

PROGRESS REPORTS

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FISH DIVISION
Oregon Department of Fish and Wildlife

2006 Oregon Chub Investigations

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SUMMARY

Oregon chub *Oregonichthys crameri*, small minnows endemic to the Willamette Valley, were federally listed as endangered under the Endangered Species Act in 1993. Factors implicated in the decline of this species 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*, crappies *Pomoxis* sp., sunfishes *Lepomis* sp., bullheads *Ameiurus* sp., and western mosquitofish *Gambusia affinis*. We continued surveys initiated in 1991 in the Willamette River drainage to quantify the abundance of known Oregon chub populations, search for unknown populations, evaluate potential introduction sites, and monitor introduced populations as part of the implementation of the Oregon Chub Recovery Plan.

We sampled a total of 103 sites in 2006. No new populations of Oregon chub were discovered. Thirty-five of the 103 sites were new locations that were sampled for the first time in 2006. Sixty-eight sites, sampled on at least one occasion between 1991-2005, were revisited.

We confirmed the continued existence of Oregon chub at 33 locations. These included 23 naturally occurring and 10 introduced populations. Locations of naturally occurring populations were: Santiam drainage (Geren Island, Santiam I-5 Side Channels, Santiam Conservation Easement, Stayton Public Works Pond, Green's Bridge Backwater, Pioneer Park, Santiam Conservation Easement, and Gray Slough), Mid-Willamette drainage (Finley Gray Creek Swamp), McKenzie drainage (Shetzline Pond and Big Island), Coast Fork Willamette drainage (Coast Fork Side Channels and Lynx Hollow), and the Middle Fork Willamette drainage (two Dexter Reservoir alcoves, East Fork Minnow Creek Pond, Shady Dell Pond, Buckhead Creek, two Elijah Bristow State Park sloughs and an island pond, Barnhard Slough, and Hospital Pond). Introduced populations were located in the Middle Fork Willamette (Wicopee Pond and Fall Creek Spillway Ponds), Santiam (Foster Pullout Pond), McKenzie (Russell Pond), Coast Fork Willamette (Herman Pond), and Mid-Willamette drainages (Dunn Wetland, Finley Display Pond, Finley Cheadle Pond, Ankeny Willow Marsh, and Jampolsky Wetlands).

We did not find Oregon chub at 14 locations where they were collected on at least one occasion between 1991-2005 (Jasper Park Slough, Wallace Slough, East Ferrin Pond, Dexter East Alcove, Hospital Impoundment Pond, Rattlesnake Creek, Elijah Bristow Large Gravel Pit, Elijah Bristow Small Gravel Pit, Little Muddy Creek tributary, Bull Run Creek, Camas Swale, Barnhard Slough, Camous Creek, and Dry Muddy Creek). Nonnative fish were collected at most of these locations.

We obtained abundance estimates of naturally occurring populations of Oregon chub at 18 locations in the Middle Fork Willamette (East Fork Minnow Creek Pond, Shady Dell Pond, Elijah Bristow State Park Sloughs and Island Pond, Hospital Pond, Dexter Reservoir Alcoves, Haws Pond, and Buckhead Creek), Santiam (Geren Island, Gray Slough, Stayton Public Works Pond, Pioneer Park Pond, and Santiam I-5 Side Channels), McKenzie (Big Island and Shetzline Pond), and Mid-Willamette drainages (Finley Gray Creek) (Table 1).

We obtained abundance estimates for 10 introduced populations of Oregon chub, located in Fall Creek Spillway Ponds, Wicopee Pond, Dunn Wetland Ponds, Finley Display Pond, Finley Cheadle Pond, Ankeny Willow Marsh, Jampolsky Wetlands, Foster Pullout Pond,

Table 1. Oregon chub population abundance estimates from 1992-2006. Abundances are mark-recapture estimates, except those shown in bold, which are the number of fish captured. Site names in bold italics are locations where Oregon chub were introduced. The number of fish stocked at introduction sites is shown in parentheses. Basin codes: SANT- Santiam, MS- Mid-Willamette, MFW- Middle Fork Willamette, MCK- McKenzie, and CFW- Coast Fork Willamette. See *Methods* for definitions of five year abundance trends. Five-year trends were not assessed if data were not available for at least five years, if the population abundance was less than 500 fish, or if abundance was not estimated using mark-recapture techniques.

Site Name	Basin	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	5-Year Trend
Geren Island North Channel	SANT					8,340	8,660	1,830	860	360	760	740	1,590	2,290	2,630	1,020	stable
Gray Slough	SANT				2	3	2	0	13	4	2	12	270	340	260	700	increasing
Foster Pullout Pond	SANT								(85)	(20) 80	(75) 210	(50) 320	(158) 640	(112) 570	200	470	
Stayton Public Works Pond	SANT							3	4	1	0	0	0	21	530	440	
Santiam I-5 Side Channels	SANT						5	2	3	13	13	350	220	320	580	330	
Pioneer Park Backwater	SANT						2	0	0	2	9	4	6	0	4	110	
South Stayton Pond	SANT															(54)	
Green's Bridge Slough	SANT		5			2	5	0	2	0	3	2	4	0	7	6	
Santiam Easement	SANT			1,250		830	300	250	13	4	12	2	0	1	0	3	
Menear's Bend	SANT									(15)	7	(26) 29	0	0pond dried up.....		
Logan Slough	SANT						2			0							
Ankeny Willow Marsh	MS													(500)	10,110	35,650	
Dunn Wetland	MS						(200)	(373) 460	4,860	14,090	26,240	19,270	28,740	25,810	28,290	21,530	stable
Jampolsky Wetlands	MS												(500)	1,230	8,320		
Finley Gray Creek Swamp	MS		370	600	460	470	520	620	510	730	630	290	230	520	240	1,390	increasing
Finley Cheadle Pond	MS											(50)	50	220	1,300	900	
Finley Display Pond	MS							(60)	(45) 360	1,750	(49) 670	500	130	70	240	240	
Dry Muddy Creek	MS			26			2denied access.....					22	1	4	0	
Bull Run Creek	MS														2	0	
Little Muddy Creek tributary	MS													5	0	0	
Camous Creek	MS		5			5							denied access.....		0	
Russell Pond	MCK									(350)	(150) 470	450	720	810	1,000	increasing	
Shetzline Pond	MCK										120	650	1,050	730	390		
Big Island	MCK										940	620	310	430	380		
Ezell Slough	MCK													6			
E. Bristow St. Park- Berry Slough	MFW		4,010		1,930		2,010	5,350	2,720	1,190	3,970	4,910	2,140	2,950	2,530	5,460	stable
Shady Dell Pond	MFW		1,630	4,770	3,770	4,240	3,790	3,650	2,860	3,830	2,280	2,420	2,330	4,210	3,110	5,430	increasing
Wicopee Pond	MFW	3			0	1	9	25	160	4,580	4,080	2,410	4,100	4,780	6,300	4,860	stable
Dexter Reservoir RV Alcove- DEX3	MFW	59			15		1,330	830	50	880	1,950	2,270	870	790	1,850	3,310	stable
Fall Creek Spillway Ponds	MFW					(500)	480	1,420	6,310	5,030	7,770	6,370	5,620	5,850	6,250	3,250	stable
Buckhead Creek	MFW	3	4		2				3,010	3,570	7,140	4,080	2,830	3,600	3,130	2,500	stable
Elijah Bristow Island Pond	MFW												2,780	420	1,700	2,310	
Hospital Pond	MFW		690		780		3,160	3,030	3,020	2,980	2,700	2,130	1,600	4,940	5,040	2,040	stable
East Fork Minnow Creek Pond	MFW		8,770	7,540	7,130	4,540	4,020	4,440	4,780	5,050	3,380	3,270	3,650	3,140	1,850	1,730	declining
Dexter Reservoir Alcove- PIT1	MFW	780			140	40	920	450	1,130	1,440	800	460	390	70	600	650	stable
Haws Pond	MFW														120	440	
E. Bristow St. Park- NE Slough	MFW							1,060	1,170	1,090	940	610	1,340	790	210		
Rattlesnake Creek	MFW	7			6			1	2	2	2	2	0	0	0	5	
Oakridge Slough	MFW			4	8		2	21	480	140	140	9	1	1	0	0	
Barnhard Slough	MFW	0								3	7	2	1	2	2	0	
Elijah Bristow Large Gravel Pit	MFW	3			0			7	0	0	0	8	2	0	0	0	
Elijah Bristow Small Gravel Pit	MFW	31			0			22	0	0	0	0	0	0	0	0	
Hospital Impoundment Pond	MFW				6	0	1	0	1	0	0	0	0	0	0	0	
East Ferrin Pond	MFW			(576)	3,520	5,610	7,160	3,490	60	0	0	0	0	0	0	0	
Wallace Slough	MFW						3	0	0	0	0	0	0	0	0	0	
Dexter East Alcove	MFW	40			0	0	0	0	0	0	0	0	0	0	0	0	
Jasper Park Slough	MFW			3	0	0	0	0	0	0	0	0	0	0	0	0	
Dexter Reservoir	MFW											1			1		
Middle Fk Willamette Backwater	MFW												13	0			
West Ferrin Pond	MFW	3		(525)	2	0	0	0	0								
Coast Fork Side Channels	CFW											16	130	190	12	150	
Herman Pond	CFW											(400)	420	350	110	40	
Lynx Hollow Side Channels	CFW														2	2	
Camas Swale	CFW	1	2	0		0			0	0	0	0	0	0	2	0	

Herman Pond, and Russell Pond. The three largest populations in 2006 were introduced populations. In addition, we evaluated eleven potential Oregon chub introduction sites in the Willamette River drainage.

We introduced Oregon chub into the South Stayton Pond, a recently restored site located on ODFW property in the Santiam drainage, from Stayton Public Works Pond and Pioneer Park Pond.

The Oregon Chub Recovery Plan (U.S. Fish and Wildlife Service 1998) set recovery criteria for downlisting the species to “threatened” and for delisting the species. The criteria for downlisting the species are: 1) establish and manage 10 populations of at least 500 adult fish, 2) all of these populations must exhibit a stable or increasing trend for five years, and 3) at least three populations meeting criterion 1 and 2 must be located in each of the three recovery areas (Middle Fork Willamette River, Santiam River, and Mid-Willamette River tributaries). In 2006, there were 18 populations totaling 500 or more individuals (Table 1). Thirteen of these populations also met the second criteria. Of the 13 populations meeting criteria 1 and 2, eight were located in the Middle Fork Willamette drainage, three were located in the Mid-Willamette drainage, and two were located in the Santiam drainage. With the addition of one more stable population in the Santiam drainage, the downlisting criteria will be met.

Findings to date indicate that Oregon chub remain at risk due to the loss of suitable habitat and the continued threats posed by the proliferation of non-native fishes, illegal water withdrawals, accelerated sedimentation, and potential chemical spills or careless pesticide applications. Their status has improved in recent years, resulting primarily from successful introductions and the discovery of previously undocumented populations.

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. These habitats usually have little or no water flow, have silty and organic substrate, and have an abundance of aquatic vegetation and cover for hiding and spawning. In the last 100 years, off-channel 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 restricted distribution and 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 2006. We conducted similar surveys in 1991-2005 (Scheerer et. al. 1992; 1993; 1994; 1995; 1996; 1998; 1999; 2000; 2001; 2002; 2003; 2004a; 2004b; 2005; Scheerer and Jones 1997). The survey objectives were to collect information on the status, distribution, and abundance of Oregon chub, the presence of non-native and native species, the characteristics of Oregon chub habitats, the characteristics of potential introduction sites, and to evaluate the success of Oregon chub introductions. In addition, we reviewed and evaluated projects and activities with the potential to impact Oregon chub and their habitats and provided summaries to the U.S. Fish and Wildlife Service.

METHODS

We conducted surveys at 103 locations in the Willamette River drainage (Figures 1 and 2). We sampled off-channel habitats using a 1 m x 5 m seine with 64 mm mesh, baited minnow traps, and/or dip nets. We identified and counted all fish captured. We recorded the presence of amphibian and reptile species and their life stages that were encountered.

We recorded physical and biological habitat parameters at each site including substrate type, type and abundance of aquatic vegetation, mean and maximum depth, water temperature, and total surface area. We photographed each new site and assigned a unique map code to each site.

We used minnow traps, measuring 23 by 46 cm with 64 mm mesh, to obtain mark-recapture population estimates of all fish species at selected sites. We baited the traps with one third slice of bread and fished them for 3-18 hours. We measured total lengths (TL) of a subsample of the Oregon chub we collected in the traps (N=50). We marked all fish with a partial caudal fin clip and returned them to the water. When catch rates were low, we repeated this procedure for a second day. On the second day, we marked all unmarked fish. We typically marked fish until approximately 15 percent of the population was marked. We returned all fish to the water. We estimated population abundance 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. We calculated 95% confidence intervals using a Poisson approximation (Ricker 1975). Because we do not capture

fish smaller than ≈ 35 mm (TL) in the minnow traps, these fish were not included in the estimates. Excluded fish were young-of-the-year (Scheerer and McDonald 2003).

We defined a population as a group of chub that occupy a single location. If there is an open connection and the potential for frequent movement of chub between adjacent sloughs or ponds, then we consider adjacent sites to be a single population. We defined abundance trends quantitatively as increasing, declining, stable, or not declining. We calculated a linear regression of abundance over time for each abundant population (>500 fish) for the past five years (2002-2006). When the slope of this regression was negative and significantly different from zero ($P < 0.10$), we defined the population as exhibiting a declining trend in abundance. When the slope was positive and significantly different from zero ($P < 0.10$), we defined the population as exhibiting an increasing trend in abundance. When the slope was not significantly different from zero ($P > 0.10$), we then calculated the coefficient of variation of the abundance estimates for the past five years. When the coefficient of variation was less than 1.0 then we defined population as stable. Otherwise, we defined the population as unstable.

RESULTS

Detailed descriptions of habitat characteristics and the fish species present at each of the 103 sites sampled in 2006 are presented in **APPENDIX A**. The results of sampling conducted in 2006, summarized by Willamette River subbasin, are presented in Table 2.

Population Estimates

In 2006, we obtained population estimates for Oregon chub at 28 locations (Table 3). These annual abundance estimates allow us to monitor the status of Oregon chub in relation to recovery goals (U.S. Fish and Wildlife Service 1998) and to determine which populations of Oregon chub are sufficiently large to be used as donor populations for reintroduction efforts.

We estimated the population abundance of Oregon chub at 12 locations in the Middle Fork Willamette River drainage. The Middle Fork Willamette drainage contains the greatest concentration of large Oregon chub populations (>500 fish) in the Willamette Valley. In 2006, there were ten populations in the Middle Fork Willamette drainage that totaled 500 or more adult Oregon chub. Eight of these populations have been stable or increasing in abundance for the past five years (Table 1).

The largest populations of Oregon chub in the Middle Fork Willamette drainage were located at Elijah Bristow Berry Slough, Shady Dell Pond, and Wicopee Pond. Notable increases in Oregon chub abundance occurred at Elijah Bristow Berry Slough, Shady Dell Pond, Dexter Reservoir RV Alcove, and Haws Pond. Notable decreases in Oregon chub abundance occurred at Hospital Pond, Fall Creek Spillway Ponds, Wicopee Pond, and Elijah Bristow Northeast Slough. The East Fork Minnow Creek Pond population was the only Middle Fork Willamette population that had a declining 5-year abundance trend (Table 1).

We estimated the population abundance of Oregon chub at six locations in the Santiam River drainage. In 2006, there were two populations in the Santiam drainage that totaled 500 or more adult Oregon chub; both populations had a stable or increasing trend in abundance for the past five years (Table 1). The largest Oregon chub population in the Santiam drainage was

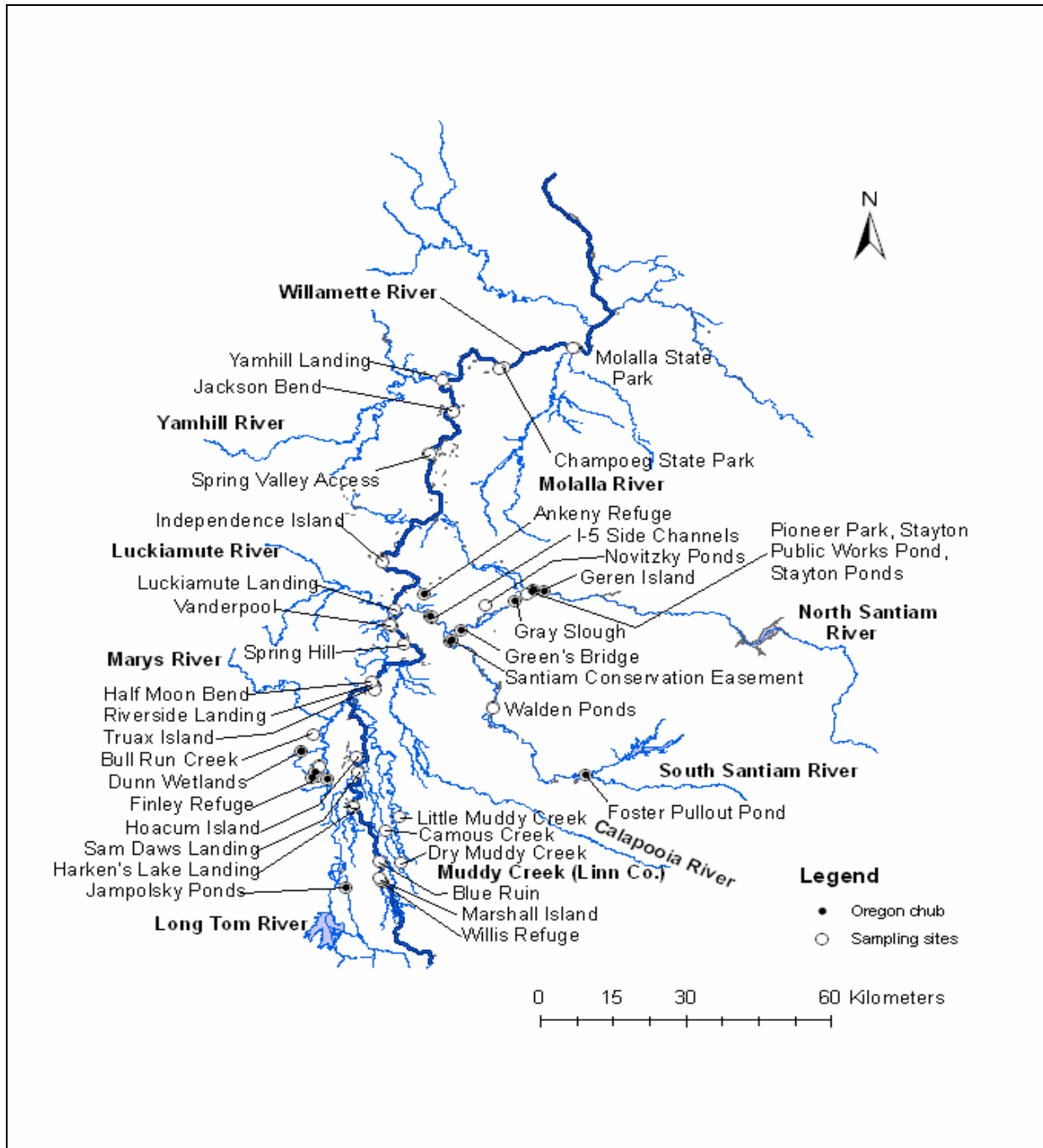


Figure 1. Survey locations for Oregon chub in the Santiam and lower and Mid-Willamette River drainages in 2006. Open circles with center dots indicate sites where Oregon chub were not collected. Solid circles indicate sites where Oregon chub were collected.

