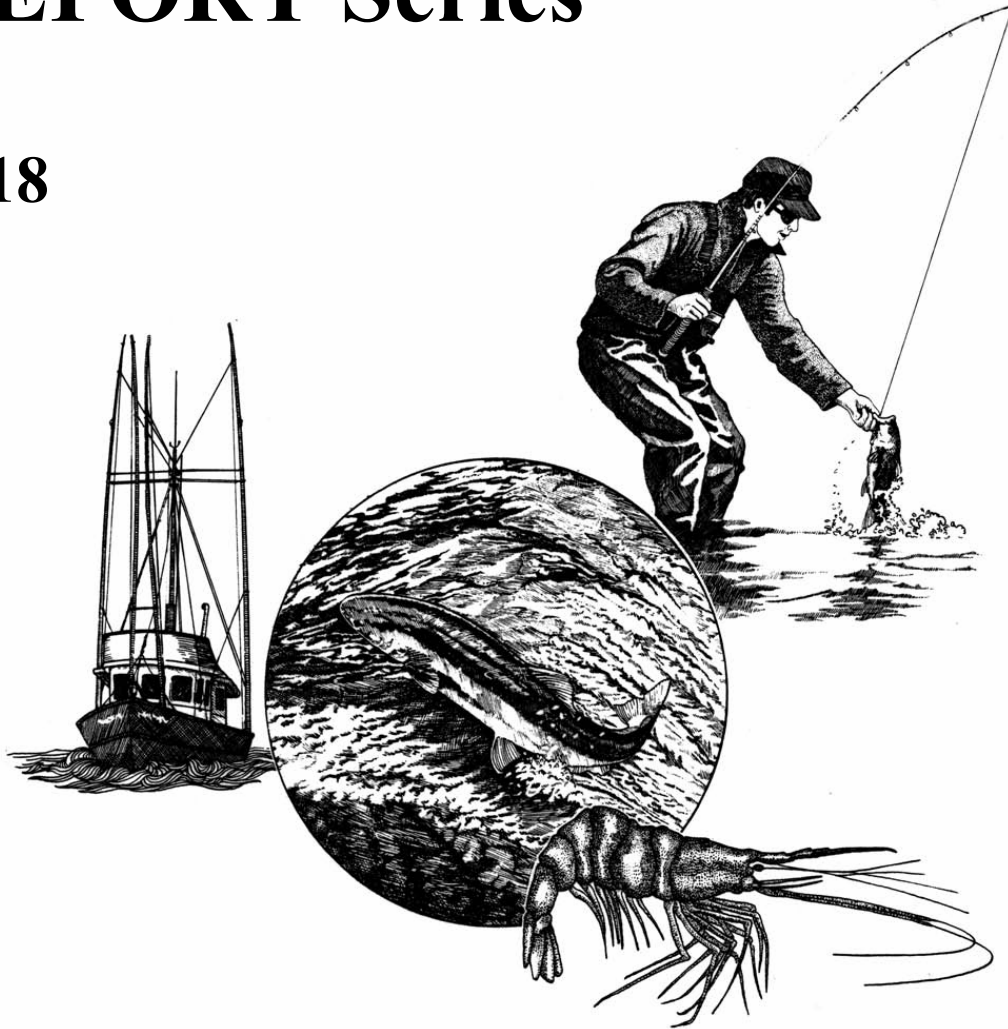


ODFW PROGRESS REPORT Series

2018



Oregon Department of Fish and Wildlife

2017 Oregon Chub Investigations

Project Numbers: F16AC00392 (USFWS) & W9127N-14-2-0008-0004 (USACE)

Oregon Department of Fish and Wildlife prohibits discrimination in all of its programs and services on the basis of race, color, national origin, age, sex, or disability. If you believe that you have been discriminated against as described above in any program, activity, or facility, or if you desire further information, please contact ADA Coordinator, Oregon Department of Fish and Wildlife, 4034 Fairview Industrial Drive SE, Salem, OR 97302; (503)947-6000.

This material will be furnished in alternate format for people with disabilities if needed. Please call 541-757-4263 to request

ANNUAL PROGRESS REPORT
FISH RESEARCH PROJECT
OREGON

PROJECT TITLE: 2017 Oregon Chub Investigations
PROJECT NUMBERS: F16AC00392 (USFWS) & W9127N-14-2-0008-0004 (USACE)
PROJECT PERIOD: February 3, 2017 to September 28, 2017

Prepared by: Brian L. Bangs
Michael H. Meeuwig

Oregon Department of Fish and Wildlife
4034 Fairview Industrial Drive SE
Salem, Oregon 97302

CONTENTS

	<u>Page</u>
SUMMARY.....	1
INTRODUCTION.....	2
METHODS.....	4
RESULTS	5
DISCUSSION.....	13
Status of Naturally Occurring Populations	13
Status of Introduced Populations and Habitat Restoration Projects.....	14
Distribution of Nonnative Species.....	17
Impacts of the 2015 Drought	17
Other Research and Monitoring.....	18
Floodplain Study	18
Oregon Chub Population Trends	18
Status of Oregon Chub Relative to PDM Criteria	19
ACKNOWLEDGMENTS.....	19
REFERENCES	21
APPENDIX A. Fish species and habitat characteristics at 2017 Oregon Chub survey locations	23

SUMMARY

Oregon Chub *Oregonichthys crameri*, a small minnow endemic to the Willamette Valley, was listed as endangered under the federal Endangered Species Act (ESA) in 1993. Factors implicated in the decline of this species included 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 was further affected by predation and competition by nonnative species such as Largemouth Bass *Micropterus salmoides*, crappies *Pomoxis* sp., sunfishes *Lepomis* sp., bullheads *Ameiurus* sp., and Western Mosquitofish *Gambusia affinis*. In February 2015, Oregon Chub became the first fish removed (delisted) from the ESA due to recovery (Federal Register 2015).

Prior to the delisting, the U.S. Fish and Wildlife Service (USFWS) led a multiagency group that developed the Post-Delisting Monitoring Plan (PDM) for the Oregon Chub (U.S. Fish and Wildlife Service 2014). This document provides monitoring guidance for Oregon Chub to track changes in distribution, abundance, habitat conditions, and threats after delisting. Monitoring through the PDM will extend, at a minimum, for 9 years. The PDM identifies three Recovery Areas that cover the range of Oregon Chub populations: Santiam, Mainstem Willamette, and Middle Fork Willamette. One Recovery Area will be sampled each year and each Recovery Area will be sampled three times during the PDM period. This monitoring program will consist of the following three components: 1) population abundance and distribution monitoring, 2) monitoring the distribution of co-occurring nonnative species, and 3) habitat monitoring. The PDM identifies circumstances that will trigger increased monitoring or potentially lead to a status review under the ESA, and circumstances when there are no longer concerns for Oregon Chub and the PDM requirements have been fulfilled. The PDM continues the monitoring program that was initiated in 1991 to evaluate the status and implement the research and recovery objectives listed in the Oregon Chub Recovery Plan (U.S. Fish and Wildlife Service 1998). In addition, we sampled locations in other basins included in our ongoing floodplain study or that were of management or conservation interest.

In 2017, we sampled a total of 142 locations, 41 of which we visited for the first time. We discovered two new populations of Oregon Chub in the Middle Fork Willamette Recovery Area. We confirmed the continued existence of Oregon Chub at 69 locations, including 56 naturally occurring and 13 introduced populations. We obtained abundance estimates for 33 naturally occurring populations and 8 introduced populations of Oregon Chub that were located throughout the Willamette basin. We documented 29 populations of Oregon Chub ≥ 500 individuals; 7 of these populations were in the Santiam Recovery Area, 7 in the Mainstem Willamette Recovery Area, and 15 in the Middle Fork Willamette Recovery Area. We documented nonnative fish at 49% of all occupied Oregon Chub habitats sampled in 2017. Our results confirm that habitat conditions continue to support populations of Oregon Chub in habitats hydrologically connected to mainstem rivers in each Recovery Area. Our results suggest that Oregon Chub remain secure in the areas sampled without the protection of the ESA based on criteria established by the PDM.

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, 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 concealment and spawning. In the past 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 nonnative fish species to the Willamette Valley, resulted in a restricted distribution and sharp decline in Oregon Chub abundance and a determination of "endangered" status under the federal endangered species act in 1993 (Markle and Pearsons 1990; Rhew 1993).

Since 1991, the Oregon Department of Fish and Wildlife - Native Fish Investigations Program (ODFW) has evaluated the status and implemented the research and recovery objectives listed in the Oregon Chub Recovery Plan (U.S. Fish and Wildlife Service 1998; Bangs et al. 2014a). In 2009, ODFW initiated an additional, ongoing study to assess the effects of flow and temperature modifications and proposed reconnection of floodplain habitats on Oregon Chub and other floodplain fishes (Bangs et al. 2014b). Through the coordinated efforts of a multiagency working group, with the aid of private landowners and other non-governmental organizations, the status of the Oregon Chub has dramatically improved (Scheerer et al. 2007, Bangs et al. 2014a). The USFWS downlisted the Oregon Chub to "threatened" status in 2010 (Federal Register 2010), and in February 2015 Oregon Chub became the first fish delisted from the ESA due to recovery (Federal Register 2015).

Prior to delisting the Oregon Chub, the USFWS led a multiagency group that developed the Post-Delisting Monitoring Plan (PDM) for the Oregon Chub (U.S. Fish and Wildlife Service 2015). This document builds upon the success of the Recovery Plan for the Oregon Chub by incorporating the information gained while the species was listed. The PDM period will extend, at a minimum, for nine years to 2023. The PDM identifies three Recovery Areas that cover the range of Oregon Chub populations: Santiam, Mainstem Willamette, and Middle Fork Willamette. One Recovery Area will be sampled each year and each Recovery Area will be sampled three times during the PDM period (Table 1).

Table 1. Frequency of sampling in each Recovery Area from 2015 through 2023.

Recovery Area	Cycle 1			Cycle 2			Cycle 3		
	2015	2016	2017	2018	2019	2020	2021	2022	2023
Santiam	X			X			X		
Mainstem Willamette		X			X			X	
Middle Fork Willamette			X			X			X

The PDM provides monitoring guidance for Oregon Chub following delisting to track changes in distribution, abundance, habitat conditions, and threats. Section 5 of the PDM identifies circumstances that will trigger increased monitoring and identifies circumstances when there are no longer concerns for Oregon Chub and the PDM requirements have been fulfilled. The triggers for concluding the PDM are:

I. Population Abundance and Distribution Triggers

1. There are at least 25 populations with population abundance ≥ 500 individuals each; and
2. At least 5 populations with ≥ 500 individuals each exist in each of the three Recovery Areas; and

II. Nonnative Species Triggers

1. Fewer than 80 percent of all habitats occupied by Oregon Chub contain competitive or predatory nonnative species; and
2. New competitive or predatory nonnative species are absent or distributed in less than 30 percent of Oregon Chub habitat within each individual Recovery Area; and

III. Habitat Status Triggers

1. The U.S. Army Corps of Engineers does not conduct additional complete reservoir drawdowns upstream of Oregon Chub populations, or, if complete reservoir drawdowns occur, no significant adverse changes to the fish community or habitat are caused; and

2. At least 50 percent of the hydrologically connected Oregon Chub habitats in a subbasin continue to have sufficient habitat quality to support Oregon Chub populations; and
3. A 50-year interval flood event does not occur in the basins containing Oregon Chub or a 50-year interval flood event does occur, but does not cause a decline in Oregon Chub populations or habitat, or a significant increase in the distribution of nonnative fish.

This report summarizes the surveys conducted in 2017 and evaluates the status of Oregon Chub relative to the triggers listed for conclusion of the PDM. In addition, we discuss the history of, and additional opportunities for, introductions of Oregon Chub into new habitats.

METHODS

The PDM defines the three Recovery Areas for the Oregon Chub: Santiam, Middle Fork Willamette, and Mainstem Willamette. The Santiam and Middle Fork Willamette recovery areas include all locations within the Santiam River basin and Middle Fork Willamette River basin, respectively. The Mainstem Willamette Recovery Area includes the remainder of the Willamette River basin, including the Luckiamute River, Mary's River, McKenzie River, and Molalla River tributaries. In 2017, we focused our monitoring on the Middle Fork Willamette Recovery Area. In addition, we sampled locations in other basins included in our ongoing floodplain study or that were of management or conservation interest. We conducted surveys at 142 locations in the Willamette River drainage. We sampled off-channel habitats using baited minnow traps, seines, dip nets, hoop nets, and boat electrofishing. Minnow traps were cylindrical, were 46 cm long and 23 cm in diameter, and were constructed of 3.2 mm wire mesh. Seines were 1 m tall and 5 m long and constructed of 6.4 mm mesh. Dip nets were constructed of 6.4 mm mesh (stretch measure). Hoop nets consisted of 4 hoops measuring 61 cm in diameter, were 3.1 m long, had two 0.6 m tall by 7.6 m long wings, and were constructed of 1.3 cm mesh (stretch measure). Boat electrofishing was conducted using either a Smith-Root 5,000 W generator powered pulsator (model 5.0 GPP) or a Midwest Lake Electrofishing Systems Infinity control box powered by a 3,000 W generator. The hoop nets had two wings measuring 0.6 m tall by 7.6 m long with 1.3 cm stretched mesh. We identified and enumerated all fish captured. We recorded the presence and life stage of amphibian and reptile species that we encountered.

We recorded biotic and abiotic characteristics at each location including substrate type, percent of wetted surface area with aquatic vegetation, mean and maximum depth, water temperature, and total wetted surface area. Substrate was categorized as percent fines (<1/16th mm), sand (1/16th-2 mm), gravel (3-64 mm), cobble (65-256 mm), boulder (>256 mm), and bedrock. We photographed and assigned a unique map code to each new location.

We used minnow traps to obtain mark-recapture population estimates for all fish species, when possible. We baited the traps with one third slice of bread and fished them for three to 18 hours. We measured the total length (TL) of a subsample (n=50) of the Oregon Chub that we collected in the traps. We marked all fish with a partial caudal fin clip and returned them to the water. On the second day, if the ratio of unmarked to recaptured fish exceeded 10:1, we repeated this procedure and marked all unmarked fish captured on the second day. We typically marked fish until a minimum of 15 percent of the population was marked, based on previous population estimates. We estimated population abundance using a single-sample mark-recapture model (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). Our minnow traps were unable to catch fish smaller than ≈ 30 mm (TL); these fish were assumed to be young-of-the-year (Scheerer and McDonald 2003) and were not included in the abundance estimates. In addition, in habitats that have at least periodic open-water connection to adjacent waterbodies, we checked each captured Oregon Chub for a VIE tag, which were implanted during previous studies for tracking movement among populations (Bangs et al. 2013). At the Hospital Impoundment Pond, we obtained the population abundance estimate during a fish salvage effort. For this population, we calculated the population abundance and 95% confidence intervals using a two-sample removal estimate as described by Seber and Le Cren (1967).

We defined a population as a group of Oregon Chub that occupies a single, defined waterbody. If there was an open-water connection and the potential for frequent movement of chub between adjacent sloughs or ponds, then we considered adjacent locations to be part of a single population. At locations where abundance estimates were obtained in 2016 (Bangs and Meeuwig 2017) and 2017, we compared the 95% confidence intervals. If the ranges of each 95% confidence intervals did not overlap, we defined these changes in abundance as significant.

RESULTS

Detailed descriptions of habitat characteristics and the fish species present at each of the 142 locations sampled in 2017 (Figure 1) are presented in **APPENDIX A**.

We estimated the abundance of Oregon Chub at 41 locations, and confirmed the continued presence of Oregon Chub at 69 locations (Tables 2 and 3). We estimated the population abundance of Oregon Chub at 9 locations in the Santiam River Recovery Area, There were 7 populations in the Santiam Recovery Area with ≥ 500 Oregon Chub. We were unable to capture Oregon Chub at Santiam I-5 Side Channels, where Oregon Chub were captured in 2016. We noted significant increases in Oregon Chub abundance at Geren Island North Channel, Stayton Public Works Pond, South Stayton Pond, and Pioneer Park Pond. We noted a significant decline in Oregon Chub abundance at Chahalpam Slough.

