CONS. EASEMENT SCE7 NTIAM RIVER RTH SANTIAM 4000 m ² 1.2 m ure 12.0 °C c Substrate 100%	OTHER: Map Code Sample Date Location Native Fish Sp Oregon chub Cottids Dace	SCE7E 04/27/00 T10S-R3W-24NE Decies Collected: 3 14
Site Name SAN Basin SAN Subbasin NOF Surface Area Average Depth Water Temperatu Percent Organic Types of Aquat :	NTIAM CONS. EASEMENT SCE7 NTIAM RIVER RTH SANTIAM 4000 m ² 1.2 m ure 12.0 °C c Substrate 100% ic Vegetation ¹	OTHER: Map Code Sample Date Location Native Fish Sp Oregon chub Cottids Dace Redside shin	SCE7E 04/27/00 T10S-R3W-24NE Decies Collected: 3 14 . 3 Ners 21
Site Name SAN Basin SAN Subbasin NOF Surface Area Average Depth Water Temperatu Percent Organic Types of Aquat: Submergent	NTIAM CONS. EASEMENT SCE7 NTIAM RIVER RTH SANTIAM 4000 m ² 1.2 m ure 12.0 °C c Substrate 100% ic Vegetation ¹ 78%	OTHER: Map Code Sample Date Location Native Fish Sp Oregon chub Cottids Dace Redside shin Northern pik	SCE7E 04/27/00 T10S-R3W-24NE eccies Collected: 3 14 3 eers 21 ceminnow 2
Site Name SAN Basin SAN Subbasin NOF Surface Area Average Depth Water Temperatu Percent Organic Types of Aquat: Submergent Emergent	NTIAM CONS. EASEMENT SCE7 NTIAM RIVER RTH SANTIAM 4000 m ² 1.2 m ure 12.0 °C c Substrate 100% ic Vegetation ¹ 78% 5%	OTHER: Map Code Sample Date Location Native Fish Sp Oregon chub Cottids Dace Redside shin Northern pik Largescale s	SCE7E 04/27/00 T10S-R3W-24NE Secies Collected: 3 14 3 eers 21 seminnow 2 suckers 0
Site Name SAM Basin SAM Subbasin NOF Surface Area Average Depth Water Temperatu Percent Organic Types of Aquat: Submergent Emergent Floating	NTIAM CONS. EASEMENT SCE7 NTIAM RIVER RTH SANTIAM 4000 m ² 1.2 m ure 12.0 °C c Substrate 100% ic Vegetation ¹ 78% 5% 3%	OTHER: Map Code Sample Date Location Native Fish Sp Oregon chub Cottids Dace Redside shin Northern pik Largescale s Sandrollers	SCE7E 04/27/00 T10S-R3W-24NE Secies Collected: 3 14 3 eers 21 eeminnow 2 suckers 0 0
Site Name SAN Basin SAN Subbasin NOF Surface Area Average Depth Water Temperatu Percent Organic Types of Aquat Submergent Emergent Floating Algae	NTIAM CONS. EASEMENT SCE7 NTIAM RIVER RTH SANTIAM 4000 m ² 1.2 m ure 12.0 °C c Substrate 100% ic Vegetation ¹ 78% 5% 3% 10%	OTHER: Map Code Sample Date Location Native Fish Sp Oregon chub Cottids Dace Redside shin Northern pik Largescale s Sandrollers Threespine s	SCE7E 04/27/00 T10S-R3W-24NE eccies Collected: 3 14 3 eers 21 eeminnow 2 suckers 0 0 sticklebacks 14
Site Name SAN Basin SAN Subbasin NOF Surface Area Average Depth Water Temperatu Percent Organic Submergent Emergent Floating Algae	NTIAM CONS. EASEMENT SCE7 NTIAM RIVER RTH SANTIAM 4000 m ² 1.2 m ure 12.0 °C c Substrate 100% ic Vegetation ¹ 78% 5% 3% 10%	OTHER: Map Code Sample Date Location Native Fish Sp Oregon chub Cottids Dace Redside shin Northern pik Largescale s Sandrollers Threespine s Salmonids-	SCE7E 04/27/00 T10S-R3W-24NE secies Collected: 3 14 3 14 3 14 3 14 3 14 3 14 3 14 3 14 3 14 3 14 3 14 3 14 5 14 5 14 5 14 5 14 5 14 5 14 14 14 14 14 14 14 14 14 14
Site Name SAN Basin SAN Subbasin NOF Surface Area Average Depth Water Temperatu Percent Organic Types of Aquat: Submergent Emergent Floating Algae	NTIAM CONS. EASEMENT SCE7 NTIAM RIVER RTH SANTIAM 4000 m ² 1.2 m 1.2 m ure 12.0 °C c Substrate 100% ic Vegetation ¹ 78% 5% 3% 10% TOTAL 96%	OTHER: Map Code Sample Date Location Native Fish Sp Oregon chub Cottids Dace Redside shin Northern pik Largescale s Sandrollers Threespine s Salmonids- Pacific lamp	SCE7E 04/27/00 T10S-R3W-24NE eccies Collected: 3 14 3 ters 21 teminnow 2 suckers 0 0 sticklebacks 14 0 prey 0
Site Name SAM Basin SAM Subbasin NOF Surface Area Average Depth Water Temperatu Percent Organic Submergent Emergent Floating Algae Aquatic vegeta	NTIAM CONS. EASEMENT SCE7 NTIAM RIVER RTH SANTIAM 4000 m ² 1.2 m ure 12.0 °C c Substrate 100% ic Vegetation ¹ 78% 5% 3% 10% TOTAL 96% tion genera ²	OTHER: Map Code Sample Date Location Native Fish Sp Oregon chub Cottids Dace Redside shin Northern pik Largescale s Sandrollers Threespine s Salmonids- Pacific lamp Non-native Fis	SCE7E 04/27/00 TIOS-R3W-24NE Decies Collected: 3 14 ters 21 teminnow 2 suckers 0 o ticklebacks 14 0 orey 0 Sh Species Collected
Site Name SAM Basin SAM Subbasin NOF Surface Area Average Depth Water Temperatu Percent Organic Submergent Emergent Floating Algae Aquatic vegetar	NTIAM CONS. EASEMENT SCE7 NTIAM RIVER RTH SANTIAM 4000 m ² 1.2 m ure 12.0 °C c Substrate 100% ic Vegetation ¹ 78% 5% 3% 10% TOTAL 96% tion genera ² 70%	OTHER: Map Code Sample Date Location Native Fish Sp Oregon chub Cottids Dace Redside shin Northern pik Largescale s Sandrollers Threespine s Salmonids- Pacific lamp Non-native Fis	SCE7E 04/27/00 T10S-R3W-24NE Decies Collected: 3 14 Mers 21 meminnow 2 suckers 0 o sticklebacks 14 0 orey 0 Sh Species Collected
Site Name SAM Basin SAM Subbasin NOF Surface Area Average Depth Water Temperatu Percent Organic Types of Aquat: Submergent Emergent Floating Algae Aquatic vegetar ELOD IRIS	NTIAM CONS. EASEMENT SCE7 NTIAM RIVER RTH SANTIAM 4000 m ² 1.2 m ure 12.0 °C c Substrate 100% ic Vegetation ¹ 78% 5% 3% 10% TOTAL 96% tion genera ² 70% 5	OTHER: Map Code Sample Date Location Native Fish Sp Oregon chub Cottids Dace Redside shin Northern pik Largescale s Sandrollers Threespine s Salmonids- Pacific lamp Non-native Fis	SCE7E 04/27/00 T10S-R3W-24NE Decies Collected: 3 14 Mers 21 Heminnow 2 Fuckers 0 0 sticklebacks 14 0 orey 0 Sh Species Collected puitofish 0
Site Name SAM Basin SAM Subbasin NOF Surface Area Average Depth Water Temperatu Percent Organic Types of Aquat: Submergent Emergent Floating Algae Aquatic vegetat ELOD IRIS SPAR	NTIAM CONS. EASEMENT SCE7 NTIAM RIVER RTH SANTIAM $ \begin{array}{r} $	OTHER: Map Code Sample Date Location Native Fish Sp Oregon chub Cottids Dace Redside shin Northern pik Largescale s Sandrollers Threespine s Salmonids- Pacific lamp Non-native Fis	SCE7E 04/27/00 T10S-R3W-24NE Decies Collected: 3 14 3 14 3 3
Site Name SAM Basin SAM Subbasin NOF Surface Area Average Depth Water Temperatu Percent Organic Submergent Emergent Floating Algae Aquatic vegetat ELOD IRIS SPAR POTA	NTIAM CONS. EASEMENT SCE7 NTIAM RIVER RTH SANTIAM $ \begin{array}{r} 4000 \text{ m}^2\\ 1.2 \text{ m}\\ 1.2 \text{ m}\\ 12.0 \text{ °C}\\ \text{c Substrate 100%}\\ \text{ic Vegetation}^1\\ 78\%\\5\%\\3\%\\10\%\\5\%\\10\%\\70\%\\56\\6\\2\end{array} $	OTHER: Map Code Sample Date Location Native Fish Sp Oregon chub Cottids Dace Redside shin Northern pik Largescale s Sandrollers Threespine s Salmonids- Pacific lamp Non-native Fis Western Moso Centrarchids Bullheads	SCE7E 04/27/00 TIOS-R3W-24NE Decies Collected: 3 14 3 14 3 ters 21 teminnow 2 suckers 0 oticklebacks 14 0 orey 0 ch Species Collected puitofish 0 s-PK 1 0
Site Name SAM Basin SAM Subbasin NOF Surface Area Average Depth Water Temperatu Percent Organic Submergent Emergent Floating Algae Aquatic vegetat ELOD IRIS SPAR POTA FILA	NTIAM CONS. EASEMENT SCE7 NTIAM RIVER RTH SANTIAM $ \begin{array}{r} 4000 \text{ m}^2\\ 1.2 \text{ m}\\ 1.2 \text{ m}\\ 12.0 \text{ °C}\\ \text{c Substrate 100%}\\ \text{ic Vegetation}^1\\ 78\%\\5\%\\3\%\\10\%\\ \text{TOTAL 96\%}\\ \text{tion genera}^2\\ \begin{array}{r} 70\%\\5\\6\\2\\10\end{array} \end{array} $	OTHER: Map Code Sample Date Location Native Fish Sp Oregon chub Cottids Dace Redside shin Northern pik Largescale s Sandrollers Threespine s Salmonids- Pacific lamp Non-native Fis Western Moso Centrarchids Bullheads Carp	SCE7E 04/27/00 TIOS-R3W-24NE Decies Collected: 3 14 Mers 21 reminnow 2 ruckers 0 oticklebacks 14 orey 0 th Species Collected puitofish 0 S-PK 1 0 0
Site Name SAM Basin SAM Subbasin NOF Surface Area Average Depth Water Temperatu Percent Organic Submergent Emergent Floating Algae Aquatic vegetar ELOD IRIS SPAR POTA FILA LEMN	NTIAM CONS. EASEMENT SCE7 NTIAM RIVER RTH SANTIAM $ \begin{array}{r} 4000 \text{ m}^2\\ 1.2 \text{ m}\\ 1.2 \text{ m}\\ 12.0 \text{ °C}\\ \text{c Substrate 100%}\\ \text{ic Vegetation}^1\\ 78\%\\5\%\\3\%\\10\%\\10\%\\\text{TOTAL 96\%}\\ \begin{array}{r} 78\%\\5\%\\6\\2\\10\%\\5\\6\\2\\10\\3\end{array} \end{array} $	OTHER: Map Code Sample Date Location Native Fish Sp Oregon chub Cottids Dace Redside shin Northern pik Largescale s Sandrollers Threespine s Salmonids- Pacific lamp Non-native Fis Bullheads Carp	SCE7E 04/27/00 TIOS-R3W-24NE Decies Collected: 3 14 4 4 4 5 5 5 5 5 5 5 5 5 5 5 5 5

Site Name S	ANTIAM PUBLIC W	ORKS I	POND	Map (lode	SPWP1B	
Basin S	ANTIAM RIVER			Sampl	le Date	04/27/00	
Subbasin N	IORTH SANTIAM			Locat	ion	T95-R1W-1	5NE
Surface Area		3000 π	m ²	Nativ	ve Fish Spec	ies Collec	ted:
Average Depth	l	1.5 π	n				
Water Tempera	ture	12.0 0	°c	Ore	gon chub		3
Percent Organ	ic Substrate	95%		Cot	tids		11
	_			Dac	e		2
Types of Aqua	tic Vegetation	•		Red	lside shiner	s	26
Submergent		97%		Nor	thern pikem	innow	0
Emergent		3%		Lar	gescale suc	kers	0
Floating		0%		San	drollers		0
Algae		0%		Thr	eespine sti	cklebacks	0
				Sal	monids-		0
	TOTAL 1	.00%		Pac	ific lampre	Y	0
	2						
Aquatic veget	ation genera ²			Non-n	ative Fish	Species Co	llected
MYRI		80%					
ELOD		10		Wes	tern Mosqui	tofish	24
POLY		5		Cen	trarchids-		0
CALI		2		Bul	lheads		1
JUNC		3		Car	þ		0
				OTHER	.:		
Site Name S	OUTH SANTIAM BA	CKWATE	ER	Мар С	ode	SS1*	
Basin S	ANTIAM RIVER			Sampl	e Date	09/13/00	
Subbasin S	OUTH SANTIAM			Locat	ion	T10S-R2W-	33SE
			2				
Surface Area		1200 m	n	Nativ	e Fish Spec	ies Collec	ted:
Average Depth		1.0 m	n D_				
Water Tempera	ture	17.5	C	Ore	gon chub		0
Percent Organ	ic Substrate	100%		Cot	tids		80
	1			Dac	e		22
Types of Aqua	tic Vegetation			Rea	side sniner	s	0
Submergent		47%		NOT	thern pikem	innow	/5
Emergent		12%		Lar	gescale suc	kers	Ţ
Floating		0%		San	drollers		0
Algae		08		Inr	eespine sti	CKIEDACKS	/5
		678		Sal	monias-		0
	TOTAL	026		Fac	IIIC Iampie	Ŷ	U
Aquatic veget	ation genera ²			Non-n	ative Fish	Species Co	llected:
SPAR		15%					
CALI		40		Wes	tern Mosqui	tofish	165
ELOD		5		Cen	trarchids-		0
POTA		2		Bul	lheads		0
				Car	p		0
				OTHER	:		

Site Name	SOUTH SANTIAM	BACKWATER	Map Code	SS2*
Basin	SANTIAM RIVER		Sample Date	09/13/00
Subbasin	SOUTH SANTIAM		Location	T10S-R2W-33SW
Surface Are	ea	3960 m ²	Native Fish Spec	cies Collected:
Average Dep	oth	1.5 m		
Water Tempe	erature	19.0 ^C	Oregon chub	0
Percent Org	ganic Substrate	60%	Cottids	60
		1	Dace	15
Types of Ac	quatic Vegetatio	n -	Redside shiner	rs 15
Submerger	it	70%	Northern piken	ninnow 115
Emergent		5%	Largescale suc	ckers 5
Floating			Sandrollers	118
Algae		08	Inreespine sti	CKIEDACKS 2
		7.5%	Salmonids-	0
	TOTAL	158	Pacific lampre	ey U
Aquatic veg	getation genera ²		Non-mative Fish	Species Collected:
ELOD		60%		
ELEO		5	Western Mosqui	tofish 0
MYRI		5	Centrarchids-	0
CHAR		5	Bullheads	0
			Carp	0
			OTHER :	
				
Site Name	SOUTH SANTIAM	BACKWATER	Map Code	SS3*
Basin	SANTIAM RIVER		Sample Date	09/13/00
Subbasin	SOUTH SANTIAM		Location	T10S-R2W-33NW
Curfage Are		480 m ²	Nativo Fish Cros	the Collected.
Surface Are	ed of h	480 m	Native Fish Spec	tes collected:
Water Tompo			Oregon shub	0
Percent Orc	anic Substrate	1002	Cottide	0
rercent org	Jamie Substrate	100.	Dace	0
Types of Ac	matic Vegetatio	" ¹	Redside shiner	-s 0
Submerger	t	35%	Northern piken	
Emergent		55 *	Largescale suc	kers 0
Floating		5%	Sandrollers	0
Algae		0%	Threespine sti	cklebacks 0
			Salmonids-	0
	TOTAL	45%	Pacific lampre	ey 0
	_			
Aquatic veg	$getation genera^2$		Non-native Fish	Species Collected:
AZOL		5%		
ELOD		25	Western Mosqui	tofish. 0
POLY		10	Centrarchids-	0
GRAM		5	Bullheads	0
			Carp	0
			OTHER :	

Site Name	SOUTH SANTIAM S	IDE CHL BEAV PD	Map Code SS4*	
Basin	SANTIAM RIVER		Sample Date 09/13	/00
Subbasin	SOUTH SANTIAM		Location T10S-	R2W-28SW
Surface Are	ea	10400 m ²	Native Fish Species Co	llected:
Average Dep	pth	1.0 m		
Water Tempe	erature	19.5 [°] C	Oregon chub	0
Percent Org	ganic Substrate	100%	Cottids	0
			Dace	0
Types of Ac	quatic Vegetation	1	Redside shiners	0
Submerger	nt	40%	Northern pikeminnow	0
Emergent		20%	Largescale suckers	0
Floating		0%	Sandrollers	. 0
Algae		0%	Threespine stickleba	cks 0
	-	····	Salmonids-	0
	TOTAL	60%	Pacific lamprey	0
Aquatic veg	getation genera ²		Non-native Fish Specie	s Collected:
SPAR		20%		
ELOD		30	Western Mosquitofish	20
MYRI		10	Centrarchids-LB BG	26
			Bullheads	0
			Carp	0
			OTHER:	
Site Name	SOUTE SANTIAM E	ACKWATER RT BK	Map Code SS5*	
Basin	SANTIAM RIVER		Sample Date 09/13	/00
Subbasin	SOUTH SANTIAM		Location T10S-	R2W-30NW
Surface Are	ea	1020 m ²	Native Fish Species Co	llected:
Average Dep	oth	0.6 m		
Water Tempe	erature	19.0 ⁰ C	Oregon chub	0
Percent Org	ganic Substrate	100%	Cottids	3
			Dace	35
Types of Aq	quatic Vegetation	1	Redside shiners	7
Submerger	nt	55%	Northern pikeminnow	90
Emergent		20%	Largescale suckers	30
Floating		0%	Sandrollers	0
Algae		0%	Threespine stickleba	cks 20
	-		Salmonids-	0
	TOTAL	75%	Pacific lamprey	0
Aquatic vec	getation genera ²		Non-native Fish Specie	s Collected:
ELOD		50%		
POTA		20	Western Mosquitofish	12
MYRI		5	Centrarchids-	0
			Bullheads	1
			Carp	0
			OTHER:	