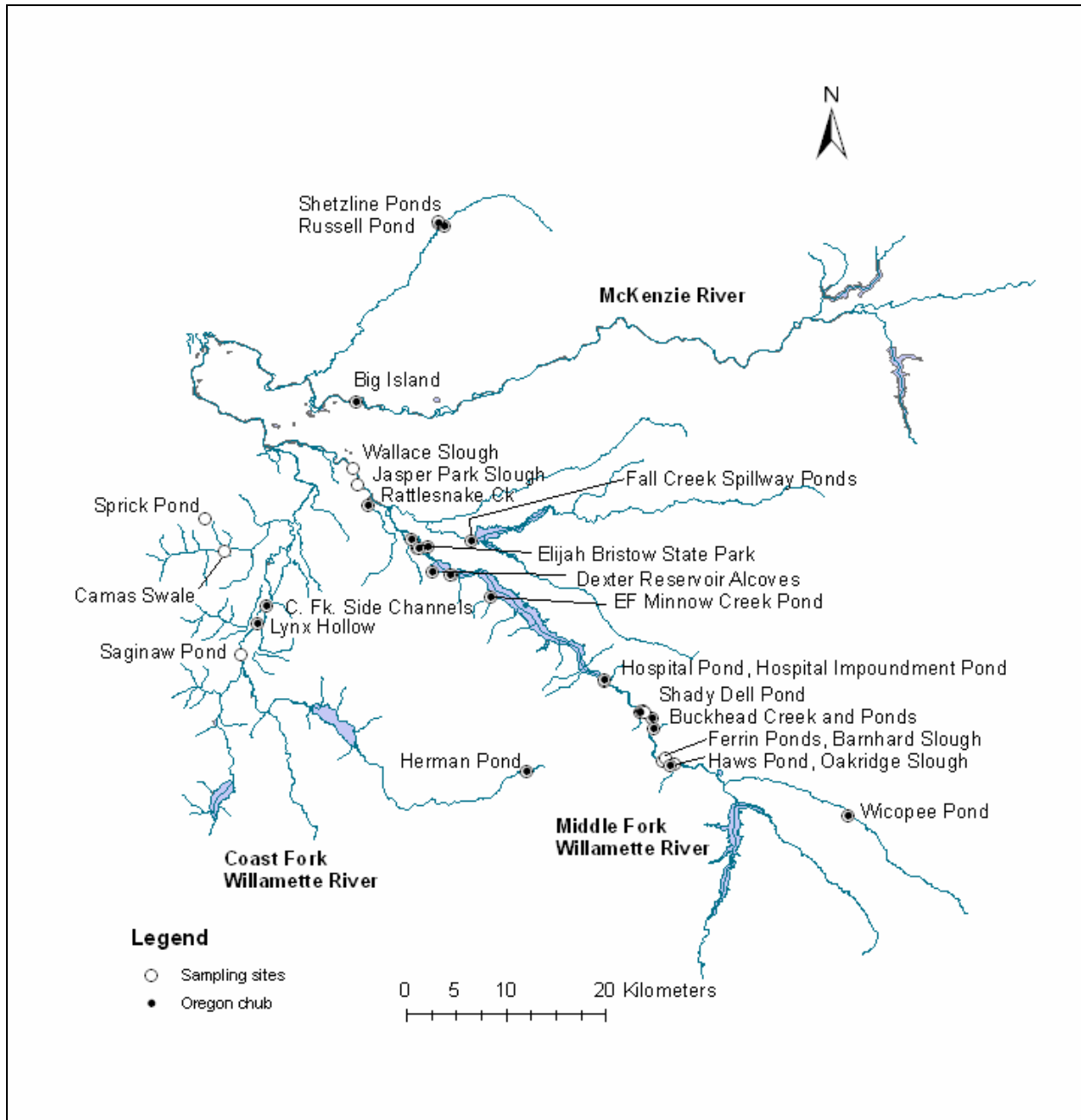


Figure 2. Survey locations for Oregon chub in the upper Willamette River drainage in 2006. Open circles with center dots indicate sites where Oregon chub were not collected. Solid circles indicate sites where Oregon chub were collected.

Table 2. Sampling locations in the Willamette River drainage in 2006 listed by subbasin. Locations were divided into the number of new sites visited for the first time, the number of sites that were sampled in 1991-2005 and revisited in 2006, the number and percentage of sites containing Oregon chub, and the number and percentage of sites containing non-native fish. The Lower Willamette and the Mid-Willamette subbasins were further subdivided into smaller drainages.

Subbasin	Number of sites			Sites with Oregon chub		Sites with non-native fish	
	new	revisited	total	number	percentage	number	percentage
Lower Willamette River							
Yamhill River	1	0	1	0	0	1	100
Molalla River	3	0	3	0	0	2	67
<u>Mainstem</u>	<u>9</u>	<u>1</u>	<u>10</u>	<u>1</u>	<u>10</u>	<u>7</u>	<u>70</u>
Total	13	1	14	1	7	10	71
Santiam River	2	18	20	9	45	12	60
Mid-Willamette River							
Marys River	0	10	10	4	40	1	10
Luckiamute River	5	0	5	0	0	3	60
Muddy Creek (Linn Co.)	0	3	3	0	0	2	67
Long Tom River	0	1	1	1	100	0	0
McKenzie River	0	4	4	3	75	1	25
<u>Mainstem</u>	<u>14</u>	<u>0</u>	<u>14</u>	<u>0</u>	<u>0</u>	<u>12</u>	<u>86</u>
Total	19	18	37	8	22	19	51
Coast Fk. Willamette River	1	5	6	3	50	4	67
Middle Fk. Willamette River	0	26	26	13	50	10	38
Grand Total	35	68	103	34	33	55	54^a

^a Non-native fish were collected at 83% of the new sites (29 out of 35 sites) that we sampled in 2006.

Table 3. Estimates of the 2006 population abundance of Oregon chub at locations in the Willamette Valley, Oregon.

Location	Estimate	95% Confidence Limits	
		lower	upper
Santiam River Drainage			
Geren Island North Channel	1,020	700	1,490
Gray Slough	700	510	950
Foster Pullout Pond	470	380	570
Stayton Public Works Pond	440	380	520
Santiam I-5 Side Channel Ponds	330	260	430
Mid-Willamette River Drainage			
Ankeny Willow Marsh	36,650	29,470	43,110
Dunn Wetland Ponds	21,530	17,830	25,990
Jampolsky Ponds	8,320	5,530	12,430
Finley Gray Creek Swamp	1,390	1,060	1,820
Finley Cheadle Pond	900	740	1,090
Finley Display Pond	240	190	320
McKenzie River Drainage			
Russell Pond	1,000	790	1,250
Shetzline Pond	390	250	610
Big Island	380	230	610
Coast Fork Willamette River Drainage			
Coast Fork Side Channels	150	90	240
Herman Pond	40	20	70

Table 3 (continued).

Location	Estimate	95% Confidence Limits	
		lower	upper
Middle Fork Willamette River Drainage			
Elijah Bristow State Park Berry Slough	5,460	4,200	7,080
Shady Dell Pond	5,430	4,550	6,490
Wicopee Pond	4,860	3,940	5,980
Dexter RV Alcove	3,310	2,180	4,990
Fall Creek Spillway Ponds	3,250	2,810	3,740
Buckhead Creek	2,500	2,280	2,740
Elijah Bristow Island Pond	2,310	1,600	3,310
Hospital Pond	2,040	1,440	2,890
East Fork Minnow Creek Pond	1,730	1,360	2,190
Dexter Alcove "PIT1"	650	460	900
Haws Pond	440	200	870
Elijah Bristow State Park Northeast Slough	210	140	310

located in the Geren Island North Channel. For this population, abundance declined from 2,630 fish in 2005 to 1,020 fish in 2006.

We estimated the population abundance of Oregon chub at nine locations in the Mid-Willamette River drainage (includes the McKenzie River). In 2006, there were six populations in the Mid-Willamette drainage that totaled 500 or more adult Oregon chub. Three of these populations had stable 5-year trends in abundance (Table 1). The three largest populations in this drainage occurred at sites where chub were initially introduced (Ankeny Willow Marsh, Dunn Wetland and Jampolsky Wetlands).

We estimated the Oregon chub population abundance at two sites in the Coast Fork Willamette drainage. The most abundant chub population in the drainage was located in the Coast Fork Side Channels (\hat{N} =150). The chub population introduced into Herman Pond in the Row River subbasin has declined from 350 fish in 2004 to 40 fish in 2006. A habitat enhancement project was completed in 2005 by the U.S. Forest Service to increase the amount of open water habitat at this site.

DISCUSSION

Currently there are 13 populations totaling 500 or more individuals that have exhibited a stable or increasing trend for the past five years (one population that has exhibited a declining trend for the past five years) (Table 1, Figure 3). Eight of these populations are located in the Middle Fork Willamette recovery area, three populations are located in the Mid-Willamette recovery area, and two populations are located in the Santiam recovery area. We have made significant progress in increasing both the number of known populations of Oregon chub and the number of large populations (>500 fish) in the Willamette drainage over the past nine years (Table 4). Most populations of chub are currently isolated from other chub populations due to the reduced frequency and magnitude of flood events and the presence of migration barriers such as impassible culverts and permanent, high beaver dams. Genetic exchange between populations is believed to be minimal.

Status of Naturally Occurring Populations

In 2006, there were 11 naturally occurring populations of Oregon chub that totaled 500 or more individuals in the Willamette River basin; eight were located in the Middle Fork Willamette drainage (Table 1). Ten naturally occurring chub populations (>500 fish) have exhibited a stable or increasing trend for the past five years. These include Geren Island, Gray Slough, Finley Gray Swamp, Elijah Bristow Berry Slough, Shady Dell Pond, Hospital Pond, Buckhead Creek, Elijah Bristow Island Pond, and two Dexter Reservoir Alcoves.

Status of Introduced Populations and Habitat Restoration Projects

A major recovery effort for Oregon chub recovery has focused on the introduction of Oregon chub into suitable habitats within their historic range. Several new populations have been established since 1988. In addition, several habitat restoration projects have been completed to increase the quantity of habitat or enhance the suitability of habitat for Oregon chub. In 2006, there were seven introduced populations that totaled 500 or more fish. Four of these populations have exhibited a stable or increasing trend in abundance for the past five years (Tables 1 and 5).

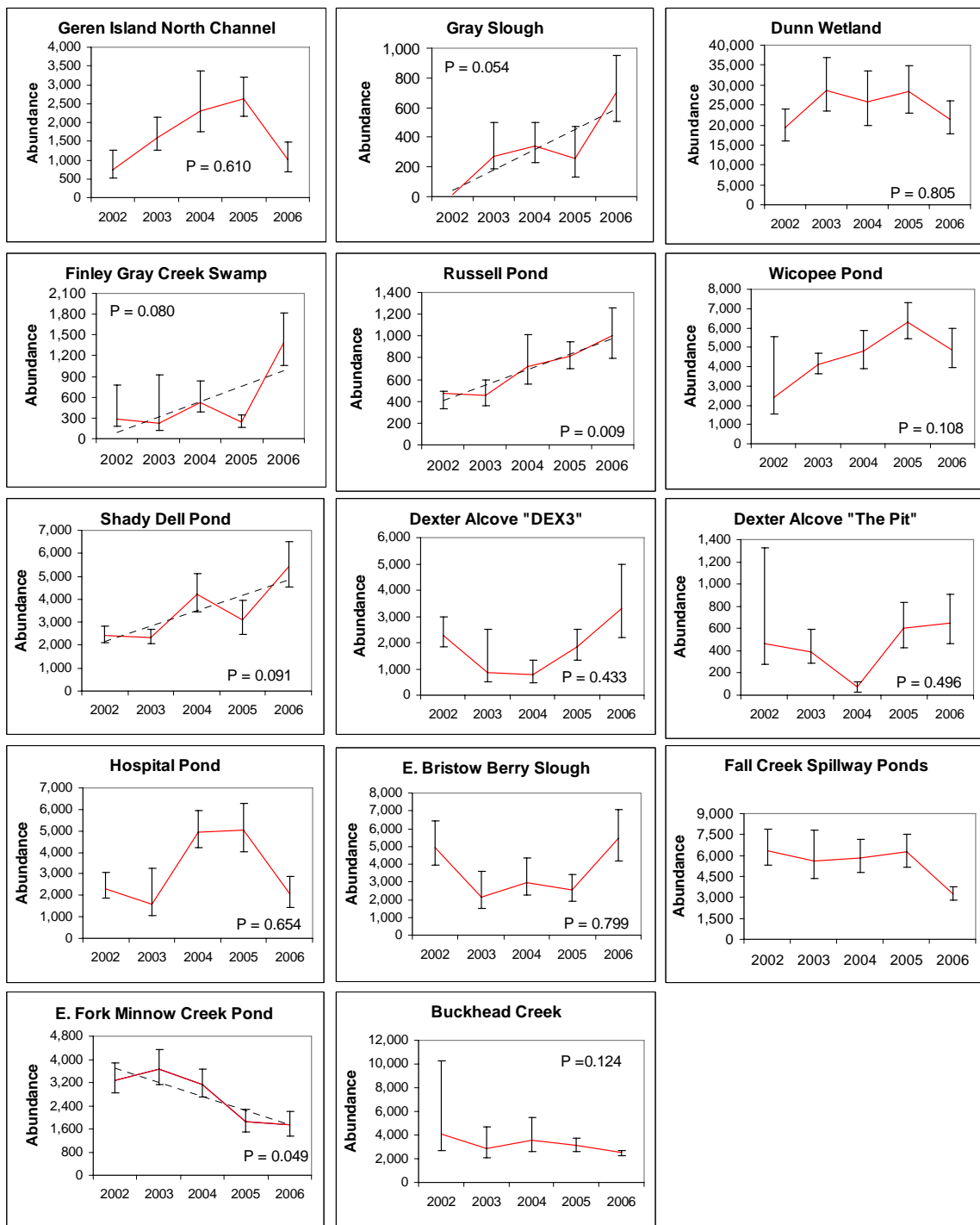


Figure 3. Abundance trends for Oregon chub populations from 2002 through 2006. Horizontal bars represent 95% confidence intervals for each estimate. Fitted regression lines (dotted lines) are shown where significant slopes occur. Plots without dotted lines had stable 5-year abundance trends.

Table 4. Status of Oregon chub recovery efforts, 1997-2006. Five-year abundance trends were not available prior to 1997.

Number of populations	Santiam		Mid-Willamette ^a		M. Fk. Willamette		C. Fk. Willamette		All subbasins	
	1997	2006	1997	2006	1997	2006	1997	2006	1997	2006
Total	7	9	4	9	14	13	0	3	25	34
Large (>500 adults)	1	2	1	6	7	10	0	0	9	18
Viable (>500 adults, stable or increasing for 5 yrs) ^b	0	2	1	3	2	8	0	0	3	13
Introduced ^c	0	2	1	6	4	2	0	1	5	11
Extirpated (since 1991)	0	1	0	4	3	10	1	1	4	16

^a The McKenzie drainage is included in the Mid-Willamette recovery area.

^b Recovery criterion from the Oregon Chub Recovery Plan (USFWS 1998).

^c Failed introductions (N = 3) were not included in the totals for introduced populations.

Table 5. Status of Oregon chub introductions and habitat restoration projects. Oregon chub abundance was determined from mark-recapture population estimates. Numbers in bold are the number of fish captured when no mark-recapture estimates were obtained. Numbers in parentheses are the number of fish stocked. Basin codes: MS= Mid-Willamette River basin, MFW= Middle Fork Willamette River basin, SANT= Santiam River basin; MCK= McKenzie River basin; and CFW= Coast Fork Willamette River basin. Ownership codes: ACOE= U.S. Army Corps of Engineers, USFS= U.S. Forest Service, ODFW= Oregon Department of Fish and Wildlife, and USFWS= U.S. Fish and Wildlife Service.

Site Name	Basin	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Donor Site	Ownership
Dunn Wetlands	MS				(200)	(373) 460	4,860	14,090	26,240	19,270	28,740	25,810	28,290	21,530	Geren Island, Elijah Bristow, Shady Dell	private
Ankeny Willow Marsh	MS											(500)	10,110	35,650	Dunn Wetlands	USFWS
Wicopee Pond	MFW		0	1	9	25	160	4,580	4,080	2,410	4,100	4,780	6,300	4,860	Dexter Alcove "The Pit" (1988)	USFS
Fall Creek Spillway Ponds	MFW			(500)	480	1,420	6,310	5,030	7,770	6,370	5,620	5,850	6,250	3,250	East Fk Minnow Pond, Shady Dell Pond	ACOE
Cheadle Pond	MS									(50)	50	220	1,300	900	Finley Display Pond	USFWS
Jampolsky Wetlands	MS											(500)	1,230	8,320	Dunn Wetlands	private
Lower Buckhead Ponds ^a	MFW						4	4	1,430	1,220	610	1,130	1,220	1,410	-----	USFS
Russell Pond	MCK								(350)	(150) 470	450	720	810	1,000	Buckhead Creek	private
Finley Display Pond	MS					(60)	(45) 360	1,750	(49) 670	500	130	70	240	240	Finley Gray Swamp	USFWS
Foster Pullout Pond	SANT						(85)	(20) 80	(75) 210	(50) 320	(158) 640	(112) 570	200	470	Geren Island	ACOE
Herman Pond	CFW									(400)	420	350	110	40	Fall Creek Spillway Ponds	USFS
South Stayton Pond	SANT													(54)	Stayton Public Works Pond, Pioneer Park	ODFW
East Ferrin Pond	MFW	(576)	3,520	5,610	7,160	3,490	60	0	0	0	0	0	0	0	East Fork Minnow Pond	USFS
Hospital Impound. Pond ^a	MFW		6	0	1	0	1	0	0	0	0	0	0	0	-----	ACOE
Menear's Bend	SANT							(15)	7	(26) 29	0	0			Geren Island	ACOE
West Ferrin Pond	MFW	(525)	2	0	0	0	0								Shady Dell Pond	USFS

^a These sites are habitat enhancement projects where no Oregon chub were introduced. Oregon chub colonized these sites naturally.

Wicopee Pond was the site of a 1988 introduction of 50 Oregon chub from the Dexter Reservoir Alcove "The Pit". The pond is 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. In 2000, the population abundance increased dramatically. In 2006, the chub abundance was estimated at 4,860 adults and the population has exhibited a stable five-year abundance trend.

Ferrin Ponds were the sites of habitat restoration projects completed by the U.S. Forest Service in 1993. These former borrow pits were deepened and permanent water control structures were constructed. Non-native fish (largemouth bass, western mosquitofish, and crappies) were poisoned using a rotenone treatment. Oregon chub were introduced into West Ferrin Pond (N=525) and East Ferrin Pond (N=576) in 1994. Oregon chub were collected from both ponds in May 1995; however Oregon chub were last collected from West Ferrin Pond in 1995. The rotenone treatment was ineffective in eliminating the western mosquitofish and they quickly became abundant in both ponds. In 1997, the Oregon chub population in East Ferrin Pond was 7,160 fish. In 1998, largemouth bass were first observed in the pond from a believed illegal introduction. The chub population declined rapidly. No Oregon chub were collected from 2000 through 2006. The rapid increase in abundance of the Oregon chub population was encouraging, however the subsequent collapse of the population after largemouth bass were introduced illustrates the continued threat that non-native predators pose to Oregon chub survival and recovery.

In 1996, Oregon chub were introduced into the Fall Creek Spillway Ponds, located in the overflow channel below Fall Creek Dam on U.S. Army Corps of Engineers property. The ponds were formed by beaver dams that blocked the spillway overflow channel. The beaver dams have been in existence for approximately 20 years. A total of 500 Oregon chub were introduced in 1996, 150 from Shady Dell Pond and 350 from East Fork Minnow Creek Pond. After the introduction, the chub population abundance increased rapidly. In 2005, the ponds supported 6,250 Oregon chub. In 2006, chub abundance declined to 3,250 fish. This decline was a result of a reduction in habitat; the lower pond dried completely during the summer months. Nonetheless, this population has exhibited a stable five-year abundance trend.