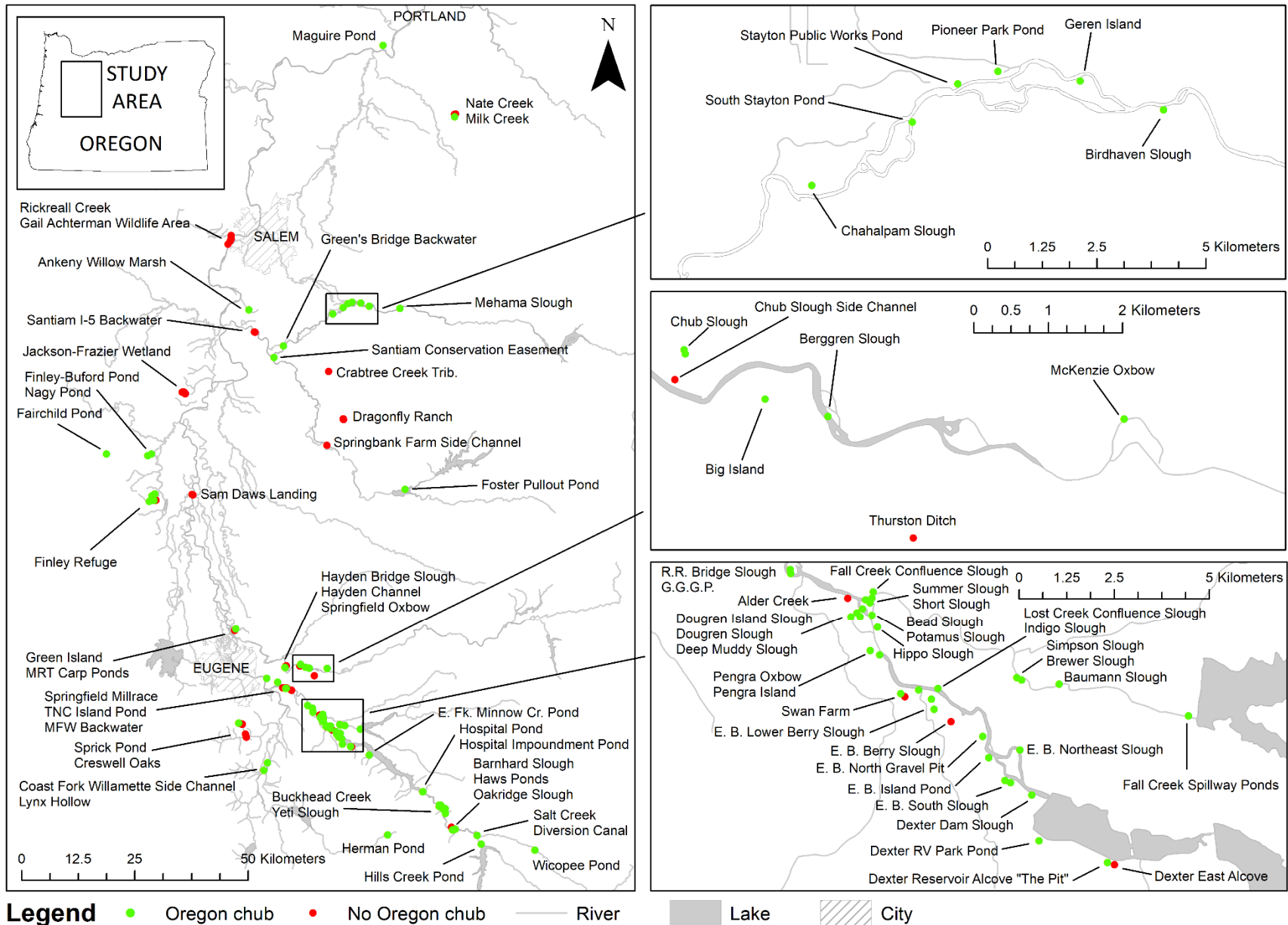


Table 2. Oregon Chub population abundance estimates from 2013-2017, listed by Recovery Area. Basins: CFW= Coast Fork Willamette, FALL= Fall Creek, LONG = Long Tom, LUCK= Luckiamute, MARY= Mary's, MCK= McKenzie, MFW= Middle Fork Willamette, MILL= Mill Creek, MOL= Molalla, MS= Mainstem Willamette and tributaries, MOL= Molalla, NS= North Santiam, SANT= Mainstem Santiam, SS= South Santiam. We also included a summary of data prior to 2013, including the years when we first discovered or introduced each population and the ranges of abundance. Abundance was calculated using a mark-recapture model, except where numbers are shown in bold, which only represent the number of fish captured. Location names in bold italics are locations where Oregon Chub were introduced. The numbers of fish stocked at introduction locations are shown in parentheses.

Recovery Area	Basin	Location name	First discovered/ introduced	Range through 2012	Year				
					2013	2014	2015	2016	2017
Mainstem Willamette	MS	<i>Ankeny Willow Marsh</i>	2004	500 – 96,810	47,920	19,340	16,930	15,730	11,410
	MCK	Big Island	2002	190 – 1,240	1,160	860	2,160	820	2,550
	MARY	Finely Beaver Pond	2010	310 – 1,340	1,600	37	10	200	1,990
	MCK	McKenzie Oxbow	2009	2,420 – 3,550	6,180	9,030	3,700	430	1,830
	MCK	Berggren Slough	2009	520 – 920	610	290	750	1,090	950
	MARY	<i>Finley-Buford Pond</i>	2011	460	1,010	503	800	740	770
	MOL	<i>Maguire Pond</i>	2015	0			(510)		650
	CFW	Coast Fork Willamette Side Channels	2002	16 – 190	60	240	240	700	410
	MARY	Finley Gray Creek Swamp	1993	230 – 2,350	1,370	5	5	220	(65) 270
	MARY	<i>Finley Field-22 Pond</i>	2017						(150)
	MCK	Chub (Ezell) Slough	2005	6 – 140			65	140	131
	MCK	Springfield Oxbow	2012	4				53	96
	MARY	<i>Fairchild Pond</i>	2015				(150)	650	65
	CFW	<i>Sprick Pond</i>	2008	12 – 700	610	500		(75) 1,190	(41)
	MARY	<i>Nagy (Williams-Murphy) Pond</i>	2011	7	1,080	500	0	0	(37)
	MARY	<i>Finley Display Pond</i>	1998	60 – 1,750	120	530	5	130	13
	CFW	Lynx Hollow Side Channels	2005	0 – 4	4	0	0	40	5
	MOL	Milk Creek	2014			1			1
	MCK	Green Island	2007	0 – 12	3	2	22	0	1
	CFW	Herman Pond	2002	0 – 420	150				1
	CFW	Camas Swale	1992	0 – 2				0	0
	MS	<i>Dunn Wetland</i>	1997	200 – 47,350	6,440	14,600	1,000	20,859	
	MOL	Ellis Slough	2014			1,100	6,580	7,510	
	MCK	Shetzline Pond	2002	120 – 9,270	3,240	4,330		3,820	
	LUCK	<i>McCrae Reservoir</i>	2013		(29)	(14) 0	208	(9) 260	
	MCK	<i>Russell Pond</i>	2001	340 – 2,780	130	360		220	
	MCK	Vickery Park Slough	2011	22 – 60	12	80		110	
	LUCK	Jont Creek	2012	90	370	140	4	90	
	MS	Camous Creek	1993	5	56	22		42	
	MOL	Labedz Slough	2013		29	90	100	30	
	MARY	<i>Schmedding Beaver Creek Swamp</i>	2015				(150)	30	
	MS	Dry Muddy Creek	1994	500	52	34	2	28	

Table 2 (continued).

Recovery Area	Basin	Location name	First discovered/ introduced	Range through 2012	Year				
					2013	2014	2015	2016	2017
Mainstem	MCK	Cedar Creek	2012	170	25			26	
Willamette	MCK	Hendrick's Bridge Slough	2011	70	22	39		3	
	MS	Muddy Creek	2007	0 – 3	46	2		2	
	MCK	Brick Slough	2016					2	
	MCK	Bovine Slough	2016					1	
	MARY	Finley Cheadle Pond	2002	20 – 3,520	160	370		0	
	MCK	Ellison Pond and Slough	2012	1	9			0	
	MS	Dunawi Creek	2012	5	0			0	
	MOL	Feyrer Park Slough	2013		1	0	0		
	MS	St. Paul Ponds	2008	2 – 510	440	53	dry		
	MOL	Wagonwheel Park	2014			25			
	MS	Jampolsky Wetlands	2004	500 – 8,320	0				
	MCK	Grant Farm Channel	2012	8					
	MS	Bull Run Creek	2005	0 – 2					
	MS	Little Muddy Creek tributary	2004	0 – 5					
	Santiam	NS	Geren Island North Channel	1996	210 – 8,660	2,280	1,370	610	770
NS		Stayton Public Works Pond	1998	0 – 1,100	1,530	260	22	300	1,300
NS		South Stayton Pond	2006	54 – 6,230	1,100	1,370	620	610	1,020
NS		Mehama Slough	2010	15 – 1,240	1,380	2,800	1,030	1,240	910
NS		Foster Pullout Pond	1999	85 – 2,640	3,410	2,420	5,050	970	900
NS		Pioneer Park Pond	1997	0 – 2,710	1,630	3,880	2,220	280	600
NS		Birdhaven Slough	2014			5350	5,980	3780	500
NS		Santiam Conservation Easement	1994	0 – 1,250	310	300	930	920	490
NS		Green's Bridge Slough	1993	0 – 610	670	510	690	170	70
NS		Chahalpam (Gray) Slough	1995	0 – 700	2430	2200	680	90	10
SANT		Santiam I-5 Side Channels	1997	2 – 350	420	30	3	1	0
NS		Budeau North Pond	2010	310 – 5,730	8,350		11,260	480	
NS		Budeau South Pond	2010	312 – 4,160	2,810		6,180	(200) 0	
SS		Rummel Pond	2016					(92)	
NS		Boomer Slough	2014				6	0	0
NS		Koenig Slough	2011	443 – 2,410	1,780			1,640	
NS		North Stayton Pond	2010	300 – 4,370	3,720	50		1,090	
NS		Buell-Miller Slough	2010	2 – 710	760			730	
NS		Taloali Slough	2013		4			581	
NS		Stout Creek	2013		39	54		420	
NS	Eck Slough	2015					43		
NS	Hatch Side Channels	2015					33		

Table 2 (continued).

Recovery Area	Basin	Location name	First discovered/ introduced	Range through 2012	Year				
					2013	2014	2015	2016	2017
Santiam	NS	Harris Slough	2011	18 – 80	30	30	19		
	NS	Trexler Farm Ponds	2013		53	28	4		
	NS	Alder Creek	2015				1		
	NS	Logan Slough	1997	0 – 1	0		0		
	NS	Foster Reservoir	2014			9			
	SS	Hospital Slough	2009	10					
	NS	Cold Creek Slough	2011	0 – 59					
	NS	Menear's Bend	2000						
Middle Fork	MFW	Wicopee Pond	1988	0 – 5,620	4,380	35		20	6,610
Willamette	MFW	Elijah Bristow South Slough	2008	1 – 880	280	750	1,550	1,510	4,690
	MFW	Elijah Bristow North Gravel Pit	2011	0 – 60	450	510	1,870	3,440	4,360
	MFW	Buckhead Creek	1992	2 – 7,140	4,600	1,794			3,170
	MFW	East Fork Minnow Creek Pond	1993	1,340 – 8,770	1,340	1,890			2,660
	MFW	Elijah Bristow Island Pond	2003	420 – 2,780	2,250	890	3,950	6,380	2,480
	MFW	Hospital Pond	1993	690 – 5,040	1,360	2,640	870	1,410	2,340
	MFW	Shady Dell Pond	1993	1,600 – 7,250	2,890	2			1,980
	MFW	Haws Enhancement Pond	2009	1 – 3,150	790	1,800	3,220	1,040	1,950
	MFW	Dexter Reservoir RV Alcove - DEX3	1992	15 – 3,310	3,550	3,960	6,550	6,900	1,460
	MFW	Dougren Slough	2008	1 – 1,730	522	958	1,150	2,470	1,080
	MFW	Yeti Slough	2014		1,060	1,059			985
	MFW	Lost Creek Slough	2012	13	21	42	500		710
	MFW	Fall Creek Spillway Ponds	1996	480 – 7,770	9,110	9,900	13,400	6,610	670
	MFW	Dexter Reservoir Alcove - PIT1	1992	40 – 1,440	2,590	870	1,740	2,100	590
	MFW	Haws Pond	2005	120 – 810	510	510	210	1,190	440
	MFW	Elijah Bristow Northeast Slough	1999	210 – 1,340	890	1,030	1,360	710	410
	MFW	Dexter Dam Slough	2009	510 – 920	1,090	2,120	900	1,050	380
	MFW	Hills Creek Pond	2010	1,127 – 23,000	14,610	1,950	330	500	310
	MFW	Hospital Impoundment Pond	1995	0 – 80	1	0	0	158	300
	MFW	Potamus Slough	2016					15	250
	MFW	Dougren Island Slough	2011	34 – 280	1,700	323	110		231
	MFW	Pengra Island Slough	2003	40 – 200	40	60	110	440	230
	MFW	Elijah Bristow Berry Slough	1993	1,190 – 8,130	1,170	510	330	3	100
	MFW	Bead Slough	2016					17	75
	MFW	Swan Farm	2015				140		34
	MFW	Campers Cove	2017						33
	MFW	Jasper Railroad Bridge Slough	2009	0 – 80	0	8	0	20	30
MFW	Indigo Slough	2017						27	

Table 2 (continued).

Recovery Area	Basin	Location name	First discovered/ introduced	Range through 2012	Year				
					2013	2014	2015	2016	2017
Middle Fork	MFW	Deep Muddy Slough	2009	0 – 40	10	29	90	50	21
Willamette	MFW	Hippo Slough	2015				9		20
	FALL	Brewer Slough	2013		1	40	20	0	10
	MFW	Salt Creek Diversion Canal	2012	150	2				9
	MFW	Summer Side Channel	2016					4	7
	MFW	Short Slough	2016					2	6
	MFW	Green Grass Gravel Pit	2012	24	7	3	0	0	5
	MFW	Springfield Millrace Slough	2009	0 – 8					5
	MFW	Oakridge Slough	1994	0 – 480	3	0		5	2
	FALL	Simpson Slough	2012	1	0	1	2	13	2
	FALL	Baumann Slough	2012	1	0	90	20	1	1
	FALL	Fall Creek Confluence Slough	2012	5	1	3	1	0	1
	MFW	Jasper Park Slough	1994	0 – 3					1
	MFW	Pengra Oxbow Slough	2008	1 – 80	160	100	2	8	1
	MFW	Dexter East Alcove	1992	0 – 40					0
	MFW	TNC Island Slough	2012	2					0
	MFW	Barnhard Slough	2000	0 – 7	0	0	0	0	0
	FALL	Fall Creek	2016					1	
	MFW	Elijah Bristow Large Gravel Pit	1992	0 – 8	0				
	MFW	Elijah Bristow Small Gravel Pit	1992	0 – 31	0				
	MFW	Rattlesnake Creek	1992	0 – 5	0				
	MFW	Lookout Point Reservoir	2012	1					
	MFW	Pudding Creek	2011	0 – 1					
	MFW	East Ferrin Pond	1994	0 – 7,160					
MFW	Wallace Slough	1997	0 – 3						
MFW	Dexter Reservoir	2002	1						
MFW	West Ferrin Pond	1992	0 – 525						

Table 3. 2017 Oregon Chub abundance estimates and 95% confidence limits. Locations are grouped by Recovery Area and drainage. Note: the Mainstem Willamette Recovery Area contains multiple river drainages.

Location	Estimate	95% Confidence limits	
		Lower	Upper
Mainstem Willamette Recovery Area			
Coast Fork Willamette River Drainage			
Coast Fork Side Channels	410	300	570
Mainstem Willamette River Drainage			
Ankeny Willow Marsh	11,410	8,650	15,030
Mary's River Drainage			
Finley Beaver Pond	1,990	1,250	3,120
Finley Gray Creek Swamp	270	210	350
McKenzie River Drainage			
Big Island	2,550	2,060	3,140
McKenzie Oxbow	1,730	1,220	2,450
Berggren Slough	950	800	1,120
Molalla River Drainage			
Maguire Pond	650	520	810
Santiam River Recovery Area			
Geren Island North Channel	1,640	1,480	1,820
Stayton Public Works Pond	1,300	1,100	1,530
South Stayton Pond	1,020	860	1,210
Mehama Slough	910	790	1,050
Foster Pullout Pond	900	790	1,030
Pioneer Park Pond	600	490	740
Santiam Conservation Easement	490	230	940
Green's Bridge Slough	70	40	110
Chahalpam Slough	10	1	20

Table 3 continued on next page

Table 3 (continued).

Location	Estimate	95% Confidence limits	
		Lower	Upper
Middle Fork Willamette Recovery Area			
Wicopee Pond	6,610	5,720	7,630
Elijah Bristow South Slough	4,690	3,670	5,990
Elijah Bristow North Gravel Pond	4,360	3,420	5,540
Buckhead Creek	3,170	2,440	4,170
East Fork Minnow Creek Pond	2,660	2,470	2,860
Elijah Bristow Island Pond	2,450	1,750	3,410
Hospital Pond	2,340	2,160	2,530
Shady Dell Pond	1,980	1,750	2,230
Haws Enhancement Pond	1,950	1,780	2,140
Dexter Reservoir Alcove "DEX3"	1,460	970	2,180
Dougren Slough	1,080	970	1,210
Lost Creek Confluence Slough	710	560	890
Fall Creek Spillway Ponds	670	460	970
Dexter Reservoir Alcove "PIT1"	590	410	840
Haws Pond	440	270	720
Elijah Bristow Northeast Slough	410	330	500
Dexter Dam Slough	380	320	460
Hills Creek Pond	310	90	530
Hospital Impoundment Pond	303	300	305
Pengra Island Slough	230	190	270
Elijah Bristow Berry Slough	100	50	170
Jasper Railroad Bridge Slough	30	20	60
Hippo Slough	20	10	40
Brewer Slough	10	1	20

We estimated the abundance of Oregon Chub at 8 locations in the Mainstem Willamette River Recovery Area. There were 7 populations in the Mainstem Willamette Recovery Area with ≥ 500 Oregon Chub. We noted significant increases in Oregon Chub abundance at Big Island, Finley Beaver Pond, and McKenzie Oxbow.