Basin SANT Subbasin SOUTH Surface Area Average Depth Water Temperature Percent Organic S Types of Aquatic Submergent Emergent Floating Algae Aquatic vegetatic MYRI ELOD GRAM SPAR Site Name SOUTH	EAM RIVER I SANTIAM $5400 m^{2}$ $1.0 m$ $21.0 °C$ Substrate 100% Vegetation ¹ 60% $15%$ $0%$ $0%$ $0%$ $70TAL 75%$ on genera ² 50% 10 10 5	Sample Date 09/13/00 Location T10S-R3W- Native Fish Species Collec Oregon chub Cottids Dace Redside shiners Northern pikeminnow Largescale suckers Sandrollers Threespine sticklebacks Salmonids- Pacific lamprey Non-native Fish Species Col Western Mosquitofish Centrarchids- Bullbaade	24NW ted: 0 22 22 1 225 12 0 145 0 0 145 0 0
Subbasin SOUTH Surface Area Average Depth Water Temperature Percent Organic S Types of Aquatic Submergent Floating Algae Aquatic vegetatic GRAM SPAR Site Name SOUTH	E SANTIAM 5400 m ² 1.0 m 21.0 °C Substrate 100% Vegetation ¹ 60% 15% 0% 0% 0% TOTAL 75% on genera ² 50% 10 10 5	Location TIOS-R3W- Native Fish Species Collec Oregon chub Cottids Dace Redside shiners Northern pikeminnow Largescale suckers Sandrollers Threespine sticklebacks Salmonids- Pacific lamprey Non-native Fish Species Col Western Mosquitofish Centrarchids- Bullbaade	24NW ted: 0 22 22 1 225 12 0 145 0 0 145 0 0
Surface Area Average Depth Water Temperature Percent Organic S Types of Aquatic Submergent Emergent Floating Algae Aquatic vegetatic MYRI ELOD GRAM SPAR Site Name SOUTH	5400 m ² 1.0 m 21.0 °C Substrate 100% Vegetation ¹ 60% 15% 0% 0% TOTAL 75% on genera ² 50% 10 10 5	Native Fish Species Collec Oregon chub Cottids Dace Redside shiners Northern pikeminnow Largescale suckers Sandrollers Threespine sticklebacks Salmonids- Pacific lamprey Non-native Fish Species Col Western Mosquitofish Centrarchids- Bullbaade	ted: 0 22 1 225 12 0 145 0 0 11ected: 250
Average Depth Water Temperature Percent Organic S Types of Aquatic Submergent Floating Algae Aquatic vegetatic MYRI ELOD GRAM SPAR Site Name SOUTH	1.0 m 21.0 °C Substrate 100% Vegetation ¹ 60% 15% 0% 0% 0% TOTAL 75% on genera ² 50% 10 10 5	Oregon chub Cottids Dace Redside shiners Northern pikeminnow Largescale suckers Sandrollers Threespine sticklebacks Salmonids- Pacific lamprey Non-native Fish Species Co Western Mosquitofish Centrarchids- Bullbaada	0 22 22 1 225 12 0 145 0 0 145 0
Water Temperature Percent Organic S Types of Aquatic Submergent Emergent Floating Algae Aquatic vegetatic MYRI ELOD GRAM SPAR Site Name SOUTH	e 21.0 °C Substrate 100% Vegetation ¹ 60% 15% 0% 0% 0% 0% TOTAL 75% n genera ² 50% 10 10 5	Oregon chub Cottids Dace Redside shiners Northern pikeminnow Largescale suckers Sandrollers Threespine sticklebacks Salmonids- Pacific lamprey Non-native Fish Species Co Western Mosquitofish Centrarchids- Bullbaada	0 22 1 225 12 0 145 0 0 145 0
Percent Organic S Types of Aquatic Submergent Emergent Floating Algae Aquatic vegetatic MYRI ELOD GRAM SPAR Site Name SOUTH	Substrate 100% Vegetation ¹ 60% 15% 0% 0% 0% TOTAL 75% n genera ² 50% 10 10 5	Cottids Dace Redside shiners Northern pikeminnow Largescale suckers Sandrollers Threespine sticklebacks Salmonids- Pacific lamprey Non-native Fish Species Col Western Mosquitofish Centrarchids- Bullbaada	22 22 1 225 12 0 145 0 0 145 0
Types of Aquatic Submergent Emergent Floating Algae Aquatic vegetatic MYRI ELOD GRAM SPAR Site Name SOUTH	Vegetation ¹ 60% 15% 0% 0% TOTAL 75% n genera ² 50% 10 10 5	Dace Redside shiners Northern pikeminnow Largescale suckers Sandrollers Threespine sticklebacks Salmonids- Pacific lamprey Non-native Fish Species Col Western Mosquitofish Centrarchids- Bullbaada	22 1 225 12 0 145 0 0 145 0
Types of Aquatic Submergent Emergent Floating Algae Aquatic vegetatic MYRI ELOD GRAM SPAR Site Name SOUTH	Vegetation ¹ 60% 15% 0% 0% TOTAL 75% on genera ² 50% 10 10 5	Redside shiners Northern pikeminnow Largescale suckers Sandrollers Threespine sticklebacks Salmonids- Pacific lamprey Non-native Fish Species Col Western Mosquitofish Centrarchids- Bullbaada	1 225 12 0 145 0 0 145 0
Submergent Emergent Floating Algae Aquatic vegetatio MYRI ELOD GRAM SPAR Site Name SOUTH	60% 15% 0% 0% TOTAL 75% on genera ² 50% 10 10 5	Northern pikeminnow Largescale suckers Sandrollers Threespine sticklebacks Salmonids- Pacific lamprey Non-native Fish Species Col Western Mosquitofish Centrarchids- Bullbaada	225 12 0 145 0 0 11ected: 250
Emergent Floating Algae Aquatic vegetatio MYRI ELOD GRAM SPAR SITE Name SOUTH	15% 0% 0% TOTAL 75% on genera ² 50% 10 10 5	Largescale suckers Sandrollers Threespine sticklebacks Salmonids- Pacific lamprey Non-native Fish Species Col Western Mosquitofish Centrarchids- Bullbaada	12 0 145 0 0 11ected: 250
Floating Algae Aquatic vegetatio MYRI ELOD GRAM SPAR SITE Name SOUTH	0% 0% TOTAL 75% on genera ² 50% 10 10 5	Sandrollers Threespine sticklebacks Salmonids- Pacific lamprey Non-native Fish Species Col Western Mosquitofish Centrarchids- Bullbaada	0 145 0 0 11ected: 250
Algae Aquatic vegetatic MYRI ELOD GRAM SPAR SITE Name SOUTH	0% TOTAL 75% on genera ² 50% 10 10 5	Threespine sticklebacks Salmonids- Pacific lamprey Non-native Fish Species Co Western Mosquitofish Centrarchids- Bullbaada	145 0 0 1 lected : 250
Aquatic vegetatic MYRI ELOD GRAM SPAR SITE Name SOUTH	TOTAL 75% on genera ² 50% 10 10 5	Salmonids- Pacific lamprey Non-native Fish Species Co Western Mosquitofish Centrarchids- Bullbaada	0 0 llected: 250
Aquatic vegetatic MYRI ELOD GRAM SPAR SITE Name SOUTH	TOTAL 75% on genera ² 50% 10 5	Pacific lamprey Non-native Fish Species Co Western Mosquitofish Centrarchids- Bullbaada	0 llected: 250
Aquatic vegetatic MYRI ELOD GRAM SPAR SIte Name SOUTH	on genera ² 50% 10 10 5	Non-native Fish Species Co Western Mosquitofish Centrarchids- Bullboads	llected: 250
MYRI ELOD GRAM SPAR SIte Name SOUTH	50% 10 10 5	Western Mosquitofish Centrarchids- Bullbaada	250
ELOD GRAM SPAR SIte Name SOUTH	10 10 5	Western Mosquitofish Centrarchids- Bullboads	250
GRAM SPAR Site Name SOUTH	10 5	Centrarchids-	20
SPAR Site Name SOUTE	5	Pullbada	0
Site Name SOUTH	-		0
Site Name SOUTE		Carp	0
Site Name SOUTE		OTHER	
Site Name SOUTH		· · · · · · · · · · · · · · · · · · ·	
	I SANTIAM BACKWATER LF BK	Map Code SS7 *	
Basin SANTI	AM RIVER	Sample Date 09/13/00	
Subbasin SOUTH	I SANTIAM	Location T10S-R3W-2	24 NW
Surface Area	250 m ²	Native Fish Species Collect	ted:
Average Depth	0.8 m	-	
Water Temperature	21.0 °C	Oregon chub	0
Percent Organic S	ubstrate 100%	Cottids	0
5		Dace	3
Types of Aquatic	Vegetation ¹	Redside shiners	0
Submergent	55%	Northern pikeminnow	0
Emergent	5%	Largescale suckers	5
Floating	5%	Sandrollers	0
Algae	0%	Threespine sticklebacks	140
		Salmonids-	0
	TOTAL 65%	Pacific lamprey	0
Aquatic vegetatio	on genera ²	Non-native Fish Species Co.	llected:
POLY	- 5%		
LEMN	5	Western Mosquitofish	107
SPAR	- 5	Centrarchids-	0
ELOD	50	Bullheads	0
		Carp	0
		OTHER -	

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Site Name	SOUTH SANTIAM BACKWATER RT SS8	Map Code	SS8*
Basin	SANTIAM RIVER	Sample Date	10/12/00
Subbasin	SOUTH SANTIAM	Location	T12S-R2W-2SE
0	$150 r^2$		
Average Dep	a 450 m	Native Fish Sp	ecies Collected:
Water Tempe	12.0°	Oregon chub	0
Percent Org	anic Substrate 100%	Cottids	0
		Dace	3
Types of Aq	uatic Vegetation ¹	Redside shine	ers 2
Submergen	t 22%	Northern pike	eminnow 3
Emergent	19%	Largescale su	uckers 3
Floating	0%	Sandrollers	0
Algae	0%	Threespine st	cicklebacks 0
		Salmonids-	0
	TOTAL 41%	Pacific lamp	rey 0
Aquatic veg	etation genera ²	Non-native Fish	n Species Collected:
SPAR	15%		
ELEO	2	Western Mosqu	uitofish 9
POTA	5	Centrarchids-	- 0
POLY	2	Bullheads	0
CALI	2	Carp	0
ELOD	15		
		OTHER:	
Site Name	SOUTH SANTIAM BACKWATER LF SS9	Map Code	- SS9*
Basin	SANTIAM RIVER	Sample Date	10/12/00
Subbasin	SOUTH SANTIAM	Location	T11S-R2W-24S
Surface Are	a 500 m ²	Native Fish Spe	cies Collected:
Average Dep	th 0.7 m	-	
Water Tempe	rature 12.5 ^O C	Oregon chub	0
Percent Org	anic Substrate 100%	Cottids	0
		Dace	18
Types of Aq	uatic Vegetation ¹	Redside shine	ers 9
Submergen	t 50%	Northern pike	eminnow 2
Emergent	30%	Largescale su	ckers 0
Floating	0%	Sandrollers	0
Algae	0%	Threespine st	icklebacks 18
		Salmonids-	0
	TOTAL 80%	Pacific lampr	rey 0
Aquatic veg	etation genera ²	Non-native Fish	Species Collected:
SPAR	25%		
MYRI	50	Western Mosqu	itofish 0
TYPH	5	Centrarchids-	BG 5
		Bullheads	0
		Carp	0
		OTHER :	

	BACKWATR LF SS10	Map Code	SS10*
Basin SANTIAM RIVER		Sample Date	10/12/00
Subbasin SOUTH SANTIAM		Location	T11S-R2W-23NE
Surface Area	1120 m ²	Native Fish Spe	cies Collected:
Average Depth	0.8 m	-	
Water Temperature	12.5 [°] C	Oregon chub	0
Percent Organic Substrate	100%	Cottids	. 4
		Dace	12
Types of Aquatic Vegetatio	on ¹	Redside shine	ers 22
Submergent	50%	Northern pike	eminnow 4
Emergent	30%	Largescale su	ickers 2
Floating	0%	Sandrollers	0
Algae	0%	Threespine st	icklebacks 0
		Salmonids-	0
TOTAL	80%	Pacific lamp	rey O
Aquatic vegetation genera	2	Non-native Fish	n Species Collected
MYRI	50%		
ELEO	5	Western Mosqu	uitofish 0
SPAR	20	Centrarchids	-BG 4
TYPH	5	Bullheads	0
		Carp	0
		OTHER :	
Site Name SOUTH SANTIAM	BACKWATTE ET SS11		
	DRUMMAN NI DDII	Map Code	SS11*
Basin SANTIAM RIVER	Dicamita al DDII	Map Code Sample Date	ssil* 10/12/00
Basin SANTIAM RIVER Subbasin SOUTH SANTIAM	DRAMMIN NI DDII	Map Code Sample Date Location	SS11* 10/12/00 T11S-R2W-14SE
Basin SANTIAM RIVER Subbasin SOUTH SANTIAM Surface Area	1600 m ²	Map Code Sample Date Location Native Fish Spe	SS11* 10/12/00 T11S-R2W-14SE ecies Collected:
Basin SANTIAM RIVER Subbasin SOUTH SANTIAM Surface Area Average Depth	1600 m ² 0.7 m	Map Code Sample Date Location Native Fish Spe	SS11* 10/12/00 T11S-R2W-14SE ecies Collected:
Basin SANTIAM RIVER Subbasin SOUTH SANTIAM Surface Area Average Depth Water Temperature	1600 m ² 0.7 m 12.0 °C	Map Code Sample Date Location Native Fish Spe Oregon chub	SS11* 10/12/00 T11S-R2W-14SE ecies Collected: 0
Basin SANTIAM RIVER Subbasin SOUTH SANTIAM Surface Area Average Depth Water Temperature Percent Organic Substrate	1600 m ² 0.7 m 12.0 °C 100%	Map Code Sample Date Location Native Fish Spe Oregon chub Cottids	SS11* 10/12/00 T11S-R2W-14SE ecies Collected: 0 0
Basin SANTIAM RIVER Subbasin SOUTH SANTIAM Surface Area Average Depth Water Temperature Percent Organic Substrate	1600 m ² 0.7 m 12.0 °C 100%	Map Code Sample Date Location Native Fish Spe Oregon chub Cottids Dace	SS11* 10/12/00 T11S-R2W-14SE ecies Collected: 0 0 22
Basin SANTIAM RIVER Subbasin SOUTH SANTIAM Surface Area Average Depth Water Temperature Percent Organic Substrate Types of Aquatic Vegetatio	1600 m ² 0.7 m 12.0 °C 100%	Map Code Sample Date Location Native Fish Spe Oregon chub Cottids Dace Redside shine	ss11* 10/12/00 T11S-R2W-14SE ecies Collected: 0 0 22 ers 0
Basin SANTIAM RIVER Subbasin SOUTH SANTIAM Surface Area Average Depth Water Temperature Percent Organic Substrate Types of Aquatic Vegetatic Submergent	1600 m ² 0.7 m · 12.0 °C 100%	Map Code Sample Date Location Native Fish Spe Oregon chub Cottids Dace Redside shine Northern pike	SS11* 10/12/00 T11S-R2W-14SE ecies Collected: 0 0 22 ers 0 eminnow 8
Basin SANTIAM RIVER Subbasin SOUTH SANTIAM Surface Area Average Depth Water Temperature Percent Organic Substrate Types of Aquatic Vegetatic Submergent Emergent	1600 m ² 0.7 m 12.0 °C 100% on ¹ 45% 20%	Map Code Sample Date Location Native Fish Spe Oregon chub Cottids Dace Redside shine Northern pike Largescale st	SS11* 10/12/00 T11S-R2W-14SE ecies Collected: 0 0 0 22 ers 0 eminnow 8 uckers 3
Basin SANTIAM RIVER Subbasin SOUTH SANTIAM Surface Area Average Depth Water Temperature Percent Organic Substrate Types of Aquatic Vegetatio Submergent Emergent Floating	1600 m ² 0.7 m · 12.0 ^O C 100% on ¹ 45% 20% 0%	Map Code Sample Date Location Native Fish Spe Oregon chub Cottids Dace Redside shine Northern pike Largescale st Sandrollers	ssil* 10/12/00 T11S-R2W-14SE ecies Collected: 0 0 22 ers 0 eminnow 8 uckers 3 0
Basin SANTIAM RIVER Subbasin SOUTH SANTIAM Surface Area Average Depth Water Temperature Percent Organic Substrate Types of Aquatic Vegetatio Submergent Emergent Floating Algae	1600 m ² 0.7 m 12.0 °C 100% on ¹ 45% 20% 0%	Map Code Sample Date Location Native Fish Spe Oregon chub Cottids Dace Redside shine Northern pike Largescale s Sandrollers Threespine st	ssil* 10/12/00 T11S-R2W-14SE ecies Collected: 0 0 0 22 ers 0 eminnow 8 uckers 3 0 ticklebacks 75
Basin SANTIAM RIVER Subbasin SOUTH SANTIAM Surface Area Average Depth Water Temperature Percent Organic Substrate Types of Aquatic Vegetatic Submergent Emergent Floating Algae	1600 m ² 0.7 m 12.0 °C 100% on ¹ 45% 20% 0%	Map Code Sample Date Location Native Fish Spe Oregon chub Cottids Dace Redside shine Northern pike Largescale si Sandrollers Threespine si Salmonids-	ssil* 10/12/00 T11S-R2W-14SE ecies Collected: 0 0 22 ers 0 eminnow 8 uckers 3 0 ticklebacks 75 0
Basin SANTIAM RIVER Subbasin SOUTH SANTIAM Surface Area Average Depth Water Temperature Percent Organic Substrate Types of Aquatic Vegetatic Submergent Emergent Floating Algae	1600 m ² 0.7 m · 12.0 °C 100% on ¹ 45% 20% 0% 0% 65%	Map Code Sample Date Location Native Fish Spe Oregon chub Cottids Dace Redside shine Northern pike Largescale st Sandrollers Threespine st Salmonids- Pacific lamp	ssil* 10/12/00 T11S-R2W-14SE ecies Collected: 0 0 22 ers 0 eminnow 8 uckers 3 0 ticklebacks 75 0 rey 0
Basin SANTIAM RIVER Subbasin SOUTH SANTIAM Surface Area Average Depth Water Temperature Percent Organic Substrate Types of Aquatic Vegetation Submergent Emergent Floating Algae TOTAL	1600 m ² 0.7 m 12.0 °C 100% on ¹ 45% 20% 0% 0% 65% 2	Map Code Sample Date Location Native Fish Spe Oregon chub Cottids Dace Redside shine Northern pike Largescale su Sandrollers Threespine su Salmonids- Pacific lampu	SS11* 10/12/00 T11S-R2W-14SE ecies Collected: 0 0 22 ers 0 eminnow 8 uckers 3 0 ticklebacks 75 0 rey 0 h Species Collected
Basin SANTIAM RIVER Subbasin SOUTH SANTIAM Surface Area Average Depth Water Temperature Percent Organic Substrate Types of Aquatic Vegetation Submergent Emergent Floating Algae TOTAL	1600 m ² 0.7 m 12.0 °C 100% on ¹ 45% 20% 0% 65% 2 25%	Map Code Sample Date Location Native Fish Spe Oregon chub Cottids Dace Redside shine Northern pike Largescale su Sandrollers Threespine su Salmonids- Pacific lamp Non-native Fish	ssil* 10/12/00 T11S-R2W-14SE ecies Collected: 0 0 22 ers 0 eminnow 8 uckers 3 0 ticklebacks 75 0 rey 0 h Species Collected
Basin SANTIAM RIVER Subbasin SOUTH SANTIAM	1600 m ² 0.7 m 12.0 °C 100% on ¹ 45% 20% 0% 0% 65% 2 25% 10	Map Code Sample Date Location Native Fish Spa Oregon chub Cottids Dace Redside shina Northern pika Largescale st Sandrollers Threespine st Salmonids- Pacific lamp Non-native Fish Western Mosg	ssil* 10/12/00 T11S-R2W-14SE ecies Collected: 0 0 22 ers 0 eminnow 8 uckers 3 0 ticklebacks 75 0 rey 0 h Species Collected uitofish 0
Basin SANTIAM RIVER Subbasin SOUTH SANTIAM	1600 m ² 0.7 m · 12.0 ℃ 100% on ¹ 45% 20% 0% 65% 2 25% 10 10	Map Code Sample Date Location Native Fish Spe Oregon chub Cottids Dace Redside shine Northern pike Largescale st Sandrollers Threespine st Salmonids- Pacific lamp: Non-native Fish Western Mosq Centrarchids	ssil* 10/12/00 T11S-R2W-14SE ecies Collected: 0 0 22 ers 0 eminnow 8 uckers 3 0 ticklebacks 75 0 rey 0 h Species Collected uitofish 0 - 0
Basin SANTIAM RIVER Subbasin SOUTH SANTIAM	1600 m ² 0.7 m 12.0 °C 100% on ¹ 45% 20% 0% 65% 2 25% 10 10 20	Map Code Sample Date Location Native Fish Spe Oregon chub Cottids Dace Redside shine Northern pike Largescale st Sandrollers Threespine st Salmonids- Pacific lamp: Non-native Fish Western Mosq Centrarchids Bullheads	ssil* 10/12/00 T11S-R2W-14SE ecies Collected: 0 0 22 ers 0 eminnow 8 uckers 3 0 ticklebacks 75 0 rey 0 h Species Collected uitofish 0 - 0 0
Basin SANTIAM RIVER Subbasin SOUTH SANTIAM Surface Area Average Depth Water Temperature Percent Organic Substrate Types of Aquatic Vegetation Submergent Floating Algae TOTAL Aquatic vegetation general MYRI POTA CALI SPAR	1600 m ² 0.7 m 12.0 °C 100% on ¹ 45% 20% 0% 0% 65% 2 25% 10 10 20	Map Code Sample Date Location Native Fish Spe Oregon chub Cottids Dace Redside shine Northern pike Largescale si Sandrollers Threespine si Salmonids- Pacific lamp: Non-native Fish Western Mosq Centrarchids Bullheads Carp	ssil* 10/12/00 T11S-R2W-14SE ecies Collected: 0 0 22 ers 0 eminnow 8 uckers 3 0 ticklebacks 75 0 rey 0 h Species Collected uitofish 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Site Name	SOUTE SANTIAM	BACKWATR LF SS12	Map Code	SS12*
Basin	SANTIAM RIVER		Sample Date	10/12/00
Subbasin	SOUTH SANTIAM		Location	T11S-R2W-14SW
Surface Are	a	2500 m ²	Native Fish Sp	ecies Collected:
Average Dep	th	2.0 m		
Water Tempe	rature	12.5 °C	Oregon chub	0
Percent Org	anic Substrate	100%	Cottids	2
			Dace	2
Types of Ag	matic Vegetation	a ¹	Redside shine	ers 0
Submergen	t	5%	Northern pik	eminnow 0
Emergent		25%	Largescale s	uckers 0
Floating		0%	Sandrollers	0
Algae		0%	Threespine s	ticklebacks 58
			Salmonids-	0
	TOTAL	30%	Pacific lamp:	rey O
Aquatic veg	etation genera ²		Non-native Fish	h Species Collected
SPAR		20%		
GRAM		5	Western Mosqu	uitofish 130
CALI		5	Centrarchids	0
			Bullheads	0
			Carp	0
			OTHER:	
Site Name	SOUTH SANTIAM 1	BACKWATR RT SS13	Map Code	SS13*
Basin	SANTIAM RIVER		Sample Date	10/12/00
Subbasin	SOUTH SANTIAM		Location	T11S-R2W-14W
Surface Are	a	2800 m ²	Native Fish Spe	ecies Collected:
Average Dep	th	2.0 m		
Water Tempe	rature	14.0 °C	Oregon chub	0
Percent Org	anic Substrate	100%	Cottids	3
			Dace	32
Types of Aq	uatic Vegetation	1	Redside shine	ers O
Submergen	t	75%	Northern pike	eminnow 0
Emergent		12%	Largescale su	ickers 2
Floating		0%	Sandrollers	0
Algae		0%	Threespine st	icklebacks 78
	-		Salmonids-	0
	TOTAL	87%	Pacific lamp	rey 0
Aquatic veg	etation genera ²		Non-native Fish	n Species Collected
SPAR		10%		
IRIS		2	Western Mosqu	uitofish 0
ELOD		65	Centrarchids-	- 0
POTA		10	Bullheads	0
			Carp	0
			OTHER:	