In 1994, a large habitat enhancement project was completed at Dunn Wetlands in the Muddy Creek drainage in Benton County. Approximately 12 hectares of wetland were restored and a permanent (year round) spring-fed pond was constructed. Two additional permanent ponds were constructed in 1997 and 1999. The entire wetland floods during the winter and the ponds are interconnected. Oregon chub were introduced into this site in 1997 (N=200) and 1998 (N=373). In 2006, the population totaled 21,530 fish and was the second largest chub population in the Willamette Valley. This population has exhibited a stable five-year abundance trend. While obtaining our population estimate in 2006, we had 46 trap mortalities, apparently due to oxygen stress from low dissolved oxygen. These mortalities exceed our annual take limit of 40 fish, but because these mortalities were not a result of negligence and were unavoidable, we were given permission to proceed with our fall sampling.

A multi-year habitat enhancement project was completed in 2003 in the Muddy Creek drainage on Finley National Wildlife Refuge. The goal was to move portions of the Gray Creek chub population to suitable locations on the refuge to reduce their risk of extinction by expanding their numbers. The project involved habitat restoration of two

ponds in the Gray Creek drainage (Display and Beaver Ponds) and the creation of another pond (Cheadle Pond). Display Pond was drained in 1996 to remove the non-native fish. Oregon chub from Gray Creek Swamp were introduced into Display Pond in 1998 (N=60), 1999 (N=45), and 2001 (N=49). The chub population abundance peaked at 1,750 fish in 2000, declined steadily from 2001-2004, then rebounded slightly in 2005 and 2006 (\hat{N} =240). Recruitment failure was the suspected cause of this decline. Small fish (<50 mm) were rare in most years. In 2002, we introduced 50 chub from Display Pond into Cheadle Pond. We estimated the chub abundance in Cheadle Pond to be 900 fish in 2006. During the summer of 2003, the U.S. Fish and Wildlife Service completed the Beaver Pond habitat project. They replaced the spillway and water control structure and deepened the pond to prevent desiccation. Native fish were collected from the pond in 2004 and 2005 (threespine sticklebacks, speckled dace, and redbreast shiners). High water damaged the dike in the winter of 2005-06 and the pond drained. Repairs are slated for 2007. We will continue to monitor the site to determine whether Oregon chub colonize this pond from Gray Creek Swamp, which is located upstream. Oregon chub will be introduced into the pond, if they do not colonize on their own.

Foster Pullout Pond is located on U.S. Army Corps of Engineers property on the north shore of Foster Reservoir in the South Santiam River drainage. The pond is perched several meters above the reservoir full pool level, is spring-fed, and the water level is maintained by a beaver dam at the outflow. We introduced 500 Oregon chub into the pond from Geren Island between 1999 and 2004. In 2006, we estimated the chub population abundance at 470 fish, an increase from the 2005 estimate of 200 fish.

Menear's Bend Pond is located on U. S. Army Corps of Engineers property in the Middle Santiam drainage upstream of Foster Reservoir. The pond is a small beaver pond that is fed by a small tributary and springs. We introduced Oregon chub from Geren Island in 2000 (n=15) and 2002 (n=26). The pond dried up in 2003.

Russell Pond is located on private land in the McKenzie River drainage. The pond is a small spring-fed farm pond that is isolated from the Mohawk River at all flow levels. We introduced Oregon chub into the pond from Buckhead Creek in October 2001 (n=350) and May 2002 (n=150). We estimated the Oregon chub population abundance at 1,000 fish in 2006.

Hospital Impoundment Pond is located in Lookout Point Reservoir (Middle Fork Willamette drainage) adjacent to Hospital Pond. The U.S. Forest Service and the U.S. Army Corps of Engineers constructed the pond in 1994. They excavated the pond 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. We collected non-native fish, which originate from the reservoir, in 1995 and 1997 through 2006. We collected a few Oregon chub in 1995, 1997, and 1999. The pond appears to provide few benefits for Oregon chub.

The Lower Buckhead Enhancement Ponds are located in the Buckhead Creek floodplain in the Middle Fork Willamette drainage. The U.S. Forest Service constructed three shallow off-channel ponds in 1998. They excavated these ponds to increase the amount of off-channel habitat available for Oregon chub. Two ponds are connected to

the creek during typical winter high-flow events. In 2006, we estimated 1,410 Oregon chub in these ponds.

Herman Pond is an isolated, spring-fed pond located in the Coast Fork Willamette River drainage on U.S. Forest Service Property. In 2002, we introduced 400 Oregon chub. Oregon chub abundance has declined steadily since 2003. In 2006, we estimated the chub population abundance at 40 fish. A habitat enhancement project was initiated in 2005 to remove cattails and increase the amount of open water habitat. It is unclear whether this project will reverse the declining trend in chub abundance.

Willow Marsh is a large wetland pond located on Ankeny National Wildlife Refuge. The pond was modified in 2003 and 2004 to deepen the pond and isolate it from an adjacent marsh that contains nonnative fish. In 2004, we introduced 500 Oregon chub from Dunn Wetlands. This population expanded rapidly and dramatically. The 2006 estimate was 35,650 chub.

Jampolsky Wetlands are part of a wetland restoration project completed in 2000 on private land in the Amazon Creek drainage (Long Tom River). In 2004, we introduced 500 Oregon chub from Dunn Wetlands. This population has also expanded rapidly. The 2006 estimate was 8,320 chub.

Restoration projects are also planned for 2007 at the Haws Site in the Middle Fork Willamette subbasin (pond creation) and at the Shetzline Site in the McKenzie subbasin (connect restored wetland with existing chub pond).

Identification and Evaluation of Potential Introduction Sites

New populations of Oregon chub are established by introductions to suitable habitats within their historical range. A minimum of 400 fish are to be used when establishing new fish populations to avoid genetic bottlenecks. The Oregon Chub Recovery Plan states that a maximum of 10% of a population may be removed for an introduction in any one year. Donor stocks should be in the same subbasin as the introduction site, whenever possible. 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 in 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 temperatures 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*).

Following are descriptions of the locations that were evaluated in 2006 as potential introduction sites for Oregon chub.

1. *Beaver Pond*- This pond is located in the Gray Creek drainage on the Finley National Wildlife Refuge in Benton County. The pond dried up most years between 1991 and 2002. One Oregon chub was collected from Beaver Pond in 1990 (personal communication, Dr. Douglas Markle, Oregon State University). Presumably this fish moved downstream from Gray Creek Swamp. In 2003, a habitat enhancement project was completed to reconstruct the dike, replace the water control structure, and deepen the pond to maintain water levels throughout the summer months. Water levels and reestablishment of aquatic vegetation were monitored in 2004 and 2005. Native fish were collected in 2004 and 2005, but no Oregon chub were found. In the winter of 2005-06 the dike was damaged by high flow events and the pond drained. Repair work is scheduled for 2007. We will wait to see whether Oregon chub colonize the site naturally. If colonization does not occur naturally, we will introduce fish from Cheadle Pond.
2. *Brown Creek Ponds*- These ponds are located on Finley National Wildlife Refuge in Benton County. The ponds were constructed in the lower Brown Creek drainage in 1999. Water control structures were completed in 2000. The vegetation in the ponds has become well established. The refuge has the ability to divert water into either pond. We recommend focusing on the north pond for a future chub introduction.
3. *Budeau Ponds*- This site is located on private property in the Mill Creek drainage. This site requires habitat restoration to be suitable for Oregon chub. Site plans include modification of an existing pond and creation of a new wetland pond. A grant proposal to fund this restoration work was submitted to the Oregon Wildlife Heritage Program.
4. *Eagle Marsh*- This site is located on Ankeny National Wildlife Refuge in Marion County. This is a large constructed wetland pond with site conditions that are very similar to those at Willow Marsh. Water can be pumped from Sidney Ditch to maintain adequate water levels. The pump is the same one that supplies water to Willow Marsh and is screened. The site currently contains nonnative fishes. The U.S. Fish and Wildlife Service plans to draw down (desiccate) the marsh in 2006 to remove nonnative fishes were delayed.
5. *Aumsville Ponds*- This site is located in the Mill Creek drainage in Marion County. The site is owned by Marion County. Planning for a restoration project is in progress. The site was a former ODFW rearing facility and consists of a series of

shallow earthen ponds. There is an historic record of one Oregon chub collected from the site in 1979. Non-native fish were abundant in 1991; no Oregon chub were collected. The restoration project would create an isolated Oregon chub pond. Non-native fish would be removed and excluded.

6. *St. Paul Ponds*- This site is located in the Willamette River drainage in Marion County. The site is owned by ODFW. The site was a former ODFW warmwater rearing facility and consists of a series of shallow earthen ponds. This site is high on the list for a chub introduction, if funds can be secured to pay for electricity to run the pump to maintain water levels during the summer months.
7. *Magne Pond*- This site is located on private property in the McKenzie River drainage near Cougar Reservoir. Habitat is suitable for Oregon chub. Only cutthroat trout are present in the pond. A safe harbor agreement with these landowners is being prepared. An introduction could occur in 2007.
8. *Sprick Pond*- This site is located on private property in the Coast Fork Willamette (Camas Swale) drainage. The pond is a former log pond. The landowners maintain the water levels in the pond by filling with well water during the summer months. No fish were collected in 2005 or 2006. A safe harbor agreement with these landowners is being prepared. An introduction could occur in 2007.
9. *Novitzki Wetlands*- This site is located on private property in the Santiam River drainage in Marion County. This 59 acre wetland complex was constructed in 2003-2004. Only native fish were collected in 2005 and 2006. The presence of fish is of concern, because the wetland is supposedly isolated from adjacent water bodies (ditches) which contain nonnative fish. We will continue to monitor the fish community and establishment of aquatic vegetation at this site.
10. *K. Finley Pond*- This site is located on private property in the Muddy Creek subbasin of the Marys River drainage in Benton County. The pond is an existing farm pond that is spring fed. Dike repairs are scheduled for 2007.
11. *Murphy Pond*- This site is also located on private property in the Muddy Creek subbasin of the Marys River drainage in Benton County. We are preparing grants to create a chub pond in an upland area with associated springs.

Threats to Oregon Chub and Limitations to Their Recovery

Oregon chub continue to be impacted by human activities. During the past decade, Oregon chub populations have been threatened by illegal water withdrawals, unauthorized fill and removal activities, certain timber management activities, highway and pipeline construction, roadside herbicide applications, chemical spills, and routine culvert cleaning operations. However, the proliferation of non-native fish is the largest current threat to Oregon chub populations. Non-native fish have been collected from 43 percent of the 738 unique sites we have sampled in the Willamette Valley since 1991, 55 percent of these sites that contained fish (315 out of 574), and 29 of the 35 new sites sampled in 2006. After the 1996 floods, non-native fish were first collected from several Oregon chub sites in the Santiam River drainage; the two largest populations subsequently declined sharply in abundance (Scheerer 2002). Illegal planting of

largemouth bass at an introduction site in the Middle Fork Willamette River drainage coincided with the collapse of an Oregon chub population that had once totaled over 7,000 fish. Non-native fish are well established throughout the Willamette Valley. They threaten to invade sites containing Oregon chub and limit the ability of Oregon chub to migrate from existing sites and colonize suitable habitats elsewhere. Non-native fish are more common in off-channel habitats in the Santiam and Mid-Willamette River drainages than in the Middle Fork Willamette and McKenzie River drainage (Scheerer 2002).

Recovery of Oregon chub in the Santiam and Mid-Willamette subbasins is severely limited by the proliferation of non-native fish in off-channel habitats. The resulting paradox is that the frequent interaction of the river with the floodplain habitats in these particular subbasins, conditions which historically created off-channel habitats and aided in the dispersal of chub and the interchange of individuals among populations, now poses a threat to Oregon chub by allowing dispersal of nonnative species (Scheerer 2002). Because of the threats posed by nonnative fish, and the loss and fragmentation of suitable Oregon chub habitats, we have few options other than to manage chub populations in isolation. This approach has potentially severe genetic consequences. Genetic analyses that are under way will assist in determining the extent of genetic drift and inbreeding in existing populations and will help guide future management. Managers may be assigned the task of moving fish among certain populations, both natural and introduced, to maintain and enhance the genetic variability necessary for the persistence and recovery of this species.

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APPENDIX A

Fish Species and Habitat Characteristics at Each Survey Location

Sites are sorted by subbasin then listed alphabetically by site name.

¹ Vegetation 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 Salmonid codes: CO= coho salmon *Oncorhynchus kisutch*; CH= chinook salmon *O. tshawytscha*; CT= cutthroat trout *O. clarki*; RB= rainbow trout *O. mykiss*, TF= unknown trout fry.

Site Name	COAST FORK WILLAMETTE SIDE CHN	Map Code	CF11D
Basin	COAST FORK WILLAMETTE RIVER	Sampling Date	5/23/2006
Subbasin		Location: Zone 10T	498954 4857992

Surface Area (m2)	1344
Average Depth (m)	0.5
Maximum Depth (m)	1
Water Temperature (C)	14
Percent Silt / Organics	5

Types of aquatic vegetation¹

Submergent	55
Emergent	30
Floating	10
Algae	5
<i>Total</i>	100

Native Fish Species Collected:

Oregon Chub	150
Cottids	4
Speckled Dace	590
Redside Shiners	1053
Northern Pikeminnows	613
Largescale Suckers	18
Sand Rollers	11
Threespine Sticklebacks	1132
Salmonids ²	
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

Western Mosquitofish	4
Bullheads	
Common Carp	
Bluegills	41
Largemouth Bass	
Pumpkinseeds	1
Crappies	
Smallmouth Bass	
Banded Killifish	

Other: YP = 1

NOTE: POPULATION ESTIMATE

Site Name	LYNX HOLLOW	Map Code	LYNX1C
Basin	COAST FORK WILLAMETTE RIVER	Sampling Date	5/15/2006
Subbasin		Location: Zone 10T	498103 4856295

Surface Area (m2)	4780
Average Depth (m)	0.4
Maximum Depth (m)	0.9
Water Temperature (C)	16
Percent Silt / Organics	50

Types of aquatic vegetation¹

Submergent	50
Emergent	30
Floating	20
Algae	
<i>Total</i>	100

Native Fish Species Collected:

Oregon Chub	2
Cottids	1
Speckled Dace	130
Redside Shiners	19
Northern Pikeminnows	11
Largescale Suckers	17
Sand Rollers	
Threespine Sticklebacks	4
Salmonids ²	
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

Western Mosquitofish	
Bullheads	
Common Carp	
Bluegills	1
Largemouth Bass	
Pumpkinseeds	
Crappies	
Smallmouth Bass	
Banded Killifish	

Other:

NOTE: STATE PARK GREENWAY SITE

Appendix A (continued).

COAST FORK WILLAMETTE RIVER BASIN

Site Name	SAGINAW POND	Map Code	SAG1
Basin	COAST FORK WILLAMETTE RIVER	Sampling Date	5/25/2006
Subbasin		Location: Zone 10T	496605 4853050
Surface Area (m2)	1560	Types of aquatic vegetation¹	
Average Depth (m)	0.6	Submergent	20
Maximum Depth (m)	2	Emergent	15
Water Temperature (C)	16	Floating	30
Percent Silt / Organics	100	Algae	0
		<i>Total</i>	65
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub		Western Mosquitofish	2
Cottids		Bullheads	
Speckled Dace	13	Common Carp	
Redside Shiners	4	Bluegills	
Northern Pikeminnows		Largemouth Bass	
Largescale Suckers		Pumpkinseeds	
Sand Rollers		Crappies	
Threespine Sticklebacks		Smallmouth Bass	
Salmonids ²		Banded Killifish	
Lamprey			
Chiselmouth			
		Other:	
NOTE:	ODOT INTERCHANGE PROJECT		
Site Name	CAMAS SWALE	Map Code	CS11
Basin	COAST FORK WILLAMETTE RIVER	Sampling Date	5/23/2006
Subbasin	CAMAS SWALE	Location: Zone 10T	494550 4863575
Surface Area (m2)	240	Types of aquatic vegetation¹	
Average Depth (m)	0.4	Submergent	
Maximum Depth (m)	0.8	Emergent	5
Water Temperature (C)	15	Floating	
Percent Silt / Organics	100	Algae	
		<i>Total</i>	5
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub		Western Mosquitofish	9
Cottids		Bullheads	
Speckled Dace		Common Carp	
Redside Shiners		Bluegills	5
Northern Pikeminnows		Largemouth Bass	
Largescale Suckers		Pumpkinseeds	
Sand Rollers		Crappies	
Threespine Sticklebacks		Smallmouth Bass	
Salmonids ²		Banded Killifish	
Lamprey			
Chiselmouth			
		Other:	
NOTE:			

Appendix A (continued).

COAST FORK WILLAMETTE RIVER **BASIN**

Site Name	SPRICK POND	Map Code	SPRICK1A
Basin	COAST FORK WILLAMETTE RIVER	Sampling Date	5/15/2006
Subbasin	CAMAS SWALE	Location: Zone 10T	492560 4866691
Surface Area (m2)	1020	Types of aquatic vegetation ¹	
Average Depth (m)	1.5	Submergent	10
Maximum Depth (m)	2.5	Emergent	30
Water Temperature (C)	12	Floating	
Percent Silt / Organics	100	Algae	
		<i>Total</i>	40
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub		Western Mosquitofish	
Cottids		Bullheads	
Speckled Dace		Common Carp	
Redside Shiners		Bluegills	
Northern Pikeminnows		Largemouth Bass	
Largescale Suckers		Pumpkinseeds	
Sand Rollers		Crappies	
Threespine Sticklebacks		Smallmouth Bass	
Salmonids ²		Banded Killifish	
Lamprey			
Chiselmouth			
		Other:	NO FISH
NOTE: POTENTIAL INTRODUCTION SITE			

Site Name	HERMAN POND	Map Code	LAYNG1G
Basin	COAST FORK WILLAMETTE RIVER	Sampling Date	5/18/2006
Subbasin	ROW RIVER	Location: Zone 10T	525471 4842030
Surface Area (m2)	3240	Types of aquatic vegetation ¹	
Average Depth (m)	0.9	Submergent	40
Maximum Depth (m)	1.5	Emergent	50
Water Temperature (C)	16	Floating	15
Percent Silt / Organics	100	Algae	5
		<i>Total</i>	100
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub	41	Western Mosquitofish	
Cottids		Bullheads	
Speckled Dace		Common Carp	
Redside Shiners		Bluegills	
Northern Pikeminnows		Largemouth Bass	
Largescale Suckers		Pumpkinseeds	
Sand Rollers		Crappies	
Threespine Sticklebacks		Smallmouth Bass	
Salmonids ²		Banded Killifish	
Lamprey			
Chiselmouth			
		Other:	
NOTE: POPULATION EST- 2002 INTROD N=400 FCSP			

Site Name	CHAMPOEG STATE PARK POND 2	Map Code	CHAMPOEG2*
Basin	LOWER WILLAMETTE RIVER	Sampling Date	10/16/2006
Subbasin		Location: Zone 10T	509555 5010628

Surface Area (m2)	750	Types of aquatic vegetation¹	
Average Depth (m)	0.75	Submergent	
Maximum Depth (m)	1.1	Emergent	5
Water Temperature (C)	11	Floating	
Percent Silt / Organics	55	Algae	
		<i>Total</i>	5

Native Fish Species Collected:

Oregon Chub	
Cottids	3
Speckled Dace	0
Redside Shiners	
Northern Pikeminnows	
Largescale Suckers	
Sand Rollers	
Threespine Sticklebacks	
Salmonids ²	
Lamprey	
Chiselmouth	0

Non-native Fish Species Collected:

Western Mosquitofish	
Bullheads	
Common Carp	
Bluegills	17
Largemouth Bass	1
Pumpkinseeds	0
Crappies	0
Smallmouth Bass	0
Banded Killifish	0

Other:

NOTE: OPRD SURVEY

Site Name	CHAMPOEG STATE PARK POND 3	Map Code	CHAMPOEG3*
Basin	LOWER WILLAMETTE RIVER	Sampling Date	10/16/2006
Subbasin		Location: Zone 10T	508542 5010434