We estimated the abundance of Oregon Chub at 24 locations in the Middle Fork Willamette River Recovery Area. There were 15 populations in the Middle Fork Willamette drainage with ≥ 500 Oregon Chub. We noted significant increases in Oregon Chub abundance at East Fork Minnow Creek Pond, Elijah Bristow Island Pond, Elijah Bristow South Slough, Haws Enhancement Pond, Hospital Pond, and Wicopee Pond. We noted significant declines in Oregon Chub abundance at Dexter Dam Slough, Dexter Reservoir Alcove "PIT1", Dexter Reservoir RV Alcove "DEX3", Dougren Slough, Elijah Bristow Northeast Slough, Fall Creek Spillway Ponds, Haws Pond, Pengra Island Slough, and Shady Dell Pond. We discovered two new naturally occurring Oregon Chub populations at Campers Cove and Indigo Slough in the Middle Fork Willamette River basin. We were unable to document Oregon Chub at TNC Island Pond.

DISCUSSION

Status of Naturally Occurring Populations

In 2017, we documented 21 naturally occurring populations of Oregon Chub with ≥ 500 individuals in the Willamette River basin; five of these populations in the Mainstem Willamette Recovery Area, five in the Santiam Recovery Area, and 12 in the Middle Fork Willamette Recovery Area. Additionally, 13 naturally occurring Oregon Chub populations, comprised of 500 or more individuals, have been previously documented across the range of Oregon Chub (Bangs and Meeuwig 2017), but were not included in our 2017 sampling effort. There are five unsampled populations in the Santiam Recovery Area and eight in the Mainstem Willamette Recovery Area. Despite finding Oregon Chub in a greater extent of their historic range, we have not found Oregon Chub populations in some areas where they were documented historically, such as downstream of Willamette Falls near the mouth of the Clackamas River, in mainstem Willamette River sloughs and backwaters, or in the Long Tom River and Calapooia River basins.

In recent years we have documented a number of newly discovered populations in habitats that have frequent hydrologic connectivity to adjacent rivers, and in 2017 we discovered Oregon Chub in two new hydrologically connected locations. In addition, we captured Oregon chub at four hydrologically connected locations where Oregon chub had been present in the past, but were not observed during our previous visit. However, we were unable to capture Oregon Chub in two hydrologically connected locations where they were present in 2016. Two-thirds (72 out of 109) of the locations containing Oregon Chub are hydrologically connected habitats.

Status of Introduced Populations and Habitat Restoration Projects

One of the key components to the successful recovery of the Oregon Chub was the implementation of a program to introduce Oregon Chub into suitable habitats within its historic range. Since 1988, 29 introductions have been attempted, and 23 new populations have been established (Table 4). 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 2017, we documented eight introduced Oregon Chub populations with 500 or more individuals; three of these populations in the Mainstem Recovery Area, two in the Santiam Recovery Area, and three in the Middle Fork Willamette Recovery Area. We introduced Oregon Chub into Finley Field-22 Pond in the Mainstem Recovery Area. We reestablished the Oregon Chub population at Nagy (Williams-Murphy) Pond in the Mainstem Recovery area. We supplemented Sprick Pond in the Mainstem Willamette Recovery Area with an additional 41 Oregon Chub.

In 2016, we were unable to capture Oregon Chub at Nagy (Williams-Murphy) Pond. The floating aquatic fern water velvet (*Azolla* spp.), common but normally ephemeral in Willamette Basin ponds, formed a perennial colony rooted to and stabilized by a layer of floating organic detritus. The water velvet colony had persisted for at least two years, and no submergent aquatic vegetation was present in the pond. Although the mechanism is unknown, we speculated that water velvet may have caused the extirpation of the submergent aquatic vegetation and Oregon Chub population. From November 2016 through January 2017, the landowners removed the water velvet with a seine and tractor, and cleared smaller areas with hand tools. Water velvet did not recolonize the pond in 2017. Following the recolonization of the pond by submergent aquatic vegetation, we reestablished the Oregon Chub population through translocation of 36 fish from Finley-Buford Pond.

The structure that maintains water elevation at Finley Display Pond failed in winter 2017; USFWS William L. Finley National Wildlife Refuge managers and biologists made emergency repairs to prevent the complete drainage of the pond, but determined that the structure was unrepairable. We worked with refuge staff to translocate 13 Oregon Chub from Finley Display Pond to Finley Field-22 Pond, and supplemented the introduction with additional Oregon chub from Finley Beaver Pond (n=100) and Finley-Buford Pond (n=37).

Oregon Chub introduction guidelines for establishing new populations recommend that we transfer a minimum of 500 fish, but only remove a maximum of 10% from a donor population annually to minimize impacts to the donor population. When donor populations total <5,000 fish, it takes us multiple years to achieve this target. In addition, the guidelines also state that donor stocks should be from the same subbasin as the introduction location, whenever possible.

Table 4. Oregon Chub introduction and habitat restoration locations, donor populations, ownership of the locations, numbers of fish introduced, and year of first introduction. There were no Oregon Chub introductions between 1988 and 1996. 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.

Basin	Location	Ownership	Donor site (introduced populations)	Number moved in 2017	Total number moved	
Molalla River	Maguire Pond	private	Ellis Slough		500	
			Labeledz Slough		10	
Luckiamute River	McCrae Reservoir	private	Jont Creek		51	
Santiam River	Budeau North Pond	private	South Stayton Pond		310	
		private	South Stayton Pond		312	
	Budeau South Pond	private	Budeau North Pond		200	
			Foster Pullout Pond	ACOE	Geren Island	500
	Menear's Bend	ACOE	Geren Island		41	
	North Stayton Pond	ODFW	South Stayton Pond		620	
	Rummel Pond	private	Santiam Conservation Easement		92	
	South Stayton Pond	ODFW	Stayton Public Works Pond		73	
			Geren Island		232	
	Mainstem Willamette	Ankeny Willow Marsh	USFWS	Pioneer Park Slough		134
				Dunn Wetland		500
Dunn Wetland		private	Jampolsky Wetlands ^a		1,525	
			Geren Island		200	
			Elijah Bristow Berry Slough		300	
Fairchild Pond		private	Shady Dell		73	
			Finley-Buford Pond		150	
Finley Beaver Pond ^b		USFWS	-----		-----	
Finley-Buford Pond		private	Finley Gray Creek Swamp		150	
			Finley Beaver Pond		10	
Finley Cheadle Pond		USFWS	Finley Gray Creek Swamp		470	
	Finley Display Pond			50		
Finley Display Pond	USFWS	Finley Gray Creek Swamp		500		
Finley Field-22 Pond	USFWS	Finley Beaver Pond	100	100		
		Finley-Buford Pond	37	37		
		Finley Display Pond	13	13		
Jampolsky Wetlands	private	Dunn Wetland		500		
Nagy Pond	private	Finley-Buford Pond	37	69		
		Finley Gray Creek Swamp		182		

Table 4 (continued).

Basin	Location	Ownership	Donor site (introduced populations)	Number moved in 2017	Total number moved
McKenzie River	Schmedding Beaver Creek Swamp	private	Finley-Buford Pond		150
	St. Paul Ponds	ODFW	Big Island		195
	Ellison Pond	private	McKenzie Oxbow		110
	Russell Pond	private	Buckhead Creek		500
Middle Fork Willamette River			St. Paul Ponds		53
	Shetzline North Pond	private	Shetzline Pond		60
	East Ferrin Pond	USFS	East Fork Minnow Pond		576
	Fall Creek Spillway Ponds	ACOE	East Fork Minnow Pond		350
			Shady Dell		150
	Haws Enhancement Pond	private	Haws Pond		133
	Hills Creek Pond	ACOE	Dexter Alcove "PIT1"		507
			Dexter Reservoir RV Alcove "DEX3"		620
	Hospital Imound. Pond ^b	ACOE	-----		-----
	Lower Buckhead Ponds ^b	USFS	-----		-----
West Ferrin Pond	USFS	Shady Dell Pond		525	
Wicopee Pond	USFS	Dexter Reservoir Alcove "PIT1"		50	
Coast Fork Willamette River	Herman Pond	USFS	Salt Creek Diversion Canal		128
			Buckhead Creek		400
	Sprick Pond	private	Coast Fork Side Channels	41	178
			Lynx Hollow		3

^aWe removed Oregon Chub from Jampolsky Wetlands in 2007 at the landowner's request. These introductions originated from the same donor source.

^bThese sites are habitat enhancement projects where no Oregon Chub were introduced. Oregon Chub colonized these sites naturally.

Distribution of Nonnative Species

We confirmed the presence of nonnative fish species in 36 locations containing Oregon Chub in 2017. Nonnative fish were captured at 40% (8 of 20), 80% (8 of 10), and 47% (20 of 43) of the locations containing Oregon Chub in the Mainstem Willamette, Santiam, and Middle Fork Willamette recovery areas, respectively. Combined with data from previous years, nonnative fish are present in 34% (13 of 38), 72% (18 of 25) and 50% (23 of 46) of the locations containing Oregon Chub in the Mainstem Willamette, Santiam, and Middle Fork Willamette recovery areas, respectively. Across all recovery areas and combining data from previous years, nonnative fish are present in 50% (54 of 109) of known Oregon Chub habitats.

In 2015 we discovered that Green Sunfish *Lepomis cyanellus* colonized one Oregon Chub population in the Mainstem Willamette (Green Island) and two in the Middle Fork Willamette (Deep Muddy Slough and Dougren Slough). In 2016, we confirmed the presence of Green Sunfish at six locations in the Mainstem Willamette Recovery Area (Coast Fork Willamette Side Channel, Green Island, Lynx Hollow, McKenzie Oxbow, Springfield Oxbow, and Vickery Park Slough) and one location in the Middle Fork Willamette Recovery Area (Dougren Slough). In 2017, we discovered Green Sunfish in an Oregon Chub habitat in the Santiam Recovery Area (Green Island North Channel) for the first time, and confirmed the presence of Green Sunfish at four locations in the Mainstem Willamette Recovery Area (Berggren Slough, Coast Fork Willamette Side Channels, Green Island, and McKenzie Oxbow) and one location in the Middle Fork Willamette (Green Grass Gravel Pit). We are concerned about the potential for Green Sunfish piscivory on Oregon Chub because Green Sunfish has a larger gape than Bluegill and Pumpkinseed (Scott and Crossman 1979) and have been documented consuming Gila Chub *Gila intermedia* similar in size to young-of-the-year Oregon Chub (Dudley and Matter 2000). Determining the impacts of Green Sunfish may take sustained monitoring over a period of years, because of the high interannual variability of Oregon Chub population abundance.

Impacts of the 2015 Drought

In 2015, the Oregon Cascade Mountains had the lowest peak snowpack recorded in 35 years, and by late summer the Willamette basin had received <50% normal precipitation (personal comm., John Risley USGS). A number of Oregon Chub populations connected or adjacent to unregulated tributaries or fed through springs had greatly reduced water depth (Bangs et al. 2013, 2015). The impact of the 2015 drought was greatest in the Mary's River basin, and we observed very low water elevation at the two naturally occurring populations in the basin, Finley Gray Creek Swamp and Finley Beaver Pond, in October of 2015. We observed significant declines in population abundance from 2013 to 2016 at Finley Gray Creek Swamp and Finley Beaver Pond, and from 2015 to 2016 at Finley Display Pond. However, the impact of the drought appeared lessened at Oregon Chub populations adjacent to or downstream from U.S. Army Corps of Engineers (USACE) reservoirs. In 2017, we observed a significant increase in Oregon chub abundance at Finley Beaver Pond, and abundance in 2017 was similar to abundance estimates obtained before the drought. However, the Oregon Chub abundance at Finley Gray Creek Swamp remained low compared to estimates obtained before the drought;

the estimated abundance of co-occurring native fish species was similar to estimates obtained before the drought.

Other Research and Monitoring

In addition to the monitoring outlined above, ODFW has carried out research and monitoring of Oregon Chub funded by the USACE. A brief summary of these activities is included below.

Floodplain Study

In 2009, we initiated a floodplain monitoring study to assess factors that may allow Oregon Chub to co-exist with nonnative fishes in connected (non-isolated) habitats (Bangs et al. 2010; 2011; 2014b). During this multi-year study, we have been assessing the effects of flow and temperature regimes on the suitability of off-channel habitats for Oregon Chub (availability of aquatic vegetation and temperatures conducive for successful spawning) and effects of the timing, frequency, magnitude, and duration of connectivity on the composition of fish assemblages (native and nonnative) (Bangs et al. 2011b). We will use these data to assess the impacts of proposed floodplain restoration and reconnection projects on Oregon Chub populations and their habitats. We are working to determine the combination of flows, temperatures, connectivity, and habitat modifications that will favor native fishes, including Oregon Chub, over nonnative predatory and competitor fishes. Ideally, these data, when used by managers to enhance off-channel habitat conditions for Oregon Chub, will contribute to the long-term conservation of the species by minimizing the inherent residual threat posed by nonnative fishes in these habitats.

Oregon Chub Population Trends

The status of Oregon Chub has improved remarkably since we began our studies in 1991 (Figure 2). The rate of discovery of previously undocumented populations and establishing new populations via introductions has remained relatively consistent over the past decade, coinciding with the initialization of studies funded by USACE and completion of the Programmatic Safe Harbor Agreement for the Oregon Chub. Since the species was delisted in 2015, 22 new populations have been discovered or established, representing 20% of the total populations of Oregon Chub.

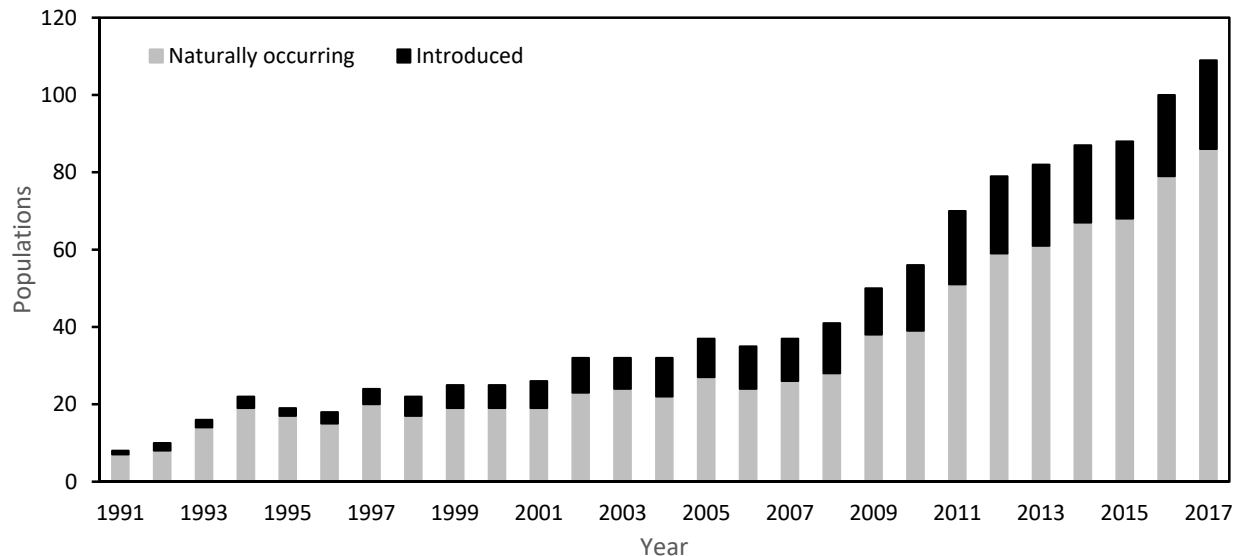


Figure 2. Number of known Oregon Chub populations, 1991-2017. Grey portions of the stacked bar graph represent the number of naturally occurring Oregon Chub populations. Black portions of the stacked bar graph represent the number of introduced Oregon Chub populations.

Status of Oregon Chub Relative to PDM Criteria

The PDM identifies triggers to increase monitoring and track the status of Oregon Chub based on population abundance and distribution, the distribution of nonnative species, and habitat status. In addition, the PDM identifies criteria to determine the conclusion of post-delisting monitoring when Oregon Chub monitoring is no longer necessary. There are currently 39 Oregon Chub populations with ≥ 500 individuals; 12 of these populations were in the Santiam Recovery Area, 12 in the Mainstem Willamette Recovery Area, and 15 in the Middle Fork Willamette Recovery Area. Nonnative fish are present in 50% of the habitats containing Oregon Chub. While we found a new nonnative predatory fish invading Oregon Chub habitats (i.e., Green Sunfish), its current distribution is limited to 4% of the Santiam Recovery Area, 13% of the Mainstem Willamette Recovery Area and 2% of the Middle Fork Willamette Recovery Area. There are currently 70 habitats that contain Oregon Chub and that are frequently connect to adjacent rivers. There have been no additional complete reservoir drawdowns or 50-year flood events, which are identified as triggers for additional monitoring by the PDM. Oregon Chub are currently exceeding the PDM fulfillment criteria and remain secure without the protection of the ESA.