	H SANTIAM BACKWATR RT SSI4	Map Code	5514*
Basin SANI	TAM RIVER	Sample Date	10/12/00
Subbasin SOUT	TH SANTIAM	Location	T11S-R2W-14NW
Surface Area	1320 m ²	Native Fish Spec:	ies Collected:
Average Depth	1.5 m		
Water Temperatur	re 13.0 °C	Oregon chub	0
Percent Organic	Substrate 100%	Cottids	0
	-	Dace	0
Types of Aquatic	: Vegetation ¹	Redside shiner:	s <u> </u>
Submergent	80%	Northern pikem:	innow 0
Emergent	10%	Largescale such	kers 0
Floating	0%	Sandrollers	0
Algae	0%	Threespine stic	cklebacks 107
		Salmonids-	0
	TOTAL 90%	Pacific lamprey	<i>y</i> 0
Aquatic vegetati	.on genera ²	Non-native Fish &	Species Collect
MYRI	40%		
POTA	30	Western Mosquit	ofish 23
POLY	10	Centrarchids-	0
ELOD	10	Bullheads	0
		Carp	0
Site Name SOUT	TE SANTIAM BACKWATR RT SS15	OTHER:	
Site Name SOUT	TH SANTIAM BACKWATR RT SS15	OTHER: Map Code Sample Date	ss15* -
Site Name SOUT Basin SANT Subbasin SOUT	T H SANTIAM BACKWATR RT SS15 TIAM RIVER TH SANTIAM	OTHER: Map Code Sample Date Location	SS15* 10/12/00 T11S-R2W-15NE
Site Name SOUT Basin SANT Subbasin SOUT Surface Area	TH SANTIAM BACKWATR RT SS15 TIAM RIVER TH SANTIAM 1170 m ²	OTHER: Map Code Sample Date Location Native Fish Spec:	SS15* 10/12/00 T11S-R2W-15NE ies Collected:
Site Name SOUT Basin SANT Subbasin SOUT Surface Area Average Depth	TH SANTIAM BACKWATR RT SS15 TIAM RIVER TH SANTIAM 1170 m ² 0.7 m	OTHER: Map Code Sample Date Location Native Fish Spec:	SS15* 10/12/00 T11S-R2W-15NE ies Collected:
Site Name SOUT Basin SANT Subbasin SOUT Surface Area Average Depth Water Temperatur	TH SANTIAM BACKWATR RT SS15 TIAM RIVER TH SANTIAM 1170 m ² 0.7 m Tee 13.0 °C	OTHER: Map Code Sample Date Location Native Fish Spec: Oregon chub	SS15* 10/12/00 T11S-R2W-15NE ies Collected:
Site Name SOUT Basin SANT Subbasin SOUT Surface Area Average Depth Water Temperatur Percent Organic	TH SANTIAM BACKWATR RT SS15 TIAM RIVER TH SANTIAM 1170 m ² 0.7 m Te 13.0 °C Substrate 100%	OTHER: Map Code Sample Date Location Native Fish Spec: Oregon chub Cottids	<pre>SS15★ 10/12/00 T11S-R2W-15NE ies Collected: 0 0 0</pre>
Site Name SOUT Basin SANT Subbasin SOUT Surface Area Average Depth Water Temperatur Percent Organic	TH SANTIAM BACKWATR RT SS15 TIAM RIVER TH SANTIAM 1170 m ² 0.7 m Te 13.0 °C Substrate 100%	OTHER: Map Code Sample Date Location Native Fish Spec: Oregon chub Cottids Dace	SS15* 10/12/00 T11S-R2W-15NE ies Collected: 0 0 10
Site Name SOUT Basin SANT Subbasin SOUT Surface Area Average Depth Water Temperatur Percent Organic Types of Aquatic	TH SANTIAM BACKWATR RT SS15 TIAM RIVER TH SANTIAM 1170 m ² 0.7 m TH 13.0 °C Substrate 100% E Vegetation ¹	OTHER: Map Code Sample Date Location Native Fish Spec: Oregon chub Cottids Dace Redside shiners	SS15* 10/12/00 T11S-R2W-15NE ies Collected: 0 0 0 10
Site Name SOUT Basin SANT Subbasin SOUT Surface Area Average Depth Water Temperatur Percent Organic Types of Aquatic Submergent	TH SANTIAM BACKWATR RT SS15 CIAM RIVER TH SANTIAM 1170 m ² 0.7 m Te 13.0 °C Substrate 100% the Vegetation ¹ 70%	OTHER: Map Code Sample Date Location Native Fish Spec: Oregon chub Cottids Dace Redside shiners Northern pikem	<pre>SS15* 10/12/00 T11S-R2W-15NE ies Collected: 0 0 0 10 5 4 innow 78</pre>
Site Name SOUT Basin SANT Subbasin SOUT Surface Area Average Depth Water Temperatur Percent Organic Types of Aquatic Submergent Emergent	TH SANTIAM BACKWATR RT SS15 TIAM RIVER TH SANTIAM 1170 m ² 0.7 m 13.0 °C Substrate 100% 2 Vegetation ¹ 70% 20%	OTHER: Map Code Sample Date Location Native Fish Spec: Oregon chub Cottids Dace Redside shiners Northern pikem: Largescale such	<pre>SS15* 10/12/00 T11S-R2W-15NE ies Collected: 0 0 0 10 5 4 innow 78 xers 0</pre>
Site Name SOUT Basin SANT Subbasin SOUT Surface Area Average Depth Water Temperatur Percent Organic Types of Aquatic Submergent Emergent Floating	TH SANTIAM BACKWATR RT SS15 TIAM RIVER TH SANTIAM 1170 m ² 0.7 m 13.0 °C Substrate 100% re 100% Substrate 100% re 20% 2%	OTHER: Map Code Sample Date Location Native Fish Spec: Oregon chub Cottids Dace Redside shiners Northern pikem: Largescale such Sandrollers	<pre>SS15* 10/12/00 T11S-R2W-15NE ies Collected: 0 0 0 10 s 4 innow 78 kers 0 0 0</pre>
Site Name SOUT Basin SANT Subbasin SOUT Surface Area Average Depth Water Temperatur Percent Organic Types of Aquatic Submergent Emergent Floating Algae	TH SANTIAM BACKWATR RT SS15 TIAM RIVER TH SANTIAM 1170 m ² 0.7 m te 13.0 °C Substrate 100% to Vegetation ¹ 70% 20% 2% 0%	OTHER: Map Code Sample Date Location Native Fish Spec: Oregon chub Cottids Dace Redside shiners Northern pikem: Largescale such Sandrollers Threespine stic	<pre>SS15* 10/12/00 T11S-R2W-15NE ies Collected: 0 0 0 0 10 s 4 innow 78 cers 0 0 cklebacks 9</pre>
Site Name SOUT Basin SANT Subbasin SOUT Surface Area Average Depth Water Temperatur Percent Organic Types of Aquatic Submergent Emergent Floating Algae	TH SANTIAM BACKWATR RT SS15 TIAM RIVER TH SANTIAM 1170 m ² 0.7 m 13.0 °C Substrate 100% 20% 2% 0%	OTHER: Map Code Sample Date Location Native Fish Spec: Oregon chub Cottids Dace Redside shiners Northern pikem: Largescale such Sandrollers Threespine stid Salmonids-	<pre>SS15* 10/12/00 T11S-R2W-15NE ies Collected: 0 0 0 0 10 s 4 innow 78 cers 0 cklebacks 9 0</pre>
Site Name SOUT Basin SANT Subbasin SOUT Surface Area Average Depth Water Temperatur Percent Organic Types of Aquatic Submergent Emergent Floating Algae	TH SANTIAM BACKWATR RT SS15 CIAM RIVER TH SANTIAM 1170 m ² 0.7 m 13.0 °C Substrate 100% 20% 20% 2% 0% TOTAL 92%	OTHER: Map Code Sample Date Location Native Fish Spec: Oregon chub Cottids Dace Redside shiners Northern pikem: Largescale such Sandrollers Threespine stic Salmonids- Pacific lampres	SS15* 10/12/00 T11S-R2W-15NE ies Collected: 0 0 0 10 5 4 innow 78 xers 0 0 cklebacks 9 0 7 0 0 0 0 0 0 0 0 0 0 0 0 0
Site Name SOUT Basin SANT Subbasin SOUT Surface Area Average Depth Water Temperatur Percent Organic Types of Aquatic Submergent Emergent Floating Algae Aquatic vegetati	THE SANTIAN BACKWATE RT SS15 CIAM RIVER TH SANTIAM 1170 m ² 0.7 m 13.0 °C Substrate 100% C Substrate 100% C Substrate 100% TOTAL 92% C C C C C C C C C C C C C	OTHER: Map Code Sample Date Location Native Fish Spec: Oregon chub Cottids Dace Redside shiners Northern pikem: Largescale such Sandrollers Threespine stide Salmonids- Pacific lampres	SS15* 10/12/00 T11S-R2W-15NE ies Collected: 0 0 0 0 10 5 4 innow 78 cers 0 0 cklebacks 9 0 y 0 Species Collect
Site Name SOUT Basin SANT Subbasin SOUT Surface Area Average Depth Water Temperatur Percent Organic Types of Aquatic Submergent Floating Algae Aquatic vegetati MYRI	TH SANTIAM BACKWATR RT SS15 CIAM RIVER TH SANTIAM 1170 m ² 0.7 m 13.0 °C Substrate 100% 20% 2% 0% TOTAL 92% ion genera ² 20%	OTHER: Map Code Sample Date Location Native Fish Spec: Oregon chub Cottids Dace Redside shiners Northern pikem Largescale such Sandrollers Threespine stid Salmonids- Pacific lamprey Non-native Fish S	SS15* 10/12/00 T11S-R2W-15NE ies Collected: 0 0 0 10 5 4 innow 78 cers 0 0 cklebacks 9 0 y 0 Species Collected
Site Name SOUT Basin SANT Subbasin SOUT Surface Area Average Depth Water Temperatur Percent Organic Types of Aquatic Submergent Floating Algae Aquatic vegetati MYRI POTA	THE SANTIAN BACKWATE RT SS15 CIAM RIVER THE SANTIAM $ \begin{array}{rcl} & 1170 & m^2 \\ & 0.7 & m \\ & & 13.0 & ^{\circ}C \\ \end{array} $ Substrate 100% Total 2% Total 92% 100 genera ² 20% 30	OTHER: Map Code Sample Date Location Native Fish Spec: Oregon chub Cottids Dace Redside shiners Northern pikem: Largescale such Sandrollers Threespine stic Salmonids- Pacific lamprey Non-native Fish S	SS15* 10/12/00 T11S-R2W-15NE ies Collected: 0 0 0 10 5 4 innow 78 cers 0 0 cklebacks 9 0 y 0 Species Collected: Collected: 2
Site Name SOUT Basin SANT Subbasin SOUT Surface Area Average Depth Water Temperatur Percent Organic Types of Aquatic Submergent Floating Algae Aquatic vegetatis MYRI POTA ELOD	THE SANTIAN BACKWATE RT SS15 CIAM RIVER TH SANTIAM $ \begin{array}{rcl} & & 1170 & m^2 \\ & & 0.7 & m \\ & & & 13.0 & ^{\circ}C \\ \end{array} $ Substrate 100% Total 100% TOTAL 92% 100 genera ² 20% 30 20	OTHER: Map Code Sample Date Location Native Fish Spec: Oregon chub Cottids Dace Redside shiners Northern pikem: Largescale such Sandrollers Threespine stid Salmonids- Pacific lamprey Non-native Fish : Western Mosquit Centrarchids-Be	SS15* 10/12/00 T11S-R2W-15NE ies Collected: 0 0 0 10 5 4 innow 78 ters 0 0 cklebacks 9 0 cklebacks 9 cklebacks 9 ckleback
Site Name SOUT Basin SANT Subbasin SOUT Surface Area Average Depth Water Temperatur Percent Organic Types of Aquatic Submergent Floating Algae Aquatic vegetat MYRI POTA ELOD POLY	TH SANTIAM BACKWATR RT SS15 CIAM RIVER TH SANTIAM $ \begin{array}{rcl} & & 1170 & m^2 \\ & & 0.7 & m \\ & & & 13.0 & ^{\circ}C \\ \end{array} $ Substrate 100% Total 20% 2% 0% Total 92% ton genera ² 20% 30 20 10	OTHER: Map Code Sample Date Location Native Fish Spec: Oregon chub Cottids Dace Redside shiners Northern pikem: Largescale such Sandrollers Threespine stid Salmonids- Pacific lampres Non-native Fish : Western Mosquit Centrarchids-Be Bullheads	SS15* 10/12/00 T11S-R2W-15NE ies Collected: 0 0 0 10 5 4 innow 78 cers 0 0 cklebacks 9 0 cklebacks 9 0 ckleback 9 0 ckleb
Site Name SOUT Basin SANT Subbasin SOUT Surface Area Average Depth Water Temperatur Percent Organic Types of Aquatic Submergent Floating Algae Aquatic vegetat MYRI POTA ELOD POLY ELEO	TH SANTIAM BACKWATR RT SS15 CIAM RIVER TH SANTIAM 1170 m^2 0.7 m 13.0 °C Substrate 100% vegetation ¹ 70% 20% 2% 0% TOTAL 92% ion genera ² 20% 30 20 10 10	OTHER: Map Code Sample Date Location Native Fish Spec: Oregon chub Cottids Dace Redside shiners Northern piken: Largescale such Sandrollers Threespine stict Salmonids- Pacific lampres Non-native Fish S Western Mosquit Centrarchids-Bé Bullheads Carp	SS15* 10/12/00 T11S-R2W-15NE ies Collected: 0 0 0 10 5 4 innow 78 cers 0 0 cklebacks 9 0 cklebacks 9 0 cklebacks 9 0 cklebacks 2 0 cklebacks 2 0 cklebacks 3 0 cklebacks 9 0 cklebacks 9 0 cklebacks 9 0 0 cklebacks 9 0 cklebacks 9 0 0 0 0 0 0 0 0 0 0 0 0 0
Site Name SOUT Basin SANT Subbasin SOUT Surface Area Average Depth Water Temperatur Percent Organic Types of Aquatic Submergent Floating Algae Aquatic vegetati MYRI POTA ELOD POLY ELEO LEMN	TH SANTIAM BACKWATR RT SS15 CIAM RIVER TH SANTIAM 1170 m^2 0.7 m $13.0 ^{\circ}\text{C}$ Substrate 100% vegetation¹ vegetation¹ TOTAL 92% ion genera² 20% 30 30 20% 30	OTHER: Map Code Sample Date Location Native Fish Spec: Oregon chub Cottids Dace Redside shiners Northern pikem: Largescale such Sandrollers Threespine stict Salmonids- Pacific lampres Non-native Fish : Western Mosquit Centrarchids-Bo Bullheads Carp	SS15* 10/12/00 T11S-R2W-15NE ies Collected: 0 0 0 10 5 4 innow 78 Xers 0 0 cklebacks 9 0 7 0 Cklebacks 9 0 7 0 Cklebacks 2 0 7 0 Collected 2 3 32 0 0 0 0 0 0 0 0 0 0 0 0 0

Site Name	CLAGGETT CREEK		Map Code	CLAG1
Basin	MID-WILLAMETTE	RIVER	Sample Date	04/17/00
Subbasin			Location	T6S-R3W-22NW
Surface Area	a	2400 m ²	Native Fish Spec	ies Collected:
Average Dept	th	1.0 m		
Water Tempe:	rature	13.0 °C	Oregon chub	0
Percent Orga	anic Substrate	90%	Cottids	4
		-	Dace	0
Types of Aq	uatic Vegetation	±	Redside shiner	rs 0
Submergent	t	5%	Northern piken	ninnow 0
Emergent		25%	Largescale suc	ckers 0
Floating		0%	Sandrollers	0
Algae		0%	Threespine sti	.cklebacks 0
			Salmonids-	0
	TOTAL	30%	Pacific lampre	εγ U
Aquatic vege	etation genera ²		Non-native Fish	Species Collected:
GRAM		25%		
ELOD		5	western Mosqui	torish 5
			Centrarchids-E	1 1
			Carp .	1
			Carp	0
			OTHER:	CHISELMOUT
Site Name	DUNN WETLAND PO	ND DUNN2	Map Code	D UNN2G *
Basin	MID-WILLAMETTE	RIVER	Sample Date	09/28/00
Subbasin	BEAVER CREEK		Location	T13S-R6W-11SE
Surface Area	a	2240 m ²	Native Fish Spec	ies Collected:
Average Dept	th	0.9 m		
Water Temper	rature	22.0 °C	Oregon chub	6424
Percent Orga	anic Substrate	100%	Cottids	0
			Dace	0
Types of Aq	uatic Vegetation	1	Redside shiner	s 0
Submergent	t	15%	Northern pikem	innow 0
Emergent		75%	Largescale suc	kers 0
Floating		0%	Sandrollers	0
Algae		0%	Threespine sti	cklebacks 0
		0.0%	Salmonids-	0
	IOTAL	20%	raciile iampie	.y 0
Aquatic vege	etation genera ²		Non-native Fish	Species Collected:
POTA		15%		
SPAR		25	Western Mosqui	tofish 0
				-
TYPH		40	Centrarchids-	0
TYPH ELEO		4 0 1 0	Centrarchids- Bullheads	0
TYPH ELEO		40 10	Centrarchids- Bullheads Carp	0 0 0
TYPH ELEO		40 10	Centrarchids- Bullheads Carp OTHER:	0

.