Surface Area (m2)	440	Types of aquatic vegetation¹	
Average Depth (m)	0.35	Submergent	
Maximum Depth (m)	0.6	Emergent	10
Water Temperature (C)	12	Floating	
Percent Silt / Organics	40	Algae	
		<i>Total</i>	10

Native Fish Species Collected:

Oregon Chub	
Cottids	12
Speckled Dace	0
Redside Shiners	
Northern Pikeminnows	
Largescale Suckers	
Sand Rollers	
Threespine Sticklebacks	
Salmonids ²	
Lamprey	
Chiselmouth	0

Non-native Fish Species Collected:

Western Mosquitofish	
Bullheads	1
Common Carp	
Bluegills	0
Largemouth Bass	0
Pumpkinseeds	0
Crappies	0
Smallmouth Bass	0
Banded Killifish	0

Other:

NOTE: OPRD SURVEY

Site Name	INDEPENDENCE ISLAND BACKWATER	Map Code	INDEPIS1*	
Basin	LOWER WILLAMETTE RIVER	Sampling Date	10/18/2006	
Subbasin		Location: Zone	10T	485713 4965661
Surface Area (m2)	1500	Types of aquatic vegetation¹		
Average Depth (m)	1	Submergent	30	
Maximum Depth (m)	1.6	Emergent	50	
Water Temperature (C)	13	Floating	10	
Percent Silt / Organics	70	Algae	10	
		<i>Total</i>	100	
Native Fish Species Collected:		Non-native Fish Species Collected:		
Oregon Chub		Western Mosquitofish	12	
Cottids		Bullheads		
Speckled Dace	0	Common Carp		
Redside Shiners	12	Bluegills	42	
Northern Pikeminnows		Largemouth Bass	0	
Largescale Suckers		Pumpkinseeds	0	
Sand Rollers		Crappies	0	
Threespine Sticklebacks		Smallmouth Bass	0	
Salmonids ²		Banded Killifish	0	
Lamprey				
Chiselmouth	0			
		Other:		
NOTE: OPRD SURVEY				
Site Name	INDEPENDENCE ISLAND ISOL POND	Map Code	INDEPIS2*	
Basin	LOWER WILLAMETTE RIVER	Sampling Date	10/18/2006	
Subbasin		Location: Zone	10T	485743 4965527
Surface Area (m2)	1560	Types of aquatic vegetation¹		
Average Depth (m)	0.8	Submergent	20	
Maximum Depth (m)	1.5	Emergent	70	
Water Temperature (C)	13	Floating	0	
Percent Silt / Organics	20	Algae	10	
		<i>Total</i>	100	
Native Fish Species Collected:		Non-native Fish Species Collected:		
Oregon Chub		Western Mosquitofish		
Cottids		Bullheads		
Speckled Dace		Common Carp		
Redside Shiners		Bluegills	0	
Northern Pikeminnows		Largemouth Bass	0	
Largescale Suckers		Pumpkinseeds	0	
Sand Rollers		Crappies	0	
Threespine Sticklebacks		Smallmouth Bass	0	
Salmonids ²		Banded Killifish	0	
Lamprey				
Chiselmouth	0			
		Other:	NO FISH	
NOTE: OPRD SURVEY				

Site Name	JACKSON BEND BACKWATER	Map Code	JACKSON2*
Basin	LOWER WILLAMETTE RIVER	Sampling Date	10/25/2006
Subbasin		Location: Zone 10T	499436 5000346
Surface Area (m2)	4000	Types of aquatic vegetation ¹	
Average Depth (m)	0.8	Submergent	60
Maximum Depth (m)	1.5	Emergent	10
Water Temperature (C)	7.5	Floating	20
Percent Silt / Organics	70	Algae	10
		<i>Total</i>	100
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub		Western Mosquitofish	22
Cottids		Bullheads	
Speckled Dace	0	Common Carp	
Redside Shiners		Bluegills	14
Northern Pikeminnows		Largemouth Bass	5
Largescale Suckers		Pumpkinseeds	0
Sand Rollers		Crappies	0
Threespine Sticklebacks		Smallmouth Bass	0
Salmonids ²		Banded Killifish	0
Lamprey		Other:	
Chiselmouth	0		
NOTE:	OPRD SURVEY		
Site Name	JACKSON BEND SIDE CHANNEL	Map Code	JACKSON1*
Basin	LOWER WILLAMETTE RIVER	Sampling Date	10/25/2006
Subbasin		Location: Zone 10T	499356 5000240
Surface Area (m2)	4400	Types of aquatic vegetation ¹	
Average Depth (m)	0.8	Submergent	95
Maximum Depth (m)	1.6	Emergent	0
Water Temperature (C)	7.5	Floating	0
Percent Silt / Organics	100	Algae	0
		<i>Total</i>	95
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub		Western Mosquitofish	200
Cottids		Bullheads	
Speckled Dace	0	Common Carp	
Redside Shiners		Bluegills	3
Northern Pikeminnows		Largemouth Bass	0
Largescale Suckers		Pumpkinseeds	0
Sand Rollers		Crappies	0
Threespine Sticklebacks		Smallmouth Bass	0
Salmonids ²		Banded Killifish	0
Lamprey		Other:	
Chiselmouth	0		
NOTE:	OPRD SURVEY		

Appendix A (continued).

LOWER WILLAMETTE RIVER BASIN

Site Name	SPRING VALLEY ACCESS BACKWATER	Map Code	SPRING2*
Basin	LOWER WILLAMETTE RIVER	Sampling Date	10/17/2006
Subbasin		Location: Zone 10T	494792 4990429
Surface Area (m2)	1560	Types of aquatic vegetation ¹	
Average Depth (m)	0.8	Submergent	50
Maximum Depth (m)	1.4	Emergent	15
Water Temperature (C)	13	Floating	20
Percent Silt / Organics	70	Algae	
		<i>Total</i>	85
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub		Western Mosquitofish	110
Cottids		Bullheads	
Speckled Dace	0	Common Carp	
Redside Shiners	18	Bluegills	13
Northern Pikeminnows		Largemouth Bass	0
Largescale Suckers		Pumpkinseeds	0
Sand Rollers		Crappies	0
Threespine Sticklebacks		Smallmouth Bass	0
Salmonids ²		Banded Killifish	0
Lamprey			
Chiselmouth	0	Other:	
NOTE:	OPRD SURVEY		
Site Name	SPRING VALLEY ACCESS SIDE CHNL	Map Code	SPRING1*
Basin	LOWER WILLAMETTE RIVER	Sampling Date	10/17/2006
Subbasin		Location: Zone 10T	494461 4990578
Surface Area (m2)	420	Types of aquatic vegetation ¹	
Average Depth (m)	0.5	Submergent	10
Maximum Depth (m)	0.75	Emergent	30
Water Temperature (C)	11	Floating	20
Percent Silt / Organics	80	Algae	0
		<i>Total</i>	60
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub		Western Mosquitofish	11
Cottids	3	Bullheads	
Speckled Dace	0	Common Carp	
Redside Shiners	3	Bluegills	0
Northern Pikeminnows	1	Largemouth Bass	0
Largescale Suckers		Pumpkinseeds	0
Sand Rollers		Crappies	0
Threespine Sticklebacks		Smallmouth Bass	0
Salmonids ²		Banded Killifish	0
Lamprey			
Chiselmouth	0	Other:	
NOTE:	OPRD SURVEY, SWCD GATE		

Site Name	YAMHILL LANDING BACKWATER	Map Code	YAMLAND1*
Basin	LOWER WILLAMETTE RIVER	Sampling Date	10/25/2006
Subbasin		Location: Zone 10T	496953 5007466
Surface Area (m2)	2000	Types of aquatic vegetation ¹	
Average Depth (m)	1	Submergent	95
Maximum Depth (m)	2.4	Emergent	5
Water Temperature (C)	10	Floating	0
Percent Silt / Organics	60	Algae	0
		<i>Total</i>	100
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub		Western Mosquitofish	100
Cottids		Bullheads	2
Speckled Dace	0	Common Carp	
Redside Shiners		Bluegills	6
Northern Pikeminnows		Largemouth Bass	31
Largescale Suckers		Pumpkinseeds	0
Sand Rollers		Crappies	0
Threespine Sticklebacks		Smallmouth Bass	0
Salmonids ²		Banded Killifish	0
Lamprey			
Chiselmouth	0		
		Other:	
NOTE: OPRD SURVEY, DEEP CHANNEL			

Site Name	ANKENY NWR-WILLOW MARSH	Map Code	WM1D*
Basin	LOWER WILLAMETTE RIVER	Sampling Date	9/26/2006
Subbasin	ANKENY	Location: Zone 10T	494684 4958441
Surface Area (m2)	25120	Types of aquatic vegetation ¹	
Average Depth (m)	0.7	Submergent	25
Maximum Depth (m)	2	Emergent	60
Water Temperature (C)	17	Floating	5
Percent Silt / Organics	100	Algae	10
		<i>Total</i>	100
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub	35650	Western Mosquitofish	
Cottids		Bullheads	
Speckled Dace		Common Carp	
Redside Shiners		Bluegills	
Northern Pikeminnows		Largemouth Bass	
Largescale Suckers		Pumpkinseeds	
Sand Rollers		Crappies	
Threespine Sticklebacks		Smallmouth Bass	
Salmonids ²		Banded Killifish	
Lamprey			
Chiselmouth			
		Other:	
NOTE: REINTRODUCTION SITE- POPULATION ESTIMATE			

Appendix A (continued).

LOWER WILLAMETTE RIVER BASIN

Site Name	MOLALLA STATE PARK POND 1	Map Code	MOLSP1*
Basin	LOWER WILLAMETTE RIVER	Sampling Date	10/17/2006
Subbasin	MOLALLA RIVER	Location: Zone 10T	523838 5015582
Surface Area (m2)	2400	Types of aquatic vegetation ¹	
Average Depth (m)	1.2	Submergent	
Maximum Depth (m)	2.2	Emergent	
Water Temperature (C)	12	Floating	60
Percent Silt / Organics	100	Algae	
		<i>Total</i>	60
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub		Western Mosquitofish	21
Cottids		Bullheads	
Speckled Dace	0	Common Carp	
Redside Shiners		Bluegills	13
Northern Pikeminnows		Largemouth Bass	0
Largescale Suckers		Pumpkinseeds	0
Sand Rollers		Crappies	0
Threespine Sticklebacks		Smallmouth Bass	0
Salmonids ²		Banded Killifish	0
Lamprey			
Chiselmouth	0	Other:	
NOTE:	OPRD SURVEY, TRASH		
Site Name	MOLALLA STATE PARK POND 2	Map Code	MOLSP2*
Basin	LOWER WILLAMETTE RIVER	Sampling Date	10/17/2006
Subbasin	MOLALLA RIVER	Location: Zone 10T	523575 5015560
Surface Area (m2)	910	Types of aquatic vegetation ¹	
Average Depth (m)	0.8	Submergent	30
Maximum Depth (m)	2	Emergent	0
Water Temperature (C)	11	Floating	30
Percent Silt / Organics	100	Algae	0
		<i>Total</i>	60
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub		Western Mosquitofish	50
Cottids		Bullheads	
Speckled Dace		Common Carp	
Redside Shiners		Bluegills	202
Northern Pikeminnows		Largemouth Bass	2
Largescale Suckers		Pumpkinseeds	
Sand Rollers		Crappies	
Threespine Sticklebacks		Smallmouth Bass	
Salmonids ²		Banded Killifish	
Lamprey			
Chiselmouth		Other:	
NOTE:	OPRD SURVEY, BAIT CONTAINERS		

Appendix A (continued).

LOWER WILLAMETTE RIVER BASIN

Site Name	MOLALLA STATE PARK POND 3	Map Code	MOLSP3*
Basin	LOWER WILLAMETTE RIVER	Sampling Date	10/17/2006
Subbasin	MOLALLA RIVER	Location: Zone	10T 523512 5015516

Surface Area (m2)	595	Types of aquatic vegetation¹	
Average Depth (m)	1	Submergent	0
Maximum Depth (m)	1.5	Emergent	10
Water Temperature (C)	11	Floating	50
Percent Silt / Organics	100	Algae	0
		<i>Total</i>	60

Native Fish Species Collected:

Oregon Chub	
Cottids	
Speckled Dace	0
Redside Shiners	
Northern Pikeminnows	
Largescale Suckers	
Sand Rollers	
Threespine Sticklebacks	
Salmonids ²	
Lamprey	
Chiselmouth	0

Non-native Fish Species Collected:

Western Mosquitofish	2
Bullheads	
Common Carp	
Bluegills	140
Largemouth Bass	0
Pumpkinseeds	0
Crappies	0
Smallmouth Bass	0
Banded Killifish	0

Other:

NOTE: OPRD SURVEY

Site Name	BIG ISLAND	Map Code	BIG1-6D
Basin	MCKENZIE RIVER	Sampling Date	5/4/2006
Subbasin		Location: Zone 10T	507253 4879014

Surface Area (m2)	8519	Types of aquatic vegetation¹	
Average Depth (m)	0.6	Submergent	25
Maximum Depth (m)	1.5	Emergent	37
Water Temperature (C)	14	Floating	10
Percent Silt / Organics	90	Algae	
		<i>Total</i>	72

Native Fish Species Collected:

Oregon Chub	375
Cottids	7
Speckled Dace	619
Redside Shiners	1334
Northern Pikeminnows	10
Largescale Suckers	11
Sand Rollers	
Threespine Sticklebacks	16114
Salmonids ² CH	1
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

Western Mosquitofish
Bullheads
Common Carp
Bluegills
Largemouth Bass
Pumpkinseeds
Crappies
Smallmouth Bass
Banded Killifish

Other:**NOTE:** POPULATION ESTIMATE

Site Name	RUSSELL POND	Map Code	RUSS1H
Basin	MCKENZIE RIVER	Sampling Date	5/8/2006
Subbasin	MOHAWK RIVER	Location: Zone 10T	515585 4897084

Surface Area (m2)	800	Types of aquatic vegetation¹	
Average Depth (m)	1.5	Submergent	10
Maximum Depth (m)	2	Emergent	30
Water Temperature (C)	15	Floating	0
Percent Silt / Organics	100	Algae	0
		<i>Total</i>	40

Native Fish Species Collected:

Oregon Chub	997
Cottids	
Speckled Dace	
Redside Shiners	
Northern Pikeminnows	
Largescale Suckers	
Sand Rollers	
Threespine Sticklebacks	
Salmonids ²	
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

Western Mosquitofish
Bullheads
Common Carp
Bluegills
Largemouth Bass
Pumpkinseeds
Crappies
Smallmouth Bass
Banded Killifish

Other:**NOTE:** POP ESTIMATE- REINTRODUCTION SITE

Appendix A (continued).

MCKENZIE RIVER BASIN

Site Name	SHETZLINE MIDDLE-NORTH POND	Map Code	SHET2-3C	
Basin	MCKENZIE RIVER	Sampling Date	5/8/2006	
Subbasin	MOHAWK RIVER	Location: Zone 10T	515031	4897492
Surface Area (m2)	2100	Types of aquatic vegetation¹		
Average Depth (m)	2	Submergent	35	
Maximum Depth (m)	2.5	Emergent	14	
Water Temperature (C)	14	Floating		
Percent Silt / Organics	100	Algae		
		<i>Total</i>	49	
Native Fish Species Collected:		Non-native Fish Species Collected:		
Oregon Chub		Western Mosquitofish		
Cottids		Bullheads		
Speckled Dace		Common Carp		
Redside Shiners		Bluegills	30	
Northern Pikeminnows		Largemouth Bass		
Largescale Suckers		Pumpkinseeds		
Sand Rollers		Crappies		
Threespine Sticklebacks		Smallmouth Bass		
Salmonids ²		Banded Killifish		
Lamprey				
Chiselmouth				
		Other:		
NOTE: HAB. PROJECT 2004, ROTENONE FALL 2006				

Site Name	SHETZLINE SOUTH POND	Map Code	SHET1D	
Basin	MCKENZIE RIVER	Sampling Date	5/8/2006	
Subbasin	MOHAWK RIVER	Location: Zone 10T	515031	4897452
Surface Area (m2)	700	Types of aquatic vegetation¹		
Average Depth (m)	2	Submergent	50	
Maximum Depth (m)	2.5	Emergent	10	
Water Temperature (C)	14	Floating	20	
Percent Silt / Organics	100	Algae		
		<i>Total</i>	80	
Native Fish Species Collected:		Non-native Fish Species Collected:		
Oregon Chub	391	Western Mosquitofish		
Cottids	1	Bullheads		
Speckled Dace		Common Carp		
Redside Shiners	1293	Bluegills		
Northern Pikeminnows		Largemouth Bass		
Largescale Suckers		Pumpkinseeds		
Sand Rollers		Crappies		
Threespine Sticklebacks		Smallmouth Bass		
Salmonids ²		Banded Killifish		
Lamprey				
Chiselmouth				
		Other:		
NOTE: POPULATION ESTIMATE				

Site Name	BARNHARD SLOUGH	Map Code	BARN1F
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	4/11/2006
Subbasin		Location: Zone 10T	539426 4843773

Surface Area (m2)	1440	Types of aquatic vegetation¹	
Average Depth (m)	0.6	Submergent	5
Maximum Depth (m)	2	Emergent	80
Water Temperature (C)	9	Floating	5
Percent Silt / Organics	90	Algae	5
		<i>Total</i>	95

Native Fish Species Collected:

Oregon Chub	
Cottids	3
Speckled Dace	
Redside Shiners	1
Northern Pikeminnows	
Largescale Suckers	
Sand Rollers	
Threespine Sticklebacks	
Salmonids ² CT	18
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

Western Mosquitofish
Bullheads
Common Carp
Bluegills
Largemouth Bass
Pumpkinseeds
Crappies
Smallmouth Bass
Banded Killifish

Other:**NOTE:**

Site Name	HAWS POND	Map Code	HAW1A*
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	9/18/2006
Subbasin		Location: Zone 10T	539931 4843130

Surface Area (m2)	902	Types of aquatic vegetation¹	
Average Depth (m)	1	Submergent	63
Maximum Depth (m)	1.8	Emergent	12
Water Temperature (C)	14	Floating	5
Percent Silt / Organics	90	Algae	
		<i>Total</i>	80

Native Fish Species Collected:

Oregon Chub	440
Cottids	
Speckled Dace	924
Redside Shiners	1474
Northern Pikeminnows	
Largescale Suckers	
Sand Rollers	
Threespine Sticklebacks	
Salmonids ² CT	1
Lamprey	1
Chiselmouth	

Non-native Fish Species Collected:

Western Mosquitofish
Bullheads
Common Carp
Bluegills
Largemouth Bass
Pumpkinseeds
Crappies
Smallmouth Bass
Banded Killifish

Other:**NOTE:** POPULATION ESTIMATE

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	HOSPITAL IMPOUNDMENT POND	Map Code	H11M
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	4/13/2006
Subbasin		Location: Zone 10T	533115 4851517
Surface Area (m2)	1768	Types of aquatic vegetation¹	
Average Depth (m)	1	Submergent	80
Maximum Depth (m)	2.3	Emergent	15
Water Temperature (C)	11	Floating	
Percent Silt / Organics	95	Algae	
		<i>Total</i>	95
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub		Western Mosquitofish	
Cottids	12	Bullheads	
Speckled Dace	5	Common Carp	
Redside Shiners	2	Bluegills	2
Northern Pikeminnows		Largemouth Bass	
Largescale Suckers		Pumpkinseeds	
Sand Rollers		Crappies	
Threespine Sticklebacks		Smallmouth Bass	
Salmonids ² TF	1	Banded Killifish	
Lamprey			
Chiselmouth			
		Other:	
NOTE:	HABITAT RESTORATION PROJECT 1994		