Acknowledgements

We gratefully acknowledge the sampling assistance of A. Anderson, R. Beard, T. Berling, B. Brugato, M. Collver, T. Cornwell, B. Cram, S. Dyr Dahl, M. Erickson, J. Ferguson, E. Garner, S. Gunckel, J. Higby, T. Hoblit, A. Kreager, L. Lienesch, K. Mackenzie, J. Mehagn, E. McDonald-

Williams, C. Murphy, M. Overall, S. Overall, L. Nagy, S. Nelson, D. Nelson K. Nordholm, T. Pedersen, F. Pickens, N. Richardson, K. Reis, J. Romer, B. Root, T. Slocum, S. Stewart, E. Suring, G. Taylor, R. Wallick, J. Ziller. We thank the numerous private landowners who granted us permission to survey on their properties. This study was funded by the U.S. Fish and Wildlife Service (F16AC00392) and U.S. Army Corps of Engineers (W917N-14-2-0008-0004).

REFERENCES

- Bangs, B. L., P. D. Scheerer, and S.E. Jacobs. 2010. Effects of U.S. Army Corps of Engineers Willamette operations on Oregon chub and other floodplain fishes. Oregon Department of Fish and Wildlife Progress Report, Corvallis, OR.
- Bangs, B. L., P. D. Scheerer, S.A. Miller. 2011. Effects of U.S. Army Corps of Engineers Willamette Project operations on Oregon chub and other floodplain fishes (2009-2010). Oregon Department of Fish and Wildlife. Annual Progress Report, Corvallis.
- Bangs, B. L., P. D. Scheerer, S. Clements. 2013. 2013 Oregon chub investigations. Oregon Department of Fish and Wildlife. Fish Research Project EF-13, Annual Progress Report, Corvallis.
- Bangs, B. L., P. D. Scheerer, S. Clements. 2014a. 2014 Oregon chub investigations. Oregon Department of Fish and Wildlife. Fish Research Project EF-14, Annual Progress Report, Corvallis.
- Bangs, B. L., P. D. Scheerer, S. Clements. 2014b. Effects of U.S. Army Corps of Engineers Willamette Project project operations on Oregon chub and other floodplain fishes (2009-2012). Oregon Department of Fish and Wildlife. Annual Progress Report, Corvallis.
- Bangs, B. L., W.T. Neal, S. Clements. 2015. 2015 Oregon chub investigations. Oregon Department of Fish and Wildlife. Fish Research Project EF-15, Annual Progress Report, Corvallis.
- Bangs, B. L., and M. H. Meeuwig. 2017. 2016 Oregon chub investigations. Oregon Department of Fish and Wildlife. Fish Research Project EF-16, Annual Progress Report, Corvallis.
- Federal Register. 2010. Endangered and threatened wildlife and plants; reclassification of the Oregon chub From endangered to threatened; Final Rule. 75:21,179-21,189.
- Federal Register. 2015. Endangered and Threatened Wildlife and Plants; Removing the Oregon Chub from the List of Endangered and Threatened Wildlife. 80:9,125-9150.
- DeHaan, P. W., B. Adams, B. L. Bangs, and P. D. Scheerer. 2015. Connectivity and Gene Flow among Oregon Chub Populations In the Middle Fork Willamette River. Report submitted to the US Fish and Wildlife Service, Portland, OR.
- Dudley, R. K., and W. J. Matter. 2000. Effects of Small Green Sunfish (*Lepomis cyanellus*) on Recruitment of Gila Chub (*Gila intermedia*) in Sabino Creek, Arizona. The Southwestern Naturalist 45:24-29.

- Markle, D. F., and T. N. Pearsons. 1990. Petition to list the Oregon chub, *Oregonichthys crameri*, as an endangered species. Manuscript. Oregon State University, Corvallis.
- Markle, D. F., T. N. Pearsons, and D. T. Bills. 1991. Natural history of *Oregonichthys* (Pisces: Cyprinidae), with a description of a new species from the Umpqua River of Oregon. *Copeia* 1991(2):277-293.
- Rhew, R. 1993. Endangered and threatened wildlife and plants; determination of endangered status for the Oregon chub. Federal Register 58: 53800-53804.
- Ricker, W. E. 1975. Computation and interpretation of biological statistics of fish populations. Fisheries Research Board of Canada, Bulletin 191, Ottawa, Ontario.
- Scheerer, P. D., and P. J. McDonald. 2003. Age, growth, and timing of spawning of an endangered minnow, the Oregon chub (*Oregonichthys crameri*), in the Willamette basin, Oregon. Northwest Naturalist 84:68-79.
- Scheerer, P. D., P.S. Kavanagh, B. Bangs, and S. E. Jacobs. 2007. Oregon chub investigations. Oregon Department of Fish and Wildlife, Fish Research Project EF-07, Annual Progress Report, Salem.
- Scott, W. B., and E. J. Crossman. 1979. Freshwater fishes of Canada. Fisheries Research Board of Canada Bulletin 184. Ottawa. 966p.
- Seber, G. A. F., and E.D. Le Cren. 1967. Estimating population parameters from catches large relative to the population. *Journal of Animal Ecology* 36:631-643.
- Snyder, J. O. 1908. The fishes of the coastal streams of Oregon and northern California. Bulletin of the U.S. Bureau of Fisheries 27:153-189.
- U.S. Fish and Wildlife Service. 2014. Post-delisting Monitoring Plan for the Oregon chub (*Oregonichthys crameri*). Portland, Oregon. 43 p.
- U.S. Fish and Wildlife Service (Brown, C., R. Rhew, A. Bentivoglio, and P. D. Scheerer). 1998. Oregon Chub (*Oregonichthys crameri*) Recovery Plan. Portland, Oregon. 69+ p.

APPENDIX A

Fish species and habitat characteristics at 2017 Oregon Chub survey locations

Locations are sorted by subbasin then listed alphabetically by location name.

¹ Vegetation types are expressed as a percentage of the total surface area of the locations. 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*, ST= steelhead *O. mykiss*, TF= unknown trout fry.

Appendix A (continued).

COAST FORK WILLAMETTE RIVER BASIN

Site Name	COAST FORK WILLAMETTE SIDE CHN	Map Code	CF110	
Basin	COAST FORK WILLAMETTE RIVER	Sampling Date	7/25/2017	
Subbasin		Location: Zone 10T	498757	4857903

Surface Area (m2)	1344	Types of aquatic vegetation ¹	
Average Depth (m)	0.25	Submergent	40
Maximum Depth (m)	1.5	Emergent	20
Water Temperature (C)	24	Floating	5
Percent Silt / Organics	20	Algae	10
		<i>Total</i>	75

Native Fish Species Collected:

Oregon Chub	410
Cottids	170
Speckled Dace	470
Redside Shiners	54
Northern Pikeminnows	600
Largescale Suckers	90
Sand Rollers	30
Threespine Sticklebacks	19
Salmonids ²	
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

Western Mosquitofish	1000
Bullheads	
Common Carp	
Bluegills	2
Largemouth Bass	
Pumpkinseeds	
Crappies	
Smallmouth Bass	
Banded Killifish	

Other: YP=6,GN=1

NOTE: POP EST, CHUB THROUGHOUT, NN CRAWDAD

Site Name	CRESWELL OAKS CAMAS SWALE	Map Code	COAKS7	
Basin	COAST FORK WILLAMETTE RIVER	Sampling Date	6/1/2017	
Subbasin	CAMAS SWALE	Location: Zone 10T	494128	4863546

Surface Area (m2)	800	Types of aquatic vegetation ¹	
Average Depth (m)	0.1	Submergent	10
Maximum Depth (m)	1.2	Emergent	20
Water Temperature (C)	16.1	Floating	0
Percent Silt / Organics	40	Algae	0
		<i>Total</i>	30

Native Fish Species Collected:

Oregon Chub	0
Cottids	
Speckled Dace	2
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	3
Largemouth Bass	
Pumpkinseeds	
Crappies	
Smallmouth Bass	
Banded Killifish	

Other: GREEN=10

NOTE: TWO SPOTS, THICK BRUSH, BVR DEN, BRAIDED

Appendix A (continued).

COAST FORK WILLAMETTE RIVER BASIN

Site Name	CRESWELL OAKS CAMAS SWALE TRIB	Map Code	COAKS5	
Basin	COAST FORK WILLAMETTE RIVER	Sampling Date	6/1/2017	
Subbasin	CAMAS SWALE	Location: Zone 10T	493916	4864254

Surface Area (m2)	450	Types of aquatic vegetation ¹	
Average Depth (m)	0.3	Submergent	30
Maximum Depth (m)	1	Emergent	40
Water Temperature (C)	17.3	Floating	0
Percent Silt / Organics	20	Algae	0
		<i>Total</i>	70

Native Fish Species Collected:

Oregon Chub	0
Cottids	
Speckled Dace	
Redside Shiners	
Northern Pikeminnows	20
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: 750 UP FROM MOUTH CAMAS SWALE

Site Name	CRESWELL OAKS CAMAS SWALE TRIB	Map Code	COAKS1	
Basin	COAST FORK WILLAMETTE RIVER	Sampling Date	6/1/2017	
Subbasin	CAMAS SWALE	Location: Zone 10T	492826	4866568

Surface Area (m2)	200	Types of aquatic vegetation ¹	
Average Depth (m)	0.2	Submergent	5
Maximum Depth (m)	0.5	Emergent	10
Water Temperature (C)	13.3	Floating	0
Percent Silt / Organics	15	Algae	5
		<i>Total</i>	20

Native Fish Species Collected:

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

Non-native Fish Species Collected:

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

Other:

NOTE: COOL BROOK IN UPLAND FOREST

Appendix A (continued).

COAST FORK WILLAMETTE RIVER BASIN

Site Name	CRESWELL OAKS CAMAS SWALE TRIB	Map Code	COAKS2	
Basin	COAST FORK WILLAMETTE RIVER	Sampling Date	6/1/2017	
Subbasin	CAMAS SWALE	Location: Zone 10T	493175	4866450

Surface Area (m2)	500	Types of aquatic vegetation ¹	
Average Depth (m)	0.2	Submergent	40
Maximum Depth (m)	0.5	Emergent	50
Water Temperature (C)	15	Floating	0
Percent Silt / Organics	15	Algae	0
		<i>Total</i>	90

Native Fish Species Collected:

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

Non-native Fish Species Collected:

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

Other:

NOTE: SERIES OF POOLS CREATED BY HAB LOGS

Site Name	CRESWELL OAKS CAMAS SWALE TRIB	Map Code	COAKS4	
Basin	COAST FORK WILLAMETTE RIVER	Sampling Date	6/1/2017	
Subbasin	CAMAS SWALE	Location: Zone 10T	493225	4866419

Surface Area (m2)	300	Types of aquatic vegetation ¹	
Average Depth (m)	0.3	Submergent	10
Maximum Depth (m)	0.8	Emergent	20
Water Temperature (C)	16.5	Floating	0
Percent Silt / Organics	20	Algae	0
		<i>Total</i>	30

Native Fish Species Collected:

Oregon Chub	0
Cottids	
Speckled Dace	6
Redside Shiners	1
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: AREA AROUND BRIGE

Appendix A (continued).

COAST FORK WILLAMETTE RIVER BASIN

Site Name	CRESWELL OAKS CAMAS SWALE TRIB	Map Code	COAKS6	
Basin	COAST FORK WILLAMETTE RIVER	Sampling Date	6/1/2017	
Subbasin	CAMAS SWALE	Location: Zone 10T	494100	4863623

Surface Area (m2)	600	Types of aquatic vegetation ¹	
Average Depth (m)	0.4	Submergent	50
Maximum Depth (m)	1	Emergent	30
Water Temperature (C)	17.2	Floating	0
Percent Silt / Organics	90	Algae	0
		<i>Total</i>	80

Native Fish Species Collected:

Oregon Chub	0
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: GREEN=26

NOTE: NEAR MOUTH, SMALL TRIB ENTERS

Site Name	CRESWELL OAKS CAMAS SWALE TRIB	Map Code	COAKS3	
Basin	COAST FORK WILLAMETTE RIVER	Sampling Date	6/1/2017	
Subbasin	CAMAS SWALE	Location: Zone 10T	493224	4866440

Surface Area (m2)	200	Types of aquatic vegetation ¹	
Average Depth (m)	0.3	Submergent	10
Maximum Depth (m)	0.6	Emergent	40
Water Temperature (C)	17.3	Floating	0
Percent Silt / Organics	40	Algae	0
		<i>Total</i>	50

Native Fish Species Collected:

Oregon Chub	0
Cottids	
Speckled Dace	20
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: TRIB ENTERS FROM N, NEAR BC, RINGED CRAY

Appendix A (continued).

COAST FORK WILLAMETTE RIVER BASIN

Site Name	HERMAN POND	Map Code	LAYNG10	
Basin	COAST FORK WILLAMETTE RIVER	Sampling Date	7/17/2017	
Subbasin	ROW RIVER	Location: Zone 10T	525308	4842011

Surface Area (m2)	800	Types of aquatic vegetation ¹	
Average Depth (m)	0.75	Submergent	20
Maximum Depth (m)	1.5	Emergent	70
Water Temperature (C)	14	Floating	10
Percent Silt / Organics	100	Algae	0
		<i>Total</i>	100

Native Fish Species Collected:

Oregon Chub	1
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: USFS PROPERTY, P/A

Site Name	LYNX HOLLOW	Map Code	LYNX1N	
Basin	COAST FORK WILLAMETTE RIVER	Sampling Date	7/25/2017	
Subbasin		Location: Zone 10T	497993	4856243

Surface Area (m2)	4780	Types of aquatic vegetation ¹	
Average Depth (m)	0.15	Submergent	60
Maximum Depth (m)	0.5	Emergent	10
Water Temperature (C)	21	Floating	1
Percent Silt / Organics	80	Algae	10
		<i>Total</i>	81

Native Fish Species Collected:

Oregon Chub	5
Cottids	6
Speckled Dace	42
Redside Shiners	14
Northern Pikeminnows	8
Largescale Suckers	
Sand Rollers	2
Threespine Sticklebacks	1
Salmonids ²	
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

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

Other:

YP=3

NOTE: P/A, CHUB IN ALCOVE SW OF ISLAND

Appendix A (continued).

COAST FORK WILLAMETTE RIVER BASIN

Site Name	SPRICK POND	Map Code	SPRICK1J	
Basin	COAST FORK WILLAMETTE RIVER	Sampling Date	7/25/2017	
Subbasin	CAMAS SWALE	Location: Zone	10T	492446 4866656

Surface Area (m2)	1020
Average Depth (m)	1
Maximum Depth (m)	3
Water Temperature (C)	21
Percent Silt / Organics	100

Types of aquatic vegetation ¹

Submergent	75
Emergent	15
Floating	0
Algae	0
<i>Total</i>	90

Native Fish Species Collected:

Oregon Chub	41
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: REINTRO, '17: 41 INTRODUCED FROM CFW

Appendix A (continued).

LOWER WILLAMETTE RIVER BASIN

Site Name	ANKENY NWR-WILLOW MARSH	Map Code	WM10*	
Basin	LOWER WILLAMETTE RIVER	Sampling Date	9/12/2017	
Subbasin	ANKENY	Location: Zone 10T	494684	4958441

Surface Area (m2)	25120	Types of aquatic vegetation ¹	
Average Depth (m)	0.6	Submergent	85
Maximum Depth (m)	1.8	Emergent	5
Water Temperature (C)	19	Floating	0
Percent Silt / Organics	100	Algae	10
		<i>Total</i>	100

Native Fish Species Collected:

Oregon Chub	11412
Cottids	
Speckled Dace	
Redside Shiners	
Northern Pikeminnows	
Largescale Suckers	
Sand Rollers	
Threespine Sticklebacks	61
Salmonids ²	
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

Western Mosquitofish	10000
Bullheads	
Common Carp	
Bluegills	
Largemouth Bass	
Pumpkinseeds	
Crappies	
Smallmouth Bass	
Banded Killifish	

Other:

NOTE: WATERSHIELD NEAR 100%, RED EAR SLIDER

Site Name	MAGUIRE POND	Map Code	MP1B	
Basin	LOWER WILLAMETTE RIVER	Sampling Date	7/20/2017	
Subbasin		Location: Zone 10T	524293	5017115

Surface Area (m2)	844	Types of aquatic vegetation ¹	
Average Depth (m)	1	Submergent	28
Maximum Depth (m)	4	Emergent	13
Water Temperature (C)	22	Floating	3
Percent Silt / Organics	100	Algae	5
		<i>Total</i>	49

Native Fish Species Collected:

Oregon Chub	651
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 EST, ONLY CHUB EXTNT, W PNTED TRTL

Appendix A (continued).