Site Name	DUNN WETLAND P	OND DUNN6	Map Code	DUNN6B*
Basin	MID-WILLAMETTE	RIVER	Sample Date	10/02/00
Subbasin	BEAVER CREEK		Location	T13S-R6W-11SE
Surface Are	a	3500 m ²	Native Fish Spec	ies Collected:
Average Dep	th	1.0 m		
Water Tempe	rature	21.0 °C	Oregon chub	7662
Percent Org	anic Substrate	100%	Cottids	0
			Dace	0
Types of Aq	uatic Vegetatio	_ ¹	Redside shiner	s O
Submergen	t	40%	Northern pikem	innow 0
Emergent		60%	Largescale suc	kers 0
Floating		0%	Sandrollers	0
Algae		0%	Threespine sti	cklebacks 0
			Salmonids-	0
	TOTAL	100%	Pacific lampre	у 0
Aquatic veg	etation genera ²		Non-native Fish	Species Collected:
ТҮРН	2	25%		
SPAR		25	Western Mosqui	tofish 0
POTA		20	Centrarchids-	0
ELEO		10	Bullheads	0
ELOD		20	Carp	0
			OTHER -	
· · · · · · · · · · · · · · · · · · ·				
Site Name	DUNN WETLAND P	DINN7	Map Code	DUNN7*
Site Name Basin	DUNN WETLAND P	NND DUNN7 RIVER	Map Code Sample Date	DUNN7*
Site Name Basin Subbasin	DUNN WETLAND P MID-WILLAMETTE BEAVER CREEK	RIVER	Map Code Sample Date Location	DUNN7* 10/03/00 T13S-R6W-11SE
Site Name Basin Subbasin	DUNN WETLAND P MID-WILLAMETTE BEAVER CREEK	ND DUNN7 RIVER	Map Code Sample Date Location	DUNN7* 10/03/00 T13S-R6W-11SE
Site Name Basin Subbasin Surface Are	DUNN WETLAND P MID-WILLAMETTE BEAVER CREEK a	RIVER 1225 m ²	Map Code Sample Date Location Native Fish Spec	DUNN7* 10/03/00 T13S-R6W-11SE ies Collected:
Site Name Basin Subbasin Surface Are Average Dep	DUNN WETLAND P MID-WILLAMETTE BEAVER CREEK a th	DND DUNN 7 RIVER 1225 m ² 0.5 m	Map Code Sample Date Location Native Fish Spec	DUNN7* 10/03/00 T13S-R6W-11SE ies Collected:
Site Name Basin Subbasin Surface Are Average Dep Water Tempe	DUNN WETLAND P MID-WILLAMETTE BEAVER CREEK a th rature	DND DUNN7 RIVER 1225 m ² 0.5 m 14.0 °C	Map Code Sample Date Location Native Fish Spec Oregon chub	DUNN7* 10/03/00 T13S-R6W-11SE ies Collected: 22
Site Name Basin Subbasin Surface Are Average Dep Water Tempe Percent Org.	DUNN WETLAND P MID-WILLAMETTE BEAVER CREEK a th rature anic Substrate	DND DUNN7 RIVER 1225 m ² 0.5 m 14.0 °C 100%	Map Code Sample Date Location Native Fish Spec Oregon chub Cottids	DUNN7* 10/03/00 T13S-R6W-11SE ies Collected: 22 0
Site Name Basin Subbasin Surface Are Average Dep Water Tempe Percent Org.	DUNN WETLAND P MID-WILLAMETTE BEAVER CREEK a th rature anic Substrate	DND DUNN7 RIVER 1225 m ² 0.5 m 14.0 °C 100%	Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace	DUNN7* 10/03/00 T13S-R6W-11SE ies Collected: 22 0 0
Site Name Basin Subbasin Surface Are Average Dep Water Tempe Percent Org Types of Aq	DUNN WETLAND P MID-WILLAMETTE BEAVER CREEK a th rature anic Substrate watic Vegetation	DND DUNN7 RIVER 1225 m ² 0.5 m 14.0 °C 100%	Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace Redside shiner	DUNN7* 10/03/00 T13S-R6W-11SE ies Collected: 22 0 0 5 0
Site Name Basin Subbasin Surface Are Average Dep Water Tempe Percent Org Types of Aq Submergen	DUNN WETLAND P MID-WILLAMETTE BEAVER CREEK a th rature anic Substrate uatic Vegetation t	DND DUNN7 RIVER 1225 m ² 0.5 m 14.0 °C 100%	Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace Redside shiner Northern pikem	DUNN7* 10/03/00 T13S-R6W-11SE ies Collected: 22 0 0 s 0 innow 0
Site Name Basin Subbasin Surface Are Average Dep Water Tempe Percent Org Types of Aq Submergen Emergent	DUNN WETLAND P MID-WILLAMETTE BEAVER CREEK a th rature anic Substrate uatic Vegetation t	DND DUNN7 RIVER 1225 m ² 0.5 m 14.0 °C 100% a ¹ 2% 14%	Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace Redside shiner Northern pikem Largescale suc	DUNN7* 10/03/00 T13S-R6W-11SE ies Collected: 22 0 0 s 0 innow 0 kers 0
Site Name Basin Subbasin Surface Are Average Dep Water Tempe Percent Org Types of Aq Submergen Emergent Floating	DUNN WETLAND P MID-WILLAMETTE BEAVER CREEK a th rature anic Substrate uatic Vegetation t	DND DUNN7 RIVER 1225 m ² 0.5 m 14.0 °C 100% n ¹ 2% 14% 0%	Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace Redside shiner Northern pikem Largescale suc Sandrollers	DUNN7* 10/03/00 T13S-R6W-11SE ies Collected: 22 0 0 s 0 innow 0 kers 0 0
Site Name Basin Subbasin Surface Are Average Dep Water Tempe Percent Org Types of Ag Submergen Emergent Floating Algae	DUNN WETLAND P MID-WILLAMETTE BEAVER CREEK a th rature anic Substrate uatic Vegetation t	DND DUNN7 RIVER 1225 m ² 0.5 m 14.0 °C 100% n ¹ 2% 14% 0% 0%	Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace Redside shiner Northern pikem Largescale suc Sandrollers Threespine sti	DUNN7* 10/03/00 T13S-R6W-11SE ies Collected: 22 0 0 s 0 innow 0 kers 0 0 cklebacks 0
Site Name Basin Subbasin Surface Are Average Dep Water Tempe Percent Org Types of Aq Submergen Emergent Floating Algae	DUNN WETLAND P MID-WILLAMETTE BEAVER CREEK a th rature anic Substrate uatic Vegetation t	DND DUNN7 RIVER 1225 m ² 0.5 m 14.0 °C 100% n ¹ 2% 14% 0% 0%	Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace Redside shiner Northern pikem Largescale suc Sandrollers Threespine sti Salmonids-	DUNN7* 10/03/00 T13S-R6W-11SE ies Collected: 22 0 0 s 0 innow 0 kers 0 cklebacks 0 0
Site Name Basin Subbasin Surface Are Average Dep Water Tempe Percent Org Types of Aq Submergen Emergent Floating Algae	DUNN WETLAND P MID-WILLAMETTE BEAVER CREEK a th rature anic Substrate uatic Vegetation t	DND DUNN7 RIVER 1225 m ² 0.5 m 14.0 °C 100% n ¹ 2% 14% 0% 0%	Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace Redside shiner Northern pikem Largescale suc Sandrollers Threespine sti Salmonids- Pacific lampre	DUNN7* 10/03/00 T13S-R6W-11SE ies Collected: 22 0 0 s 0 innow 0 kers 0 cklebacks 0 y 0
Site Name Basin Subbasin Surface Are Average Dep Water Tempe Percent Org Types of Aq Submergen Emergent Floating Algae	DUNN WETLAND P MID-WILLAMETTE BEAVER CREEK a th rature anic Substrate uatic Vegetation t TOTAL etation genera ²	DND DUNN7 RIVER 1225 m ² 0.5 m 14.0 °C 100% n ¹ 2% 14% 0% 0% 0%	Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace Redside shiner Northern pikem Largescale suc Sandrollers Threespine sti Salmonids- Pacific lampre Non-native Fish	DUNN7* 10/03/00 T13S-R6W-11SE ies Collected: 22 0 0 s 0 s 0 kers 0 cklebacks 0 y 0 Species Collected:
Site Name Basin Subbasin Surface Are Average Dep Water Tempe Percent Org Types of Aq Submergen Emergent Floating Algae Aquatic veg SPAR	DUNN WETLAND PA MID-WILLAMETTE BEAVER CREEK a th rature anic Substrate uatic Vegetation t TOTAL etation genera ²	DND DUNN7 RIVER 1225 m ² 0.5 m 14.0 °C 100% n ¹ 2% 14% 0% 0% 16% 2%	Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace Redside shiner Northern pikem Largescale suc Sandrollers Threespine sti Salmonids- Pacific lampres Non-native Fish	DUNN7* 10/03/00 T13S-R6W-11SE ies Collected: 22 0 0 s 0 s 0 kers 0 cklebacks 0 y 0 Species Collected:
Site Name Basin Subbasin Surface Are Average Dep Water Tempe Percent Org Types of Aq Submergen Emergent Floating Algae Aquatic veg SPAR POTA	DUNN WETLAND PA MID-WILLAMETTE BEAVER CREEK a th rature anic Substrate uatic Vegetation t TOTAL etation genera ²	DND DUNN7 RIVER 1225 m ² 0.5 m 14.0 °C 100% 1 1 2% 14% 0% 0% 0% 2% 2% 2	Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace Redside shiner Northern pikem Largescale suc Sandrollers Threespine sti Salmonids- Pacific lampre Non-native Fish Western Mosqui	DUNN7* 10/03/00 T13S-R6W-11SE ies Collected: 22 0 0 s 0 s 0 kers 0 cklebacks 0 y 0 Species Collected: tofish 0
Site Name Basin Subbasin Surface Are Average Dep Water Tempe Percent Org Types of Aq Submergen Emergent Floating Algae Aquatic veg SPAR POTA TYPH	DUNN WETLAND PA MID-WILLAMETTE BEAVER CREEK a th rature anic Substrate uatic Vegetation t TOTAL etation genera ²	DND DUNN7 RIVER 1225 m ² 0.5 m 14.0 °C 100% 14% 0% 0% 16% 2% 2% 2 2	Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace Redside shiner Northern pikem Largescale suc Sandrollers Threespine sti Salmonids- Pacific lampres Non-native Fish Western Mosqui Centrarchids-	DUNN7* 10/03/00 T13S-R6W-11SE ies Collected: 22 0 0 s 0 s 0 kers 0 cklebacks 0 y 0 Species Collected: tofish 0 0
Site Name Basin Subbasin Surface Are Average Dep Water Tempe Percent Org Types of Aq Submergen Emergent Floating Algae Aquatic veg SPAR POTA TYPH ELEO	DUNN WETLAND Pa MID-WILLAMETTE BEAVER CREEK a th rature anic Substrate uatic Vegetation t TOTAL etation genera ²	DND DUNN7 RIVER 1225 m ² 0.5 m 14.0 °C 100% 1 2% 14% 0% 0% 2% 2% 2 2 1 0	Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace Redside shiner Northern pikem Largescale suc Sandrollers Threespine sti Salmonids- Pacific lampre Non-native Fish Western Mosqui Centrarchids- Bullheads	DUNN7* 10/03/00 T13S-R6W-11SE ies Collected: 22 0 0 s 0 s 0 innow 0 kers 0 cklebacks 0 y 0 Species Collected: tofish 0 0 0 0 0 0 0 0 0 0 0 0 0

OTHER:

Site Name FINLEY NWR	DISPLAY POND	Map Code	LINIGH-
Basin MID-WILLAM	ETTE RIVER	Sample Date	09/27/00
Subbasin MUDDY CREE	X	Location	T13S-R5W-30SE
Surface Area	6400 m ²	Native Fish Spect	ies Collected:
Average Depth	1.5 m		
Water Temperature	21.0 °C	Oregon chub	1749
Percent Organic Substra	ate 100%	Cottids	0
	_	Dace	0
Types of Aquatic Veget	ation	Redside shiners	5 0
Submergent	30%	Northern pikemi	innow 0
Emergent	35%	Largescale suck	cers 0
Floating	0%	Sandrollers	0
Algae	0%	Threespine stic	cklebacks 0
		Salmonids-	0
TOT	AL 65%	Pacific lamprey	<i>r</i> 0
Aquatic vegetation gen	era ²	Non-native Fish S	Species Collecte
MYRI	10%		
ELEO	10	Western Mosquit	ofish 0
POTA	20	Centrarchids-	0
GRAM	10	Bullheads	0
түрн	10	Carp	0
2000 D	5	<u>F</u>	· ·
SPAR	-1		
SPAK Site Name FINLEY BEAN	VER POND	OTHER: Map Code	FIN1E
SPAR Site Name FINLEY BEAT Basin MID-WILLAM	VER POND ETTE RIVER	OTHER: Map Code ' Sample Date	FIN1E 04/20/00
SPAK Site Name FINLEY BEA M Basin MID-WILLAM Subbasin MUDDY CREEM	VER POND ETTE RIVER K	OTHER: Map Code ' Sample Date Location	FIN1E 04/20/00 T13S-R5W-32NW
SPAK Site Name FINLEY BEA Basin MID-WILLAM Subbasin MUDDY CREE Surface Area	VER POND ETTE RIVER K 6000 m ²	OTHER: Map Code ' Sample Date Location Native Fish Speci	FIN1E 04/20/00 T13S-R5W-32NW es Collected:
SPAK Site Name FINLEY BEA Basin MID-WILLAM Subbasin MUDDY CREE Surface Area Average Depth	VER POND ETTE RIVER K 6000 m ² 1.1 m	OTHER: Map Code ' Sample Date Location Native Fish Speci	FIN1E 04/20/00 T13S-R5W-32NW es Collected:
SFAK Site Name FINLEY BEA Basin MID-WILLAM Subbasin MUDDY CREE Surface Area Average Depth Water Temperature	VER POND ETTE RIVER K 6000 m ² 1.1 m 12.0 °C	OTHER: Map Code ' Sample Date Location Native Fish Speci Oregon chub	FIN1E 04/20/00 T13S-R5W-32NW es Collected: 0
SPAR Site Name FINLEY BEA Basin MID-WILLAM Subbasin MUDDY CREE Surface Area Average Depth Water Temperature Percent Organic Substra	VER POND ETTE RIVER K 6000 m ² 1.1 m 12.0 °C ate 100%	OTHER: Map Code ' Sample Date Location Native Fish Speci Oregon chub Cottids	FIN1E 04/20/00 T13S-R5W-32NW .es Collected: 0 0
SFAR Site Name FINLEY BEAN Basin MID-WILLAM Subbasin MUDDY CREEN Surface Area Average Depth Water Temperature Percent Organic Substra	VER POND ETTE RIVER K 6000 m ² 1.1 m 12.0 °C ate 100%	OTHER: Map Code ' Sample Date Location Native Fish Speci Oregon chub Cottids Dace	FIN1E 04/20/00 T13S-R5W-32NW .es Collected: 0 0 4
SPAR Site Name FINLEY BEAN Basin MID-WILLAM Subbasin MUDDY CREEN Surface Area Average Depth Water Temperature Percent Organic Substra Types of Aquatic Vegeta	VER POND ETTE RIVER K 6000 m ² 1.1 m 12.0 °C ate 100% ation ¹	OTHER: Map Code Sample Date Location Native Fish Speci Oregon chub Cottids Dace Redside shiners	FIN1E 04/20/00 T13S-R5W-32NW es Collected: 0 0 4 5 0
SFAR Site Name FINLEY BEAN Basin MID-WILLAM Subbasin MUDDY CREEN Surface Area Average Depth Water Temperature Percent Organic Substra Types of Aquatic Veget Submergent	VER POND ETTE RIVER K 6000 m ² 1.1 m 12.0 °C ate 100% ation ¹ 42%	OTHER: Map Code Sample Date Location Native Fish Speci Oregon chub Cottids Dace Redside shiners Northern pikemi	FIN1E 04/20/00 T13S-R5W-32NW es Collected: 0 0 4 5 0 0 0 4 5 0 0 0 0 0 0 0 0 0 0 0
SFAR Site Name FINLEY BEAN Basin MID-WILLAM Subbasin MUDDY CREEN Surface Area Average Depth Water Temperature Percent Organic Substra Submergent Emergent	VER POND ETTE RIVER K 6000 m ² 1.1 m 12.0 °C ate 100% ation ¹ 42% 55%	OTHER: Map Code Sample Date Location Native Fish Speci Oregon chub Cottids Dace Redside shiners Northern pikemi Largescale suck	FIN1E 04/20/00 T13S-R5W-32NW es Collected: 0 0 4 5 0 0 0 4 5 0 0 0 0 0 0 0 0 0 0 0
SFAR Site Name FINLEY BEAN Basin MID-WILLAM Subbasin MUDDY CREEN Surface Area Average Depth Water Temperature Percent Organic Substra Submergent Emergent Floating	VER POND ETTE RIVER K 6000 m ² 1.1 m 12.0 °C ate 100% ation ¹ 42% 55% 0%	OTHER: Map Code Sample Date Location Native Fish Speci Oregon chub Cottids Dace Redside shiners Northern pikemi Largescale suck Sandrollers	FIN1E 04/20/00 T13S-R5W-32NW es Collected: 0 0 4 5 0 0 0 4 5 0 0 0 0 0 0 0 0 0 0 0
SFAR Site Name FINLEY BEAN Basin MID-WILLAM Subbasin MUDDY CREEN Surface Area Average Depth Water Temperature Percent Organic Substra Types of Aquatic Vegeta Submergent Emergent Floating Algae	VER POND ETTE RIVER K 6000 m ² 1.1 m 12.0 °C ate 100% ation ¹ 42% 55% 0% 0%	OTHER: Map Code Sample Date Location Native Fish Speci Oregon chub Cottids Dace Redside shiners Northern pikemi Largescale suck Sandrollers Threespine stic	FIN1E 04/20/00 T13S-R5W-32NW es Collected: 0 0 4 5 0 0 4 5 0 0 0 5 5 0 0 5 8 0 0 0 0 0 0 0 0 0 0
SFAR Site Name FINLEY BEAN Basin MID-WILLAM Subbasin MUDDY CREEN Surface Area Average Depth Water Temperature Percent Organic Substra Types of Aquatic Vegeta Submergent Emergent Floating Algae	VER POND ETTE RIVER K 6000 m ² 1.1 m 12.0 °C ate 100% ation ¹ 42% 55% 0% 0%	OTHER: Map Code Sample Date Location Native Fish Speci Oregon chub Cottids Dace Redside shiners Northern pikemi Largescale suck Sandrollers Threespine stic Salmonids-	FIN1E 04/20/00 T13S-R5W-32NW es Collected: 0 0 4 5 0 0 0 4 5 0 0 0 2 8 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
SFAR Site Name FINLEY BEAN Basin MID-WILLAM Subbasin MUDDY CREEN Surface Area Average Depth Water Temperature Percent Organic Substra Types of Aquatic Vegeta Submergent Emergent Floating Algae	VER POND ETTE RIVER K 6000 m ² 1.1 m 12.0 °C ate 100% ation ¹ 42% 55% 0% 0% 0% AL 97%	OTHER: Map Code Sample Date Location Native Fish Speci Oregon chub Cottids Dace Redside shiners Northern pikemi Largescale suck Sandrollers Threespine stic Salmonids- Pacific lamprey	FIN1E 04/20/00 T13S-R5W-32NW es Collected: 0 0 4 5 0 0 4 5 0 0 0 5 8 0 0 0 5 8 0 0 0 5 8 0 0 0 0
SPAK Site Name FINLEY BEAT Basin MID-WILLAMI Subbasin MUDDY CREE Surface Area Average Depth Water Temperature Percent Organic Substra Types of Aquatic Vegeta Submergent Emergent Floating Algae TOTA	VER POND ETTE RIVER K 6000 m ² 1.1 m 12.0 °C ate 100% ation ¹ 42% 55% 0% 0% AL 97% era ²	OTHER: Map Code Sample Date Location Native Fish Speci Oregon chub Cottids Dace Redside shiners Northern pikemi Largescale suck Sandrollers Threespine stic Salmonids- Pacific lamprey Non-native Fish S	FIN1E 04/20/00 T13S-R5W-32NW es Collected: 0 0 0 0 4 0 0 0 0 0 0 0 0 0 0 0 0 0
SPAR Site Name FINLEY BEAT Basin MID-WILLAMI Subbasin MUDDY CREE Surface Area Average Depth Water Temperature Percent Organic Substra Types of Aquatic Vegeta Submergent Emergent Floating Algae TOTA Aquatic vegetation gene	VER POND ETTE RIVER K 6000 m ² 1.1 m 12.0 °C ate 100% ation ¹ 42% 55% 0% 0% AL 97% era ² 25%	OTHER: Map Code Sample Date Location Native Fish Speci Oregon chub Cottids Dace Redside shiners Northern pikemi Largescale suck Sandrollers Threespine stic Salmonids- Pacific lamprey Non-native Fish S	FIN1E 04/20/00 T13S-R5W-32NW es Collected: 0 0 0 4 0 0 0 4 0 0 0 0 0 0 0 0 0 0 0 0 0
SPAR Site Name FINLEY BEAT Basin MID-WILLAM Subbasin MUDDY CREE Surface Area Average Depth Water Temperature Percent Organic Substra Types of Aquatic Vegeta Submergent Emergent Floating Algae TOTA Aquatic vegetation gene	VER POND ETTE RIVER K 6000 m ² 1.1 m 12.0 °C ate 100% ation ¹ 42% 55% 0% 0% AL 97% era ² 25% 50	OTHER: Map Code Sample Date Location Native Fish Speci Oregon chub Cottids Dace Redside shiners Northern pikemi Largescale suck Sandrollers Threespine stic Salmonids- Pacific lamprey Non-native Fish S	FIN1E 04/20/00 T13S-R5W-32NW es Collected: 0 0 0 4 0 0 0 0 0 0 0 0 0 0 0 0 0
SPAR Site Name FINLEY BEAT Basin MID-WILLAMI Subbasin MUDDY CREEN Surface Area Average Depth Water Temperature Percent Organic Substra Types of Aquatic Vegeta Submergent Emergent Floating Algae TOTA Aquatic vegetation gene SPAR ELEO ELOD	VER POND ETTE RIVER K 6000 m ² 1.1 m 12.0 °C ate 100% ation ¹ 42% 55% 0% 0% 0% AL 97% era ² 25% 50 10	OTHER: Map Code Sample Date Location Native Fish Speci Oregon chub Cottids Dace Redside shiners Northern pikemi Largescale suck Sandrollers Threespine stic Salmonids- Pacific lamprey Non-native Fish S Western Mosquit Centrarchids-	FIN1E 04/20/00 T13S-R5W-32NW es Collected: 0 0 0 4 0 0 0 0 cers 0 0 cklebacks 9 0 cklebacks 9 0 cklebacks 9 0 cklebacks 9 0 0 cklebacks 9 0 0 0 0 0 0 0 0 0 0 0 0 0
SPAR Site Name FINLEY BEAT Basin MID-WILLAMI Subbasin MUDDY CREEN Surface Area Average Depth Water Temperature Percent Organic Substra Types of Aquatic Vegeta Submergent Emergent Floating Algae TOTA Aquatic vegetation gene SPAR ELEO ELOD GRAM	VER POND ETTE RIVER K 6000 m ² 1.1 m 12.0 °C ate 100% ation ¹ 42% 55% 0% 0% 0% AL 97% era ² 25% 50 10 5	OTHER: Map Code Sample Date Location Native Fish Speci Oregon chub Cottids Dace Redside shiners Northern pikemi Largescale suck Sandrollers Threespine stic Salmonids- Pacific lamprey Non-native Fish S Western Mosquit Centrarchids- Bullheads	FIN1E 04/20/00 T13S-R5W-32NW es Collected: 0 0 0 4 0 0 0 4 0 0 0 0 0 chiefsh 0 0 0 0 0 0 0 0 0 0 0 0 0 0
SPAR Site Name FINLEY BEAT Basin MID-WILLAM Subbasin MUDDY CREE Surface Area Average Depth Water Temperature Percent Organic Substra Types of Aquatic Vegeta Submergent Floating Algae TOTA Aquatic vegetation gene SPAR ELEO ELOD GRAM CERA	VER POND ETTE RIVER K 6000 m ² 1.1 m 12.0 °C ate 100% ation ¹ 42% 55% 0% 0% 0% AL 97% era ² 25% 50 10 5 4	OTHER: Map Code Sample Date Location Native Fish Speci Oregon chub Cottids Dace Redside shiners Northern pikemi Largescale suck Sandrollers Threespine stic Salmonids- Pacific lamprey Non-native Fish S Western Mosquit Centrarchids- Bullheads Carp	FIN1E 04/20/00 T13S-R5W-32NW es Collected: 0 0 0 4 0 0 0 0 chiers 0 0 chiers 0 0 0 chiers 0 0 0 0 0 0 0 0 0 0 0 0 0
SPAK Site Name FINLEY BEAN Basin MID-WILLAM Subbasin MUDDY CREE Surface Area Average Depth Water Temperature Percent Organic Substra Types of Aquatic Vegeta Submergent Emergent Floating Algae TOTA Aquatic vegetation gene SPAR ELEO ELOD GRAM CERA POLY	VER POND ETTE RIVER K 6000 m ² 1.1 m 12.0 °C ate 100% ation ¹ 42% 55% 0% 0% 0% AL 97% era ² 25% 50 10 5 4 1	OTHER: Map Code Sample Date Location Native Fish Speci Oregon chub Cottids Dace Redside shiners Northern pikemi Largescale suck Sandrollers Threespine stic Salmonids- Pacific lamprey Non-native Fish S Western Mosquit Centrarchids- Bullheads Carp	FIN1E 04/20/00 T13S-R5W-32NW es Collected: 0 0 0 4 0 0 0 0 0 0 0 0 0 0 0 0 0