Site Name	HOSPITAL POND	Map Code	HSP1N
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	4/11/2006
Subbasin		Location: Zone 10T	533115 4851567
Surface Area (m2)	4442	Types of aquatic vegetation¹	
Average Depth (m)	2	Submergent	60
Maximum Depth (m)	3	Emergent	5
Water Temperature (C)	10	Floating	15
Percent Silt / Organics	100	Algae	0
		<i>Total</i>	80
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub	2042	Western Mosquitofish	
Cottids		Bullheads	
Speckled Dace		Common Carp	
Redside Shiners	1181	Bluegills	
Northern Pikeminnows		Largemouth Bass	
Largescale Suckers	6	Pumpkinseeds	
Sand Rollers		Crappies	
Threespine Sticklebacks		Smallmouth Bass	
Salmonids ²		Banded Killifish	
Lamprey			
Chiselmouth			
		Other:	
NOTE:	POPULATION ESTIMATE		

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	JASPER PARK SLOUGH	Map Code	CAP1K
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	4/17/2006
Subbasin		Location: Zone 10T	507693 4870573
Surface Area (m2)	3600	Types of aquatic vegetation¹	
Average Depth (m)	1	Submergent	100
Maximum Depth (m)	1.5	Emergent	
Water Temperature (C)	10	Floating	
Percent Silt / Organics	100	Algae	
		<i>Total</i>	100
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub		Western Mosquitofish	1
Cottids		Bullheads	
Speckled Dace	5	Common Carp	
Redside Shiners	4	Bluegills	
Northern Pikeminnows		Largemouth Bass	
Largescale Suckers	1	Pumpkinseeds	
Sand Rollers		Crappies	
Threespine Sticklebacks	2	Smallmouth Bass	
Salmonids ²		Banded Killifish	
Lamprey			
Chiselmouth			
		Other:	
NOTE:	CHOKED WITH PARROTFEATHER		
Site Name	OAKRIDGE SLOUGH	Map Code	OSTP1K
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	4/5/2006
Subbasin		Location: Zone 10T	540294 4843284
Surface Area (m2)	4800	Types of aquatic vegetation¹	
Average Depth (m)	1	Submergent	15
Maximum Depth (m)	1.6	Emergent	30
Water Temperature (C)	8.5	Floating	20
Percent Silt / Organics	100	Algae	35
		<i>Total</i>	100
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub		Western Mosquitofish	
Cottids	7	Bullheads	
Speckled Dace	6	Common Carp	
Redside Shiners	6	Bluegills	
Northern Pikeminnows		Largemouth Bass	
Largescale Suckers		Pumpkinseeds	
Sand Rollers		Crappies	
Threespine Sticklebacks		Smallmouth Bass	
Salmonids ² CT	1	Banded Killifish	
Lamprey	2		
Chiselmouth			
		Other:	
NOTE:			

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	SHADY DELL POND	Map Code	SDP10*
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	9/11/2006
Subbasin		Location: Zone 10T	536757 4848357
Surface Area (m2)	520	Types of aquatic vegetation ¹	
Average Depth (m)	0.4	Submergent	30
Maximum Depth (m)	0.9	Emergent	50
Water Temperature (C)	18	Floating	2
Percent Silt / Organics	100	Algae	
		<i>Total</i>	82
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub	5433	Western Mosquitofish	
Cottids	1	Bullheads	
Speckled Dace	156	Common Carp	
Redside Shiners	1003	Bluegills	
Northern Pikeminnows		Largemouth Bass	
Largescale Suckers		Pumpkinseeds	
Sand Rollers		Crappies	
Threespine Sticklebacks		Smallmouth Bass	
Salmonids ²		Banded Killifish	
Lamprey			
Chiselmouth			
		Other:	
NOTE:	POPULATION ESTIMATE		
Site Name	WALLACE SLOUGH	Map Code	WALL11
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	4/3/2006
Subbasin		Location: Zone 10T	507160 4872225
Surface Area (m2)	3600	Types of aquatic vegetation ¹	
Average Depth (m)	1	Submergent	10
Maximum Depth (m)	2	Emergent	15
Water Temperature (C)	7.5	Floating	5
Percent Silt / Organics	90	Algae	
		<i>Total</i>	30
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub		Western Mosquitofish	
Cottids	3	Bullheads	
Speckled Dace		Common Carp	
Redside Shiners	17	Bluegills	1
Northern Pikeminnows	4	Largemouth Bass	
Largescale Suckers		Pumpkinseeds	
Sand Rollers		Crappies	
Threespine Sticklebacks		Smallmouth Bass	
Salmonids ²		Banded Killifish	
Lamprey			
Chiselmouth			
		Other:	
NOTE:			

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	BUCKHEAD CREEK	Map Code	BCK9-12H
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	4/13/2006
Subbasin	BUCKHEAD CREEK	Location: Zone 10T	537950 4847919

Surface Area (m2)	11290	Types of aquatic vegetation ¹	
Average Depth (m)	0.8	Submergent	70
Maximum Depth (m)	1.5	Emergent	20
Water Temperature (C)	9.5	Floating	0
Percent Silt / Organics	95	Algae	0
		<i>Total</i>	90

Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub	524	Western Mosquitofish	
Cottids	1	Bullheads	
Speckled Dace	372	Common Carp	
Redside Shiners	1598	Bluegills	
Northern Pikeminnows	5	Largemouth Bass	
Largescale Suckers	2	Pumpkinseeds	
Sand Rollers		Crappies	
Threespine Sticklebacks		Smallmouth Bass	
Salmonids ² CT	1	Banded Killifish	
Lamprey			
Chiselmouth			

Other:

NOTE: POPULATION ESTIMATE

Site Name	LOWER BUCKHEAD ENHANCEMENT PND	Map Code	BCK14G
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	4/6/2006
Subbasin	BUCKHEAD CREEK	Location: Zone 10T	536825 4848623

Surface Area (m2)	540	Types of aquatic vegetation ¹	
Average Depth (m)	0.8	Submergent	35
Maximum Depth (m)	2	Emergent	20
Water Temperature (C)	12.5	Floating	5
Percent Silt / Organics	100	Algae	
		<i>Total</i>	60

Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub	430	Western Mosquitofish	
Cottids		Bullheads	
Speckled Dace	41	Common Carp	
Redside Shiners	49	Bluegills	
Northern Pikeminnows	3	Largemouth Bass	
Largescale Suckers	1	Pumpkinseeds	
Sand Rollers		Crappies	
Threespine Sticklebacks		Smallmouth Bass	
Salmonids ²		Banded Killifish	
Lamprey			
Chiselmouth			

Other:

NOTE: POPULATION ESTIMATE- POND MADE 10-98

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	MIDDLE BUCKHEAD ENHANCEMENT PD	Map Code	BCK15G
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	4/6/2006
Subbasin	BUCKHEAD CREEK	Location: Zone 10T	537105 4848567

Surface Area (m2)	500	Types of aquatic vegetation ¹	
Average Depth (m)	0.8	Submergent	40
Maximum Depth (m)	1.5	Emergent	35
Water Temperature (C)	12	Floating	5
Percent Silt / Organics	90	Algae	
		<i>Total</i>	80

Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub	978	Western Mosquitofish	
Cottids		Bullheads	
Speckled Dace	55	Common Carp	
Redside Shiners	13	Bluegills	
Northern Pikeminnows	4	Largemouth Bass	
Largescale Suckers	3	Pumpkinseeds	
Sand Rollers		Crappies	
Threespine Sticklebacks		Smallmouth Bass	
Salmonids ² CT	1	Banded Killifish	
Lamprey			
Chiselmouth			

Other:

NOTE: POPULATION ESTIMATE- POND MADE 10-98

Site Name	UPPER BUCKHEAD CREEK BACKWATER	Map Code	BCK7K
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	4/12/2006
Subbasin	BUCKHEAD CREEK	Location: Zone 10T	538218 4846739

Surface Area (m2)	5953	Types of aquatic vegetation ¹	
Average Depth (m)	1.2	Submergent	25
Maximum Depth (m)	2	Emergent	25
Water Temperature (C)	10	Floating	20
Percent Silt / Organics	100	Algae	
		<i>Total</i>	70

Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub	1012	Western Mosquitofish	
Cottids		Bullheads	
Speckled Dace		Common Carp	
Redside Shiners	1055	Bluegills	
Northern Pikeminnows		Largemouth Bass	
Largescale Suckers	1	Pumpkinseeds	
Sand Rollers		Crappies	
Threespine Sticklebacks		Smallmouth Bass	
Salmonids ²		Banded Killifish	
Lamprey			
Chiselmouth			

Other:

NOTE: POPULATION ESTIMATE

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	UPPER BUCKHEAD ENHANCEMENT PND	Map Code	BCK16G
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	4/6/2006
Subbasin	BUCKHEAD CREEK	Location: Zone 10T	537144 4848481

Surface Area (m2)	300	Types of aquatic vegetation ¹	
Average Depth (m)	0.8	Submergent	40
Maximum Depth (m)	2.2	Emergent	35
Water Temperature (C)	12.5	Floating	
Percent Silt / Organics	95	Algae	
		<i>Total</i>	75

Native Fish Species Collected:	Non-native Fish Species Collected:
Oregon Chub	Western Mosquitofish
Cottids	Bullheads
Speckled Dace	Common Carp
Redside Shiners	Bluegills
Northern Pikeminnows	Largemouth Bass
Largescale Suckers	Pumpkinseeds
Sand Rollers	Crappies
Threespine Sticklebacks	Smallmouth Bass
Salmonids ²	Banded Killifish
Lamprey	
Chiselmouth	
NOTE: NO FISH	Other: NO FISH

Site Name	DEXTER ALCOVE "THE PIT"	Map Code	PIT1N*
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	9/12/2006
Subbasin	DEXTER RESERVOIR	Location: Zone 10T	517270 4861753

Surface Area (m2)	300	Types of aquatic vegetation ¹	
Average Depth (m)	0.5	Submergent	30
Maximum Depth (m)	1	Emergent	35
Water Temperature (C)	18	Floating	
Percent Silt / Organics	90	Algae	35
		<i>Total</i>	100

Native Fish Species Collected:	Non-native Fish Species Collected:	
Oregon Chub	646	Western Mosquitofish
Cottids	7	Bullheads
Speckled Dace		Common Carp
Redside Shiners	7	Bluegills
Northern Pikeminnows	1	Largemouth Bass
Largescale Suckers		Pumpkinseeds
Sand Rollers		Crappies
Threespine Sticklebacks		Smallmouth Bass
Salmonids ²		Banded Killifish
Lamprey		
Chiselmouth		
NOTE: POPULATION ESTIMATE		Other:

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	DEXTER EAST ALCOVE	Map Code	DEX1J*
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	9/14/2006
Subbasin	DEXTER RESERVOIR	Location: Zone 10T	517410 4861755
Surface Area (m2)	81	Types of aquatic vegetation¹	
Average Depth (m)	0.3	Submergent	5
Maximum Depth (m)	0.6	Emergent	0
Water Temperature (C)	17.5	Floating	
Percent Silt / Organics	100	Algae	
		<i>Total</i>	5
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub		Western Mosquitofish	
Cottids	1	Bullheads	
Speckled Dace		Common Carp	
Redside Shiners		Bluegills	
Northern Pikeminnows	4	Largemouth Bass	
Largescale Suckers		Pumpkinseeds	
Sand Rollers		Crappies	
Threespine Sticklebacks		Smallmouth Bass	
Salmonids ²		Banded Killifish	
Lamprey			
Chiselmouth			
		Other:	
NOTE:			
Site Name	DEXTER RV ALCOVE	Map Code	DEX3L*
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	9/14/2006
Subbasin	DEXTER RESERVOIR	Location: Zone 10T	515504 4862061
Surface Area (m2)	1650	Types of aquatic vegetation¹	
Average Depth (m)	0.7	Submergent	70
Maximum Depth (m)	1	Emergent	7
Water Temperature (C)	18	Floating	
Percent Silt / Organics	100	Algae	
		<i>Total</i>	87
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub	3312	Western Mosquitofish	
Cottids	5	Bullheads	
Speckled Dace		Common Carp	
Redside Shiners	3	Bluegills	1
Northern Pikeminnows	1	Largemouth Bass	
Largescale Suckers		Pumpkinseeds	
Sand Rollers		Crappies	
Threespine Sticklebacks		Smallmouth Bass	
Salmonids ²		Banded Killifish	
Lamprey			
Chiselmouth			
		Other:	
NOTE: POPULATION ESTIMATE			

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	ELIJAH BRISTOW BERRY SLOUGH	Map Code	EB1-11M
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	4/17/2006
Subbasin	ELIJAH BRISTOW	Location: Zone 10T	513244 4865199
Surface Area (m2)	10301	Types of aquatic vegetation ¹	
Average Depth (m)	1.2	Submergent	10
Maximum Depth (m)	2.5	Emergent	90
Water Temperature (C)	10	Floating	
Percent Silt / Organics	100	Algae	
		<i>Total</i>	100
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub	5455	Western Mosquitofish	
Cottids	1	Bullheads	
Speckled Dace	488	Common Carp	
Redside Shiners	747	Bluegills	
Northern Pikeminnows		Largemouth Bass	
Largescale Suckers	2	Pumpkinseeds	
Sand Rollers		Crappies	
Threespine Sticklebacks	327	Smallmouth Bass	
Salmonids ²		Banded Killifish	
Lamprey			
Chiselmouth			
		Other:	
NOTE:	POPULATION ESTIMATE		
Site Name	ELIJAH BRISTOW ISLAND POND	Map Code	MF8F,12F*
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	10/4/2006
Subbasin	ELIJAH BRISTOW	Location: Zone 10T	514043 4864334
Surface Area (m2)	10490	Types of aquatic vegetation ¹	
Average Depth (m)	1.2	Submergent	85
Maximum Depth (m)	2	Emergent	7
Water Temperature (C)	13.5	Floating	0
Percent Silt / Organics	96	Algae	0
		<i>Total</i>	92
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub	2309	Western Mosquitofish	20
Cottids	668	Bullheads	
Speckled Dace	571	Common Carp	
Redside Shiners	5	Bluegills	
Northern Pikeminnows		Largemouth Bass	
Largescale Suckers	15	Pumpkinseeds	
Sand Rollers		Crappies	
Threespine Sticklebacks		Smallmouth Bass	
Salmonids ²		Banded Killifish	
Lamprey			
Chiselmouth			
		Other:	
NOTE:	POPULATION ESTIMATE		

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	ELIJAH BRISTOW LGE GRAVEL PIT	Map Code	EB13I
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	4/20/2006
Subbasin	ELIJAH BRISTOW	Location: Zone 10T	513884 4864390

Surface Area (m2)	500	Types of aquatic vegetation ¹	
Average Depth (m)	0.5	Submergent	70
Maximum Depth (m)	1.5	Emergent	20
Water Temperature (C)	15	Floating	
Percent Silt / Organics	75	Algae	
		<i>Total</i>	90

Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub		Western Mosquitofish	200
Cottids		Bullheads	
Speckled Dace		Common Carp	
Redside Shiners		Bluegills	2
Northern Pikeminnows		Largemouth Bass	
Largescale Suckers		Pumpkinseeds	
Sand Rollers		Crappies	
Threespine Sticklebacks		Smallmouth Bass	
Salmonids ²		Banded Killifish	
Lamprey			
Chiselmouth			

Other:

NOTE:

Site Name	ELIJAH BRISTOW NORTH SLOUGH	Map Code	EBN1H
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	4/18/2006
Subbasin	ELIJAH BRISTOW	Location: Zone 10T	514931 4864608

Surface Area (m2)	5800	Types of aquatic vegetation ¹	
Average Depth (m)	0.8	Submergent	40
Maximum Depth (m)	2	Emergent	10
Water Temperature (C)	13	Floating	50
Percent Silt / Organics	100	Algae	0
		<i>Total</i>	100

Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub	206	Western Mosquitofish	
Cottids	3	Bullheads	
Speckled Dace	15	Common Carp	
Redside Shiners	14	Bluegills	2
Northern Pikeminnows	2	Largemouth Bass	
Largescale Suckers		Pumpkinseeds	
Sand Rollers		Crappies	
Threespine Sticklebacks		Smallmouth Bass	
Salmonids ²		Banded Killifish	
Lamprey			
Chiselmouth			

Other:

NOTE: POPULATION ESTIMATE

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	ELIJAH BRISTOW SMALL GRAVL PIT	Map Code	EB15J
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	4/20/2006
Subbasin	ELIJAH BRISTOW	Location: Zone 10T	513883 4864404
Surface Area (m2)	1	Types of aquatic vegetation ¹	
Average Depth (m)	0.2	Submergent	30
Maximum Depth (m)	0.4	Emergent	50
Water Temperature (C)	12	Floating	
Percent Silt / Organics	100	Algae	
		<i>Total</i>	80
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub		Western Mosquitofish	1
Cottids		Bullheads	
Speckled Dace		Common Carp	
Redside Shiners	13	Bluegills	
Northern Pikeminnows		Largemouth Bass	
Largescale Suckers		Pumpkinseeds	
Sand Rollers		Crappies	
Threespine Sticklebacks		Smallmouth Bass	
Salmonids ²		Banded Killifish	
Lamprey			
Chiselmouth			
		Other:	
NOTE:			

Site Name	FALL CREEK SPILLWAY PONDS	Map Code	FCSP1-2M*
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	9/12/2006
Subbasin	FALL CREEK	Location: Zone 10T	519285 4865320
Surface Area (m2)	9063	Types of aquatic vegetation ¹	
Average Depth (m)	0.7	Submergent	70
Maximum Depth (m)	1.4	Emergent	14
Water Temperature (C)	23	Floating	0
Percent Silt / Organics	100	Algae	0
		<i>Total</i>	89
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub	3246	Western Mosquitofish	
Cottids		Bullheads	
Speckled Dace	2651	Common Carp	
Redside Shiners		Bluegills	
Northern Pikeminnows		Largemouth Bass	
Largescale Suckers		Pumpkinseeds	
Sand Rollers		Crappies	
Threespine Sticklebacks		Smallmouth Bass	
Salmonids ²		Banded Killifish	
Lamprey			
Chiselmouth			
		Other:	
NOTE: REINTROD, POP EST, LOWER POND DRY			

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	EAST FERRIN POND	Map Code	FP3P*
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	9/20/2006
Subbasin	FERRIN CREEK	Location: Zone 10T	539093 4843507

Surface Area (m2)	17000	Types of aquatic vegetation ¹	
Average Depth (m)	1.2	Submergent	25
Maximum Depth (m)	2	Emergent	70
Water Temperature (C)	13	Floating	5
Percent Silt / Organics	95	Algae	0
		<i>Total</i>	100

Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub		Western Mosquitofish	100
Cottids		Bullheads	
Speckled Dace		Common Carp	
Redside Shiners		Bluegills	
Northern Pikeminnows		Largemouth Bass	100
Largescale Suckers		Pumpkinseeds	
Sand Rollers		Crappies	
Threespine Sticklebacks		Smallmouth Bass	
Salmonids ²		Banded Killifish	
Lamprey			
Chiselmouth			

Other:

NOTE: 1994 REINTROD.- LB ILLEGAL. STOCKED 1997

Site Name	EAST FORK MINNOW CREEK POND	Map Code	MNW10*
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	9/14/2006
Subbasin	MINNOW CREEK	Location: Zone 10T	521411 4859624

Surface Area (m2)	1550	Types of aquatic vegetation ¹	
Average Depth (m)	0.5	Submergent	20
Maximum Depth (m)	1.2	Emergent	75
Water Temperature (C)	14	Floating	5
Percent Silt / Organics	100	Algae	
		<i>Total</i>	100

Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub	1726	Western Mosquitofish	
Cottids		Bullheads	
Speckled Dace	1535	Common Carp	
Redside Shiners	1095	Bluegills	
Northern Pikeminnows		Largemouth Bass	
Largescale Suckers		Pumpkinseeds	
Sand Rollers		Crappies	
Threespine Sticklebacks		Smallmouth Bass	
Salmonids ²		Banded Killifish	
Lamprey			
Chiselmouth			

Other:

NOTE: ACCELERATED SEDIMENTATION

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	RATTLESNAKE CREEK	Map Code	RTC1H
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	4/19/2006
Subbasin	RATTLESNAKE CK	Location: Zone 10T	508885 4868530
Surface Area (m2)	480	Types of aquatic vegetation ¹	
Average Depth (m)	0.5	Submergent	30
Maximum Depth (m)	0.9	Emergent	42
Water Temperature (C)	11	Floating	20
Percent Silt / Organics	50	Algae	
		<i>Total</i>	92
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub	5	Western Mosquitofish	
Cottids	6	Bullheads	
Speckled Dace	23	Common Carp	
Redside Shiners	25	Bluegills	1
Northern Pikeminnows	1	Largemouth Bass	
Largescale Suckers		Pumpkinseeds	
Sand Rollers		Crappies	
Threespine Sticklebacks	20	Smallmouth Bass	
Salmonids ²		Banded Killifish	
Lamprey			
Chiselmouth			
		Other:	
NOTE:			

Site Name	WICOPEE POND	Map Code	WCP1P*
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	9/18/2006
Subbasin	SALT CREEK	Location: Zone 10T	557935 4838552
Surface Area (m2)	3250	Types of aquatic vegetation ¹	
Average Depth (m)	1.2	Submergent	10
Maximum Depth (m)	2	Emergent	90
Water Temperature (C)	14	Floating	
Percent Silt / Organics	100	Algae	
		<i>Total</i>	100
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub	4856	Western Mosquitofish	
Cottids		Bullheads	
Speckled Dace	2659	Common Carp	
Redside Shiners		Bluegills	
Northern Pikeminnows		Largemouth Bass	
Largescale Suckers		Pumpkinseeds	
Sand Rollers		Crappies	
Threespine Sticklebacks		Smallmouth Bass	
Salmonids ²		Banded Killifish	
Lamprey			
Chiselmouth			
		Other:	
NOTE: REINTROD SITE- POP ESTIMATE			

Site Name	BLUE RUIN SIDE CHANNEL	Map Code	BLRUIN2*
Basin	MID-WILLAMETTE RIVER	Sampling Date	10/19/2006
Subbasin		Location: Zone 10T	487531 4896881

Surface Area (m2)	3750	Types of aquatic vegetation ¹	
Average Depth (m)	0.5	Submergent	35
Maximum Depth (m)	0.85	Emergent	16
Water Temperature (C)	15	Floating	5
Percent Silt / Organics	30	Algae	30
		<i>Total</i>	86

Native Fish Species Collected:

Oregon Chub	
Cottids	
Speckled Dace	1
Redside Shiners	115
Northern Pikeminnows	
Largescale Suckers	
Sand Rollers	
Threespine Sticklebacks	152
Salmonids ²	
Lamprey	
Chiselmouth	0

Non-native Fish Species Collected:

Western Mosquitofish	150
Bullheads	
Common Carp	
Bluegills	0
Largemouth Bass	0
Pumpkinseeds	0
Crappies	0
Smallmouth Bass	0
Banded Killifish	0

Other:

NOTE: OPRD SURVEY

Site Name	BLUE RUIN SLOUGH	Map Code	BLRUIN1*
Basin	MID-WILLAMETTE RIVER	Sampling Date	10/19/2006
Subbasin		Location: Zone 10T	487266 4897379

Surface Area (m2)	2400	Types of aquatic vegetation ¹	
Average Depth (m)	0.4	Submergent	70
Maximum Depth (m)	2	Emergent	25
Water Temperature (C)	13	Floating	0
Percent Silt / Organics	70	Algae	5
		<i>Total</i>	100

Native Fish Species Collected:

Oregon Chub	
Cottids	
Speckled Dace	0
Redside Shiners	
Northern Pikeminnows	
Largescale Suckers	
Sand Rollers	
Threespine Sticklebacks	
Salmonids ²	
Lamprey	
Chiselmouth	0

Non-native Fish Species Collected:

Western Mosquitofish	66
Bullheads	1
Common Carp	
Bluegills	15
Largemouth Bass	0
Pumpkinseeds	2
Crappies	0
Smallmouth Bass	0
Banded Killifish	0

Other:

NOTE: OPRD SURVEY, WILLOW CHOKED CHNL USTR

Site Name	HALF MOON BEND LANDING POND	Map Code	HALFMOON1*	
Basin	MID-WILLAMETTE RIVER	Sampling Date	10/24/2006	
Subbasin		Location: Zone 10T	484589	4937751
Surface Area (m2)	585	Types of aquatic vegetation¹		
Average Depth (m)	0.5	Submergent	95	
Maximum Depth (m)	0.8	Emergent	1	
Water Temperature (C)	9	Floating	4	
Percent Silt / Organics	10	Algae	0	
		<i>Total</i>	100	
Native Fish Species Collected:		Non-native Fish Species Collected:		
Oregon Chub		Western Mosquitofish	115	
Cottids		Bullheads		
Speckled Dace	0	Common Carp		
Redside Shiners		Bluegills	0	
Northern Pikeminnows		Largemouth Bass	0	
Largescale Suckers		Pumpkinseeds	0	
Sand Rollers		Crappies	0	
Threespine Sticklebacks		Smallmouth Bass	0	
Salmonids ²		Banded Killifish	0	
Lamprey				
Chiselmouth	0			
		Other:		
NOTE: OPRD SURVEY, POND HALF OPRD/PRIVATE				
Site Name	HARKENS LAKE LANDING ALCOVE	Map Code	HARKENS2*	
Basin	MID-WILLAMETTE RIVER	Sampling Date	10/23/2006	
Subbasin		Location: Zone 10T	481427	4909444
Surface Area (m2)	4000	Types of aquatic vegetation¹		
Average Depth (m)	0.5	Submergent	70	
Maximum Depth (m)	1	Emergent	20	
Water Temperature (C)	9	Floating	10	
Percent Silt / Organics	85	Algae	0	
		<i>Total</i>	100	
Native Fish Species Collected:		Non-native Fish Species Collected:		
Oregon Chub		Western Mosquitofish	58	
Cottids		Bullheads		
Speckled Dace	0	Common Carp		
Redside Shiners	1	Bluegills	0	
Northern Pikeminnows	11	Largemouth Bass	1	
Largescale Suckers	4	Pumpkinseeds	3	
Sand Rollers		Crappies	0	
Threespine Sticklebacks		Smallmouth Bass	0	
Salmonids ²		Banded Killifish	0	
Lamprey				
Chiselmouth	0			
		Other:		
NOTE: OPRD SURVEY				

Appendix A (continued).

MID-WILLAMETTE RIVER **BASIN**

Site Name	HARKENS LAKE LANDING ISOL POND	Map Code	HARKENS1*
Basin	MID-WILLAMETTE RIVER	Sampling Date	10/23/2006
Subbasin		Location: Zone 10T	481455 4909815

Surface Area (m2)	3300	Types of aquatic vegetation ¹	
Average Depth (m)	0.5	Submergent	80
Maximum Depth (m)	0.9	Emergent	20
Water Temperature (C)	9	Floating	
Percent Silt / Organics	100	Algae	
		<i>Total</i>	100

Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub		Western Mosquitofish	50
Cottids		Bullheads	
Speckled Dace	0	Common Carp	
Redside Shiners		Bluegills	0
Northern Pikeminnows		Largemouth Bass	0
Largescale Suckers		Pumpkinseeds	0
Sand Rollers		Crappies	0
Threespine Sticklebacks	22	Smallmouth Bass	0
Salmonids ²		Banded Killifish	0
Lamprey			
Chiselmouth	0		

Other:

NOTE: OPRD SURVEY

Site Name	HOACUM ISLAND LANDING	Map Code	HOACUM1*
Basin	MID-WILLAMETTE RIVER	Sampling Date	10/23/2006
Subbasin		Location: Zone 10T	481861 4921058

Surface Area (m2)	1050	Types of aquatic vegetation ¹	
Average Depth (m)	0.4	Submergent	50
Maximum Depth (m)	0.7	Emergent	25
Water Temperature (C)	13	Floating	10
Percent Silt / Organics	15	Algae	0
		<i>Total</i>	85

Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub		Western Mosquitofish	
Cottids		Bullheads	
Speckled Dace	15	Common Carp	
Redside Shiners	112	Bluegills	0
Northern Pikeminnows	110	Largemouth Bass	0
Largescale Suckers		Pumpkinseeds	0
Sand Rollers		Crappies	0
Threespine Sticklebacks	22	Smallmouth Bass	0
Salmonids ²		Banded Killifish	0
Lamprey			
Chiselmouth	0		

Other:

NOTE: OPRD SURVEY

Appendix A (continued).

MID-WILLAMETTE RIVER **BASIN**

Site Name	MARSHALL ISLAND POND	Map Code	MARSHALL3*
Basin	MID-WILLAMETTE RIVER	Sampling Date	10/24/2006
Subbasin		Location: Zone 10T	488105 4892572

Surface Area (m2)	6000	Types of aquatic vegetation ¹	
Average Depth (m)	1	Submergent	35
Maximum Depth (m)	2.1	Emergent	65
Water Temperature (C)	11	Floating	0
Percent Silt / Organics	45	Algae	0
		<i>Total</i>	100

Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub		Western Mosquitofish	25
Cottids		Bullheads	
Speckled Dace	0	Common Carp	
Redside Shiners		Bluegills	12
Northern Pikeminnows		Largemouth Bass	3
Largescale Suckers		Pumpkinseeds	0
Sand Rollers		Crappies	0
Threespine Sticklebacks	51	Smallmouth Bass	0
Salmonids ²		Banded Killifish	0
Lamprey			
Chiselmouth	0		

Other:

NOTE: OPRD SURVEY

Site Name	MARSHALL ISLAND SLOUGH	Map Code	MARSHALL2*
Basin	MID-WILLAMETTE RIVER	Sampling Date	10/19/2006
Subbasin		Location: Zone 10T	487401 4893590

Surface Area (m2)	2500	Types of aquatic vegetation ¹	
Average Depth (m)	0.2	Submergent	60
Maximum Depth (m)	0.7	Emergent	0
Water Temperature (C)	14	Floating	40
Percent Silt / Organics	70	Algae	0
		<i>Total</i>	100

Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub		Western Mosquitofish	
Cottids		Bullheads	
Speckled Dace	0	Common Carp	
Redside Shiners	14	Bluegills	55
Northern Pikeminnows		Largemouth Bass	0
Largescale Suckers		Pumpkinseeds	0
Sand Rollers		Crappies	0
Threespine Sticklebacks		Smallmouth Bass	0
Salmonids ²		Banded Killifish	0
Lamprey			
Chiselmouth	0		

Other:

NOTE: OPRD SURVEY

Appendix A (continued).

MID-WILLAMETTE RIVER **BASIN**

Site Name	MARSHALL ISLAND SLOUGH	Map Code	MARSHALL1*
Basin	MID-WILLAMETTE RIVER	Sampling Date	10/19/2006
Subbasin		Location: Zone 10T	487445 4893448
Surface Area (m2)	440	Types of aquatic vegetation ¹	
Average Depth (m)	0.4	Submergent	65
Maximum Depth (m)	0.9	Emergent	35
Water Temperature (C)	13.5	Floating	
Percent Silt / Organics	80	Algae	
		<i>Total</i>	100
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub		Western Mosquitofish	100
Cottids		Bullheads	
Speckled Dace	0	Common Carp	
Redside Shiners		Bluegills	0
Northern Pikeminnows		Largemouth Bass	0
Largescale Suckers		Pumpkinseeds	0
Sand Rollers		Crappies	0
Threespine Sticklebacks	66	Smallmouth Bass	0
Salmonids ²		Banded Killifish	0
Lamprey			
Chiselmouth	0		
		Other:	
NOTE: OPRD SURVEY			

Site Name	RIVERSIDE LANDING GREENWAY	Map Code	RIVERSID1*
Basin	MID-WILLAMETTE RIVER	Sampling Date	10/18/2006
Subbasin		Location: Zone 10T	484512 4938225
Surface Area (m2)	150	Types of aquatic vegetation ¹	
Average Depth (m)	0.1	Submergent	
Maximum Depth (m)	0.1	Emergent	
Water Temperature (C)	13	Floating	
Percent Silt / Organics	100	Algae	
		<i>Total</i>	0
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub		Western Mosquitofish	
Cottids		Bullheads	3
Speckled Dace	0	Common Carp	
Redside Shiners		Bluegills	25
Northern Pikeminnows		Largemouth Bass	1
Largescale Suckers		Pumpkinseeds	0
Sand Rollers		Crappies	0
Threespine Sticklebacks		Smallmouth Bass	0
Salmonids ²		Banded Killifish	0
Lamprey			
Chiselmouth	0		
		Other:	
NOTE: OPRD SURVEY			

Appendix A (continued).

MID-WILLAMETTE RIVER **BASIN**

Site Name	SAM DAWS LANDING	Map Code	SAMDAWS1*	
Basin	MID-WILLAMETTE RIVER	Sampling Date	10/23/2006	
Subbasin		Location: Zone 10T	482044	4917545
Surface Area (m2)	151	Types of aquatic vegetation ¹		
Average Depth (m)	0.4	Submergent	0	
Maximum Depth (m)	0.7	Emergent	10	
Water Temperature (C)	14	Floating	10	
Percent Silt / Organics	0	Algae	10	
		<i>Total</i>	30	
Native Fish Species Collected:		Non-native Fish Species Collected:		
Oregon Chub		Western Mosquitofish		
Cottids	2	Bullheads		
Speckled Dace	0	Common Carp		
Redside Shiners		Bluegills	0	
Northern Pikeminnows		Largemouth Bass	0	
Largescale Suckers		Pumpkinseeds	0	
Sand Rollers		Crappies	0	
Threespine Sticklebacks		Smallmouth Bass	0	
Salmonids ²		Banded Killifish	0	
Lamprey				
Chiselmouth	0			
		Other:		
NOTE: OPRD SURVEY				

Site Name	SAM DAWS LANDING	Map Code	SAMDAWS2*	
Basin	MID-WILLAMETTE RIVER	Sampling Date	10/23/2006	
Subbasin		Location: Zone 10T	482129	4917544
Surface Area (m2)	2250	Types of aquatic vegetation ¹		
Average Depth (m)	0.5	Submergent	40	
Maximum Depth (m)	1	Emergent	25	
Water Temperature (C)	14	Floating	25	
Percent Silt / Organics	35	Algae	10	
		<i>Total</i>	100	
Native Fish Species Collected:		Non-native Fish Species Collected:		
Oregon Chub		Western Mosquitofish	25	
Cottids	5	Bullheads		
Speckled Dace	12	Common Carp		
Redside Shiners	23	Bluegills	0	
Northern Pikeminnows	10	Largemouth Bass	0	
Largescale Suckers	9	Pumpkinseeds	0	
Sand Rollers		Crappies	0	
Threespine Sticklebacks	26	Smallmouth Bass	0	
Salmonids ²		Banded Killifish	0	
Lamprey				
Chiselmouth	0			
		Other:		
NOTE: CHUB-LIKE HABITAT, HIGH CONNECT, OPRD				

Appendix A (continued).

MID-WILLAMETTE RIVER BASIN

Site Name	SPRING HILL GREENWAY	Map Code	SPRINGH1*
Basin	MID-WILLAMETTE RIVER	Sampling Date	10/18/2006
Subbasin		Location: Zone 10T	490794 4946771

Surface Area (m2)	25	Types of aquatic vegetation ¹	
Average Depth (m)	0.3	Submergent	
Maximum Depth (m)	0.5	Emergent	
Water Temperature (C)	12	Floating	
Percent Silt / Organics	0	Algae	
		<i>Total</i>	0

Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub		Western Mosquitofish	
Cottids		Bullheads	
Speckled Dace	0	Common Carp	
Redside Shiners	22	Bluegills	0
Northern Pikeminnows		Largemouth Bass	0
Largescale Suckers		Pumpkinseeds	0
Sand Rollers		Crappies	0
Threespine Sticklebacks		Smallmouth Bass	0
Salmonids ²		Banded Killifish	0
Lamprey			
Chiselmouth	0		

Other:

NOTE: OPRD SURVEY

Site Name	TRUAX ISLAND SLOUGH	Map Code	TRUAX1*
Basin	MID-WILLAMETTE RIVER	Sampling Date	10/24/2006
Subbasin		Location: Zone 10T	485201 4936232

Surface Area (m2)	11000	Types of aquatic vegetation ¹	
Average Depth (m)	0.4	Submergent	70
Maximum Depth (m)	2	Emergent	20
Water Temperature (C)	11	Floating	0
Percent Silt / Organics	85	Algae	0
		<i>Total</i>	90

Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub		Western Mosquitofish	200
Cottids		Bullheads	
Speckled Dace	0	Common Carp	
Redside Shiners		Bluegills	6
Northern Pikeminnows		Largemouth Bass	0
Largescale Suckers		Pumpkinseeds	0
Sand Rollers		Crappies	0
Threespine Sticklebacks		Smallmouth Bass	0
Salmonids ²		Banded Killifish	0
Lamprey			
Chiselmouth	0		

Other:

NOTE: OPRD SURVEY

Appendix A (continued).

MID-WILLAMETTE RIVER BASIN

Site Name	WILLIS REFUGE SLOUGH	Map Code	WILLIS1*
Basin	MID-WILLAMETTE RIVER	Sampling Date	10/19/2006
Subbasin		Location: Zone 10T	487675 4892855

Surface Area (m2)	1500	Types of aquatic vegetation ¹	
Average Depth (m)	0.45	Submergent	40
Maximum Depth (m)	0.9	Emergent	20
Water Temperature (C)	13	Floating	5
Percent Silt / Organics	60	Algae	30
		<i>Total</i>	95

Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub		Western Mosquitofish	86
Cottids		Bullheads	
Speckled Dace	0	Common Carp	
Redside Shiners	125	Bluegills	0
Northern Pikeminnows	4	Largemouth Bass	0
Largescale Suckers	12	Pumpkinseeds	0
Sand Rollers		Crappies	0
Threespine Sticklebacks	21	Smallmouth Bass	0
Salmonids ²		Banded Killifish	0
Lamprey			
Chiselmouth	0		

Other:

NOTE: OPRD SURVEY, LOTS INVERTS, LEECHES

Site Name	DRY MUDDY CREEK DMC5	Map Code	DMC5B
Basin	MID-WILLAMETTE RIVER	Sampling Date	9/28/2006
Subbasin	EAST MUDDY CREEK	Location: Zone 10T	491542 4897108

Surface Area (m2)	150	Types of aquatic vegetation ¹	
Average Depth (m)	0.4	Submergent	0
Maximum Depth (m)	0.9	Emergent	20
Water Temperature (C)	18	Floating	0
Percent Silt / Organics	40	Algae	0
		<i>Total</i>	20

Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub		Western Mosquitofish	
Cottids	1	Bullheads	
Speckled Dace	2	Common Carp	
Redside Shiners	41	Bluegills	
Northern Pikeminnows	16	Largemouth Bass	
Largescale Suckers	1	Pumpkinseeds	
Sand Rollers		Crappies	
Threespine Sticklebacks	1	Smallmouth Bass	
Salmonids ²		Banded Killifish	
Lamprey			
Chiselmouth			

Other: CRAYFISH

NOTE: BOWERS ROAD BRIDGE CROSSING

Site Name	LITTLE MUDDY TRIB BRIDGE XING	Map Code	LMUDT1B*
Basin	MID-WILLAMETTE RIVER	Sampling Date	9/27/2006
Subbasin	EAST MUDDY CREEK	Location: Zone 10T	491064 4907447
Surface Area (m2)	360	Types of aquatic vegetation¹	
Average Depth (m)	0.4	Submergent	50
Maximum Depth (m)	0.7	Emergent	10
Water Temperature (C)	19	Floating	5
Percent Silt / Organics	60	Algae	
		<i>Total</i>	65
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub		Western Mosquitofish	11
Cottids		Bullheads	3
Speckled Dace	94	Common Carp	
Redside Shiners	4	Bluegills	
Northern Pikeminnows		Largemouth Bass	
Largescale Suckers		Pumpkinseeds	
Sand Rollers		Crappies	
Threespine Sticklebacks		Smallmouth Bass	
Salmonids ²		Banded Killifish	
Lamprey			
Chiselmouth			
NOTE: ODOT BRIDGE CROSSING		Other:	

Site Name	CAMOUS CREEK CC4	Map Code	CC4A*
Basin	MID-WILLAMETTE RIVER	Sampling Date	9/25/2006
Subbasin	LAKE CREEK	Location: Zone 10T	488096 4904176
Surface Area (m2)	360	Types of aquatic vegetation¹	
Average Depth (m)	0.5	Submergent	0
Maximum Depth (m)		Emergent	10
Water Temperature (C)	16	Floating	0
Percent Silt / Organics	90	Algae	0
		<i>Total</i>	10
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub		Western Mosquitofish	96
Cottids		Bullheads	2
Speckled Dace	1	Common Carp	
Redside Shiners	66	Bluegills	
Northern Pikeminnows		Largemouth Bass	
Largescale Suckers		Pumpkinseeds	
Sand Rollers		Crappies	
Threespine Sticklebacks		Smallmouth Bass	
Salmonids ²		Banded Killifish	
Lamprey			
Chiselmouth			
NOTE:		Other:	

Appendix A (continued).