MCKENZIE RIVER BASIN

Site Name	BERGGREN (HUNSAKER) PROPERTY	Map Code	HUNS1-3H	
Basin	MCKENZIE RIVER	Sampling Date	6/13/2017	
Subbasin		Location: Zone 10T	508015	4878764

Surface Area (m2)	1800	Types of aquatic vegetation ¹	
Average Depth (m)	1	Submergent	40
Maximum Depth (m)	2	Emergent	20
Water Temperature (C)	15	Floating	0
Percent Silt / Organics	20	Algae	15
		<i>Total</i>	75

Native Fish Species Collected:

Oregon Chub	947
Cottids	6
Speckled Dace	267
Redside Shiners	269
Northern Pikeminnows	3
Largescale Suckers	13
Sand Rollers	
Threespine Sticklebacks	2465
Salmonids ²	
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

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

Other: R/S=1,GRN1

NOTE: POP EST, VIE RED=12

Site Name	BIG ISLAND	Map Code	BIG1-6P	
Basin	MCKENZIE RIVER	Sampling Date	6/6/2017	
Subbasin		Location: Zone 10T	507171	4878997

Surface Area (m2)	3180	Types of aquatic vegetation ¹	
Average Depth (m)	1.5	Submergent	27
Maximum Depth (m)	3	Emergent	20
Water Temperature (C)	13	Floating	1
Percent Silt / Organics	90	Algae	11
		<i>Total</i>	59

Native Fish Species Collected:

Oregon Chub	2547
Cottids	57
Speckled Dace	1364
Redside Shiners	1324
Northern Pikeminnows	12
Largescale Suckers	57
Sand Rollers	
Threespine Sticklebacks	10677
Salmonids ² RT/ST	5
Lamprey	5
Chiselmouth	

Non-native Fish Species Collected:

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

Other: RSS/SD=26

NOTE: POP. EST., B. LAMP=1, P. LAMP=4

Appendix A (continued).

MCKENZIE RIVER BASIN

Site Name	CHUB (EZELL) NORTH SLOUGH	Map Code	EZELL1-2F	
Basin	MCKENZIE RIVER	Sampling Date	7/11/2017	
Subbasin		Location: Zone 10T	506084	4879664

Surface Area (m2)	2000	Types of aquatic vegetation ¹	
Average Depth (m)	0.7	Submergent	40
Maximum Depth (m)	1.25	Emergent	25
Water Temperature (C)	18	Floating	25
Percent Silt / Organics	100	Algae	10
		<i>Total</i>	100

Native Fish Species Collected:

Oregon Chub	46
Cottids	9
Speckled Dace	951
Redside Shiners	719
Northern Pikeminnows	1
Largescale Suckers	2
Sand Rollers	
Threespine Sticklebacks	138
Salmonids ²	
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

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

Other: RSS/SD=45

NOTE: MRT PROP., P/A

Site Name	CHUB (EZELL) SIDE CHANNEL	Map Code	EZELL4	
Basin	MCKENZIE RIVER	Sampling Date	7/11/2017	
Subbasin		Location: Zone 10T	505961	4879261

Surface Area (m2)	1000	Types of aquatic vegetation ¹	
Average Depth (m)		Submergent	
Maximum Depth (m)		Emergent	
Water Temperature (C)	16	Floating	
Percent Silt / Organics		Algae	
		<i>Total</i>	

Native Fish Species Collected:

Oregon Chub	0
Cottids	6
Speckled Dace	26
Redside Shiners	17
Northern Pikeminnows	
Largescale Suckers	3
Sand Rollers	
Threespine Sticklebacks	68
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: MRT PROP., P/A, CHANNEL AND BACKWATER

Appendix A (continued).

MCKENZIE RIVER BASIN

Site Name	CHUB (EZELL) SOUTH SLOUGH	Map Code	EZELL2B	
Basin	MCKENZIE RIVER	Sampling Date	7/11/2017	
Subbasin		Location: Zone 10T	506100	4879607

Surface Area (m2)	2504	Types of aquatic vegetation ¹	
Average Depth (m)	1	Submergent	20
Maximum Depth (m)	2	Emergent	50
Water Temperature (C)	12	Floating	20
Percent Silt / Organics	100	Algae	10
		<i>Total</i>	100

Native Fish Species Collected:

Oregon Chub	85
Cottids	1
Speckled Dace	44
Redside Shiners	20
Northern Pikeminnows	
Largescale Suckers	
Sand Rollers	
Threespine Sticklebacks	380
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: MRT PROP., P/A

Site Name	GREEN ISLAND CARP PONDS	Map Code	GREEN6-8D	
Basin	MCKENZIE RIVER	Sampling Date	7/13/2017	
Subbasin		Location: Zone 10T	491580	4887208

Surface Area (m2)	7500	Types of aquatic vegetation ¹	
Average Depth (m)	1.5	Submergent	50
Maximum Depth (m)	3	Emergent	1
Water Temperature (C)	23	Floating	1
Percent Silt / Organics	70	Algae	25
		<i>Total</i>	77

Native Fish Species Collected:

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

Non-native Fish Species Collected:

Western Mosquitofish	1000
Bullheads	
Common Carp	
Bluegills	11970
Largemouth Bass	65
Pumpkinseeds	
Crappies	
Smallmouth Bass	
Banded Killifish	

Other:

GRN=314

NOTE: PONDS CONNECTED, YP=154, GREEN/BG=26

Appendix A (continued).

MCKENZIE RIVER BASIN

Site Name	GREEN ISLAND CARP PONDS	Map Code	GREEN6-8D*	
Basin	MCKENZIE RIVER	Sampling Date	9/28/2017	
Subbasin		Location: Zone 10T	491580	4887208

Surface Area (m2)	7500	Types of aquatic vegetation ¹	
Average Depth (m)	1.5	Submergent	50
Maximum Depth (m)	3	Emergent	1
Water Temperature (C)	17	Floating	1
Percent Silt / Organics	70	Algae	25
		<i>Total</i>	77

Native Fish Species Collected:

Oregon Chub	0
Cottids	2
Speckled Dace	
Redside Shiners	
Northern Pikeminnows	2
Largescale Suckers	8
Sand Rollers	
Threespine Sticklebacks	
Salmonids ²	
Lamprey	5
Chiselmouth	

Non-native Fish Species Collected:

Western Mosquitofish	3
Bullheads	1
Common Carp	
Bluegills	65
Largemouth Bass	26
Pumpkinseeds	
Crappies	
Smallmouth Bass	
Banded Killifish	

Other: GRN6 G/BG4

NOTE: PONDS CONNECTED, E-FISH, YP=46, P+B LAMP

Site Name	GREEN ISLAND CARP S CHANNEL	Map Code	GREEN9C	
Basin	MCKENZIE RIVER	Sampling Date	7/13/2017	
Subbasin		Location: Zone 10T	491514	4887121

Surface Area (m2)	2000	Types of aquatic vegetation ¹	
Average Depth (m)	0.2	Submergent	30
Maximum Depth (m)	1.5	Emergent	60
Water Temperature (C)	16	Floating	5
Percent Silt / Organics	10	Algae	1
		<i>Total</i>	96

Native Fish Species Collected:

Oregon Chub	0
Cottids	2
Speckled Dace	
Redside Shiners	4
Northern Pikeminnows	
Largescale Suckers	
Sand Rollers	
Threespine Sticklebacks	2268
Salmonids ²	
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

Western Mosquitofish	100
Bullheads	
Common Carp	
Bluegills	2
Largemouth Bass	1476
Pumpkinseeds	
Crappies	
Smallmouth Bass	
Banded Killifish	

Other: GREEN=2

NOTE: MCKENZIE RIVER TRUST RESTORATION SITE

Appendix A (continued).

MCKENZIE RIVER BASIN

Site Name	GREEN ISLAND MELEVIN CROSSING	Map Code	GREEN5K	
Basin	MCKENZIE RIVER	Sampling Date	6/15/2017	
Subbasin		Location: Zone 10T	491804	4887486

Surface Area (m2)	12000	Types of aquatic vegetation ¹	
Average Depth (m)	0.5	Submergent	30
Maximum Depth (m)	2	Emergent	20
Water Temperature (C)	13	Floating	5
Percent Silt / Organics	85	Algae	30
		<i>Total</i>	85

Native Fish Species Collected:

Oregon Chub	1
Cottids	
Speckled Dace	
Redside Shiners	
Northern Pikeminnows	
Largescale Suckers	
Sand Rollers	
Threespine Sticklebacks	900
Salmonids ² CH	1
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

Western Mosquitofish	1000
Bullheads	
Common Carp	
Bluegills	
Largemouth Bass	
Pumpkinseeds	
Crappies	
Smallmouth Bass	
Banded Killifish	

Other: GREEN=7

NOTE: MCKENZIE RIVER TRUST PROPERTY & PRIVATE

Site Name	HAYDEN BRIDGE SLOUGH	Map Code	HAYBR1	
Basin	MCKENZIE RIVER	Sampling Date	6/13/2017	
Subbasin		Location: Zone 10T	502930	4879300

Surface Area (m2)	720	Types of aquatic vegetation ¹	
Average Depth (m)	0.8	Submergent	40
Maximum Depth (m)	1.5	Emergent	15
Water Temperature (C)	12	Floating	0
Percent Silt / Organics	20	Algae	20
		<i>Total</i>	75

Native Fish Species Collected:

Oregon Chub	0
Cottids	3
Speckled Dace	
Redside Shiners	
Northern Pikeminnows	
Largescale Suckers	
Sand Rollers	
Threespine Sticklebacks	230
Salmonids ² UT	1
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

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

Other:

NOTE: NEAR SPFD OXBOW, FLOAT, ACCESS DIFFICULT

Appendix A (continued).

MCKENZIE RIVER BASIN

Site Name	HAYDEN CHANNEL	Map Code	HAYBR2	
Basin	MCKENZIE RIVER	Sampling Date	6/13/2017	
Subbasin		Location: Zone 10T	502790	4879212

Surface Area (m2)	1000	Types of aquatic vegetation ¹	
Average Depth (m)	0.6	Submergent	15
Maximum Depth (m)	1.5	Emergent	15
Water Temperature (C)	12	Floating	0
Percent Silt / Organics	10	Algae	10
		<i>Total</i>	40

Native Fish Species Collected:

Oregon Chub	0
Cottids	1
Speckled Dace	97
Redside Shiners	26
Northern Pikeminnows	7
Largescale Suckers	9
Sand Rollers	
Threespine Sticklebacks	176
Salmonids ² RT/ST	2
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

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

Other:

NOTE: NEAR SPFD OXBOW, FLOAT, ACCESS DIFFICULT

Site Name	MCKENZIE OXBOW	Map Code	MOX1H	
Basin	MCKENZIE RIVER	Sampling Date	7/12/2017	
Subbasin		Location: Zone 10T	511995	4878728

Surface Area (m2)	22500	Types of aquatic vegetation ¹	
Average Depth (m)	0.5	Submergent	63
Maximum Depth (m)	2	Emergent	23
Water Temperature (C)	22	Floating	1
Percent Silt / Organics	80	Algae	10
		<i>Total</i>	96

Native Fish Species Collected:

Oregon Chub	1727
Cottids	8
Speckled Dace	13
Redside Shiners	11
Northern Pikeminnows	10
Largescale Suckers	25
Sand Rollers	
Threespine Sticklebacks	4301
Salmonids ²	
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

Western Mosquitofish	
Bullheads	9
Common Carp	
Bluegills	15
Largemouth Bass	
Pumpkinseeds	
Crappies	
Smallmouth Bass	
Banded Killifish	

Other:

GREEN=117

NOTE: POP EST, LOW WATER, UPS: 26C, DNS: 22C

Appendix A (continued).

MCKENZIE RIVER BASIN

Site Name	MCKENZIE OXBOW WILLOW SLOUGH	Map Code	MOX2	
Basin	MCKENZIE RIVER	Sampling Date	7/12/2017	
Subbasin		Location: Zone 10T	511995	4878728

Surface Area (m2)	3000	Types of aquatic vegetation ¹	
Average Depth (m)	0.5	Submergent	59
Maximum Depth (m)	1	Emergent	30
Water Temperature (C)	19	Floating	1
Percent Silt / Organics	100	Algae	10
		<i>Total</i>	100

Native Fish Species Collected:

Oregon Chub	106
Cottids	
Speckled Dace	22
Redside Shiners	
Northern Pikeminnows	
Largescale Suckers	1
Sand Rollers	
Threespine Sticklebacks	24
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: P/A, WELL UPS/EAST OF MCK OXBOW

Site Name	SPRINGFIELD OXBOW	Map Code	SO2C	
Basin	MCKENZIE RIVER	Sampling Date	6/13/2017	
Subbasin		Location: Zone 10T	502631	4878935

Surface Area (m2)	2100	Types of aquatic vegetation ¹	
Average Depth (m)	0.6	Submergent	50
Maximum Depth (m)	1.4	Emergent	30
Water Temperature (C)	18	Floating	5
Percent Silt / Organics	40	Algae	5
		<i>Total</i>	90

Native Fish Species Collected:

Oregon Chub	13
Cottids	27
Speckled Dace	9
Redside Shiners	13
Northern Pikeminnows	14
Largescale Suckers	13
Sand Rollers	
Threespine Sticklebacks	220
Salmonids ² CH=1	1
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

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

Other:

NOTE: MRT PROP, FLOAT ACROSS, M CHNL, P/A

Appendix A (continued).

MCKENZIE RIVER BASIN

Site Name	SPRINGFIELD OXBOW	Map Code	SO3C	
Basin	MCKENZIE RIVER	Sampling Date	6/13/2017	
Subbasin		Location: Zone 10T	502705	4878891

Surface Area (m2)	6000	Types of aquatic vegetation ¹	
Average Depth (m)	1	Submergent	60
Maximum Depth (m)	2	Emergent	20
Water Temperature (C)	16	Floating	5
Percent Silt / Organics	70	Algae	10
		<i>Total</i>	95

Native Fish Species Collected:

Oregon Chub	83
Cottids	3
Speckled Dace	4
Redside Shiners	
Northern Pikeminnows	
Largescale Suckers	
Sand Rollers	
Threespine Sticklebacks	254
Salmonids ² CH=2	1
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

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

Other:

NOTE: MRT PROP, FLOAT, E CHNL, P/A

Site Name	THURSTON DITCH	Map Code	TDITCH1	
Basin	MCKENZIE RIVER	Sampling Date	6/6/2017	
Subbasin		Location: Zone 10T	509163	4877122

Surface Area (m2)	900	Types of aquatic vegetation ¹	
Average Depth (m)	0.2	Submergent	35
Maximum Depth (m)	0.5	Emergent	45
Water Temperature (C)	15	Floating	5
Percent Silt / Organics	95	Algae	5
		<i>Total</i>	90

Native Fish Species Collected:

Oregon Chub	0
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:

NO FISH

NOTE: MAY DESICCATE, MANY AMPHIBIANS

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	ALDER CREEK	Map Code	MFALDR1*	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	8/23/2017	
Subbasin		Location: Zone 10T	510335	4868427

Surface Area (m2)	300	Types of aquatic vegetation ¹	
Average Depth (m)	0.5	Submergent	10
Maximum Depth (m)	1	Emergent	50
Water Temperature (C)	15	Floating	10
Percent Silt / Organics	90	Algae	10
		<i>Total</i>	80

Native Fish Species Collected:

Oregon Chub	0
Cottids	4
Speckled Dace	3
Redside Shiners	1
Northern Pikeminnows	1
Largescale Suckers	
Sand Rollers	
Threespine Sticklebacks	11
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: NEAR THE CONFLUENCE OF FALL CREEK, P/A

Site Name	BARNHARD SLOUGH	Map Code	BARN1R	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	4/18/2017	
Subbasin		Location: Zone 10T	539428	4843690

Surface Area (m2)	1440	Types of aquatic vegetation ¹	
Average Depth (m)	0.5	Submergent	40
Maximum Depth (m)	1	Emergent	30
Water Temperature (C)	8	Floating	0
Percent Silt / Organics	90	Algae	10
		<i>Total</i>	80

Native Fish Species Collected:

Oregon Chub	0
Cottids	1
Speckled Dace	2
Redside Shiners	2
Northern Pikeminnows	
Largescale Suckers	
Sand Rollers	
Threespine Sticklebacks	
Salmonids ² CT=2, RB=1	3
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

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

Other:

NOTE: FLOODPLAIN STUDY SITE

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	BAUMANN SLOUGH	Map Code	BAUM1E*	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	9/27/2017	
Subbasin	FALL CREEK	Location: Zone 10T	515887	4866148

Surface Area (m2)	480	Types of aquatic vegetation ¹	
Average Depth (m)	0.75	Submergent	30
Maximum Depth (m)	1.5	Emergent	50
Water Temperature (C)	12	Floating	1
Percent Silt / Organics	80	Algae	0
		<i>Total</i>	81

Native Fish Species Collected:

Oregon Chub	1
Cottids	2
Speckled Dace	131
Redside Shiners	284
Northern Pikeminnows	
Largescale Suckers	7
Sand Rollers	
Threespine Sticklebacks	
Salmonids ²	
Lamprey	3
Chiselmouth	

Non-native Fish Species Collected:

Western Mosquitofish	3
Bullheads	2
Common Carp	
Bluegills	6
Largemouth Bass	
Pumpkinseeds	
Crappies	
Smallmouth Bass	
Banded Killifish	

Other: P LAMP

NOTE: HEAVY SEDIMENTATION

Site Name	BEAD SLOUGH	Map Code	BEAD1A*	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	8/25/2017	
Subbasin		Location: Zone 10T	510921	4868306

Surface Area (m2)	560	Types of aquatic vegetation ¹	
Average Depth (m)	0.5	Submergent	30
Maximum Depth (m)	1	Emergent	40
Water Temperature (C)	18	Floating	10
Percent Silt / Organics	30	Algae	10
		<i>Total</i>	90

Native Fish Species Collected:

Oregon Chub	75
Cottids	2
Speckled Dace	29
Redside Shiners	2
Northern Pikeminnows	49
Largescale Suckers	6
Sand Rollers	
Threespine Sticklebacks	1
Salmonids ² RT	1
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

Western Mosquitofish	500
Bullheads	
Common Carp	
Bluegills	9
Largemouth Bass	
Pumpkinseeds	
Crappies	
Smallmouth Bass	
Banded Killifish	

Other:

NOTE: P/A, SMALL, POOLS CONNECTED BY STEPS

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	BREWER SLOUGH	Map Code	BREW1E*	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	9/25/2017	
Subbasin	FALL CREEK	Location: Zone 10T	514777	4866321

Surface Area (m2)	650	Types of aquatic vegetation ¹	
Average Depth (m)	0.25	Submergent	30
Maximum Depth (m)	1.2	Emergent	15
Water Temperature (C)	12	Floating	0
Percent Silt / Organics	40	Algae	5
		<i>Total</i>	50

Native Fish Species Collected:

Oregon Chub	7
Cottids	3
Speckled Dace	60
Redside Shiners	1
Northern Pikeminnows	
Largescale Suckers	12
Sand Rollers	
Threespine Sticklebacks	
Salmonids ²	
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

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

Other:

NOTE: POP EST, SOME SCOUR, CHANNEL NARROW

Site Name	BUCKHEAD CREEK	Map Code	BCK9-12Q	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	5/11/2017	
Subbasin	BUCKHEAD CREEK	Location: Zone 10T	538039	4847819

Surface Area (m2)	11290	Types of aquatic vegetation ¹	
Average Depth (m)	1	Submergent	55
Maximum Depth (m)	1.5	Emergent	35
Water Temperature (C)	7.5	Floating	5
Percent Silt / Organics	60	Algae	5
		<i>Total</i>	100

Native Fish Species Collected:

Oregon Chub	398
Cottids	3
Speckled Dace	1023
Redside Shiners	854
Northern Pikeminnows	7
Largescale Suckers	15
Sand Rollers	
Threespine Sticklebacks	
Salmonids ²	
Lamprey	1
Chiselmouth	

Non-native Fish Species Collected:

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

Other:

NOTE: ODFW+USFS, B. LAMP, RSS/SD=5

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	CAMPERS COVE	Map Code	CMPCOV1*	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	8/10/2017	
Subbasin		Location: Zone 10T	508719	4869961

Surface Area (m2)	250	Types of aquatic vegetation ¹	
Average Depth (m)	0.5	Submergent	0
Maximum Depth (m)	1	Emergent	20
Water Temperature (C)	18	Floating	0
Percent Silt / Organics	70	Algae	0
		<i>Total</i>	20

Native Fish Species Collected:

Oregon Chub	33
Cottids	1
Speckled Dace	2
Redside Shiners	1
Northern Pikeminnows	10
Largescale Suckers	
Sand Rollers	
Threespine Sticklebacks	2
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: P/A, NEAR LUMBER CO AT JASPER

Site Name	DEEP MUDDY SLOUGH	Map Code	MF14I*	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	8/16/2017	
Subbasin		Location: Zone 10T	510661	4867933

Surface Area (m2)	500	Types of aquatic vegetation ¹	
Average Depth (m)	0.5	Submergent	50
Maximum Depth (m)	0.8	Emergent	40
Water Temperature (C)	13	Floating	0
Percent Silt / Organics	90	Algae	0
		<i>Total</i>	90

Native Fish Species Collected:

Oregon Chub	21
Cottids	66
Speckled Dace	218
Redside Shiners	63
Northern Pikeminnows	226
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 EST - FLOODPLAIN STUDY SITE

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	DEXTER ALCOVE "THE PIT"	Map Code	PIT1Y	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	4/12/2017	
Subbasin	DEXTER RESERVOIR	Location: Zone 10T	517160	4861467

Surface Area (m2)	1200	Types of aquatic vegetation ¹	
Average Depth (m)	0.2	Submergent	10
Maximum Depth (m)	0.5	Emergent	10
Water Temperature (C)	10.5	Floating	0
Percent Silt / Organics	90	Algae	70
		<i>Total</i>	90

Native Fish Species Collected:

Oregon Chub	587
Cottids	1
Speckled Dace	
Redside Shiners	79
Northern Pikeminnows	167
Largescale Suckers	
Sand Rollers	
Threespine Sticklebacks	
Salmonids ²	
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

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

Other:

NOTE: POP EST, POOR RECAP, LOW WATER

Site Name	DEXTER DAM SLOUGH	Map Code	EB261*	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	8/1/2017	
Subbasin	ELIJAH BRISTOW	Location: Zone 10T	515169	4863239

Surface Area (m2)	1800	Types of aquatic vegetation ¹	
Average Depth (m)	0.3	Submergent	20
Maximum Depth (m)	1	Emergent	65
Water Temperature (C)	18	Floating	1
Percent Silt / Organics	85	Algae	5
		<i>Total</i>	91

Native Fish Species Collected:

Oregon Chub	384
Cottids	380
Speckled Dace	120
Redside Shiners	4
Northern Pikeminnows	33
Largescale Suckers	2
Sand Rollers	
Threespine Sticklebacks	
Salmonids ²	
Lamprey	1
Chiselmouth	

Non-native Fish Species Collected:

Western Mosquitofish	
Bullheads	4584
Common Carp	1
Bluegills	356
Largemouth Bass	
Pumpkinseeds	
Crappies	
Smallmouth Bass	2
Banded Killifish	

Other:

P LMP ADLT

NOTE: POP EST, FLDPLN, VIE ORANGE, BRYZOANS

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	DEXTER EAST ALCOVE	Map Code	DEX1N	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	4/19/2017	
Subbasin	DEXTER RESERVOIR	Location: Zone 10T	517346	4861408

Surface Area (m2)	80	Types of aquatic vegetation ¹	
Average Depth (m)	1	Submergent	0
Maximum Depth (m)	2	Emergent	5
Water Temperature (C)	9	Floating	0
Percent Silt / Organics	80	Algae	95
		<i>Total</i>	100

Native Fish Species Collected:

Oregon Chub	0
Cottids	1
Speckled Dace	
Redside Shiners	11
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: P/A TRAIL NEAR PULLOFF TO CULVERT

Site Name	DEXTER RV ALCOVE	Map Code	DEX3W	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	4/12/2017	
Subbasin	DEXTER RESERVOIR	Location: Zone 10T	515362	4862037

Surface Area (m2)	1650	Types of aquatic vegetation ¹	
Average Depth (m)	0.5	Submergent	40
Maximum Depth (m)	1	Emergent	10
Water Temperature (C)	8.5	Floating	0
Percent Silt / Organics	100	Algae	30
		<i>Total</i>	80

Native Fish Species Collected:

Oregon Chub	1457
Cottids	7
Speckled Dace	
Redside Shiners	1
Northern Pikeminnows	13
Largescale Suckers	
Sand Rollers	
Threespine Sticklebacks	
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: POPULATION ESTIMATE

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	DOUGREN ISLAND SLOUGH	Map Code	MF16C*	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	8/23/2017	
Subbasin		Location: Zone 10T	510720	4868147

Surface Area (m2)	400	Types of aquatic vegetation ¹	
Average Depth (m)	0.25	Submergent	25
Maximum Depth (m)	1	Emergent	40
Water Temperature (C)	17	Floating	25
Percent Silt / Organics	100	Algae	0
		<i>Total</i>	90

Native Fish Species Collected:

Oregon Chub	231
Cottids	3
Speckled Dace	5
Redside Shiners	4
Northern Pikeminnows	11
Largescale Suckers	
Sand Rollers	
Threespine Sticklebacks	64
Salmonids ²	
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

Western Mosquitofish	5
Bullheads	
Common Carp	
Bluegills	
Largemouth Bass	
Pumpkinseeds	
Crappies	
Smallmouth Bass	
Banded Killifish	

Other:

NOTE: ACROSS FROM DOUG SLOUGH, P/A

Site Name	DOUGREN SLOUGH	Map Code	MF15I*	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	8/14/2017	
Subbasin		Location: Zone 10T	510579	4868037

Surface Area (m2)	1000	Types of aquatic vegetation ¹	
Average Depth (m)	0.75	Submergent	50
Maximum Depth (m)	1.5	Emergent	30
Water Temperature (C)	18	Floating	0
Percent Silt / Organics	10	Algae	1
		<i>Total</i>	81

Native Fish Species Collected:

Oregon Chub	878
Cottids	7
Speckled Dace	403
Redside Shiners	2163
Northern Pikeminnows	260
Largescale Suckers	27
Sand Rollers	
Threespine Sticklebacks	19
Salmonids ² CT	1
Lamprey	2
Chiselmouth	

Non-native Fish Species Collected:

Western Mosquitofish	23
Bullheads	
Common Carp	
Bluegills	
Largemouth Bass	
Pumpkinseeds	
Crappies	
Smallmouth Bass	
Banded Killifish	

Other:

P.+B. LAMP

NOTE: POP EST, FLDPLN SITE, VIE RED EST=8

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	DOUGREN SLOUGH UPSTREAM	Map Code	MF17C*	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	8/14/2017	
Subbasin		Location: Zone 10T	510415	4867932

Surface Area (m2)	1000	Types of aquatic vegetation ¹	
Average Depth (m)	0.8	Submergent	50
Maximum Depth (m)	2.4	Emergent	30
Water Temperature (C)	17	Floating	0
Percent Silt / Organics	30	Algae	1
		<i>Total</i>	81

Native Fish Species Collected:

Oregon Chub	201
Cottids	
Speckled Dace	31
Redside Shiners	64
Northern Pikeminnows	29
Largescale Suckers	1
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: P/A, RED VIE CHUB=1

Site Name	E. BRISTOW LOWER BERRY SLOUGH	Map Code	EB4C	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	5/23/2017	
Subbasin	ELIJAH BRISTOW	Location: Zone 10T	512603	4865490

Surface Area (m2)	4000	Types of aquatic vegetation ¹	
Average Depth (m)	1	Submergent	10
Maximum Depth (m)	2.5	Emergent	15
Water Temperature (C)	17	Floating	5
Percent Silt / Organics	94	Algae	20
		<i>Total</i>	50

Native Fish Species Collected:

Oregon Chub	95
Cottids	2
Speckled Dace	12
Redside Shiners	18
Northern Pikeminnows	
Largescale Suckers	
Sand Rollers	
Threespine Sticklebacks	15
Salmonids ²	
Lamprey	1
Chiselmouth	

Non-native Fish Species Collected:

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

Other:

RSS/SD=1

NOTE: POP EST, DNS OF NORMAL EB AREA

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	E. BRISTOW LOWER BERRY SLOUGH	Map Code	EB3B	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	5/23/2017	
Subbasin	ELIJAH BRISTOW	Location: Zone 10T	512533	4865758

Surface Area (m2)	1200	Types of aquatic vegetation ¹	
Average Depth (m)	0.5	Submergent	5
Maximum Depth (m)	1.5	Emergent	20
Water Temperature (C)	17	Floating	30
Percent Silt / Organics	100	Algae	20
		<i>Total</i>	90

Native Fish Species Collected:

Oregon Chub	9
Cottids	1
Speckled Dace	10
Redside Shiners	5
Northern Pikeminnows	2
Largescale Suckers	
Sand Rollers	
Threespine Sticklebacks	5
Salmonids ²	
Lamprey	1
Chiselmouth	

Non-native Fish Species Collected:

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

Other: UNK LAMP

NOTE: P/A, LOWEST POND

Site Name	EAST FORK MINNOW CREEK POND	Map Code	MNW1X	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	5/2/2017	
Subbasin	MINNOW CREEK	Location: Zone 10T	521276	4859639

Surface Area (m2)	2000	Types of aquatic vegetation ¹	
Average Depth (m)	1	Submergent	0
Maximum Depth (m)	2	Emergent	50
Water Temperature (C)	10	Floating	10
Percent Silt / Organics	95	Algae	10
		<i>Total</i>	70

Native Fish Species Collected:

Oregon Chub	2658
Cottids	
Speckled Dace	2453
Redside Shiners	1090
Northern Pikeminnows	
Largescale Suckers	
Sand Rollers	
Threespine Sticklebacks	
Salmonids ² CT	4
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

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

Other: RSS/SD=7

NOTE: STAFF GAUGE BROKEN -POST HAB ENHANCEMENT

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	ELIJAH BRISTOW BERRY SLOUGH	Map Code	EB2-11Z	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	5/23/2017	
Subbasin	ELIJAH BRISTOW	Location: Zone 10T	513050	4865164

Surface Area (m2)	5650	Types of aquatic vegetation ¹	
Average Depth (m)	1	Submergent	8
Maximum Depth (m)	1.8	Emergent	68
Water Temperature (C)	16	Floating	16
Percent Silt / Organics	100	Algae	8
		<i>Total</i>	100

Native Fish Species Collected:

Oregon Chub	0
Cottids	
Speckled Dace	150
Redside Shiners	4
Northern Pikeminnows	
Largescale Suckers	
Sand Rollers	
Threespine Sticklebacks	7
Salmonids ²	
Lamprey	1
Chiselmouth	

Non-native Fish Species Collected:

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

Other:

NOTE: P/A, DNS MOSTLY P FEATHER

Site Name	ELIJAH BRISTOW ISLAND POND	Map Code	MF8Q,12Q*	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	8/2/2017	
Subbasin	ELIJAH BRISTOW	Location: Zone 10T	514040	4864218

Surface Area (m2)	10490	Types of aquatic vegetation ¹	
Average Depth (m)	1	Submergent	65
Maximum Depth (m)	1.75	Emergent	5
Water Temperature (C)	23	Floating	5
Percent Silt / Organics	30	Algae	5
		<i>Total</i>	80

Native Fish Species Collected:

Oregon Chub	2447
Cottids	391
Speckled Dace	10149
Redside Shiners	861
Northern Pikeminnows	21
Largescale Suckers	16
Sand Rollers	
Threespine Sticklebacks	
Salmonids ²	
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

Western Mosquitofish	9
Bullheads	89
Common Carp	
Bluegills	
Largemouth Bass	
Pumpkinseeds	
Crappies	
Smallmouth Bass	
Banded Killifish	

Other:

RSS/SD=3

NOTE: POP EST - FLDPLN STUDY SITE, VIE YELLOW

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	ELIJAH BRISTOW NE GRAVEL PIT 1	Map Code	EB301*	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	8/7/2017	
Subbasin	ELIJAH BRISTOW	Location: Zone 10T	513878	4864780

Surface Area (m2)	1000	Types of aquatic vegetation ¹	
Average Depth (m)	1	Submergent	50
Maximum Depth (m)	4	Emergent	20
Water Temperature (C)	17	Floating	10
Percent Silt / Organics	50	Algae	10
		<i>Total</i>	90

Native Fish Species Collected:

Oregon Chub	4355
Cottids	126
Speckled Dace	1382
Redside Shiners	275
Northern Pikeminnows	3
Largescale Suckers	8
Sand Rollers	
Threespine Sticklebacks	
Salmonids ² RT	1
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

Western Mosquitofish	1000
Bullheads	11
Common Carp	
Bluegills	1
Largemouth Bass	
Pumpkinseeds	
Crappies	
Smallmouth Bass	
Banded Killifish	

Other:

NOTE: POP EST - FLOODPLAIN STUDY 2010

Site Name	ELIJAH BRISTOW NORTH SLOUGH	Map Code	EBN1S	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	4/20/2017	
Subbasin	ELIJAH BRISTOW	Location: Zone 10T	514858	4864419

Surface Area (m2)	3000	Types of aquatic vegetation ¹	
Average Depth (m)	0.5	Submergent	50
Maximum Depth (m)	1	Emergent	15
Water Temperature (C)	10	Floating	20
Percent Silt / Organics	100	Algae	10
		<i>Total</i>	95

Native Fish Species Collected:

Oregon Chub	409
Cottids	12
Speckled Dace	18
Redside Shiners	276
Northern Pikeminnows	2
Largescale Suckers	
Sand Rollers	
Threespine Sticklebacks	
Salmonids ²	
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

Western Mosquitofish	
Bullheads	
Common Carp	
Bluegills	6
Largemouth Bass	
Pumpkinseeds	
Crappies	
Smallmouth Bass	
Banded Killifish	

Other:

NOTE: POP EST. - FLDPLN STUDY SITE, VIE PINK

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	ELIJAH BRISTOW SE SLOUGH	Map Code	EB22G*	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	8/1/2017	
Subbasin	ELIJAH BRISTOW	Location: Zone 10T	514468	4863618

Surface Area (m2)	1500	Types of aquatic vegetation ¹	
Average Depth (m)	1.5	Submergent	70
Maximum Depth (m)	2.5	Emergent	5
Water Temperature (C)	18	Floating	5
Percent Silt / Organics	60	Algae	5
		<i>Total</i>	85

Native Fish Species Collected:

Oregon Chub	3709
Cottids	10
Speckled Dace	130
Redside Shiners	90
Northern Pikeminnows	2
Largescale Suckers	3
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: DNS OF EB SOUTH SITE, POP EST ON CHUB

Site Name	ELIJAH BRISTOW SE SLOUGH	Map Code	EB21L*	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	8/1/2017	
Subbasin	ELIJAH BRISTOW	Location: Zone 10T	514611	4863561

Surface Area (m2)	600	Types of aquatic vegetation ¹	
Average Depth (m)	0.5	Submergent	25
Maximum Depth (m)	1.6	Emergent	15
Water Temperature (C)	17	Floating	1
Percent Silt / Organics	20	Algae	25
		<i>Total</i>	66

Native Fish Species Collected:

Oregon Chub	983
Cottids	49
Speckled Dace	746
Redside Shiners	236
Northern Pikeminnows	6
Largescale Suckers	3
Sand Rollers	
Threespine Sticklebacks	
Salmonids ² CT	2
Lamprey	1
Chiselmouth	

Non-native Fish Species Collected:

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

Other:

RSS/SD=14

NOTE: POP EST, FLOODPLAIN SITE, NONNATIVE LILY

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	FALL CREEK CONFLUENCE SLOUGH	Map Code	FCC1E*	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	9/27/2017	
Subbasin	FALL CREEK	Location: Zone 10T	511004	4868594

Surface Area (m2)	650	Types of aquatic vegetation ¹	
Average Depth (m)	0.25	Submergent	0
Maximum Depth (m)	0.5	Emergent	50
Water Temperature (C)	12	Floating	0
Percent Silt / Organics	35	Algae	0
		<i>Total</i>	50

Native Fish Species Collected:

Oregon Chub	1
Cottids	17
Speckled Dace	6
Redside Shiners	1
Northern Pikeminnows	1
Largescale Suckers	2
Sand Rollers	1
Threespine Sticklebacks	
Salmonids ² CT	2
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

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

Other:

NOTE: SIDE CHANNEL AT THE MOUTH OF FALL CREEK

Site Name	FALL CREEK SPILLWAY POND 1	Map Code	FCSP1X	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	4/27/2017	
Subbasin	FALL CREEK	Location: Zone 10T	519285	4865320

Surface Area (m2)	1875	Types of aquatic vegetation ¹	
Average Depth (m)	1	Submergent	10
Maximum Depth (m)	2.5	Emergent	50
Water Temperature (C)	11	Floating	10
Percent Silt / Organics	100	Algae	1
		<i>Total</i>	71

Native Fish Species Collected:

Oregon Chub	671
Cottids	
Speckled Dace	1254
Redside Shiners	
Northern Pikeminnows	
Largescale Suckers	
Sand Rollers	
Threespine Sticklebacks	
Salmonids ²	
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

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

Other:

NOTE: REINTROD, POP EST, CLOSEST TO DAM

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	FALL CREEK SPILLWAY POND 1	Map Code	FCSP1X
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	5/30/2017
Subbasin	FALL CREEK	Location: Zone 10T	519285 4865320

Surface Area (m2)	1875	Types of aquatic vegetation ¹	
Average Depth (m)	1	Submergent	10
Maximum Depth (m)	2.5	Emergent	50
Water Temperature (C)	11	Floating	10
Percent Silt / Organics	100	Algae	1
		<i>Total</i>	71

Native Fish Species Collected:

Oregon Chub	942
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: P/A RESCUE DURING SPILLWAY MAINTENANCE

Site Name	FALL CREEK SPILLWAY POND 2	Map Code	FCSP2L
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	4/27/2017
Subbasin	FALL CREEK	Location: Zone 10T	519285 4865320

Surface Area (m2)	6000	Types of aquatic vegetation ¹	
Average Depth (m)	0.5	Submergent	4
Maximum Depth (m)	1	Emergent	48
Water Temperature (C)	11	Floating	3
Percent Silt / Organics	100	Algae	14
		<i>Total</i>	69

Native Fish Species Collected:

Oregon Chub	0
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:

NO FISH

NOTE: POP EST, ACTV BV, 5 PNDS

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	GREEN GRASS GRAVEL PIT	Map Code	GGGP1E*	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	8/17/2017	
Subbasin		Location: Zone 10T	508834	4869082

Surface Area (m2)	3600	Types of aquatic vegetation ¹	
Average Depth (m)	1	Submergent	70
Maximum Depth (m)	2	Emergent	5
Water Temperature (C)	20	Floating	10
Percent Silt / Organics	100	Algae	10
		<i>Total</i>	95

Native Fish Species Collected:

Oregon Chub	5
Cottids	
Speckled Dace	8
Redside Shiners	13
Northern Pikeminnows	6
Largescale Suckers	1
Sand Rollers	
Threespine Sticklebacks	225
Salmonids ²	
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

Western Mosquitofish	21
Bullheads	
Common Carp	
Bluegills	
Largemouth Bass	
Pumpkinseeds	
Crappies	
Smallmouth Bass	
Banded Killifish	

Other:

NOTE: GRAVEL PIT ON MFW ISLAND NEAR MF10, P/A

Site Name	HAWS ENHANCEMENT POND	Map Code	HAW2H	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	4/18/2017	
Subbasin		Location: Zone 10T	539624	4843090

Surface Area (m2)	1200	Types of aquatic vegetation ¹	
Average Depth (m)	1	Submergent	20
Maximum Depth (m)	2.3	Emergent	20
Water Temperature (C)	8.5	Floating	50
Percent Silt / Organics	70	Algae	10
		<i>Total</i>	100

Native Fish Species Collected:

Oregon Chub	1949
Cottids	
Speckled Dace	103
Redside Shiners	64
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:

RSS/SD=2

NOTE: INTRO, POP EST, TONS OF AZOLLA

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	HAWS POND	Map Code	HAW1L	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	4/18/2017	
Subbasin		Location: Zone 10T	539840	4843110

Surface Area (m2)	1000	Types of aquatic vegetation ¹	
Average Depth (m)	1.5	Submergent	30
Maximum Depth (m)	2.5	Emergent	10
Water Temperature (C)	9	Floating	0
Percent Silt / Organics	60	Algae	60
		<i>Total</i>	100

Native Fish Species Collected:

Oregon Chub	440
Cottids	
Speckled Dace	243
Redside Shiners	1018
Northern Pikeminnows	
Largescale Suckers	
Sand Rollers	
Threespine Sticklebacks	
Salmonids ²	
Lamprey	3
Chiselmouth	

Non-native Fish Species Collected:

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

Other:

NOTE: POP ESTIMATE, B. LAMP ONLY '17

Site Name	HILLS CREEK POND	Map Code	HCP1I*	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	9/14/2017	
Subbasin	HILLS CREEK	Location: Zone 10T	545969	4839951

Surface Area (m2)	3000	Types of aquatic vegetation ¹	
Average Depth (m)	0.2	Submergent	25
Maximum Depth (m)	0.4	Emergent	20
Water Temperature (C)		Floating	25
Percent Silt / Organics	100	Algae	5
		<i>Total</i>	75

Native Fish Species Collected:

Oregon Chub	310
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: INTRO SITE, POP EST, V. LOW WATER

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	HIPPO SLOUGH	Map Code	HIPPO1A*	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	8/15/2017	
Subbasin		Location: Zone 10T	511116	4867654

Surface Area (m2)	1000	Types of aquatic vegetation ¹	
Average Depth (m)	1	Submergent	60
Maximum Depth (m)	2	Emergent	10
Water Temperature (C)	18	Floating	10
Percent Silt / Organics	90	Algae	20
		<i>Total</i>	100

Native Fish Species Collected:

Oregon Chub	20
Cottids	10
Speckled Dace	350
Redside Shiners	58
Northern Pikeminnows	5
Largescale Suckers	1
Sand Rollers	
Threespine Sticklebacks	60
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 EST, ONLY DNS AREA SAMPLED

Site Name	HOSPITAL IMPOUNDMENT POND	Map Code	HI1V	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	4/21/2017	
Subbasin		Location: Zone 10T	533050	4851500

Surface Area (m2)	1768	Types of aquatic vegetation ¹	
Average Depth (m)	1	Submergent	25
Maximum Depth (m)	1.5	Emergent	60
Water Temperature (C)	10	Floating	5
Percent Silt / Organics	50	Algae	5
		<i>Total</i>	95

Native Fish Species Collected:

Oregon Chub	303
Cottids	1
Speckled Dace	
Redside Shiners	43
Northern Pikeminnows	1
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 EST (DEPLETION), ACOE, MOVED TO HSP

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	HOSPITAL POND	Map Code	HSP1Y	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	4/11/2017	
Subbasin		Location: Zone 10T	533116	4851526

Surface Area (m2)	5000	Types of aquatic vegetation ¹	
Average Depth (m)	2	Submergent	5
Maximum Depth (m)	3	Emergent	5
Water Temperature (C)	8	Floating	0
Percent Silt / Organics	90	Algae	60
		<i>Total</i>	70

Native Fish Species Collected:

Oregon Chub	2336
Cottids	
Speckled Dace	
Redside Shiners	548
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: POPULATION ESTIMATE, ACOE PARTNERING

Site Name	INDIGO SLOUGH	Map Code	INDI1	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	5/15/2017	
Subbasin		Location: Zone 10T	512704	4866033

Surface Area (m2)	6000	Types of aquatic vegetation ¹	
Average Depth (m)	1	Submergent	0
Maximum Depth (m)	2	Emergent	10
Water Temperature (C)	10	Floating	0
Percent Silt / Organics	15	Algae	0
		<i>Total</i>	10

Native Fish Species Collected:

Oregon Chub	27
Cottids	1
Speckled Dace	1
Redside Shiners	1
Northern Pikeminnows	1
Largescale Suckers	1
Sand Rollers	1
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:

RSS/SD=1

NOTE: P/A, CHUB IN SMALL POCKETS, FLOWING

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	JASPER PARK SLOUGH	Map Code	CAP1Q	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	4/19/2017	
Subbasin		Location: Zone 10T	507645	4870563

Surface Area (m2)	6000	Types of aquatic vegetation ¹	
Average Depth (m)	0.3	Submergent	10
Maximum Depth (m)	1	Emergent	55
Water Temperature (C)	10	Floating	5
Percent Silt / Organics	90	Algae	20
		<i>Total</i>	90

Native Fish Species Collected:

Oregon Chub	1
Cottids	
Speckled Dace	87
Redside Shiners	5
Northern Pikeminnows	
Largescale Suckers	1
Sand Rollers	
Threespine Sticklebacks	10
Salmonids ²	
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

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

Other:

NOTE: P/A, MINNOW TRAPS ON

Site Name	LOST CREEK CONFLUENCE SLOUGH	Map Code	EB32D*	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	8/9/2017	
Subbasin	LOST CREEK	Location: Zone 10T	512197	4866000

Surface Area (m2)	800	Types of aquatic vegetation ¹	
Average Depth (m)	0.5	Submergent	60
Maximum Depth (m)	1	Emergent	20
Water Temperature (C)	16	Floating	0
Percent Silt / Organics	80	Algae	0
		<i>Total</i>	80

Native Fish Species Collected:

Oregon Chub	706
Cottids	14
Speckled Dace	962
Redside Shiners	18
Northern Pikeminnows	
Largescale Suckers	6
Sand Rollers	
Threespine Sticklebacks	13
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: E OF LOST CR MOUTH, POP EST

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	LOWER BUCKHEAD ENHANCEMENT PND	Map Code	BCK14P	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	5/9/2017	
Subbasin	BUCKHEAD CREEK	Location: Zone 10T	536756	4848594

Surface Area (m2)	540	Types of aquatic vegetation ¹	
Average Depth (m)	1	Submergent	60
Maximum Depth (m)	1.7	Emergent	15
Water Temperature (C)	17	Floating	10
Percent Silt / Organics	85	Algae	10
		<i>Total</i>	95

Native Fish Species Collected:

Oregon Chub	504
Cottids	
Speckled Dace	
Redside Shiners	19
Northern Pikeminnows	6
Largescale Suckers	9
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: ODFW+USFS

Site Name	MIDDLE BUCKHEAD ENHANCEMENT PD	Map Code	BCK15P	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	5/9/2017	
Subbasin	BUCKHEAD CREEK	Location: Zone 10T	537069	4848494

Surface Area (m2)	600	Types of aquatic vegetation ¹	
Average Depth (m)	1.2	Submergent	60
Maximum Depth (m)	2	Emergent	20
Water Temperature (C)	16	Floating	0
Percent Silt / Organics	20	Algae	5
		<i>Total</i>	85

Native Fish Species Collected:

Oregon Chub	670
Cottids	1
Speckled Dace	132
Redside Shiners	77
Northern Pikeminnows	
Largescale Suckers	2
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: USFS, ORIGINAL POND, DEEPER THAN USUAL

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	MIDDLE FK. W. BACKWATER	Map Code	MF18*	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	9/6/2017	
Subbasin		Location: Zone 10T	504143	4873929

Surface Area (m2)	1500	Types of aquatic vegetation ¹	
Average Depth (m)	0.3	Submergent	20
Maximum Depth (m)	0.5	Emergent	20
Water Temperature (C)		Floating	5
Percent Silt / Organics	20	Algae	10
		<i>Total</i>	55

Native Fish Species Collected:

Oregon Chub	0
Cottids	5
Speckled Dace	14
Redside Shiners	
Northern Pikeminnows	11
Largescale Suckers	1
Sand Rollers	
Threespine Sticklebacks	98
Salmonids ²	
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

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

Other:

NOTE: LG SLOUGH 715 M UPS FROM CLEARWATER

Site Name	MIDDLE FK. W. BACKWATER	Map Code	MF18*	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	9/6/2017	
Subbasin		Location: Zone 10T	504069	4873933

Surface Area (m2)	200	Types of aquatic vegetation ¹	
Average Depth (m)	0.3	Submergent	30
Maximum Depth (m)	0.5	Emergent	30
Water Temperature (C)		Floating	0
Percent Silt / Organics	40	Algae	0
		<i>Total</i>	60

Native Fish Species Collected:

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

Non-native Fish Species Collected:

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

Other:

NOTE: SMALL SLOUGH 715 M UPS FROM CLEARWATER

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	MIDDLE SALT CREEK DIVERSION	Map Code	SALT3B	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	5/4/2017	
Subbasin	SALT CREEK	Location: Zone 10T	545065	4841880

Surface Area (m2)	1000	Types of aquatic vegetation ¹	
Average Depth (m)	0.3	Submergent	80
Maximum Depth (m)	0.75	Emergent	10
Water Temperature (C)		Floating	0
Percent Silt / Organics	90	Algae	5
		<i>Total</i>	95

Native Fish Species Collected:

Oregon Chub	9
Cottids	
Speckled Dace	100
Redside Shiners	10
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: ODFW+USFS, P/A ONLY

Site Name	MIDDLE-LOWER BUCKHEAD ENH PD	Map Code	BCK15P	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	5/9/2017	
Subbasin	BUCKHEAD CREEK	Location: Zone 10T	537025	4848536

Surface Area (m2)	550	Types of aquatic vegetation ¹	
Average Depth (m)	1	Submergent	60
Maximum Depth (m)	1.5	Emergent	20
Water Temperature (C)	14.5	Floating	10
Percent Silt / Organics	20	Algae	10
		<i>Total</i>	100

Native Fish Species Collected:

Oregon Chub	182
Cottids	4
Speckled Dace	183
Redside Shiners	89
Northern Pikeminnows	
Largescale Suckers	2
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: ODFW+USFS, NEW REST PND OFF MDL PND

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	OAKRIDGE SLOUGH	Map Code	OSTP1U	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	4/13/2017	
Subbasin		Location: Zone 10T	540294	4843284

Surface Area (m2)	4800	Types of aquatic vegetation ¹	
Average Depth (m)	0.15	Submergent	50
Maximum Depth (m)	0.35	Emergent	35
Water Temperature (C)	8	Floating	0
Percent Silt / Organics	100	Algae	5
		<i>Total</i>	90

Native Fish Species Collected:

Oregon Chub	2
Cottids	
Speckled Dace	2
Redside Shiners	3
Northern Pikeminnows	
Largescale Suckers	
Sand Rollers	
Threespine Sticklebacks	
Salmonids ² CT	6
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

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

Other:

NOTE: ONLY LOWER END SAMPLED

Site Name	PENGRA ISLAND SLOUGH	Map Code	MF9J*	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	8/9/2017	
Subbasin		Location: Zone 10T	511171	4866918

Surface Area (m2)	840	Types of aquatic vegetation ¹	
Average Depth (m)	0.5	Submergent	5
Maximum Depth (m)	1.5	Emergent	20
Water Temperature (C)	18	Floating	5
Percent Silt / Organics	10	Algae	5
		<i>Total</i>	35