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Site Name	FINLEY LOWR GRAY CK-DS CATTAIL	Map Code FIN24A	
Basin	MID-WILLAMETTE RIVER	Sample Date 04/24/00	
Subbasin	MUDDY CREEK	Location T13S-R5W-1	32NW
Capabili			
Surface Are	ea 2700 m ²	Native Fish Species Collec	ted:
Average Dep	0.8 m		
Water Tempe	erature 13.0 °C	Oregon chub	0
Percent Org	Janic Substrate 100%	Cottids	0
		Dace	0
Types of Aq	nuatic Vegetation ¹	Redside shiners	0
Submerger	26%	Northern pikeminnow	0
Emergent	20%	Largescale suckers	0
Floating	0%	Sandrollers	0
Algae	0%	Threespine sticklebacks	0
		Salmonids-	0
	TOTAL 46%	Pacific lamprey	0
	2		
Aquatic veg	getation genera [*]	Non-native Fish Species Co	llected:
GRAM	20%		
CALI	20	Western Mosquitofish	8
SPAR	5	Centrarchids-BG	2
RANU	1	Bullheads	1
		Carp	0
		OTHER:	
Site Name	FINLEY GRAY CREEK SWAMP	Map Code FIN4G	
Basin	MID-WILLAMETTE RIVER	Sample Date 04/20/00	
Subbasin	MUDDY CREEK	Location T13S-R5W-	31
Surface Are	ea 22872 m ²	Native Fish Species Collec	ted:
Average Dep	pth 1.0 m		
Water Tempe	erature 12.0 ^O C	Oregon chub	730
Percent Org	ganic Substrate 100%	Cottids	8
		Dace	2096
Types of A	quatic Vegetation ¹	Redside shiners	4086
Submerger	nt 35%	Northern pikeminnow	0
Emergent	60%	Largescale suckers	0
Floating	0%	Sandrollers	0
Algae	0%	Threespine sticklebacks	3091
		Salmonids-CT	1
	 TOTAL 95%	Salmonids-CT Pacific lamprey	1 0
	 TOTAL 95%	Salmonids-CT Pacific lamprey .	1 0
Aquatic ve	TOTAL 95% getation genera ²	Salmonids-CT Pacific lamprey Non-native Fish Species Co	l O llected:
Aquatic ve POTA	TOTAL 95% getation genera ² 55%	Salmonids-CT Pacific lamprey Non-native Fish Species Co	l O llected:
Aquatic ve POTA JUNC	TOTAL 95% getation genera ² 55% 5	Salmonids-CT Pacific lamprey Non-native Fish Species Co Western Mosquitofish	l O llected: O
Aquatic ve POTA JUNC CARE	TOTAL 95% getation genera ² 55% 5 5	Salmonids-CT Pacific lamprey Non-native Fish Species Co Western Mosquitofish Centrarchids-	l O llected: O O
Aquatic ve POTA JUNC CARE TYPH	TOTAL 95% getation genera ² 55% 5 5 5 5 5	Salmonids-CT Pacific lamprey Non-native Fish Species Co Western Mosquitofish Centrarchids- Bullheads	1 0 11ected: 0 0 2
Aquatic ve POTA JUNC CARE TYPH GRAM	TOTAL 95% getation genera ² 55% 5 5 5 5 5 5 5 5	Salmonids-CT Pacific lamprey Non-native Fish Species Co Western Mosquitofish Centrarchids- Bullheads Carp	1 0 1lected: 0 0 2 0
Aquatic ver POTA JUNC CARE TYPH GRAM SPAR	TOTAL 95% getation genera ² 55% 5 5 5 5 5 15 5 5	Salmonids-CT Pacific lamprey Non-native Fish Species Co Western Mosquitofish Centrarchids- Bullheads Carp	1 0 1 lected: 0 2 0

Site Name	FINLEY CATTAIL	POND	Map Code FIN7F	
Basin	MID-WILLAMETTE	RIVER	Sample Date 04/24/	00
Subbasin	MUDDY CREEK		Location T13S-R	5W-32NW
Surface Are	a	9600 m²	Native Fish Species Col	lected:
Average Dep	th	0.8 m		
Water Tempe	rature	13.0 °C	Oregon chub	0
Percent Org	anic Substrate	10%	Cottids	0
		1	Dace .	3
Types of Ag	uatic Vegetation	a ⁻	Redside shiners	0
Submergen	t	25%	Northern pikeminnow	0
Emergent		30%	Largescale suckers	0
Floating		0*	Sandrollers	0
Algae		0-5	Salmonida	cs IU
	TOTAI	EES	Pacific lamprov	0
	TOTAL	55%	Pacific fampley	0
Aquatic veg	etation genera ²		Non-native Fish Species	Collected
ELEO		10%		
POTA		10	Western Mosquitofish	. 3
TYPH		5	Centrarchids-BG	1
ELOD		5	Bullheads	l
SPAR		10	Carp	0
GRAM		10		
JUNC		5	OTHER :	
Site Name	WINDSOR SLOUGH		Map Code WIND1	
Basin	MID-WILLAMETTE	RIVER	Sample Date 04/17/	00
Subbasin			Location T6S-R3	∛-9/16
		2		
Surface Are	a	80000 m ²	Native Fish Species Col	lected:
Average Dep	th	2.0 m		
Water Tempe	rature	13.0 °C	Oregon chub	0
Percent Org	anic Substrate	90%	Cottids	1
		1	Dace	0
Types of Aq	uatic Vegetation	1-	Redside shiners	0
Submergen	τ	0*	Northern pikeminnow	1
Emergent		10%	Largescale suckers	0
Floating		08	Sandrollers	0
Algae	_	0.6	Salmonide-	.5 0
	TOTAL	10%	Pacific lamprev	0
		200	1401220 14mp107	· ·
Aquatic veg	etation genera ²		Non-native Fish Species	Collected:
GRAM		5%		
FRAX		5	Western Mosquitofish	0
			Centrarchids-C LB	2
			Bullheads	0
			Carp	0
			OTHER: CH	SELMOUT

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Site Name WIND	SOR SLOUGH	Map Code	WIND2
Basin MID-	WILLAMETTE RIVER	Sample Date	04/17/00
Subbasin		Location	T6S-R3W-16SE
	2		
Surface Area	6000 m ²	Native Fish Sp	ecies Collected:
Average Depth	1.5 m		
Water Temperatur	e 13.0 °C	Oregon chub	0
Percent Organic	Substrate 100%	Cottids	4
	. 1	Dace	0
Types of Aquatic	Vegetation ⁻	Redside shin	ers 1
Submergent	0%	Northern pik	eminnow 2
Emergent	10%	Largescale s	uckers 0
Floating	0%	Sandrollers	0
Algae	0%	Threespine s	ticklebacks 1
		Salmonids-CH	1
	TOTAL 10%	Pacific lamp	rey 0
Aquatic vegetati	on genera ²	Non-native Fis	h Species Collecter
GRAM	5%		
FRAX	5	Western Mosq	uitofish 2
		Centrarchids	-BG 2
		Bullheads	0
		Carp	. 0
		OTHER :	CHISELMOUT
Site Name WIND	SOR SLOUGH	Map Code	WIND3
Basin MID-	WILLAMETTE RIVER	Sample Date	04/17/00
Subbasin		Location	T6S-R3W-21N
Surface Area	10000 m ²	Native Fish Sp	ecies Collected:
Average Depth	2.0 m		
Water Temperatur	e 13.0 ^o C	Oregon chub	0
Percent Organic	Substrate 100%	Cottids	2
		Dace	0
Types of Aquatic	Vegetation	Redside shin	ers 0
Submergent	85%	Northern pik	eminnow 0
Emergent	0%	Largescale s	uckers 0
Floating	0%	Sandrollers	0
Algae	0%	Threespine s	ticklebacks 0
		Salmonids-	0
	TOTAL 85%	Pacific lamp	rey O
Aquatic vegetati	on genera ²	Non-native Fis	h Species Collecter
LUDW	40%		
POTA	20	Western Mosq	uitofish 3
CHAR	20	Centrarchids	-BG LB 21
POLY	5	Bullheads	0
		Carp	0
		OTUPD -	
		OINER:	

Site Name LONG TOM RANC	H POND	Map Code	LTR1*
Basin LONG TOM RIVE	R	Sample Date	10/11/00
Subbasin		Location	T15S-R5W-3
Surface Area	1500 m ²	Native Fish S	pecies Collect
Average Depth	1.0 m		
Water Temperature	20.0 °C	Oregon chub	
Percent Organic Substrate	100%	Cottids	
		Dace	
Types of Aquatic Vegetati	on ¹	Redside shir	ners
Submergent	3%	Northern pil	keminnow
Emergent	0%	Largescale :	suckers
Floating	2%	Sandrollers	
Algae	80%	Threespine a	sticklebacks
		Salmonids-R	3
TOTAL	85%	Pacific lam	prey
Aquatic vegetation genera	2	Non-native Fig	sh Species Col
LEMN	2%		-
POTA	3	Western Moso	mitofish
FILA	80	Centrarchids	
		Bullheads	
		Carp	
		OTHER :	
Site Name STRODA SLOUGH	1	Map Code	STRODAL

Basin	LONG	TOM RIVER	2		
Subbasin					
Surface Are	ea		30000	m2	
Average Dep	th		1.5	m	
Water Temperature			20.0	°c	
Percent Organic Substrate		100%			
Types of Aquatic Vegetation ¹					
Submerger	t		5%		
Emergent 0%			0%		
Floating			0%		

Floating		0%
Algae		0%
	TOTAL	95%

Aquatic vegetation genera²

SPAR	10%
POLY	10
CHAR	45
POTA	25
ELOD	5
GRAM	5

Sample Date	10/11/00
ocation	T15S-R5W-35NW

ed:

Oregon chub	0
Cottids	0
Dace	0
Redside shiners	0
Northern pikeminnow	0
Largescale suckers	0
Sandrollers	0
Threespine sticklebacks	0
Salmonids-RB	1
Pacific lamprey	0

lected:

Western Mosquitofish	0
Centrarchids-	0
Bullheads	0
Carp	0

Map Code	STRODAL
Sample Date	05/23/00
Location	T15S-R5W-10SW

Native Fish Species Collected:

Oregon chub	0
Cottids	l
Dace	0
Redside shiners	0
Northern pikeminnow	0
Largescale suckers	0
Sandrollers	0
Threespine sticklebacks	0
Salmonids-	0
Pacific lamprey	0

Non-native Fish Species Collected:

Western Mosquitofish	100
Centrarchids-BG	50
Bullheads	2
Carp	0
OTHER:	

Site Name	STRODA SLOUGH 2	Map Code STRODA2
Basin	LONG TOM RIVER	Sample Date 05/23/00
Subbasin		Location T15S-R5W-15NW
Surface Are	ea 22750 m ²	Native Fish Species Collected:
Average Der	pth 1.5 m	
Water Tempe	erature 21.0 °C	Oregon chub 0
Percent Org	ganic Substrate 100%	Cottids 0
-	-	Dace 0
Types of Ad	quatic Vegetation ¹	Redside shiners 0
Submerger	nt 90%	Northern pikeminnow 0
Emergent	5%	Largescale suckers 0
Floating	0%	Sandrollers 0
Algae	0%	Threespine sticklebacks 0
		Salmonids- 0
	TOTAL 95%	Pacific lamprey 0
Aquatic ve	getation genera ²	Non-native Fish Species Collected:
SPAR	10%	-
POLY	5	Western Mosquitofish 100
POTA	25	Centrarchids-BG 50
CHAR	50	Bullheads 0
GRAM	5	Carp 0
		OTHER :
Site Name	STRODA SLOUGH 3	Map Code STRODA3
Basin	LONG TOM RIVER	Sample Date 05/23/00
Subbasin		Location T15S-R5W-15W
Surface Are	ea 30625 m ²	Native Fish Species Collected:
Average Der	pth 1.2 m	
Water Temp	erature 20.5 ^O C	Oregon chub 0
Percent Ord	ganic Substrate 100%	Cottids 0
	-	Dace 0
Types of A	quatic Vegetation ¹	Redside shiners 0
Submerger	nt 95%	Northern pikeminnow 0
Emergent	5%	Largescale suckers 0
Floating	0%	Sandrollers 0
Algae	0%	Threespine sticklebacks 0
-		Salmonids- 0
	TOTAL 100%	Pacific lamprey 0
Aquatic ve	getation genera ²	Non-native Fish Species Collected:
POLY	10%	
GRAM	5	Western Mosquitofish 70
CHAR	~ 65	Centrarchids-BG LB 102
POTA	20	Bullheads 0
	20	Carp 0
		OTHER:

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Site Name STRODA		* • • • •	DIRODA	
Basin LONG T	OM RIVER	Sample Date	05/23/00	
Subbasin		Location	T15S-R5W-1	0SW
Surface Area	17500 m ²	Native Fish Spec	cies Collect	ed:
Average Depth	1.4 m			
Water Temperature	21.0 °C	Oregon chub		0
Percent Organic Sul	bstrate 100%	Cottids		0
		Dace		0
Types of Aquatic V	egetation ¹	Redside shiner	rs	0
Submergent	90%	Northern piken	minnow	0
Emergent	10%	Largescale suc	ckers	0
Floating	0%	Sandrollers		0
Algae	0%	Threespine sti	icklebacks	0
		Salmonids-		0
	TOTAL 100%	Pacific lampre	еу	0
Acuatic vegetation	genera ²	Non-native Fish	Species Col	lecte
POTA	25%		-	
CHAR	50	Western Mosqui	itofish	0
GRAM	5	Centrarchids-E	BG LB	51
POLY	10	Bullheads		1
TYPH	5	Carp		0
51.05	5	-		
ELUD				
Site Name STRODA	SLOUGH 5	OTHER : Map Code	STRODA5	-
Site Name STRODA Basin LONG T	SLOUGH 5 OM RIVER	OTHER: Map Code Sample Date	STRODA5	-
Site Name STRODA Basin LONG To Subbasin	SLOUGH 5 OM RIVER	OTHER: Map Code Sample Date Location	STRODA5 05/23/00 T15S-R5W-1	- .5N
Site Name STRODA Basin LONG Tr Subbasin Surface Area	SLOUGH 5 OM RIVER 15000 m ²	OTHER: Map Code Sample Date Location Native Fish Spec	STRODA5 05/23/00 T15S-R5W-1 cies Collect	- .5N .ed:
Site Name STRODA Basin LONG Tr Subbasin Surface Area Average Depth	SLOUGH 5 OM RIVER 15000 m ² 1.2 m	OTHER: Map Code Sample Date Location Native Fish Spec	STRODA5 05/23/00 T15S-R5W-1 cies Collect	- 5N ed:
Site Name STRODA Basin LONG To Subbasin Surface Area Average Depth Water Temperature	SLOUGH 5 OM RIVER 15000 m ² 1.2 m 21.0 °C	OTHER: Map Code Sample Date Location Native Fish Spec Oregon chub	STRODA5 05/23/00 T15S-R5W-1 cies Collect	- 5N ed: 0
Site Name STRODA Basin LONG Tr Subbasin Surface Area Average Depth Water Temperature Percent Organic Sub	SLOUGH 5 OM RIVER 15000 m ² 1.2 m 21.0 °C bstrate 100%	OTHER: Map Code Sample Date Location Native Fish Spec Oregon chub Cottids	STRODA5 05/23/00 T15S-R5W-1 cies Collect	- .5N .ed: 0 0
Site Name STRODA Basin LONG T Subbasin Surface Area Average Depth Water Temperature Percent Organic Sub	SLOUGH 5 OM RIVER 15000 m ² 1.2 m 21.0 °C bstrate 100%	OTHER: Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace	STRODA5 05/23/00 T15S-R5W-1 cies Collect	- 5N eed: 0 0 0
Site Name STRODA Basin LONG T Subbasin Surface Area Average Depth Water Temperature Percent Organic Sul Types of Aquatic Va	SLOUGH 5 OM RIVER 15000 m ² 1.2 m 21.0 °C bstrate 100% egetation ¹	OTHER: Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace Redside shiner	STRODA5 05/23/00 T15S-R5W-1 cies Collect	- 5N ed: 0 0 0 0
Site Name STRODA Basin LONG T Subbasin Surface Area Average Depth Water Temperature Percent Organic Sul Types of Aquatic V Submergent	SLOUGH 5 OM RIVER 15000 m ² 1.2 m 21.0 °C bstrate 100% egetation ¹ 95%	OTHER: Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace Redside shiner Northern piker	STRODA5 05/23/00 T15S-R5W-1 cies Collect	- 5N ed: 0 0 0 0 0
Site Name STRODA Basin LONG T Subbasin Surface Area Average Depth Water Temperature Percent Organic Sul Types of Aquatic V Submergent Emergent	. SLOUGH 5 OM RIVER 15000 m ² 1.2 m 21.0 °C bstrate 100% egetation ¹ 95% 0%	OTHER: Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace Redside shiner Northern piker Largescale suc	STRODA5 05/23/00 T15S-R5W-1 cies Collect	- .5N .ed: 0 0 0 0 0 0 0
Site Name STRODA Basin LONG T Subbasin Surface Area Average Depth Water Temperature Percent Organic Sub Types of Aquatic V Submergent Emergent Floating	. SLOUGH 5 OM RIVER 15000 m ² 1.2 m 21.0 °C bstrate 100% egetation ¹ 95% 0% 0%	OTHER: Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace Redside shiner Northern piker Largescale suc Sandrollers	STRODA5 05/23/00 T15S-R5W-1 cies Collect	- .5N .ed: 0 0 0 0 0 0 0 0 0 0
Site Name STRODA Basin LONG TH Subbasin Surface Area Average Depth Water Temperature Percent Organic Sub Types of Aquatic Ve Submergent Emergent Floating Algae	SLOUGH 5 OM RIVER 15000 m ² 1.2 m 21.0 °C bstrate 100% egetation ¹ 95% 0% 0% 0%	OTHER: Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace Redside shiner Northern piker Largescale suc Sandrollers Threespine sti	STRODA5 05/23/00 T15S-R5W-1 cies Collect rs minnow ckers icklebacks	- .5N .ed: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Site Name STRODA Basin LONG TH Subbasin Surface Area Average Depth Water Temperature Percent Organic Sub Types of Aquatic Ve Submergent Emergent Floating Algae	SLOUGH 5 OM RIVER 15000 m ² 1.2 m 21.0 °C bstrate 100% egetation ¹ 95% 0% 0% 0%	OTHER: Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace Redside shiner Northern pikem Largescale suc Sandrollers Threespine sti Salmonids-	STRODA5 05/23/00 T15S-R5W-1 cies Collect rs minnow ckers icklebacks	- .5N .ed: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Site Name STRODA Basin LONG T Subbasin Surface Area Average Depth Water Temperature Percent Organic Sul Types of Aquatic V Submergent Emergent Floating Algae	SLOUGH 5 OM RIVER 15000 m ² 1.2 m 21.0 °C bstrate 100% egetation ¹ 95% 0% 0% 0% 0%	OTHER: Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace Redside shiner Northern piker Largescale suc Sandrollers Threespine sti Salmonids- Pacific lampre	STRODA5 05/23/00 T15S-R5W-1 cies Collect rs minnow ckers icklebacks	- .5N .ed: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Site Name STRODA Basin LONG Tr Subbasin Surface Area Average Depth Water Temperature Percent Organic Sub Types of Aquatic Vo Submergent Emergent Floating Algae Aquatic vegetation	SLOUGH 5 OM RIVER 15000 m ² 1.2 m 21.0 °C bstrate 100% egetation ¹ 95% 0% 0% 0% 0% TOTAL 95% genera ²	OTHER: Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace Redside shiner Northern piker Largescale suc Sandrollers Threespine sti Salmonids- Pacific lampre Non-native Fish	STRODA5 05/23/00 T15S-R5W-1 cies Collect rs minnow ckers icklebacks ey Species Col	- .5N 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Site Name STRODA Basin LONG TO Subbasin Surface Area Average Depth Water Temperature Percent Organic Sub Types of Aquatic Vo Submergent Emergent Floating Algae Aquatic vegetation CHAR	SLOUGH 5 OM RIVER 15000 m ² 1.2 m 21.0 °C bstrate 100% egetation ¹ 95% 0% 0% 0% TOTAL 95% genera ² 50%	OTHER: Map Code Sample Date Location Native Fish Spece Oregon chub Cottids Dace Redside shiner Northern piker Largescale suc Sandrollers Threespine sti Salmonids- Pacific lampre Non-native Fish	STRODA5 05/23/00 T15S-R5W-1 cies Collect rs minnow ckers icklebacks ey Species Col	- 5N ed: 0 0 0 0 0 0 0 0 0 0 0 0
Site Name STRODA Basin LONG T Subbasin Surface Area Average Depth Water Temperature Percent Organic Sul Types of Aquatic V Submergent Emergent Floating Algae Aquatic vegetation CHAR POTA	SLOUGH 5 OM RIVER 15000 m ² 1.2 m 21.0 °C bstrate 100% egetation ¹ 95% 0% 0% 0% TOTAL 95% genera ² 50% 30	OTHER: Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace Redside shiner Northern pikem Largescale suc Sandrollers Threespine sti Salmonids- Pacific lampre Non-native Fish Western Mosqui	STRODA5 05/23/00 T15S-R5W-1 cies Collect rs minnow ckers icklebacks ey Species Col itofish	- .5N .ed: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Site Name STRODA Basin LONG T Subbasin Surface Area Average Depth Water Temperature Percent Organic Sul Types of Aquatic V Submergent Emergent Floating Algae Aquatic vegetation CHAR POTA SPAR	SLOUGH 5 OM RIVER 15000 m ² 1.2 m 21.0 °C bstrate 100% egetation ¹ 95% 0% 0% 0% TOTAL 95% genera ² 50% 30 10	OTHER: Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace Redside shiner Northern piker Largescale suc Sandrollers Threespine sti Salmonids- Pacific lampre Non-native Fish Western Mosqui Centrarchids-E	STRODA5 05/23/00 T15S-R5W-1 cies Collect rs minnow ckers icklebacks ey Species Col itofish 3G	- .5N .ed: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Site Name STRODA Basin LONG T Subbasin Surface Area Average Depth Water Temperature Percent Organic Sul Types of Aquatic V Submergent Emergent Floating Algae Aquatic vegetation CHAR POTA SPAR POLY	SLOUGH 5 OM RIVER 15000 m ² 1.2 m 21.0 °C bstrate 100% egetation ¹ 95% 0% 0% 0% 0% 0% 5	OTHER: Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace Redside shiner Northern piker Largescale suc Sandrollers Threespine sti Salmonids- Pacific lampre Non-native Fish Western Mosqui Centrarchids-F Bullheads	STRODA5 05/23/00 T15S-R5W-1 cies Collect rs minnow ckers icklebacks ey Species Col itofish 3G	- .5N .ed: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Site Name STRODA Basin LONG TH Subbasin Surface Area Average Depth Water Temperature Percent Organic Sub Types of Aquatic VA Submergent Emergent Floating Algae Aquatic vegetation CHAR POTA SPAR POLY	SLOUGH 5 OM RIVER	OTHER: Map Code Sample Date Location Native Fish Spec Oregon chub Cottids Dace Redside shiner Northern piker Largescale suc Sandrollers Threespine sti Salmonids- Pacific lampre Non-native Fish Western Mosqui Centrarchids-F Bullheads Carp	STRODA5 05/23/00 T15S-R5W-1 cies Collect rs minnow ckers icklebacks ey Species Col itofish 3G	- .5N .ed: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Site Name	RUSSELL BARN P	OND	Map Code	RUSS1A*
Basin	MCKENZIE RIVER	2	Sample Date	10/11/00
Subbasin	MOHAWK RIVER		Location	T15S-R1W-28SE
Surface Ar	rea	800 m ²	Native Fish Sp	ecies Collected:
Average De	epth	1.8 m		
Water Temp	perature	10.0 °C	Oregon chub	0
Percent Or	ganic Substrate	100%	Cottids	0
			Dace	0
Types of A	Aquatic Vegetatio	, ¹	Redside shine	ers 0
Submerge	ent	25%	Northern pike	eminnow 0
Emergent	:	15%	Largescale s	uckers 0
Floating	J	0%	Sandrollers	0
Algae		0%	Threespine st	ticklebacks 0
_			Salmonids-	0
	TOTAL	40%	Pacific lamp:	rey, O
Aquatic ve	egetation genera ²	2	Non-native Fis	h Species Collected
RANU		15%		
SALI		10	Western Mosqu	uitofish 0
MYRI		10	Centrarchids	- 0
SPAR		5	Bullheads	0
			Carp	0
			OTHER :	NO FISH