MID-WILLAMETTE RIVER BASIN

Site Name	JAMPOLSKY PONDS	Map Code	JAMP1-2E*	
Basin	MID-WILLAMETTE RIVER	Sampling Date	9/21/2006	
Subbasin	LONG TOM RIVER	Location: Zone 10T	480282	4890921
Surface Area (m2)	3045	Types of aquatic vegetation ¹		
Average Depth (m)	1	Submergent	25	
Maximum Depth (m)	2.3	Emergent		
Water Temperature (C)	14	Floating		
Percent Silt / Organics	100	Algae	15	
		<i>Total</i>	40	
Native Fish Species Collected:		Non-native Fish Species Collected:		
Oregon Chub	8322	Western Mosquitofish		
Cottids		Bullheads		
Speckled Dace		Common Carp		
Redside Shiners		Bluegills		
Northern Pikeminnows		Largemouth Bass		
Largescale Suckers		Pumpkinseeds		
Sand Rollers		Crappies		
Threespine Sticklebacks		Smallmouth Bass		
Salmonids ²		Banded Killifish		
Lamprey				
Chiselmouth				
		Other:		
NOTE: REINTROD SITE- POP ESTIMATE				

Site Name	LUCKIAMUTE LANDING	Map Code	LUCKLAND1*	
Basin	MID-WILLAMETTE RIVER	Sampling Date	10/25/2006	
Subbasin	LUCKIAMUTE RIVER	Location: Zone 10T	488643	4954701
Surface Area (m2)	3300	Types of aquatic vegetation ¹		
Average Depth (m)	0.5	Submergent	75	
Maximum Depth (m)	1	Emergent	20	
Water Temperature (C)	9	Floating	5	
Percent Silt / Organics	80	Algae	0	
		<i>Total</i>	100	
Native Fish Species Collected:		Non-native Fish Species Collected:		
Oregon Chub		Western Mosquitofish	110	
Cottids		Bullheads	2	
Speckled Dace	0	Common Carp		
Redside Shiners	3	Bluegills	5	
Northern Pikeminnows		Largemouth Bass	2	
Largescale Suckers		Pumpkinseeds	0	
Sand Rollers		Crappies	0	
Threespine Sticklebacks		Smallmouth Bass	0	
Salmonids ²		Banded Killifish	0	
Lamprey				
Chiselmouth	0			
		Other:		
NOTE: OPRD SURVEY				

Appendix A (continued).

MID-WILLAMETTE RIVER BASIN

Site Name	VANDERPOOL POND 1	Map Code	VANDERP1*
Basin	MID-WILLAMETTE RIVER	Sampling Date	10/18/2006
Subbasin	LUCKIAMUTE RIVER	Location: Zone 10T	487985 4951025
Surface Area (m2)	6570	Types of aquatic vegetation ¹	
Average Depth (m)	0.6	Submergent	80
Maximum Depth (m)	1.2	Emergent	10
Water Temperature (C)	11	Floating	10
Percent Silt / Organics	40	Algae	0
		<i>Total</i>	100
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub		Western Mosquitofish	225
Cottids		Bullheads	
Speckled Dace	0	Common Carp	
Redside Shiners		Bluegills	53
Northern Pikeminnows		Largemouth Bass	4
Largescale Suckers		Pumpkinseeds	0
Sand Rollers		Crappies	0
Threespine Sticklebacks		Smallmouth Bass	0
Salmonids ²		Banded Killifish	0
Lamprey			
Chiselmouth	0		
		Other:	
NOTE:	OPRD SURVEY		
Site Name	VANDERPOOL POND 3	Map Code	VANDERP3*
Basin	MID-WILLAMETTE RIVER	Sampling Date	10/18/2006
Subbasin	LUCKIAMUTE RIVER	Location: Zone 10T	487431 4951286
Surface Area (m2)	19500	Types of aquatic vegetation ¹	
Average Depth (m)	2	Submergent	20
Maximum Depth (m)	3.2	Emergent	
Water Temperature (C)	11	Floating	
Percent Silt / Organics	100	Algae	
		<i>Total</i>	20
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub		Western Mosquitofish	100
Cottids		Bullheads	
Speckled Dace	0	Common Carp	
Redside Shiners		Bluegills	50
Northern Pikeminnows		Largemouth Bass	2
Largescale Suckers		Pumpkinseeds	0
Sand Rollers		Crappies	0
Threespine Sticklebacks		Smallmouth Bass	0
Salmonids ²		Banded Killifish	0
Lamprey			
Chiselmouth	0		
		Other:	
NOTE:	OPRD SURVEY		

Site Name	VANDERPOOL POND 4	Map Code	VANDERP4*	
Basin	MID-WILLAMETTE RIVER	Sampling Date	10/18/2006	
Subbasin	LUCKIAMUTE RIVER	Location: Zone	10T	487812 4951133

Surface Area (m2)	0	Types of aquatic vegetation ¹		
Average Depth (m)	0	Submergent		
Maximum Depth (m)	0	Emergent		
Water Temperature (C)		Floating		
Percent Silt / Organics	100	Algae		
		<i>Total</i>		0

Native Fish Species Collected:		Non-native Fish Species Collected:		
Oregon Chub		Western Mosquitofish		
Cottids		Bullheads		
Speckled Dace	0	Common Carp		
Redside Shiners		Bluegills		0
Northern Pikeminnows		Largemouth Bass		0
Largescale Suckers		Pumpkinseeds		0
Sand Rollers		Crappies		0
Threespine Sticklebacks		Smallmouth Bass		0
Salmonids ²		Banded Killifish		0
Lamprey				
Chiselmouth	0	Other:		NO FISH

NOTE: OPRD SURVEY- DRY POND

Site Name	VANDERPOOL SLOUGH	Map Code	VANDERP2*	
Basin	MID-WILLAMETTE RIVER	Sampling Date	10/18/2006	
Subbasin	LUCKIAMUTE RIVER	Location: Zone	10T	487625 4951443

Surface Area (m2)	0	Types of aquatic vegetation ¹		
Average Depth (m)	0	Submergent		
Maximum Depth (m)	0	Emergent		
Water Temperature (C)		Floating		
Percent Silt / Organics	100	Algae		
		<i>Total</i>		0

Native Fish Species Collected:		Non-native Fish Species Collected:		
Oregon Chub		Western Mosquitofish		
Cottids		Bullheads		
Speckled Dace	0	Common Carp		
Redside Shiners		Bluegills		0
Northern Pikeminnows		Largemouth Bass		0
Largescale Suckers		Pumpkinseeds		0
Sand Rollers		Crappies		0
Threespine Sticklebacks		Smallmouth Bass		0
Salmonids ²		Banded Killifish		0
Lamprey				
Chiselmouth	0	Other:		NO FISH

NOTE: OPRD SURVEY- DRY SLOUGH, BAIT CONTAINERS

Appendix A (continued).

MID-WILLAMETTE RIVER BASIN

Site Name	BULL RUN CREEK	Map Code	BULLR2B
Basin	MID-WILLAMETTE RIVER	Sampling Date	5/2/2006
Subbasin	MARYS RIVER	Location: Zone 10T	473047 4926122
Surface Area (m2)	1265	Types of aquatic vegetation ¹	
Average Depth (m)	0.3	Submergent	4
Maximum Depth (m)	0.65	Emergent	50
Water Temperature (C)	12.5	Floating	
Percent Silt / Organics	100	Algae	
		<i>Total</i>	54
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub		Western Mosquitofish	
Cottids	21	Bullheads	
Speckled Dace		Common Carp	
Redside Shiners	1	Bluegills	
Northern Pikeminnows		Largemouth Bass	
Largescale Suckers		Pumpkinseeds	
Sand Rollers	1	Crappies	
Threespine Sticklebacks	17	Smallmouth Bass	
Salmonids ²		Banded Killifish	
Lamprey			
Chiselmouth			
		Other:	
NOTE: TOM MURPHY'S PROPERTY			
Site Name	DUNN WETLAND DUNN2	Map Code	DUNN2M*
Basin	MID-WILLAMETTE RIVER	Sampling Date	9/21/2006
Subbasin	MARYS RIVER	Location: Zone 10T	470249 4921916
Surface Area (m2)	2240	Types of aquatic vegetation ¹	
Average Depth (m)	0.7	Submergent	60
Maximum Depth (m)	1	Emergent	40
Water Temperature (C)	14	Floating	0
Percent Silt / Organics	100	Algae	0
		<i>Total</i>	100
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub	7646	Western Mosquitofish	
Cottids		Bullheads	
Speckled Dace		Common Carp	
Redside Shiners		Bluegills	
Northern Pikeminnows		Largemouth Bass	
Largescale Suckers		Pumpkinseeds	
Sand Rollers		Crappies	
Threespine Sticklebacks		Smallmouth Bass	
Salmonids ²		Banded Killifish	
Lamprey			
Chiselmouth			
		Other:	
NOTE: 1997 REINTRODUCTION- POP. ESTIMATE			

Site Name	DUNN WETLAND DUNN6	Map Code	DUNN6H*	
Basin	MID-WILLAMETTE RIVER	Sampling Date	9/21/2006	
Subbasin	MARYS RIVER	Location: Zone 10T	470249	4921836
Surface Area (m2)	3500	Types of aquatic vegetation ¹		
Average Depth (m)	0.7	Submergent	20	
Maximum Depth (m)	1	Emergent	40	
Water Temperature (C)	14	Floating	0	
Percent Silt / Organics	100	Algae	0	
		<i>Total</i>	60	
Native Fish Species Collected:		Non-native Fish Species Collected:		
Oregon Chub	3846	Western Mosquitofish		
Cottids		Bullheads		
Speckled Dace		Common Carp		
Redside Shiners		Bluegills		
Northern Pikeminnows		Largemouth Bass		
Largescale Suckers		Pumpkinseeds		
Sand Rollers		Crappies		
Threespine Sticklebacks		Smallmouth Bass		
Salmonids ²		Banded Killifish		
Lamprey				
Chiselmouth				
		Other:		
NOTE: 1998 REINTRODUCTION- POP. ESTIMATE				

Site Name	DUNN WETLAND DUNN7	Map Code	DUNN7F*	
Basin	MID-WILLAMETTE RIVER	Sampling Date	9/21/2006	
Subbasin	MARYS RIVER	Location: Zone 10T	470299	4921916
Surface Area (m2)	880	Types of aquatic vegetation ¹		
Average Depth (m)	0.3	Submergent	15	
Maximum Depth (m)	0.4	Emergent	25	
Water Temperature (C)	19	Floating		
Percent Silt / Organics	100	Algae		
		<i>Total</i>	40	
Native Fish Species Collected:		Non-native Fish Species Collected:		
Oregon Chub	9725	Western Mosquitofish		
Cottids		Bullheads		
Speckled Dace		Common Carp		
Redside Shiners		Bluegills		
Northern Pikeminnows		Largemouth Bass		
Largescale Suckers		Pumpkinseeds		
Sand Rollers		Crappies		
Threespine Sticklebacks		Smallmouth Bass		
Salmonids ²		Banded Killifish		
Lamprey				
Chiselmouth				
		Other:		
NOTE: REINTROD. SITE- POP. ESTIMATE				

Appendix A (continued).

MID-WILLAMETTE RIVER BASIN

Site Name	FINLEY NWR BEAVER POND	Map Code	FIN1K	
Basin	MID-WILLAMETTE RIVER	Sampling Date	4/25/2006	
Subbasin	MARYS RIVER	Location: Zone	10T	473847 4916139
Surface Area (m2)	0	Types of aquatic vegetation ¹		
Average Depth (m)	0	Submergent	57	
Maximum Depth (m)	0	Emergent	43	
Water Temperature (C)		Floating	0	
Percent Silt / Organics	100	Algae	0	
		<i>Total</i>	95	
Native Fish Species Collected:		Non-native Fish Species Collected:		
Oregon Chub		Western Mosquitofish		
Cottids		Bullheads		
Speckled Dace		Common Carp		
Redside Shiners		Bluegills		
Northern Pikeminnows		Largemouth Bass		
Largescale Suckers		Pumpkinseeds		
Sand Rollers		Crappies		
Threespine Sticklebacks		Smallmouth Bass		
Salmonids ²		Banded Killifish		
Lamprey				
Chiselmouth				
		Other:		
NOTE: POTENT. REINTROD. SITE- DIKE FAILED, DRY				
Site Name	FINLEY NWR BROWN CK NORTH POND	Map Code	FIN25B	
Basin	MID-WILLAMETTE RIVER	Sampling Date	5/1/2006	
Subbasin	MARYS RIVER	Location: Zone	10T	474275 4918850
Surface Area (m2)	2000	Types of aquatic vegetation ¹		
Average Depth (m)	0.5	Submergent	10	
Maximum Depth (m)	0.8	Emergent	20	
Water Temperature (C)	15	Floating	10	
Percent Silt / Organics	100	Algae	10	
		<i>Total</i>	40	
Native Fish Species Collected:		Non-native Fish Species Collected:		
Oregon Chub		Western Mosquitofish		
Cottids	6	Bullheads		
Speckled Dace		Common Carp		
Redside Shiners		Bluegills		
Northern Pikeminnows		Largemouth Bass		
Largescale Suckers		Pumpkinseeds		
Sand Rollers		Crappies		
Threespine Sticklebacks	52	Smallmouth Bass		
Salmonids ²		Banded Killifish		
Lamprey				
Chiselmouth				
		Other:		
NOTE: POTENTIAL REINTRODUCTION SITE				

Site Name	FINLEY NWR BROWN CK SOUTH POND	Map Code	FIN26B	
Basin	MID-WILLAMETTE RIVER	Sampling Date	5/1/2006	
Subbasin	MARYS RIVER	Location: Zone 10T	474300	4918600
Surface Area (m2)	7200	Types of aquatic vegetation ¹		
Average Depth (m)	1	Submergent	35	
Maximum Depth (m)	1.8	Emergent	0	
Water Temperature (C)	15	Floating	0	
Percent Silt / Organics	100	Algae	5	
		<i>Total</i>	40	
Native Fish Species Collected:		Non-native Fish Species Collected:		
Oregon Chub		Western Mosquitofish		
Cottids	5	Bullheads		
Speckled Dace		Common Carp		
Redside Shiners		Bluegills		
Northern Pikeminnows		Largemouth Bass		
Largescale Suckers		Pumpkinseeds		
Sand Rollers		Crappies		
Threespine Sticklebacks	41	Smallmouth Bass		
Salmonids ²		Banded Killifish		
Lamprey				
Chiselmouth				
		Other:		
NOTE: POTENTIAL REINTRODUCTION SITE				

Site Name	FINLEY NWR CHEADLE POND	Map Code	FIN27E	
Basin	MID-WILLAMETTE RIVER	Sampling Date	4/25/2006	
Subbasin	MARYS RIVER	Location: Zone 10T	475856	4915761
Surface Area (m2)	8142	Types of aquatic vegetation ¹		
Average Depth (m)	1.5	Submergent	15	
Maximum Depth (m)	3.3	Emergent	71	
Water Temperature (C)	18	Floating		
Percent Silt / Organics	100	Algae		
		<i>Total</i>	86	
Native Fish Species Collected:		Non-native Fish Species Collected:		
Oregon Chub	897	Western Mosquitofish		
Cottids		Bullheads		
Speckled Dace		Common Carp		
Redside Shiners		Bluegills		
Northern Pikeminnows		Largemouth Bass		
Largescale Suckers		Pumpkinseeds		
Sand Rollers		Crappies		
Threespine Sticklebacks		Smallmouth Bass		
Salmonids ²		Banded Killifish		
Lamprey				
Chiselmouth				
		Other:		
NOTE: 50 FISH INTRODUCED IN 2002				

Appendix A (continued).

MID-WILLAMETTE RIVER BASIN

Site Name	FINLEY NWR DISPLAY POND	Map Code	FIN16N
Basin	MID-WILLAMETTE RIVER	Sampling Date	4/25/2006
Subbasin	MARYS RIVER	Location: Zone 10T	473386 4917139
Surface Area (m2)	6400	Types of aquatic vegetation ¹	
Average Depth (m)	1.5	Submergent	30
Maximum Depth (m)	2.5	Emergent	45
Water Temperature (C)	14	Floating	
Percent Silt / Organics	100	Algae	
		<i>Total</i>	75
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub	242	Western Mosquitofish	
Cottids		Bullheads	
Speckled Dace		Common Carp	
Redside Shiners		Bluegills	
Northern Pikeminnows		Largemouth Bass	
Largescale Suckers		Pumpkinseeds	
Sand Rollers		Crappies	
Threespine Sticklebacks		Smallmouth Bass	
Salmonids ²		Banded Killifish	
Lamprey			
Chiselmouth			
		Other:	
NOTE: POPULATION ESTIMATE- REINTROD. SITE			

Site Name	FINLEY NWR- GRAY CREEK SWAMP	Map Code	FIN4M
Basin	MID-WILLAMETTE RIVER	Sampling Date	4/24/2006
Subbasin	MARYS RIVER	Location: Zone 10T	472649 4915908
Surface Area (m2)	22872	Types of aquatic vegetation ¹	
Average Depth (m)	1	Submergent	35
Maximum Depth (m)	2.2	Emergent	65
Water Temperature (C)	11	Floating	
Percent Silt / Organics	100	Algae	
		<i>Total</i>	100
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub	1389	Western Mosquitofish	
Cottids	16	Bullheads	1
Speckled Dace	2908	Common Carp	
Redside Shiners	3365	Bluegills	
Northern Pikeminnows		Largemouth Bass	
Largescale Suckers		Pumpkinseeds	
Sand Rollers		Crappies	
Threespine Sticklebacks	6008	Smallmouth Bass	
Salmonids ²		Banded Killifish	
Lamprey			
Chiselmouth			
		Other:	
NOTE: POPULATION ESTIMATE			

Site Name	NOVITZKY WETLAND POND 1	Map Code	NOV1A
Basin	SANTIAM RIVER	Sampling Date	5/8/2006
Subbasin		Location: Zone 10T	507293 4956376

Surface Area (m2)	10422
Average Depth (m)	0.3
Maximum Depth (m)	0.55
Water Temperature (C)	18
Percent Silt / Organics	90

Types of aquatic vegetation¹

Submergent	15
Emergent	30
Floating	
Algae	
<i>Total</i>	55

Native Fish Species Collected:

Oregon Chub
Cottids
Speckled Dace
Redside Shiners
Northern Pikeminnows
Largescale Suckers
Sand Rollers
Threespine Sticklebacks
Salmonids²
Lamprey
Chiselmouth

Non-native Fish Species Collected:

Western Mosquitofish
Bullheads
Common Carp
Bluegills
Largemouth Bass
Pumpkinseeds
Crappies
Smallmouth Bass
Banded Killifish

Other: NO FISH

NOTE: POTENTIAL CHUB INTRODUCTION SITE

Site Name	NOVITZKY WETLAND POND 2	Map Code	NOV2A
Basin	SANTIAM RIVER	Sampling Date	5/8/2006
Subbasin		Location: Zone 10T	507227 4956432

Surface Area (m2)	1750
Average Depth (m)	0.3
Maximum Depth (m)	0.5
Water Temperature (C)	18
Percent Silt / Organics	100

Types of aquatic vegetation¹

Submergent	47
Emergent	35
Floating	
Algae	
<i>Total</i>	82

Native Fish Species Collected:

Oregon Chub
Cottids 4
Speckled Dace
Redside Shiners 4
Northern Pikeminnows
Largescale Suckers
Sand Rollers
Threespine Sticklebacks
Salmonids²
Lamprey
Chiselmouth

Non-native Fish Species Collected:

Western Mosquitofish
Bullheads
Common Carp
Bluegills
Largemouth Bass
Pumpkinseeds
Crappies
Smallmouth Bass
Banded Killifish

Other:

NOTE: POTENTIAL CHUB INTRODUCTION SITE

Site Name	SANTIAM I-5 BACKWATER I5BW1	Map Code	I5BW1I
Basin	SANTIAM RIVER	Sampling Date	6/1/2006
Subbasin		Location: Zone 10T	495928 4953377
Surface Area (m2)	930	Types of aquatic vegetation¹	
Average Depth (m)	1.5	Submergent	70
Maximum Depth (m)	2.5	Emergent	10
Water Temperature (C)	15	Floating	0
Percent Silt / Organics	100	Algae	0
		<i>Total</i>	80
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub		Western Mosquitofish	
Cottids		Bullheads	
Speckled Dace		Common Carp	
Redside Shiners	15	Bluegills	
Northern Pikeminnows	15	Largemouth Bass	
Largescale Suckers	3	Pumpkinseeds	1
Sand Rollers		Crappies	
Threespine Sticklebacks	12	Smallmouth Bass	
Salmonids ²		Banded Killifish	
Lamprey			
Chiselmouth			
		Other:	
NOTE:			
Site Name	SANTIAM I-5 GRAVEL PIT	Map Code	I5GP1B
Basin	SANTIAM RIVER	Sampling Date	6/1/2006
Subbasin		Location: Zone 10T	496399 4953370
Surface Area (m2)	14852	Types of aquatic vegetation¹	
Average Depth (m)	0.5	Submergent	65
Maximum Depth (m)	5	Emergent	5
Water Temperature (C)	16.5	Floating	
Percent Silt / Organics	20	Algae	
		<i>Total</i>	70
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub		Western Mosquitofish	23
Cottids	8	Bullheads	2
Speckled Dace		Common Carp	
Redside Shiners	71	Bluegills	41
Northern Pikeminnows	144	Largemouth Bass	
Largescale Suckers		Pumpkinseeds	
Sand Rollers		Crappies	
Threespine Sticklebacks		Smallmouth Bass	
Salmonids ²		Banded Killifish	
Lamprey			
Chiselmouth			
		Other:	
NOTE: FORMER BORROW PIT			

Appendix A (continued).

SANTIAM RIVER BASIN

Site Name	SANTIAM I-5 NORTHEAST SLOUGH	Map Code	I5NE1B	
Basin	SANTIAM RIVER	Sampling Date	6/1/2006	
Subbasin		Location: Zone 10T	496438	4953261
Surface Area (m2)	270	Types of aquatic vegetation ¹		
Average Depth (m)	0.8	Submergent	70	
Maximum Depth (m)	1.5	Emergent	22	
Water Temperature (C)	15	Floating		
Percent Silt / Organics	100	Algae		
		<i>Total</i>	92	
Native Fish Species Collected:		Non-native Fish Species Collected:		
Oregon Chub		Western Mosquitofish		
Cottids		Bullheads		
Speckled Dace		Common Carp		
Redside Shiners	2	Bluegills		
Northern Pikeminnows	11	Largemouth Bass		
Largescale Suckers		Pumpkinseeds		
Sand Rollers		Crappies		
Threespine Sticklebacks	1	Smallmouth Bass		
Salmonids ²		Banded Killifish		
Lamprey				
Chiselmouth				
NOTE: PONDED SLOUGH UPSTREAM OF I5BW1		Other:		
Site Name	SANTIAM I-5 SIDE CHANNEL POND	Map Code	I5BW2H	
Basin	SANTIAM RIVER	Sampling Date	6/1/2006	
Subbasin		Location: Zone 10T	496051	4953491
Surface Area (m2)	6000	Types of aquatic vegetation ¹		
Average Depth (m)	1.5	Submergent	40	
Maximum Depth (m)	3	Emergent	25	
Water Temperature (C)	16.5	Floating		
Percent Silt / Organics	80	Algae		
		<i>Total</i>	65	
Native Fish Species Collected:		Non-native Fish Species Collected:		
Oregon Chub	334	Western Mosquitofish	10	
Cottids	14	Bullheads		
Speckled Dace	18	Common Carp		
Redside Shiners	6	Bluegills	11	
Northern Pikeminnows	13	Largemouth Bass		
Largescale Suckers	6	Pumpkinseeds	73	
Sand Rollers	15	Crappies		
Threespine Sticklebacks	54	Smallmouth Bass		
Salmonids ²		Banded Killifish		
Lamprey				
Chiselmouth	1			
NOTE: POPULATION ESTIMATE		Other: YP = 1		

Site Name	SANTIAM I-5 SOUTHEAST SLOUGH	Map Code	I5SE1B	
Basin	SANTIAM RIVER	Sampling Date	6/1/2006	
Subbasin		Location: Zone 10T	496366	4953249
Surface Area (m2)	847	Types of aquatic vegetation ¹		
Average Depth (m)	0.5	Submergent	65	
Maximum Depth (m)	1.8	Emergent	13	
Water Temperature (C)	15	Floating		
Percent Silt / Organics	100	Algae		
		<i>Total</i>	78	
Native Fish Species Collected:		Non-native Fish Species Collected:		
Oregon Chub		Western Mosquitofish		
Cottids		Bullheads		
Speckled Dace		Common Carp		
Redside Shiners	24	Bluegills		
Northern Pikeminnows	6	Largemouth Bass		
Largescale Suckers	5	Pumpkinseeds		
Sand Rollers		Crappies		
Threespine Sticklebacks	1	Smallmouth Bass		
Salmonids ²		Banded Killifish		
Lamprey				
Chiselmouth	2			
		Other:		
NOTE: PONDED SLOUGH UPSTREAM OF I5BW1				

Site Name	FOSTER PULLOUT POND	Map Code	FOS2L	
Basin	SANTIAM RIVER	Sampling Date	5/9/2006	
Subbasin	MIDDLE SANTIAM	Location: Zone 10T	529165	4918350
Surface Area (m2)	2405	Types of aquatic vegetation ¹		
Average Depth (m)	1.2	Submergent	80	
Maximum Depth (m)	2	Emergent	20	
Water Temperature (C)	11	Floating		
Percent Silt / Organics	100	Algae		
		<i>Total</i>	100	
Native Fish Species Collected:		Non-native Fish Species Collected:		
Oregon Chub	465	Western Mosquitofish		
Cottids		Bullheads		
Speckled Dace		Common Carp		
Redside Shiners		Bluegills		
Northern Pikeminnows		Largemouth Bass		
Largescale Suckers		Pumpkinseeds		
Sand Rollers		Crappies		
Threespine Sticklebacks		Smallmouth Bass		
Salmonids ²		Banded Killifish		
Lamprey				
Chiselmouth				
		Other:		
NOTE: POPULATION ESTIMATE- REINTRODUCTION				

Site Name	GEREN ISLAND NORTH CHANNEL	Map Code	GER4K
Basin	SANTIAM RIVER	Sampling Date	5/18/2006
Subbasin	NORTH SANTIAM	Location: Zone 10T	519371 4959900
Surface Area (m2)	4469	Types of aquatic vegetation ¹	
Average Depth (m)	1	Submergent	20
Maximum Depth (m)	1.5	Emergent	45
Water Temperature (C)	15	Floating	
Percent Silt / Organics	90	Algae	
		<i>Total</i>	65
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub	1021	Western Mosquitofish	
Cottids	6	Bullheads	
Speckled Dace	4	Common Carp	
Redside Shiners		Bluegills	
Northern Pikeminnows		Largemouth Bass	
Largescale Suckers	3	Pumpkinseeds	
Sand Rollers		Crappies	
Threespine Sticklebacks		Smallmouth Bass	
Salmonids ² CT	1	Banded Killifish	
Lamprey			
Chiselmouth			
		Other:	
NOTE:	POPULATION ESTIMATE		

Site Name	GEREN ISLAND NORTH POND	Map Code	GER6K
Basin	SANTIAM RIVER	Sampling Date	5/18/2006
Subbasin	NORTH SANTIAM	Location: Zone 10T	519371 4959954
Surface Area (m2)	20625	Types of aquatic vegetation ¹	
Average Depth (m)	1	Submergent	50
Maximum Depth (m)	2.2	Emergent	10
Water Temperature (C)	22	Floating	
Percent Silt / Organics	95	Algae	
		<i>Total</i>	60
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub		Western Mosquitofish	
Cottids		Bullheads	
Speckled Dace		Common Carp	
Redside Shiners	7	Bluegills	168
Northern Pikeminnows		Largemouth Bass	
Largescale Suckers		Pumpkinseeds	
Sand Rollers		Crappies	
Threespine Sticklebacks		Smallmouth Bass	
Salmonids ²		Banded Killifish	
Lamprey			
Chiselmouth			
		Other:	
NOTE:			

Site Name	GREEN'S BRIDGE BACKWATER	Map Code	NS14L
Basin	SANTIAM RIVER	Sampling Date	4/18/2006
Subbasin	NORTH SANTIAM	Location: Zone 10T	502354 4950367
Surface Area (m2)	3740	Types of aquatic vegetation ¹	
Average Depth (m)	1.5	Submergent	65
Maximum Depth (m)	2.5	Emergent	30
Water Temperature (C)	10	Floating	
Percent Silt / Organics	90	Algae	
		<i>Total</i>	95
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub	6	Western Mosquitofish	
Cottids	6	Bullheads	
Speckled Dace	38	Common Carp	
Redside Shiners	3	Bluegills	24
Northern Pikeminnows	1	Largemouth Bass	
Largescale Suckers		Pumpkinseeds	
Sand Rollers		Crappies	
Threespine Sticklebacks	20	Smallmouth Bass	
Salmonids ²		Banded Killifish	
Lamprey			
Chiselmouth			
		Other:	
NOTE:			
Site Name	NORTH STAYTON POND	Map Code	STAY2A
Basin	SANTIAM RIVER	Sampling Date	5/17/2006
Subbasin	NORTH SANTIAM	Location: Zone 10T	515710 4959225
Surface Area (m2)	1575	Types of aquatic vegetation ¹	
Average Depth (m)	2	Submergent	20
Maximum Depth (m)	2.5	Emergent	15
Water Temperature (C)	23	Floating	
Percent Silt / Organics	40	Algae	5
		<i>Total</i>	40
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub		Western Mosquitofish	11
Cottids		Bullheads	
Speckled Dace		Common Carp	
Redside Shiners		Bluegills	
Northern Pikeminnows		Largemouth Bass	
Largescale Suckers		Pumpkinseeds	
Sand Rollers		Crappies	
Threespine Sticklebacks	3	Smallmouth Bass	
Salmonids ²		Banded Killifish	
Lamprey			
Chiselmouth			
		Other:	
NOTE: POTENTIAL INTRODUCTION SITE			

Site Name	PIONEER PARK BACKWATER	Map Code	PION3J
Basin	SANTIAM RIVER	Sampling Date	5/17/2006
Subbasin	NORTH SANTIAM	Location: Zone 10T	516950 4960250
Surface Area (m2)	2520	Types of aquatic vegetation ¹	
Average Depth (m)	0.5	Submergent	15
Maximum Depth (m)	1	Emergent	50
Water Temperature (C)	21	Floating	0
Percent Silt / Organics	55	Algae	35
		<i>Total</i>	100
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub	113	Western Mosquitofish	
Cottids	51	Bullheads	
Speckled Dace	253	Common Carp	
Redside Shiners		Bluegills	
Northern Pikeminnows	1	Largemouth Bass	
Largescale Suckers		Pumpkinseeds	
Sand Rollers		Crappies	
Threespine Sticklebacks		Smallmouth Bass	
Salmonids ² TF	8	Banded Killifish	
Lamprey			
Chiselmouth			
		Other:	
NOTE: SWCD RECONSTRUCTED POND			

Site Name	SANTIAM CONS EASEMENT SCE7	Map Code	SCE7K
Basin	SANTIAM RIVER	Sampling Date	4/19/2006
Subbasin	NORTH SANTIAM	Location: Zone 10T	500581 4948239
Surface Area (m2)	4000	Types of aquatic vegetation ¹	
Average Depth (m)	1.2	Submergent	78
Maximum Depth (m)	1.7	Emergent	5
Water Temperature (C)	11	Floating	2
Percent Silt / Organics	100	Algae	10
		<i>Total</i>	95
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub	1	Western Mosquitofish	2
Cottids		Bullheads	
Speckled Dace		Common Carp	
Redside Shiners	25	Bluegills	
Northern Pikeminnows	8	Largemouth Bass	
Largescale Suckers		Pumpkinseeds	
Sand Rollers		Crappies	
Threespine Sticklebacks		Smallmouth Bass	
Salmonids ²	1	Banded Killifish	
Lamprey			
Chiselmouth			
		Other:	
NOTE:			

Site Name	SANTIAM CONS. EASEMENT SCE1-4	Map Code	SCE1-4I
Basin	SANTIAM RIVER	Sampling Date	4/19/2006
Subbasin	NORTH SANTIAM	Location: Zone 10T	500303 4947762
Surface Area (m2)	16300	Types of aquatic vegetation ¹	
Average Depth (m)	1	Submergent	81
Maximum Depth (m)	2.5	Emergent	2
Water Temperature (C)	11	Floating	2
Percent Silt / Organics	95	Algae	0
		<i>Total</i>	85
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub	2	Western Mosquitofish	
Cottids	61	Bullheads	
Speckled Dace	3	Common Carp	
Redside Shiners	6	Bluegills	
Northern Pikeminnows		Largemouth Bass	
Largescale Suckers		Pumpkinseeds	2
Sand Rollers		Crappies	
Threespine Sticklebacks	403	Smallmouth Bass	
Salmonids ²	1	Banded Killifish	
Lamprey			
Chiselmouth			
		Other:	
NOTE:			
Site Name	SOUTH STAYTON POND	Map Code	STAY1A
Basin	SANTIAM RIVER	Sampling Date	5/17/2006
Subbasin	NORTH SANTIAM	Location: Zone 10T	515525 4958950
Surface Area (m2)	1200	Types of aquatic vegetation ¹	
Average Depth (m)	1.2	Submergent	60
Maximum Depth (m)	2	Emergent	20
Water Temperature (C)	23	Floating	
Percent Silt / Organics	40	Algae	5
		<i>Total</i>	85
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub		Western Mosquitofish	
Cottids		Bullheads	
Speckled Dace		Common Carp	
Redside Shiners		Bluegills	
Northern Pikeminnows		Largemouth Bass	
Largescale Suckers		Pumpkinseeds	
Sand Rollers		Crappies	
Threespine Sticklebacks		Smallmouth Bass	
Salmonids ²		Banded Killifish	
Lamprey			
Chiselmouth			
		Other:	NO FISH
NOTE: 2006 INTRODCUTION SITE			

Appendix A (continued).

SANTIAM RIVER BASIN

Site Name	STAYTON PUBLIC WORKS POND	Map Code	SPWP1H
Basin	SANTIAM RIVER	Sampling Date	5/18/2006
Subbasin	NORTH SANTIAM	Location: Zone 10T	516689 4959858
Surface Area (m2)	1280	Types of aquatic vegetation ¹	
Average Depth (m)	1.2	Submergent	97
Maximum Depth (m)	2	Emergent	3
Water Temperature (C)	22.5	Floating	0
Percent Silt / Organics	90	Algae	0
		<i>Total</i>	100
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub	441	Western Mosquitofish	100
Cottids	13	Bullheads	
Speckled Dace	11	Common Carp	
Redside Shiners	290	Bluegills	7
Northern Pikeminnows		Largemouth Bass	
Largescale Suckers		Pumpkinseeds	
Sand Rollers		Crappies	
Threespine Sticklebacks	1233	Smallmouth Bass	
Salmonids ²		Banded Killifish	
Lamprey			
Chiselmouth			
		Other:	
NOTE:			
Site Name	WARREN GRAY SLOUGH	Map Code	GRAY1K*
Basin	SANTIAM RIVER	Sampling Date	9/28/2006
Subbasin	NORTH SANTIAM	Location: Zone 10T	513224 4957493
Surface Area (m2)	8445	Types of aquatic vegetation ¹	
Average Depth (m)	1.2	Submergent	33
Maximum Depth (m)	2.5	Emergent	22
Water Temperature (C)	14	Floating	
Percent Silt / Organics	100	Algae	
		<i>Total</i>	55
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub	697	Western Mosquitofish	
Cottids	17	Bullheads	
Speckled Dace	14	Common Carp	
Redside Shiners	1	Bluegills	3
Northern Pikeminnows		Largemouth Bass	
Largescale Suckers		Pumpkinseeds	
Sand Rollers		Crappies	
Threespine Sticklebacks	6837	Smallmouth Bass	
Salmonids ²		Banded Killifish	
Lamprey			
Chiselmouth			
		Other:	
NOTE:	POPULATION ESTIMATE		

Site Name	WALDEN POND 1	Map Code	WALD1*
Basin	SANTIAM RIVER	Sampling Date	10/10/2006
Subbasin	SOUTH SANTIAM	Location: Zone 10T	509432 4933216

Surface Area (m2)	57600	Types of aquatic vegetation ¹	
Average Depth (m)	6	Submergent	15
Maximum Depth (m)	8	Emergent	15
Water Temperature (C)	16	Floating	0
Percent Silt / Organics	80	Algae	5
		<i>Total</i>	35

Native Fish Species Collected:

- Oregon Chub
- Cottids
- Speckled Dace
- Redside Shiners
- Northern Pikeminnows
- Largescale Suckers
- Sand Rollers
- Threespine Sticklebacks
- Salmonids ²
- Lamprey
- Chiselmouth

Non-native Fish Species Collected:

- Western Mosquitofish 100
- Bullheads
- Common Carp
- Bluegills 50
- Largemouth Bass 25
- Pumpkinseeds
- Crappies
- Smallmouth Bass
- Banded Killifish

Other:

NOTE: CITY OF LEBANON RESTORATION PROJECT

Site Name	WALDEN POND 2	Map Code	WALD2*
Basin	SANTIAM RIVER	Sampling Date	10/10/2006
Subbasin	SOUTH SANTIAM	Location: Zone 10T	509614 4932927

Surface Area (m2)	68225	Types of aquatic vegetation ¹	
Average Depth (m)	6	Submergent	25
Maximum Depth (m)	8	Emergent	10
Water Temperature (C)	17	Floating	5
Percent Silt / Organics	95	Algae	5
		<i>Total</i>	45

Native Fish Species Collected:

- Oregon Chub
- Cottids
- Speckled Dace
- Redside Shiners
- Northern Pikeminnows
- Largescale Suckers
- Sand Rollers
- Threespine Sticklebacks
- Salmonids ²
- Lamprey
- Chiselmouth

Non-native Fish Species Collected:

- Western Mosquitofish 100
- Bullheads
- Common Carp
- Bluegills 50
- Largemouth Bass 25
- Pumpkinseeds
- Crappies
- Smallmouth Bass
- Banded Killifish

Other:

NOTE: CITY OF LEBANON RESTORATION PROJECT



**3406 Cherry Ave. NE
Salem, Oregon 97303**