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Site Name	CAMAS SWALE	Map Code CS1E	
Basin	COAST FORK WILLAMETTE RIVER	Sample Date 05/17/00	
Subbasin	CAMAS SWALE	Location T19S-R3W-8SE	
Surface Are	a 275 m ²	Native Fish Species Collected:	
Average Dep	th 1.2 m	-	
Water Tempe:	rature 15.0 ^O C	Oregon chub	0
Percent Org	anic Substrate 80%	Cottids	0
		Dace	2
Types of Aq	uatic Vegetation ¹	Redside shiners	0
Submergen	L 0%	Northern pikeminnow	0
Emergent	5%	Largescale suckers	0
Floating	0%	Sandrollers	0
Algae	0%	Threespine sticklebacks	0
<u>5</u>		Salmonids-	0
	TOTAL 5%	Pacific lamprey	0
Aquatic veg	etation genera ²	Non-native Fish Species Collec	ted:
GRAM	5%		
		Western Mosquitofish	0
		Centrarchids-BG	1
		Bullheads	0
		Carp	0
		<u>-</u> -	•
		OTHER:	
Site Name	LAYNG CREEK POND	Map Code LAYNG1*	
Site Name Basin	LAYNG CREEK POND COAST FORK WILLAMETTE RIVER	Map Code LAYNG1* Sample Date 09/26/00	
Site Name Basin Subbasin	LAYNG CREEK POND COAST FORK WILLAMETTE RIVER LAYNG CREEK	Map Code LAYNG1* Sample Date 09/26/00 Location T21S-R1E-22W	
Site Name Basin Subbasin	LAYNG CREEK POND COAST FORK WILLAMETTE RIVER LAYNG CREEK	Map Code LAYNG1* Sample Date 09/26/00 Location T21S-R1E-22W	
Site Name Basin Subbasin Surface Area	LAYNG CREEK POND COAST FORK WILLAMETTE RIVER LAYNG CREEK 2700 m ²	Map Code LAYNG1* Sample Date 09/26/00 Location T21S-R1E-22W Native Fish Species Collected:	
Site Name Basin Subbasin Surface Area Average Dept	LAYNG CREEK POND COAST FORK WILLAMETTE RIVER LAYNG CREEK A 2700 m ² th 1.0 m	Map Code LAYNG1* Sample Date 09/26/00 Location T21S-R1E-22W Native Fish Species Collected:	
Site Name Basin Subbasin Surface Area Average Dept Water Temper	LAYNG CREEK POND COAST FORK WILLAMETTE RIVER LAYNG CREEK a 2700 m ² th 1.0 m tature 14.0 °C	Map Code LAYNG1* Sample Date 09/26/00 Location T21S-R1E-22W Native Fish Species Collected: Oregon chub	0
Site Name Basin Subbasin Surface Area Average Dept Water Temper Percent Orga	LAYNG CREEK POND COAST FORK WILLAMETTE RIVER LAYNG CREEK a 2700 m ² th 1.0 m tature 14.0 °C anic Substrate 100%	Map Code LAYNG1* Sample Date 09/26/00 Location T21S-R1E-22W Native Fish Species Collected: Oregon chub Cottids	0
Site Name Basin Subbasin Surface Area Average Dept Water Temper Percent Orga	LAYNG CREEK POND COAST FORK WILLAMETTE RIVER LAYNG CREEK a. 2700 m ² th 1.0 m rature 14.0 ^O C anic Substrate 100%	Map Code LAYNG1* Sample Date 09/26/00 Location T21S-R1E-22W Native Fish Species Collected: Oregon chub Cottids Dace	0 0 0
Site Name Basin Subbasin Surface Area Average Dept Water Temper Percent Orga Types of Aqu	LAYNG CREEK POND COAST FORK WILLAMETTE RIVER LAYNG CREEK a 2700 m ² th 1.0 m rature 14.0 °C anic Substrate 100%	Map Code LAYNG1* Sample Date 09/26/00 Location T21S-R1E-22W Native Fish Species Collected: Oregon chub Cottids Dace Redside shiners	0 0 0 0
Site Name Basin Subbasin Surface Area Average Dept Water Temper Percent Orga Types of Aqu Submergent	LAYNG CREEK POND COAST FORK WILLAMETTE RIVER LAYNG CREEK a. 2700 m ² th 1.0 m rature 14.0 °C anic Substrate 100% catic Vegetation ¹ t 25%	Map Code LAYNG1* Sample Date 09/26/00 Location T21S-R1E-22W Native Fish Species Collected: Oregon chub Cottids Dace Redside shiners Northern pikeminnow	0 0 0 0
Site Name Basin Subbasin Surface Area Average Dept Water Temper Percent Orga Types of Aqu Submergent Emergent	LAYNG CREEK POND COAST FORK WILLAMETTE RIVER LAYNG CREEK a. 2700 m ² th 1.0 m rature 14.0 °C anic Substrate 100% atic Vegetation ¹ th 25% 68%	Map Code LAYNG1* Sample Date 09/26/00 Location T21S-R1E-22W Native Fish Species Collected: Oregon chub Cottids Dace Redside shiners Northern pikeminnow Largescale suckers	
Site Name Basin Subbasin Surface Area Average Dept Water Temper Percent Orga Types of Aqu Submergent Emergent Floating	LAYNG CREEK POND COAST FORK WILLAMETTE RIVER LAYNG CREEK a. 2700 m ² th 1.0 m rature 14.0 °C anic Substrate 100% atic Vegetation ¹ th 25% 68% 5%	Map Code LAYNG1* Sample Date 09/26/00 Location T21S-R1E-22W Native Fish Species Collected: Oregon chub Cottids Dace Redside shiners Northern pikeminnow Largescale suckers Sandrollers	0 0 0 0 0 0 0
Site Name Basin Subbasin Surface Area Average Dept Water Temper Percent Orga Types of Aqu Submergent Emergent Floating Algae	LAYNG CREEK POND COAST FORK WILLAMETTE RIVER LAYNG CREEK a. 2700 m ² th 1.0 m rature 14.0 °C anic Substrate 100% matic Vegetation ¹ th 25% 68% 5% 0%	<pre>Map Code LAYNG1★ Sample Date 09/26/00 Location T21S-R1E-22W Native Fish Species Collected: Oregon chub Cottids Dace Redside shiners Northern pikeminnow Largescale suckers Sandrollers Threespine sticklebacks</pre>	0 0 0 0 0 0 0 0 0
Site Name Basin Subbasin Surface Area Average Dept Water Temper Percent Orga Types of Aqu Submergent Emergent Floating Algae	LAYNG CREEK POND COAST FORK WILLAMETTE RIVER LAYNG CREEK a 2700 m ² th 1.0 m rature 14.0 °C anic Substrate 100% matic Vegetation ¹ 25% 68% 5% 0%	Map Code LAYNG1* Sample Date 09/26/00 Location T21S-R1E-22W Native Fish Species Collected: Oregon chub Cottids Dace Redside shiners Northern pikeminnow Largescale suckers Sandrollers Threespine sticklebacks Salmonids-	0 0 0 0 0 0 0 0 0 0
Site Name Basin Subbasin Surface Area Average Dept Water Temper Percent Orga Types of Aqu Submergent Emergent Floating Algae	LAYNG CREEK POND COAST FORK WILLAMETTE RIVER LAYNG CREEK a 2700 m ² th 1.0 m rature 14.0 °C anic Substrate 100% matic Vegetation ¹ 25% 68% 5% 0% TOTAL 98%	Map Code LAYNG1* Sample Date 09/26/00 Location T21S-R1E-22W Native Fish Species Collected: Oregon chub Cottids Dace Redside shiners Northern pikeminnow Largescale suckers Sandrollers Threespine sticklebacks Salmonids- Pacific lamprey	0 0 0 0 0 0 0 0 0 0
Site Name Basin Subbasin Surface Area Average Dept Water Temper Percent Orga Types of Aqu Submergent Emergent Floating Algae Aquatic vege	LAYNG CREEK POND COAST FORK WILLAMETTE RIVER LAYNG CREEK a. 2700 m ² th 1.0 m rature 14.0 °C anic Substrate 100% matic Vegetation ¹ 25% 68% 5% 0% TOTAL 98%	Map Code LAYNG1* Sample Date 09/26/00 Location T21S-R1E-22W Native Fish Species Collected: Oregon chub Cottids Dace Redside shiners Northern pikeminnow Largescale suckers Sandrollers Threespine sticklebacks Salmonids- Pacific lamprey Non-native Fish Species Collected	0 0 0 0 0 0 0 0 0 0 0 0 0 0
Site Name Basin Subbasin Surface Area Average Dept Water Temper Percent Orga Types of Aqu Submergent Emergent Floating Algae Aquatic vege TYPH	LAYNG CREEK POND COAST FORK WILLAMETTE RIVER LAYNG CREEK a. 2700 m ² th 1.0 m cature 14.0 °C anic Substrate 100% matic Vegetation ¹ 25% 68% 5% 0% TOTAL 98% etation genera ² 30%	Map Code LAYNG1* Sample Date 09/26/00 Location T21S-R1E-22W Native Fish Species Collected: Oregon chub Cottids Dace Redside shiners Northern pikeminnow Largescale suckers Sandrollers Threespine sticklebacks Salmonids- Pacific lamprey Non-native Fish Species Collected	0 0 0 0 0 0 0 0 0 0 0 0 0
Site Name Basin Subbasin Surface Area Average Dept Water Temper Percent Orga Types of Aqu Submergent Floating Algae Aquatic vege TYPH SPAR	LAYNG CREEK POND COAST FORK WILLAMETTE RIVER LAYNG CREEK a 2700 m ² th 1.0 m rature 14.0 °C anic Substrate 100% matic Vegetation ¹ 25% 68% 5% 0% TOTAL 98% atation genera ² 30% 25	Map Code LAYNG1* Sample Date 09/26/00 Location T21S-R1E-22W Native Fish Species Collected: Oregon chub Cottids Dace Redside shiners Northern pikeminnow Largescale suckers Sandrollers Threespine sticklebacks Salmonids- Pacific lamprey Non-native Fish Species Collect Western Mosquitofish	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Site Name Basin Subbasin Surface Area Average Dept Water Temper Percent Orga Types of Aqu Submergent Floating Algae Aquatic vege TYPH SPAR LEMN	LAYNG CREEK POND COAST FORK WILLAMETTE RIVER LAYNG CREEK a. 2700 m ² th 1.0 m rature 14.0 °C anic Substrate 100% matic Vegetation ¹ 25% 68% 5% 0% TOTAL 98% atation genera ² 30% 25 5	Map Code LAYNG1* Sample Date 09/26/00 Location T21S-R1E-22W Native Fish Species Collected: Oregon chub Cottids Dace Redside shiners Northern pikeminnow Largescale suckers Sandrollers Threespine sticklebacks Salmonids- Pacific lamprey Non-native Fish Species Collect Western Mosquitofish Centrarchids-	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Site Name Basin Subbasin Surface Area Average Dept Water Temper Percent Orga Types of Aqu Submergent Floating Algae Aquatic vege TYPH SPAR LEMN SCIR	LAYNG CREEK POND COAST FORK WILLAMETTE RIVER LAYNG CREEK a. 2700 m ² th 1.0 m tature 14.0 °C anic Substrate 100% matic Vegetation ¹ t 25% 68% 5% 0% TOTAL 98% add 25 5 5 5	Map Code LAYNG1* Sample Date 09/26/00 Location T21S-R1E-22W Native Fish Species Collected: Oregon chub Cottids Dace Redside shiners Northern pikeminnow Largescale suckers Sandrollers Threespine sticklebacks Salmonids- Pacific lamprey Non-native Fish Species Collect Western Mosquitofish Centrarchids- Bullheads	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

63

OTHER:

NO FISH

3

	Map Code BARN1	
Basin MIDDLE FORK WILLAMETTE RIVER	Sample Date 05/02/00	
Subbasin	Location T21S-R2E-1	3SE
Surface Area 980 m ²	Native Fish Species Collect	ed:
Average Depth 0.8 m		
Water Temperature 9.5 °C	Oregon chub	3
Percent Organic Substrate 80%	Cottids	1
	Dace	3
Types of Aquatic Vegetation ¹	Redside shiners	1
Submergent 40%	Northern pikeminnow	0
Emergent 45%	Largescale suckers	0
Floating 5%	Sandrollers	0
Algae 0%	Threespine sticklebacks	0
	Salmonids-CT	4
TOTAL 80%	Pacific lamprey	0
Aquatic vegetation genera ²	Non-native Fish Species Col	lected:
CALI 20%		
OENT 10	Western Mosquitofish	0
GRAM 5	Centrarchids-	0
CARE 20	Bullheads	0
ELOD 20	Carp	0
LEMN 5	our b	0
	OTHER:	
Site Name LOWER BUCKHEAD ENHANCEMENT PND	Map Code BCK14A*	
Racin MIDDLE FORK WILLAMETTE RIVER	Sample Date 09/06/00	
Subbasin BUCKHEAD CREEK	Location T20S-R2E-3	5NW
Subbasin BUCKHEAD CREEK	Location T20S-R2E-3	5NW
Subbasin BUCKHEAD CREEK Surface Area 540 m ²	Location T20S-R2E-3 Native Fish Species Collect	5NW ed:
Subbasin BUCKHEAD CREEK Surface Area 540 m ² Average Depth 1.5 m	Location T20S-R2E-3 Native Fish Species Collect	5NW ed:
Subbasin BUCKHEAD CREEK Surface Area 540 m ² Average Depth 1.5 m Water Temperature 16.0 °C	Location T20S-R2E-3 Native Fish Species Collect Oregon chub	5NW ed: 1
Subbasin BUCKHEAD CREEK Surface Area 540 m ² Average Depth 1.5 m Water Temperature 16.0 °C Percent Organic Substrate 100%	Location T20S-R2E-3 Native Fish Species Collect Oregon chub Cottids	5NW ed: 1 0
Subbasin BUCKHEAD CREEK Surface Area 540 m ² Average Depth 1.5 m Water Temperature 16.0 °C Percent Organic Substrate 100%	Location T20S-R2E-3 Native Fish Species Collect Oregon chub Cottids Dace	5NW ed: 1 0 0
Subbasin BUCKHEAD CREEK Surface Area 540 m ² Average Depth 1.5 m Water Temperature 16.0 °C Percent Organic Substrate 100%	Location T20S-R2E-3 Native Fish Species Collect Oregon chub Cottids Dace Redside shiners	5NW ed: 1 0 0 0
Subbasin BUCKHEAD CREEK Surface Area 540 m ² Average Depth 1.5 m Water Temperature 16.0 °C Percent Organic Substrate 100% Types of Aquatic Vegetation Submergent 62%	Location T20S-R2E-3 Native Fish Species Collect Oregon chub Cottids Dace Redside shiners Northern pikeminnow	5NW ed: 0 0 0 0
Subbasin BUCKHEAD CREEK Surface Area 540 m ² Average Depth 1.5 m Water Temperature 16.0 °C Percent Organic Substrate 100% Types of Aquatic Vegetation ¹ Submergent 62% Emergent 2%	Location T20S-R2E-3 Native Fish Species Collect Oregon chub Cottids Dace Redside shiners Northern pikeminnow Largescale suckers	5NW ed: 0 0 0 0 1
Subbasin BUCKHEAD CREEK Surface Area 540 m ² Average Depth 1.5 m Water Temperature 16.0 °C Percent Organic Substrate 100% Types of Aquatic Vegetation ¹ Submergent 62% Emergent 2% Floating 0%	Location T20S-R2E-3 Native Fish Species Collect Oregon chub Cottids Dace Redside shiners Northern pikeminnow Largescale suckers Sandrollers	5NW ed: 1 0 0 0 0 1 0
Subbasin BUCKHEAD CREEK Surface Area 540 m ² Average Depth 1.5 m Water Temperature 16.0 °C Percent Organic Substrate 100% Types of Aquatic Vegetation ¹ Submergent 62% Emergent 2% Floating 0% Algae 0%	Location T20S-R2E-3 Native Fish Species Collect Oregon chub Cottids Dace Redside shiners Northern pikeminnow Largescale suckers Sandrollers Threespine sticklebacks	ed: 1 0 0 0 0 1 0 0 0 0
Subbasin EUCKHEAD CREEK Surface Area 540 m ² Average Depth 1.5 m Water Temperature 16.0 °C Percent Organic Substrate 100% Types of Aquatic Vegetation ¹ Submergent 62% Emergent 2% Floating 0% Algae 0%	Location T20S-R2E-3 Native Fish Species Collect Oregon chub Cottids Dace Redside shiners Northern pikeminnow Largescale suckers Sandrollers Threespine sticklebacks Salmonids-	ed: 1 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0
Subbasin BUCKHEAD CREEK Surface Area 540 m ² Average Depth 1.5 m Water Temperature 16.0 °C Percent Organic Substrate 100% Types of Aquatic Vegetation ¹ Submergent 62% Emergent 2% Floating 0% Algae 0% TOTAL 64%	Location T20S-R2E-3 Native Fish Species Collect Oregon chub Cottids Dace Redside shiners Northern pikeminnow Largescale suckers Sandrollers Threespine sticklebacks Salmonids- Pacific lamprey	5NW ed: 1 0 0 0 0 1 0 0 0 0 0 0
Subbasin BUCKHEAD CREEK Surface Area 540 m ² Average Depth 1.5 m Water Temperature 16.0 °C Percent Organic Substrate 100% Types of Aquatic Vegetation ¹ Submergent 62% Emergent 2% Floating 0% Algae 0% TOTAL 64% Aquatic vegetation genera ²	Location T20S-R2E-3 Native Fish Species Collect Oregon chub Cottids Dace Redside shiners Northern pikeminnow Largescale suckers Sandrollers Threespine sticklebacks Salmonids- Pacific lamprey Non-native Fish Species Col	5NW ed: 1 0 0 0 0 1 0 0 0 0 0 0 0 0
Subbasin BUCKHEAD CREEK Surface Area 540 m ² Average Depth 1.5 m Water Temperature 16.0 °C Percent Organic Substrate 100% Types of Aquatic Vegetation ¹ Submergent 62% Emergent 2% Floating 0% Algae 0% TOTAL 64% Aquatic vegetation genera ² ELOD 60%	Location T20S-R2E-3 Native Fish Species Collect Oregon chub Cottids Dace Redside shiners Northern pikeminnow Largescale suckers Sandrollers Threespine sticklebacks Salmonids- Pacific lamprey Non-native Fish Species Col	5NW ed: 1 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0
Subbasin BUCKHEAD CREEK Surface Area 540 m ² Average Depth 1.5 m Water Temperature 16.0 °C Percent Organic Substrate 100% Types of Aquatic Vegetation ¹ Submergent 2% Floating 0% Algae 0% TOTAL 64% Aquatic vegetation genera ² ELOD 60% CALI 2	Location T20S-R2E-3 Native Fish Species Collect Oregon chub Cottids Dace Redside shiners Northern pikeminnow Largescale suckers Sandrollers Threespine sticklebacks Salmonids- Pacific lamprey Non-native Fish Species Col Western Mosquitofish	5NW ed: 1 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Subbasin BUCKHEAD CREEK Surface Area 540 m ² Average Depth 1.5 m Water Temperature 16.0 °C Percent Organic Substrate 100% Types of Aquatic Vegetation ¹ Submergent 2% Floating 0% Algae 0% TOTAL 64% Aquatic vegetation genera ² ELOD 60% CALI 2 SPAR 2	Location T20S-R2E-3 Native Fish Species Collect Oregon chub Cottids Dace Redside shiners Northern pikeminnow Largescale suckers Sandrollers Threespine sticklebacks Salmonids- Pacific lamprey Non-native Fish Species Col Western Mosquitofish Centrarchids-	5NW ed: 1 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Subbasin EUCKHEAD CREEK Surface Area 540 m ² Average Depth 1.5 m Water Temperature 16.0 °C Percent Organic Substrate 100% Types of Aquatic Vegetation ¹ Submergent 62% Emergent 2% Floating 0% Algae 0% TOTAL 64% Aquatic vegetation genera ² ELOD 60% CALI 2 SPAR 2	Location T20S-R2E-3 Native Fish Species Collect Oregon chub Cottids Dace Redside shiners Northern pikeminnow Largescale suckers Sandrollers Threespine sticklebacks Salmonids- Pacific lamprey Non-native Fish Species Col Western Mosquitofish Centrarchids- Bullheads	5NW ed: 1 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Subbasin EUCKHEAD CREEK Surface Area 540 m ² Average Depth 1.5 m Water Temperature 16.0 °C Percent Organic Substrate 100% Types of Aquatic Vegetation ¹ Submergent 62% Emergent 2% Floating 0% Algae 0% TOTAL 64% Aquatic vegetation genera ² ELOD 60% CALI 2 SPAR 2	Location T20S-R2E-3 Native Fish Species Collect Oregon chub Cottids Dace Redside shiners Northern pikeminnow Largescale suckers Sandrollers Threespine sticklebacks Salmonids- Pacific lamprey Non-native Fish Species Col Western Mosquitofish Centrarchids- Bullheads Carp	5NW ed: 1 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0
Subbasin EUCKHEAD CREEK Surface Area 540 m ² Average Depth 1.5 m Water Temperature 16.0 °C Percent Organic Substrate 100% Types of Aquatic Vegetation ¹ Submergent 2% Floating 0% Algae 0% TOTAL 64% Aquatic vegetation genera ² ELOD 60% CALI 2 SPAR 2	Location T20S-R2E-3 Native Fish Species Collect Oregon chub Cottids Dace Redside shiners Northern pikeminnow Largescale suckers Sandrollers Threespine sticklebacks Salmonids- Pacific lamprey Non-native Fish Species Col Western Mosquitofish Centrarchids- Bullheads Carp	5NW ed: 1 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Site Name	MIDDLE BUCKHEAD	ENHANCEMENT PD	Map Code	BCK15A*
Basin	MIDDLE FORK WIL	LAMETTE RIVER	Sample Date	09/06/00
Subbasin	BUCKHEAD CREEK		Location	T20S-R2E-35NW
Surface Are	a	500 m ²	Native Fish Sp	ecies Collected:
Average Dep	oth	0.7 m		
Water Tempe	erature	19.0 [°] C	Oregon chub	3
Percent Org	ganic Substrate	90%	Cottids	0
		-	Dace	6
Types of Aq	matic Vegetation	1	Redside shine	ers O
Submergen	it	67%	Northern pike	eminnow O
Emergent		25%	Largescale s	uckers 0
Floating		5%	Sandrollers	0
Algae		0%	Threespine st	icklebacks 0
			Salmonids-	0
	TOTAL	97%	Pacific lamp:	rey 0
Amatic wee	vetation genera ²		Non-native Fiel	Engling Collected.
FLOD	ecación genera	65%	Non-nacive Fib	i species collected:
SPAR		20	Western Moso	vitofish 0
T.FMN		5	Centrarchide	- 0
GRAM		5	Bullheads	
CALT		2	Carp	0
01121		2	carp	Ŭ
			OTHER :	
Site Name	LOWER BUCKHEAD	ENHANCEMENT DND	Man Code	BCK163*
Sice name	LOUDA DOCALLID		hup couc	DERION
Basin	MIDDLE FORK WIL	LAMETTE RIVER	Sample Date	09/06/00
Subbasin	BUCKHEAD CREEK		Location	T20S-R2E-35NW
		2		
Surface Are	a	630 m	Native Fish Spe	cies Collected:
Average Dep	th	1.0 m		
Water Tempe	rature	17.0 °C	Oregon chub	0
Percent Org	anic Substrate	80%	Cottids	0
		1	Dace	0
Types or Aq	uatic vegetation		Redside shine	ers 0
Submergen	C.	28	Northern pike	
Electing		16	Largescare st	ickers 0
Ploating		0	Three prices	
AIGae			Salmonida-	ICKIEDACKS 0
	TOTAL	9 %	Pacific lamp	ev 0
	101110	20	racific ramp	cy 0
Aquatic veg	etation genera ²		Non-native Fish	Species Collected:
SPAR	_	5%		
GRAM		2	Western Mosqu	itofish 0
CALI		2	Centrarchids-	0
			Bullheads	0
			Carp	0
			OTHER :	NO FISH

Site Name	MIDDLE BUCKHEAI	CK BEAVER PNDS	Map Code	BCK9-11B	
Basin	MIDDLE FORK WII	LAMETTE RIVER	Sample Date	05/16/00	
Subbasin	BUCKHEAD CREEK		Location	T205-R2E-	36SW
Curfage Ar	AD	0040 m ²	Nativo Fich Ca	naina Galles	
Surface Ar	ea	9040 m	Native fish Sp	ecies Collec	tea:
Average De	ptn	0.8 m			
Water Temp	erature	13.0 °C	Oregon chub		3573
Percent Or	ganic Substrate	100%	Cottids		2
		1	Dace		1766
Types of A	quatic Vegetation	1	Redside shine	ers	3585
Submerge	nt	70%	Northern pik	eminnow	10
Emergent		20%	Largescale s	uckers	6
Floating		0%	Sandrollers		0
Algae		0%	Threespine s	ticklebacks	0
	-		Salmonids-		0
	TOTAL	90%	Pacific lamp	rey	0
Amostia wa	retation genera ²		Non-nativo Fiel	h Emoging Co	llogtode
Aquatic ve	getation genera	2.8	NON-MACIVE FIS.	n species co	Trected:
CARE		2%	Martin Martin		0
POLĂ		10	Western Mosq	ltotish	0
CERA		50	Centrarchids	-	0
CALI		5	Bullheads		0
GRAM		18	Carp		0
ELOD		5			
			OTHER:		
Site Name	JASPER PARK SLO	DUGH	Map Code	CAPIE	
D	VIDDIE DODY UI				
Basin	MIDDLE FORK WIL	SLAMETTE RIVER	Sample Date	05/11/00	0.0.014
Subbasin			Location	1185-R2W-	235W
Surface Ar	ea	4000 m^2	Native Fish Sp	ecies Collec	ted:
Average De	nth	1.5 m	-		
Water Temp	erature	10 5 °C	Gregon chub		0
Dergont Or	ania Substrate	100%	Cottide		0
reicent or	ganic Subsciace	1008	Dace		0
There a f A	matic Vecetation	1	Pedeide chin	erc	0
Types of A	quatic vegetation	• •	Nexthern sile	515 emimper	0
Submerge	nt	90%	Northern pix	womminew	0
Emergent		0*	Largescale s	JCKETS	0
Floating		5%	Sandrollers		0
Algae		5%	Threespine s	ticklebacks	48
	-		Salmonids-		0
	TOTAL	100%	Pacific lamp	rey	0
Aquatic ve	getation genera ²		Non-native Fis	h Species Co	llected:
ELOD		60%			
SPAR		lO	Western Mosa	uitofish	7
CHAR		20	Centrarchide	- I.B	1
LEWN		5	Pullbade		- 0
LEMN		5	Corr		0
LTTW		5	Carb		0
			OTHER:		

Site Name	DEXTER WEST ALC	COVE	Map Code	DEX1D
Basin	MIDDLE FORK WII	LAMETTE RIVER	Sample Date	05/03/00
Subbasin			Location	T19S-R1W-23NE
_		2		
Surface Are	a	200 m ⁻	Native Fish Spe	cies Collected:
Average Dep	th	0.7 m		
Water Tempe	rature	10.5 C	Oregon chub	0
Percent Org	anic Substrate	100%	Cottids	0
		1	Dace Rodeido obie	0
Types of Aq	uatic vegetation	1	Reaside shine	rs u
Submergen	L.	15%	Northern pike	minnow 0
Emergent		15%	Largescale su	ckers U
Floating		0%	Sandrollers	
Algae		08	Inreespine st	ICKIEDACKS 0
	-		Salmonids-	0
	TOTAL	30%	Pacific lampr	ey 0
Aquatic veg	etation genera ²		Non-native Fish	Species Collected
SYMP		10%		
ELOD		15	Western Mosqu	itofish 0
SPAR		5	Centrarchids-	0
			Bullheads	0
			Carp	0-
			OTUED.	NO ETCH
			OTHER:	NO FISH
Site Name	DEXTER ALCOVE "	RV"	Map Code	DEX3F*
Basin	MIDDLE FORK WIL	LAMETTE RIVER	Sample Date	09/20/00
Subbasin			Location	T19S-R1E-16SE
Surface Are	2	1080 m ²	Native Fich Spa	aion Collegted.
Juniace Are	a +	1080 m	Native Fian Spe	cies corrected.
Watar Torra			Oregon shub	076
Nater Tempe	ania Subatrato	17.0 C	Cottida	078
Fercent org	anic Substrate	100%	Daga	0
		1	Dace Dedeido chizo	~ 0
Cubrorger	-	C 2 %	Northern nike	
Emorgont		02° 20%	Lorgoggalo gu	akorg 0
Emergent		20%	Largescare su	ckers 0
Floating		03	Sandrollers	. U
Algae		0*	Inreespine st	ICKIEDACKS U
	·		Salmonids-	0
	TOTAL	83%	Pacific lampr	ey 0
Aquatic veg	etation genera ²		Non-native Fish	Species Collected:
POTA	-	10%		
MYRI		50	Western Mosqu	itofish 0
GRAM		10	Centrarchids-	0
ELEO		5	Bullheads	0
POLY		3	Carp	0
SCIR		5	*	
			OTHER:	

	RISTOW BEAVER POND	Map Code EB10	G		
Basin MIDDLE F	ORK WILLAMETTE RIVER	Sample Date 05/0	9/00		
Subbasin ELIJAH B	RISTOW	Location T19S	-R1W-5SW		
Surface Area	6991 m ²	Native Fish Species C	collected:		
Average Depth	1.1 m				
Water Temperature	14.5 [°] C	Oregon chub	1185		
Percent Organic Subs	trate 100%	Cottids	0		
	1	Dace	17		
Types of Aquatic Veg	etation	Redside shiners	· 408		
Submergent	95%	Northern pikeminnow	0		
Emergent	3%	Largescale suckers	0		
Floating	2%	Sandrollers	0		
Algae	0%	Threespine stickleb	acks 33		
		Salmonids-	0		
Т	OTAL 100%	Pacific lamprey	0		
Aquatic vegetation g	enera ²	Non-native Fish Speci	es Collected:		
CALI	15%				
ELOD	70	Western Mosquitofis	sh O		
POLY	5	Centrarchids-BG	1		
SPAR	5	Bullheads	0		
GRAM	3	Carp	0		
LEMN	2				
		OTHER :			
Site Name E.BRISTO	W ST PK LGE GRAVEL PIT	Map Code EB13	C*		
Basin MIDDLE F	ORK WILLAMETTE RIVER	Sample Date 09/2	5/00		
Subbasin ELIJAH B	RISTOW	Location T19S	S-R1W-5SW		
	2				
Surface Area	2400 m ²	Native Fish Species C	Collected:		
Surface Area Average Depth	2400 m ² 1.3 m	Native Fish Species C	Collected:		
Surface Area Average Depth Water Temperature	2400 m ² 1.3 m 16.0 [°] C	Native Fish Species C	Collected:		
Surface Area Average Depth Water Temperature Percent Organic Subs	2400 m ² 1.3 m 16.0 ^O C trate 70%	Native Fish Species C Oregon chub Cottids	Collected: 0 1		
Surface Area Average Depth Water Temperature Percent Organic Subs	2400 m ² 1.3 m 16.0 [°] C trate 70%	Native Fish Species C Oregon chub Cottids Dace	Collected: 0 1 6		
Surface Area Average Depth Water Temperature Percent Organic Subs	2400 m ² 1.3 m 16.0 °C trate 70% etation ¹	Native Fish Species C Oregon chub Cottids Dace Redside shiners	Collected: 0 1 6 4		
Surface Area Average Depth Water Temperature Percent Organic Subs Types of Aquatic Veg Submergent	2400 m ² 1.3 m 16.0 °C trate 70% etation ¹ 50%	Native Fish Species C Oregon chub Cottids Dace Redside shiners Northern pikeminnow	Collected: 0 1 6 4 7 0		
Surface Area Average Depth Water Temperature Percent Organic Subs Types of Aquatic Veg Submergent Emergent	2400 m ² 1.3 m 16.0 °C trate 70% retation ¹ 50% 15%	Native Fish Species C Oregon chub Cottids Dace Redside shiners Northern pikeminnow Largescale suckers	Collected: 0 1 6 4 7 0 0		
Surface Area Average Depth Water Temperature Percent Organic Subs Types of Aquatic Veg Submergent Emergent Floating	2400 m ² 1.3 m 16.0 °C trate 70% retation ¹ 50% 15% 0%	Native Fish Species C Oregon chub Cottids Dace Redside shiners Northern pikeminnow Largescale suckers Sandrollers	Collected: 0 1 6 4 7 0 0 0		
Surface Area Average Depth Water Temperature Percent Organic Subs Types of Aquatic Veg Submergent Emergent Floating Algae	2400 m ² 1.3 m 16.0 °C trate 70% retation ¹ 50% 15% 0% 0%	Native Fish Species C Oregon chub Cottids Dace Redside shiners Northern pikeminnow Largescale suckers Sandrollers Threespine stickleb	Collected: 0 1 6 4 7 0 0 0 0 0 0 0 0 0 0 0 0 0		
Surface Area Average Depth Water Temperature Percent Organic Subs Types of Aquatic Veg Submergent Emergent Floating Algae	2400 m ² 1.3 m 16.0 °C trate 70% retation ¹ 50% 15% 0% 0%	Native Fish Species C Oregon chub Cottids Dace Redside shiners Northern pikeminnow Largescale suckers Sandrollers Threespine stickleb Salmonids-	Collected: 0 1 6 4 0 0 0 0 0 0 0 0 0 0 0 0 0		
Surface Area Average Depth Water Temperature Percent Organic Subs Types of Aquatic Veg Submergent Emergent Floating Algae	2400 m ² 1.3 m 16.0 °C trate 70% retation ¹ 50% 15% 0% 0% 0%	Native Fish Species C Oregon chub Cottids Dace Redside shiners Northern pikeminnow Largescale suckers Sandrollers Threespine stickleb Salmonids- Pacific lamprey	Collected: 0 1 6 4 0 0 0 0 0 0 0 0 0 0 0 0 0		
Surface Area Average Depth Water Temperature Percent Organic Subs Types of Aquatic Veg Submergent Emergent Floating Algae	2400 m ² 1.3 m 16.0 °C trate 70% retation ¹ 50% 15% 0% 0% 0%	Native Fish Species C Oregon chub Cottids Dace Redside shiners Northern pikeminnow Largescale suckers Sandrollers Threespine stickleb Salmonids- Pacific lamprey	Collected: 0 1 6 4 7 0 0 0 0 0 0 0 0 0 0 0 0 0		
Surface Area Average Depth Water Temperature Percent Organic Subs Types of Aquatic Veg Submergent Emergent Floating Algae T Aquatic vegetation g	2400 m ² 1.3 m 16.0 °C retation ¹ 50% 15% 0% 0% 0% 0% 0% 0% 0% 0%	Native Fish Species C Oregon chub Cottids Dace Redside shiners Northern pikeminnow Largescale suckers Sandrollers Threespine stickleb Salmonids- Pacific lamprey Non-native Fish Speci	Collected: 0 1 6 4 0 0 0 0 0 0 0 0 0 0 0 0 0		
Surface Area Average Depth Water Temperature Percent Organic Subs Types of Aquatic Veg Submergent Emergent Floating Algae T Aquatic vegetation g MYRI	2400 m ² 1.3 m 16.0 °C trate 70% retation ¹ 50% 15% 0% 0% 0% 0% 40%	Native Fish Species C Oregon chub Cottids Dace Redside shiners Northern pikeminnow Largescale suckers Sandrollers Threespine stickleb Salmonids- Pacific lamprey Non-native Fish Speci	Collected: 0 1 6 4 0 0 0 0 0 0 0 0 0 0 0 0 0		
Surface Area Average Depth Water Temperature Percent Organic Subs Types of Aquatic Veg Submergent Emergent Floating Algae T Aquatic vegetation g MYRI GRAM	2400 m ² 1.3 m 16.0 °C trate 70% retation ¹ 50% 15% 0% 0% 0% 0% 0% 15% 15% 0% 15% 10% 15% 15% 15% 15% 15% 15% 15% 15	Native Fish Species C Oregon chub Cottids Dace Redside shiners Northern pikeminnow Largescale suckers Sandrollers Threespine stickleb Salmonids- Pacific lamprey Non-native Fish Speci Western Mosquitofis	Collected: 0 1 6 4 7 0 0 0 0 0 0 0 0 0 0 0 0 0		
Surface Area Average Depth Water Temperature Percent Organic Subs Types of Aquatic Veg Submergent Emergent Floating Algae T Aquatic vegetation g MYRI GRAM ELOD	2400 m ² 1.3 m 16.0 °C trate 70% retation ¹ 50% 15% 0% 0% 0% 0% 0% 15% 10% 10% 10% 10% 10% 10% 10% 10	Native Fish Species C Oregon chub Cottids Dace Redside shiners Northern pikeminnow Largescale suckers Sandrollers Threespine stickleb Salmonids- Pacific lamprey Non-native Fish Speci Western Mosquitofis Centrarchids-BG	Collected: 0 1 6 4 0 0 0 0 0 0 0 0 0 0 0 0 0		
Surface Area Average Depth Water Temperature Percent Organic Subs Types of Aquatic Veg Submergent Emergent Floating Algae T Aquatic vegetation g MYRI GRAM ELOD JUNC	2400 m ² 1.3 m 16.0 °C trate 70% retation ¹ 50% 15% 0% 0% 0% 0% 0% 15% 0% 15% 0% 0% 15% 0% 0% 0% 5%	Native Fish Species C Oregon chub Cottids Dace Redside shiners Northern pikeminnow Largescale suckers Sandrollers Threespine stickleb Salmonids- Pacific lamprey Non-native Fish Speci Western Mosquitofis Centrarchids-BG Bullheads	Collected: 0 1 6 4 0 0 0 0 0 0 0 0 0 0 0 0 0		
Surface Area Average Depth Water Temperature Percent Organic Subs Types of Aquatic Veg Submergent Emergent Floating Algae T Aquatic vegetation g MYRI GRAM ELOD JUNC	2400 m ² 1.3 m 16.0 °C trate 70% retation ¹ 50% 15% 0% 0% 0% 0% 0% 10 10 5	Native Fish Species C Oregon chub Cottids Dace Redside shiners Northern pikeminnow Largescale suckers Sandrollers Threespine stickleb Salmonids- Pacific lamprey Non-native Fish Speci Western Mosquitofis Centrarchids-BG Bullheads Carp	Collected: 0 1 6 4 7 0 0 0 0 0 0 0 0 0 0 0 0 0		
Site Name	E.BRISTOW ST P	K SM GRAVEL PIT	Map Code	EB15C*	
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Basin	MIDDLE FORK WI	LLAMETTE RIVER	Sample Date	09/25/00	
Subbasin	ELIJAH BRISTOW	1	Location	T19S-R1W-	8NE
		2			
Surface Are	a	120 m	Native Fish Sp	ecies Collec	ted:
Average Dep		0.6 m	Oregon shub		0
Water Tempe	stature				1
Percent org	Janic Substrate	50%	Dage		1
Types of Ac	matic Vegetatio	, ¹	Redside shin	ers	0
Submerger	t	65%	Northern nik	eminnow	0
Emergent		25%	Largescale s	uckers	0
Floating		10%	Sandrollers		0
Algae		0%	Threespine s	ticklebacks	0
5			Salmonids-		0
	TOTAL	100%	Pacific lamp	rey	0
			-	-	
Aquatic veg	getation genera ²		Non-native Fis	h Species Co	llected:
LEMN		10%			
MYRI		40	Western Mosq	uitofish	0
ELOD		20	Centrarchids	-	0
SPAR		10	Bullheads		0
GRAM		15	Carp		0
CHAR		5			
			OTHER:		
Site Name	ELIJAH BRISTOW	NORTH SHORE BW	Map Code	EBN1B	
Basin	MIDDLE FORK WI	LLAMETTE RIVER	Sample Date	05/15/00	
Subbasin	ELIJAH BRISTOW		Location	T19S-R1W-	9N
Surface Are	a	1800 m ²	Native Fish Sp	ecies Collec	ted:
Average Dep	oth	1.2 m			
Water Tempe	erature	11.0 ^o C	Oregon chub		1170
Percent Org	anic Substrate	100%	Cottids		2
			Dace		335
Types of Aq	matic Vegetatio	n^{\perp}	Redside shin	ers	95
Submergen	it	55%	Northern pik	eminnow	2
Emergent		10%	Largescale s	uckers	0
Floating		30%	Sandrollers		0
Algae		0%	Threespine s	ticklebacks	0
			Salmonids-		0
	TOTAL	95%	Pacific lamp	rey .	0
Aquatic veg	etation genera ²		Non-native Fis	h Species Co	llected:
POTA	-	10%			
NUPH		30	Western Mosq	uitofish	0
CHAR		10	Centrarchids	-	0
POLY		5	Bullheads		0
GRAM					
		10	Carp		0
ELOD		10 20	Carp		0
ELOD		10 20 10	Carp OTHER:		0

Site Name	FALL CREEK SPILLWAY PONDS	Map Code	FCSP1-2G*	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sample Date	09/26/00	
Subbasin	FALL CREEK	Location	T195-R1W-1	L5W
	2			
Surface Ar	ea 11329 m ²	Native Fish Sp	ecies Collect	ed:
Average De	pth 1.2 m			
Water Temp	erature 23.0 C	Oregon chub		5034
Percent Or	ganic Substrate 100%	Cottids		0
	1	Dace		3094
Types of A	quatic Vegetation ⁻	Redside shin	ers	0
Submerge	nt 25%	Northern pik	eminnow	0
Emergent	75%	Largescale s	uckers	0
Floating	0%	Sandrollers		0
Algae	0%	Threespine s	ticklebacks	0
		Salmonids-		0
	TOTAL 100%	Pacific lamp	rey	0
Aquatic ve	getation genera ²	Non-native Fis	h Species Col	lected:
POTA	5%			
MYRI	20	Western Mosq	uitofish	0
SPAR	7	Centrarchids	-	0
JUNC	15	Bullheads		0
ELEO	1	Carp		0
SALI	7			
TYPH	45	OTHER :		
Site Name	EAST FERRIN POND	Map Code	FP3I	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sample Date	05/03/00	
Subbasin	FERRIN CREEK	Location	T21S-R2E-1	3SE
Surface Ar	ea 17000 m ²	Native Fish Sp	ecies Collect	ed:
Average De	pth 1.2 m			
Water Temp	erature 14.5 °C	Oregon chub		0
Percent Or	ganic Substrate 95%	Cottids		0
	-	Dace		0
Types of A	quatic Vegetation ¹	Redside shin	ers	0
Submerge	nt 53%	Northern pik	eminnow	0
Emergent	37%	Largescale s	uckers	0
Floating	4%	Sandrollers		0
Algae	0%	Threespine s	ticklebacks	0
		Salmonids-		0
	TOTAL 94%	Pacific lamp	rey	0
Aquatic ve	getation genera ²	Non-native Fis	h Species Col	lected:
TYPH	30%		-	
POTA	50	Western Mosq	uitofish 1	0000
SPAR	3	Centrarchids	-LB	50
GRAM	5	Bullheads		0
NUPH	2	Carp		0
FLEO		-		
	2			

Site Name	EAST FERRIN POND	Map Code	FP3J*
Basin	MIDDLE FORK WILLAMETTE RIVER	Sample Date	09/07/00
Subbasin	FERRIN CREEK	Location	T21S-R2E-13SE
Surface Are	a 17000 m ²	Native Fish Spec	ies Collected:
Average Dep	th 1.2 m		
Water Tempe	rature 14.0 °C	Oregon chub	28
Percent Org	anic Substrate 100%	Cottids	0
		Dace	0
Types of Ag	watic Vegetation ¹	Redside shiner	s 0
Submergen	t 20%	Northern pikem	, č innow 0
Emergent	42%	Largescale such	rers 0
Floating	30%	Sandrollers	0
Algae	08	Threespine sti	rklebacks 0
Aigue		Salmonida.	ATEDACKS 0
	TOTAL 92%	Pacific lamprey	<i>r</i> 0
3-notia nog	etation genera ²	Non-nativo Figh (Postor Collested.
TYPE	ans	NUL-HALIVE FISH :	pecies corrected:
DOWN	30%	Western Mesquit	ofich 10000
POIA	20	Western Mosquit	
SPAR	5		3 28
GRAM	2	Bulineads	. 0
NUPH	5	Carp	0
AZOL	25		
SCIR	5	OTHER :	<u>.</u>
Site Name Basin Subbasin	HOSPITAL IMPOUNDMENT POND	Map Code Sample Date Location	HI1G* - 09/05/00 T20S-R2W-20E
	2		
Surface Area	a 1768 m ²	Native Fish Speci	es Collected:
Average Dep	th 1.5 m		
Water Tempe:	rature 14.0 ^O C	Oregon chub	0
Percent Orga	anic Substrate 100%	Cottids	104
		Dace	1
Types of Aq	uatic Vegetation ¹	Redside shiners	0
Submergen	5% ·	Northern pikemi	nnow 4
Emergent	24%	Largescale suck	ers 3
Floating	0%	Sandrollers	0
Algae	5%	Threespine stic	klebacks 0
		Salmonids-CH	1
	TOTAL 64%	Pacific lamprey	. 0
Aquatic veg	etation genera ²	Non-native Fish S	pecies Collected:
MYRI	15%		
GRAM	20	Western Mosquit	ofish 0
ELOD	20	Centrarchids-LE	5
FILA	5	Bullheads	0
SPAR	2	Carp	0
ELEO	2		-
	·	OTHER:	

Site Name HOSPITAL POND		Map Code	HSP1H	
Basin MIDDLE FORK WI	LLAMETTE RIVER	Sample Date	05/01/00	
Subbasin		Location	T20S-R2E-	21SW
Surface Area	4442 m ²	Native Fish Spe	cies Collec	ted:
Average Depth	2.5 m			
Water Temperature	10.5 [°] C	Oregon chub		2976
Percent Organic Substrate	100%	Cottids		32
		Dace		2
Types of Aquatic Vegetatio	n ¹	Redside shine	ers	975
Submergent	40%	Northern pike	minnow ·	0
Emergent	25%	Largescale su	ickers	0
Floating	5%	Sandrollers		0
Algae	10%	Threespine st	icklebacks	0
		Salmonids-CT		2
TOTAL	80%	Pacific lamp	ey	0
Aquatic vegetation genera ²		Non-native Fish	Species Co	llected:
GRAM	25%			
ELOD	40	Western Mosqu	litofish	0
AZOL	5	Centrarchids-		0
FILA	10	Bullheads		0
		Carp		0
		OTHER :		
Site Name EAST FORK MINN	OW CREEK POND	Map Code	MNW1I*	
Basin MIDDLE FORK WI	LLAMETTE RIVER	Sample Date	09/18/00	
Subbasin MINNOW CREEK		Location	T19S-R1E-	30NE
Surface Area	7122 m ²	Native Fish Spe	cies Collec	ted:
Surface Area Average Depth	7122 m ² 0.8 m	Native Fish Spe	cies Collec	ted:
Surface Area Average Depth Water Temperature	7122 m ² 0.8 m 19.0 ^o C	Native Fish Spe Oregon chub	cies Collec:	ted: 5051
Surface Area Average Depth Water Temperature Percent Organic Substrate	7122 m ² 0.8 m 19.0 [°] C 100%	Native Fish Spe Oregon chub Cottids	cies Collec	ted: 5051 0
Surface Area Average Depth Water Temperature Percent Organic Substrate	7122 m ² 0.8 m 19.0 ^O C 100%	Native Fish Spe Oregon chub Cottids Dace	cies Collec	ted: 5051 0 1871
Surface Area Average Depth Water Temperature Percent Organic Substrate Types of Aquatic Vegetatio	7122 m ² 0.8 m 19.0 °C 100%	Native Fish Spe Oregon chub Cottids Dace Redside shine	cies Collec ers	ted: 5051 0 1871 1458
Surface Area Average Depth Water Temperature Percent Organic Substrate Types of Aquatic Vegetatic Submergent	7122 m ² 0.8 m 19.0 °C 100% n¹ 5%	Native Fish Spe Oregon chub Cottids Dace Redside shine Northern pike	ecies Collec ers minnow	ted: 5051 0 1871 1458 2
Surface Area Average Depth Water Temperature Percent Organic Substrate Types of Aquatic Vegetatic Submergent Emergent	7122 m ² 0.8 m 19.0 °C 100% n¹ 5% 95%	Native Fish Spe Oregon chub Cottids Dace Redside shine Northern pike Largescale su	ecies Collec	ted: 5051 0 1871 1458 2 0
Surface Area Average Depth Water Temperature Percent Organic Substrate Types of Aquatic Vegetatic Submergent Emergent Floating	7122 m ² 0.8 m 19.0 °C 100% m ¹ 5% 95% 0%	Native Fish Spe Oregon chub Cottids Dace Redside shine Northern pike Largescale su Sandrollers	ers minnow ckers	ted: 5051 0 1871 1458 2 0 0
Surface Area Average Depth Water Temperature Percent Organic Substrate Types of Aquatic Vegetatic Submergent Emergent Floating Algae	7122 m ² 0.8 m 19.0 °C 100% n ¹ 5% 95% 0% 0%	Native Fish Spe Oregon chub Cottids Dace Redside shine Northern pike Largescale su Sandrollers Threespine st	ers ers minnow cckers icklebacks	ted: 5051 0 1871 1458 2 0 0 0 0
Surface Area Average Depth Water Temperature Percent Organic Substrate Types of Aquatic Vegetatic Submergent Emergent Floating Algae	7122 m ² 0.8 m 19.0 °C 100% n ¹ 5% 95% 0% 0%	Native Fish Spe Oregon chub Cottids Dace Redside shine Northern pike Largescale su Sandrollers Threespine st Salmonids-	ers minnow uckers icklebacks	ted: 5051 0 1871 1458 2 0 0 0 0 0 0
Surface Area Average Depth Water Temperature Percent Organic Substrate Types of Aquatic Vegetatic Submergent Emergent Floating Algae TOTAL	7122 m ² 0.8 m 19.0 °C 100% n ¹ 5% 95% 0% 0% 0%	Native Fish Spe Oregon chub Cottids Dace Redside shine Northern pike Largescale su Sandrollers Threespine st Salmonids- Pacific lamp	ecies Collec	ted: 5051 0 1871 1458 2 0 0 0 0 0 0 0 0 0 0 0
Surface Area Average Depth Water Temperature Percent Organic Substrate Types of Aquatic Vegetation Submergent Emergent Floating Algae TOTAL Aquatic vegetation genera ²	7122 m ² 0.8 m 19.0 °C 100% n ¹ 5% 95% 0% 0% 0%	Native Fish Spe Oregon chub Cottids Dace Redside shine Northern pike Largescale su Sandrollers Threespine st Salmonids- Pacific lamp Non-native Fish	ers ers minnow uckers icklebacks rey Species Co	ted: 5051 0 1871 1458 2 0 0 0 0 0 0 0 0 0 0
Surface Area Average Depth Water Temperature Percent Organic Substrate Types of Aquatic Vegetation Submergent Emergent Floating Algae TOTAL Aquatic vegetation genera ² TYPH	7122 m ² 0.8 m 19.0 °C 100% n ¹ 5% 95% 0% 0% 100%	Native Fish Spe Oregon chub Cottids Dace Redside shine Northern pike Largescale su Sandrollers Threespine st Salmonids- Pacific lamp Non-native Fish	ers minnow ickers icklebacks rey a Species Co	ted: 5051 0 1871 1458 2 0 0 0 0 0 0 0 0 0 0 0 0 0
Surface Area Average Depth Water Temperature Percent Organic Substrate Types of Aquatic Vegetation Submergent Emergent Floating Algae TOTAL Aquatic vegetation genera ² TYPH SPAR	7122 m ² 0.8 m 19.0 °C 100% n ¹ 5% 95% 0% 0% 0% 100%	Native Fish Spe Oregon chub Cottids Dace Redside shine Northern pike Largescale su Sandrollers Threespine st Salmonids- Pacific lampu Non-native Fish Western Mosqu	ers minnow uckers icklebacks rey A Species Co uitofish	ted: 5051 0 1871 1458 2 0 0 0 0 1lected: 0
Surface Area Average Depth Water Temperature Percent Organic Substrate Types of Aquatic Vegetation Submergent Emergent Floating Algae TOTAL Aquatic vegetation genera ² TYPH SPAR SALI	7122 m ² 0.8 m 19.0 °C 100% n ¹ 5% 95% 0% 0% 0% 100% 25% 40 20	Native Fish Spe Oregon chub Cottids Dace Redside shine Northern pike Largescale su Sandrollers Threespine st Salmonids- Pacific lamp Non-native Fish Western Mosqu Centrarchids-	ers minnow ickers icklebacks rey Species Co iitofish	ted: 5051 0 1871 1458 2 0 0 0 0 0 0 0 0 0 0 0 0 0
Surface Area Average Depth Water Temperature Percent Organic Substrate Types of Aquatic Vegetation Submergent Floating Algae TOTAL Aquatic vegetation genera ² TYPH SPAR SALI SCIR	7122 m ² 0.8 m 19.0 °C 100% n ¹ 5% 95% 0% 0% 0% 100% 25% 40 20 5	Native Fish Spe Oregon chub Cottids Dace Redside shine Northern pike Largescale su Sandrollers Threespine st Salmonids- Pacific lamp Non-native Fish Western Mosqu Centrarchids- Bullheads	ers minnow ickers icklebacks ey Species Co iitofish	ted: 5051 0 1871 1458 2 0 0 0 0 0 0 0 0 0 0 0 0 0
Surface Area Average Depth Water Temperature Percent Organic Substrate Types of Aquatic Vegetation Submergent Floating Algae TOTAL Aquatic vegetation genera ² TYPH SPAR SALI SCIR CALI	7122 m ² 0.8 m 19.0 °C 100% n ¹ 5% 95% 0% 0% 0% 100% 25% 40 20 5 5	Native Fish Spe Oregon chub Cottids Dace Redside shine Northern pike Largescale su Sandrollers Threespine st Salmonids- Pacific lamp Non-native Fish Western Mosqu Centrarchids- Bullheads Carp	ers minnow ackers ticklebacks rey a Species Co aitofish	ted: 5051 0 1871 1458 2 0 0 0 0 0 0 0 0 0 0 0 0 0
Surface Area Average Depth Water Temperature Percent Organic Substrate Types of Aquatic Vegetation Submergent Floating Algae TOTAL Aquatic vegetation genera ² TYPH SPAR SALI SCIR CALI JUNC	7122 m ² 0.8 m 19.0 °C 100% n ¹ 5% 95% 0% 0% 0% 100% 25% 40 20 5 5 5	Native Fish Spe Oregon chub Cottids Dace Redside shine Northern pike Largescale su Sandrollers Threespine st Salmonids- Pacific lamp Non-native Fish Western Mosqu Centrarchids- Bullheads Carp	ers minnow ickers icklebacks rey Species Co iitofish	ted: 5051 0 1871 1458 2 0 0 0 0 0 0 0 0 0 0 0 0 0

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Site Name OAKRIDGE STP SLOUGH		Map Code OSTPLE	
Basin MID Subbasin	DLE FORK WILLAMETTE RIVER	Sample Date 05/10/0 Location T21S-R3	00 8W-18SE
Surface Area	4800 m ²	Native Fish Species Coll	ected:
Average Depth	1.0 m		
Water Temperatu	re 10.5 ⁰ C	Oregon chub	140
Percent Organic	Substrate 100%	Cottids	0
		Dace	36
Types of Aquati	c Vegetation ¹	Redside shiners	42
Submergent	15%	Northern pikeminnow	0
Emergent	25%	Largescale suckers	
Floating	0%	Sandrollers	0
Algae	0%	Threespine stickleback	s 0
-		Salmonids-	0
	TOTAL 40%	Pacific lamprey	0
Aquatic vegetat	ion genera ²	Non-native Fish Species	Collected:
SPAR	5%		
ТҮРН	5	Western Mosquitofish	0
CALI	10	Centrarchids-	0
SALI	5	Bullheads	0
JUNC	5	Carp	0
SCIR	5		
GRAM	5	OTHER:	
Site Name DEX	TER ALCOVE "THE PIT"	Map Code PITLE*	
Subbasin	DE TORR WIERABITE RIVER	Location T19S-R1	W-14SW
Surface Area	494 m ²	Native Fish Species Coll	ected:
Average Depth	0.6 m	-	
Water Temperatu:	re 17.0 ⁰ C	Oregon chub	1444
Percent Organic	Substrate 100%	Cottids	1
5		Dace	0
Types of Aquatio	vegetation ¹	Redside shiners	5
Submergent	35%	Northern pikeminnow	18
Emergent	29%	Largescale suckers	0
Floating	0 %	Sandrollers	0
Algae	0%	Threespine stickleback	s O
2	·	Salmonids-	0
	TOTAL 64%	Pacific lamprey	0
Aquatic vegetat:	on genera ²	Non-native Fish Species	Collected:
ТҮРН	25%		
ELOD	35	Western Mosquitofish	0
GRAM	4	Centrarchids-	0
	-	Bullheads	n
		Carp	0
		OTHER:	

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Site Name	RATTLESNAKE CRE	EK	Map Code	RTC1C*
Basin	MIDDLE FORK WIL	LAMETTE RIVER	Sample Date	10/11/00
Subbasin			Location	T18S-R2W-26SE
Surface Area		1400 m ²	Native Fish Sp	cies Collected.
Average Dept	h	0.2 m		Corrected.
Water Temper	ature	13.0 °C	Oregon chub	2
Percent Organ	nic Substrate	50%	Cottids	4
			Dage	7
Types of Amu	atic Vegetation	1	Redside shine	ers 7
Submergent		4.0%	Northern nike	eminnow 0
Emergent		42%	Largescale si	uckers 0
Floating		108	Sandrollers	0
Algae		08	Threespine of	icklebacke 5
Algae		0.9	Calmonida	TCKTEDGCK2 2
		972	Pacific lamp	
	IOIAL	528	radilic lamp	.cy 0
Aquatic vege	tation genera ²		Non-native Fish	1 Species Collected:
GRAM		20%		
SPAR		20	Western Mosqu	uitofish 0
ELOD		40	Centrarchids	- 0
LEMN		10	Bullheads	1
SCIR		2	Carp	0
			OTHER :	
		<u></u>		
Site Name	SHADY DELL POND		Map Code	SDP1I*
Basin 1	MIDDLE FORK WIL	LAMETTE RIVER	Sample Date	09/05/00
Subbasin	DELL CREEK		Location	T20S-R2E-35NW
Surface Area		3200 m ²	Native Fish Spe	ecies Collected:
Average Dept	h	0.9 m	-	
Water Tempera	ature	14.5 °C	Oregon chub	3833
Percent Organ	nic Substrate	100%	Cottids	1
-ereesegen			Dace	648
Types of Agu	atic Vegetation	1	Redside shine	ers 2900
Submergent		5%	Northern pike	eminnow 4
Emergent		27%	Largescale si	ickers 0
Floating		0%	Sandrollers	0
Algae		0%	Threespine st	ricklebacks 0
Algue	_		Salmonide_CT	3
	TOTAL	32%	Pacific lamp	rey 0
	2			
Aquatic vege	tation genera ²		Non-native Fish	1 Species Collected:
CARE		20%		
SPAR		5	Western Mosqu	uitofish 0
FONT		5	Centrarchids	- 0
SALI		2	Bullheads	0
			Carp	0
			OTHER :	
			OTHER :	

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Site Name WALLA	CE SLOUGH	Map Code	ALLIC
Basin MIDDL	E FORK WILLAMETTE RIVER	Sample Date	5/23/00
Subbasin		Location	18S-R2W-15SE
240000000			1002
Surface Area	3600 m ²	Native Fish Specie	s Collected:
Average Depth	1.7 m		
Water Temperature	14.0 °C	Oregon chub	0
Percent Organic Su	ubstrate 90%	Cottids	2
		Dace	0
Types of Aquatic V	Vegetation ¹	Redside shiners	12
Submergent	25%	Northern pikemin	inow 2
Emergent	17%	Largescale sucke	rs 0
Floating	12%	Sandrollers	0
Algae	0%	Threespine stick	lebacks 55
		Salmonids-	0
	TOTAL 54%	Pacific lamprey	0
Aquatic vegetation	n genera ²	Non-native Fish Sp	ecies Collected
ELOD	20%	-	
AZOL	12	Western Mosquito	ofish 0
CALI	5	Centrarchids-BG	2
OENT	2	Bullheads	0
CARE	10	Carp	0
GRAM	5	-	
		OTHER:	
Site Name WICOPE	ee pond	Map Code W	CP1I
Basin MIDDLE	S FORK WILLAMETTE RIVER	Sample Date 0	5/04/00
Subbasin SALT (CREEK	Location T	21S-R4E-36SW
Surface Area	7700 m ²	Native Fish Specie	s Collected:
Average Depth	1 8 m	Autive fibm Specie	b corrected.
Water Temperature	8 5 °C	Oregon chub	2
Percent Organic SI	ibstrate 95%	Cottids	0
rereene organie oo		Dace	9
Types of Amuatic V	Vegetation ¹	Redside shiners	0
Submergent	25%	Northern pikemin	now 0
Emergent	65%	Largescale sucke	rs 0
Floating	0%	Sandrollers	0
Algae	0%	Threespine stick	lebacks 0
		Salmonids-	0
	TOTAL 90%	Pacific lamprey	0
Aquatic vegetation	genera ²	Non-native Fish Sp	ecies Collected:
SALI	30%	more read of	
SPAR	25	Western Mosquito	fish 0
TYPH	20	Centrarchids-	
CARE	10	Bullheads	õ
ELEO	5	Carp	0 0
	_	F	. ~
		OTHER:	

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Site Name	WICOPEE POND		Map Code	WCP1J*
Basin	MIDDLE FORK WI	LLAMETTE RIVER	Sample Date	09/19/00
Subbasin	SALT CREEK		Location	T21S-R4E-36SW
Surface Are	ea	3250 m ²	Native Fish Spe	cies Collected:
Average Dep	pth	0.8 m		
Water Tempe	erature	17.0 °C	Oregon chub	4576
Percent Org	ganic Substrate	90%	Cottids	0
			Dace	792
Types of Ad	quatic Vegetatic	n ¹	Redside shine	rs O
Submerger	nt	95%	Northern piker	minnow 0
Emergent		0%	Largescale suc	ckers 0
Floating		0%	Sandrollers	0
Algae		0%	Threespine st:	icklebacks 0
			Salmonids-CT	1
	TOTAL	95%	Pacific lampre	еу . О
Aquatic veg	getation genera ²		Non-native Fish	Species Collected:
SALI		30%		
TYPH		30	Western Mosqu:	itofish 0
SPAR		25	Centrarchids-	0
CARE		5	Bullheads	0
ELEO		5	Carp	0
			OTHER :	



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