Native Fish Species Collected:

Oregon Chub	225
Cottids	12
Speckled Dace	719
Redside Shiners	320
Northern Pikeminnows	30
Largescale Suckers	12
Sand Rollers	
Threespine Sticklebacks	365
Salmonids ²	
Lamprey	2
Chiselmouth	

Non-native Fish Species Collected:

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

Other:

RSS/SD=1

NOTE: POP EST, FLOODPLAIN SITE, P. LAMP

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	PENGRA OXBOW SLOUGH	Map Code	MF131*	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	8/9/2017	
Subbasin		Location: Zone 10T	510924	4867032

Surface Area (m2)	1000	Types of aquatic vegetation ¹	
Average Depth (m)	0.6	Submergent	50
Maximum Depth (m)	1.2	Emergent	20
Water Temperature (C)	24	Floating	10
Percent Silt / Organics	30	Algae	10
		<i>Total</i>	90

Native Fish Species Collected:

Oregon Chub	1
Cottids	4
Speckled Dace	
Redside Shiners	2
Northern Pikeminnows	3
Largescale Suckers	11
Sand Rollers	
Threespine Sticklebacks	
Salmonids ²	
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

Western Mosquitofish	1000
Bullheads	7
Common Carp	
Bluegills	4
Largemouth Bass	
Pumpkinseeds	
Crappies	
Smallmouth Bass	
Banded Killifish	

Other:

NOTE: POP EST, FLOODPLAIN STUDY SITE

Site Name	POTAMUS SLOUGH	Map Code	POTA1A*	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	8/24/2017	
Subbasin		Location: Zone 10T	510968	4867972

Surface Area (m2)	5250	Types of aquatic vegetation ¹	
Average Depth (m)	0.5	Submergent	30
Maximum Depth (m)	2	Emergent	30
Water Temperature (C)	17	Floating	5
Percent Silt / Organics	30	Algae	10
		<i>Total</i>	75

Native Fish Species Collected:

Oregon Chub	250
Cottids	4
Speckled Dace	460
Redside Shiners	33
Northern Pikeminnows	226
Largescale Suckers	9
Sand Rollers	
Threespine Sticklebacks	4
Salmonids ²	
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

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

Other:

RSS/SD=2

NOTE: P/A, DEEP WITH SHALLOW SHELVES

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	RAILROAD BRIDGE SLOUGH	Map Code	MF10J*	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	8/17/2017	
Subbasin		Location: Zone 10T	508824	4869188

Surface Area (m2)	1560
Average Depth (m)	0.75
Maximum Depth (m)	1
Water Temperature (C)	17
Percent Silt / Organics	10

Types of aquatic vegetation ¹	
Submergent	20
Emergent	20
Floating	0
Algae	0
<i>Total</i>	40

Native Fish Species Collected:

Oregon Chub	32
Cottids	12
Speckled Dace	196
Redside Shiners	861
Northern Pikeminnows	351
Largescale Suckers	19
Sand Rollers	
Threespine Sticklebacks	145
Salmonids ² CT	2
Lamprey	3
Chiselmouth	

Non-native Fish Species Collected:

Western Mosquitofish	1
Bullheads	1
Common Carp	
Bluegills	60
Largemouth Bass	
Pumpkinseeds	
Crappies	
Smallmouth Bass	
Banded Killifish	

Other: RSS/SD=1

NOTE: POP EST, FLOODPLAIN SITE, P. LAMP

Site Name	SHADY DELL POND	Map Code	SDP1X	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	5/4/2017	
Subbasin		Location: Zone 10T	536711	4848284

Surface Area (m2)	840
Average Depth (m)	0.75
Maximum Depth (m)	1.5
Water Temperature (C)	15
Percent Silt / Organics	90

Types of aquatic vegetation ¹	
Submergent	5
Emergent	25
Floating	10
Algae	10
<i>Total</i>	50

Native Fish Species Collected:

Oregon Chub	1978
Cottids	
Speckled Dace	388
Redside Shiners	629
Northern Pikeminnows	3
Largescale Suckers	
Sand Rollers	
Threespine Sticklebacks	
Salmonids ² CT	2
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

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

Other: RSS/SD=7

NOTE: ODFW+USFS, POP EST, POSS. LND PRESENT

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	SHORT SLOUGH	Map Code	SHORT1A*	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	8/24/2017	
Subbasin		Location: Zone 10T	510803	4868389

Surface Area (m2)	150	Types of aquatic vegetation ¹	
Average Depth (m)	0.75	Submergent	40
Maximum Depth (m)	1.25	Emergent	20
Water Temperature (C)	18	Floating	5
Percent Silt / Organics	40	Algae	20
		<i>Total</i>	85

Native Fish Species Collected:

Oregon Chub	6
Cottids	2
Speckled Dace	13
Redside Shiners	33
Northern Pikeminnows	7
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: P/A, COBBLE, SHALLOW SLOUGH

Site Name	SIMPSON SLOUGH	Map Code	SIMP1E*	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	9/25/2017	
Subbasin	FALL CREEK	Location: Zone 10T	514903	4866255

Surface Area (m2)	1000	Types of aquatic vegetation ¹	
Average Depth (m)	0.5	Submergent	5
Maximum Depth (m)	1.5	Emergent	40
Water Temperature (C)	11	Floating	0
Percent Silt / Organics	60	Algae	0
		<i>Total</i>	45

Native Fish Species Collected:

Oregon Chub	2
Cottids	4
Speckled Dace	555
Redside Shiners	165
Northern Pikeminnows	1
Largescale Suckers	
Sand Rollers	
Threespine Sticklebacks	
Salmonids ² CT	1
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

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

Other:

NOTE: POOLS AT MOUTH AND UPS

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	SPRINGFIELD MILLRACE	Map Code	MR9	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	5/1/2017	
Subbasin		Location: Zone 10T	498022	4876644

Surface Area (m2)	500
Average Depth (m)	0.3
Maximum Depth (m)	1.2
Water Temperature (C)	10
Percent Silt / Organics	30

Types of aquatic vegetation ¹	
Submergent	15
Emergent	20
Floating	0
Algae	5
<i>Total</i>	40

Native Fish Species Collected:

Oregon Chub	1
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: ODFW DISTRICT SAMPLING - NORDHOLM, ROMER

Site Name	SPRINGFIELD MILLRACE	Map Code	MR10	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	5/15/2017	
Subbasin		Location: Zone 10T	501019	4875667

Surface Area (m2)	500
Average Depth (m)	0.3
Maximum Depth (m)	1.2
Water Temperature (C)	10.5
Percent Silt / Organics	30

Types of aquatic vegetation ¹	
Submergent	15
Emergent	20
Floating	0
Algae	5
<i>Total</i>	40

Native Fish Species Collected:

Oregon Chub	2
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: ODFW DISTRICT SAMPLING - NORDHOLM, ROMER

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	SPRINGFIELD MILLRACE OVERFLOW	Map Code	MR8*	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	9/6/2017	
Subbasin		Location: Zone 10T	502765	4874303

Surface Area (m2)	1000	Types of aquatic vegetation ¹	
Average Depth (m)	1	Submergent	20
Maximum Depth (m)	1.8	Emergent	20
Water Temperature (C)		Floating	5
Percent Silt / Organics	30	Algae	5
		<i>Total</i>	50

Native Fish Species Collected:

Oregon Chub	1
Cottids	12
Speckled Dace	180
Redside Shiners	
Northern Pikeminnows	11
Largescale Suckers	
Sand Rollers	
Threespine Sticklebacks	16
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: NATURAL SLOUGH, HIGH OVERFLOW FROM MR7

Site Name	SPRINGFIELD MILLRACE SLOUGH	Map Code	MR6*	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	9/6/2017	
Subbasin		Location: Zone 10T	502871	4874360

Surface Area (m2)	75	Types of aquatic vegetation ¹	
Average Depth (m)	0.3	Submergent	30
Maximum Depth (m)	0.5	Emergent	70
Water Temperature (C)		Floating	0
Percent Silt / Organics	80	Algae	0
		<i>Total</i>	100

Native Fish Species Collected:

Oregon Chub	0
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:

NO FISH

NOTE: DISCONNECTED POOL BTWN MR2 AND TRAIL

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	SPRINGFIELD MILLRACE SLOUGH	Map Code	MR4B*	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	9/6/2017	
Subbasin		Location: Zone 10T	503049	4874421

Surface Area (m2)	1000	Types of aquatic vegetation ¹	
Average Depth (m)	1	Submergent	15
Maximum Depth (m)	2	Emergent	15
Water Temperature (C)		Floating	0
Percent Silt / Organics	40	Algae	10
		<i>Total</i>	40

Native Fish Species Collected:

Oregon Chub	0
Cottids	2
Speckled Dace	2
Redside Shiners	2
Northern Pikeminnows	1
Largescale Suckers	
Sand Rollers	
Threespine Sticklebacks	3
Salmonids ²	
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

Western Mosquitofish	
Bullheads	
Common Carp	
Bluegills	5
Largemouth Bass	
Pumpkinseeds	
Crappies	
Smallmouth Bass	
Banded Killifish	

Other:

NOTE: CHANNEL LEADING FROM MR2 BV DAM TO RAMP

Site Name	SPRINGFIELD MILLRACE SLOUGH	Map Code	MR7*	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	9/6/2017	
Subbasin		Location: Zone 10T	502915	4874415

Surface Area (m2)	140	Types of aquatic vegetation ¹	
Average Depth (m)	0.3	Submergent	5
Maximum Depth (m)	1	Emergent	50
Water Temperature (C)		Floating	0
Percent Silt / Organics	20	Algae	0
		<i>Total</i>	55

Native Fish Species Collected:

Oregon Chub	0
Cottids	
Speckled Dace	69
Redside Shiners	
Northern Pikeminnows	1
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: SMALL CHANNEL LEADING DOWN TO MR8

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	SPRINGFIELD MILLRACE W SLOUGH	Map Code	MR5A*	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	9/6/2017	
Subbasin		Location: Zone 10T	502909	4874464

Surface Area (m2)	500	Types of aquatic vegetation ¹	
Average Depth (m)	0.5	Submergent	15
Maximum Depth (m)	1.2	Emergent	20
Water Temperature (C)		Floating	0
Percent Silt / Organics	5	Algae	0
		<i>Total</i>	35

Native Fish Species Collected:

Oregon Chub	0
Cottids	2
Speckled Dace	1
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: AREA AROUND TRAIL BRIDGE

Site Name	SPRINGFIELD UPPER MILLRACE	Map Code	MR2A*	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	9/6/2017	
Subbasin		Location: Zone 10T	502951	4874357

Surface Area (m2)	800	Types of aquatic vegetation ¹	
Average Depth (m)	1	Submergent	10
Maximum Depth (m)	2	Emergent	15
Water Temperature (C)		Floating	0
Percent Silt / Organics	30	Algae	5
		<i>Total</i>	30

Native Fish Species Collected:

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

Non-native Fish Species Collected:

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

Other:

NOTE: LOWEST AREA NEAR MIDDLE FORK

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	SUMMER SIDE CHANNEL	Map Code	SMR1A*
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	8/25/2017
Subbasin		Location: Zone 10T	510972 4868429

Surface Area (m2)	6000	Types of aquatic vegetation ¹	
Average Depth (m)	0.15	Submergent	5
Maximum Depth (m)	1.5	Emergent	40
Water Temperature (C)	18	Floating	5
Percent Silt / Organics	20	Algae	0
		<i>Total</i>	50
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub	7	Western Mosquitofish	500
Cottids	7	Bullheads	
Speckled Dace	48	Common Carp	
Redside Shiners	31	Bluegills	
Northern Pikeminnows	20	Largemouth Bass	
Largescale Suckers	4	Pumpkinseeds	
Sand Rollers		Crappies	
Threespine Sticklebacks	4	Smallmouth Bass	
Salmonids ²		Banded Killifish	
Lamprey			
Chiselmouth			

NOTE: P/A, OLD SIDE CHANNEL, AT FALL CRK CONF

Site Name	SWAN FARM BAYOU	Map Code	SWAN1A
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	5/25/2017
Subbasin	LOST CREEK	Location: Zone 10T	511836 4865821

Surface Area (m2)	1000	Types of aquatic vegetation ¹	
Average Depth (m)	1	Submergent	10
Maximum Depth (m)	2	Emergent	20
Water Temperature (C)	10.5	Floating	5
Percent Silt / Organics	100	Algae	0
		<i>Total</i>	35
Native Fish Species Collected:		Non-native Fish Species Collected:	
Oregon Chub	0	Western Mosquitofish	
Cottids		Bullheads	
Speckled Dace	25	Common Carp	
Redside Shiners		Bluegills	
Northern Pikeminnows		Largemouth Bass	
Largescale Suckers		Pumpkinseeds	
Sand Rollers		Crappies	
Threespine Sticklebacks	70	Smallmouth Bass	
Salmonids ²		Banded Killifish	
Lamprey			
Chiselmouth			

NOTE: P/A, DOWNSTREAM LOCATION + S. PND

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	SWAN FARM UPSTREAM	Map Code	SWAN2A	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	5/25/2017	
Subbasin	LOST CREEK	Location: Zone 10T	511729	4865903

Surface Area (m2)	1000	Types of aquatic vegetation ¹	
Average Depth (m)	0.75	Submergent	19
Maximum Depth (m)	2	Emergent	20
Water Temperature (C)	11	Floating	10
Percent Silt / Organics	90	Algae	1
		<i>Total</i>	50

Native Fish Species Collected:

Oregon Chub	34
Cottids	
Speckled Dace	14
Redside Shiners	
Northern Pikeminnows	
Largescale Suckers	
Sand Rollers	
Threespine Sticklebacks	59
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: P/A, UPSTREAM LOCATION

Site Name	TNC ISLAND POND SLOUGH	Map Code	TNC8A*	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	9/6/2017	
Subbasin		Location: Zone 10T	502165	4874467

Surface Area (m2)	1500	Types of aquatic vegetation ¹	
Average Depth (m)	0.5	Submergent	25
Maximum Depth (m)	2	Emergent	20
Water Temperature (C)		Floating	5
Percent Silt / Organics	20	Algae	15
		<i>Total</i>	65

Native Fish Species Collected:

Oregon Chub	0
Cottids	2
Speckled Dace	25
Redside Shiners	
Northern Pikeminnows	2
Largescale Suckers	
Sand Rollers	
Threespine Sticklebacks	239
Salmonids ²	
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

Western Mosquitofish	3
Bullheads	
Common Carp	
Bluegills	
Largemouth Bass	
Pumpkinseeds	
Crappies	
Smallmouth Bass	
Banded Killifish	

Other:

NOTE: ISLAND COMPLEX DS OF PUDDING

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	UPPER BUCKHEAD CREEK BACKWATER	Map Code	BCK7T	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	5/9/2017	
Subbasin	BUCKHEAD CREEK	Location: Zone 10T	538089	4846737

Surface Area (m2)	5953
Average Depth (m)	1
Maximum Depth (m)	2
Water Temperature (C)	10
Percent Silt / Organics	60

Types of aquatic vegetation ¹

Submergent	10
Emergent	30
Floating	0
Algae	1
<i>Total</i>	41

Native Fish Species Collected:

Oregon Chub	494
Cottids	1
Speckled Dace	355
Redside Shiners	3433
Northern Pikeminnows	
Largescale Suckers	10
Sand Rollers	
Threespine Sticklebacks	
Salmonids ² CT=1	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: ODFW+USFS, HIGH WTR, RSS/SD=9, B. LAMP

Site Name	UPPER BUCKHEAD ENHANCEMENT PND	Map Code	BCK17A	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	5/9/2017	
Subbasin	BUCKHEAD CREEK	Location: Zone 10T	537042	4848424

Surface Area (m2)	400
Average Depth (m)	1
Maximum Depth (m)	2
Water Temperature (C)	17
Percent Silt / Organics	30

Types of aquatic vegetation ¹

Submergent	45
Emergent	30
Floating	5
Algae	10
<i>Total</i>	90

Native Fish Species Collected:

Oregon Chub	919
Cottids	
Speckled Dace	20
Redside Shiners	1
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: ODFW+USFS

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	WICOPEE POND	Map Code	WCP1Z	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	5/3/2017	
Subbasin	SALT CREEK	Location: Zone 10T	557848	4838626

Surface Area (m2)	3250	Types of aquatic vegetation ¹	
Average Depth (m)	1	Submergent	5
Maximum Depth (m)	1.75	Emergent	40
Water Temperature (C)	15	Floating	5
Percent Silt / Organics	100	Algae	15
		<i>Total</i>	65

Native Fish Species Collected:

Oregon Chub	6605
Cottids	
Speckled Dace	6776
Redside Shiners	
Northern Pikeminnows	
Largescale Suckers	
Sand Rollers	
Threespine Sticklebacks	
Salmonids ² CT	2
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

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

Other:

NOTE: ODFW+USFS, POP EST

Site Name	YETI SLOUGH 1	Map Code	YETH1*	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	9/7/2017	
Subbasin		Location: Zone 10T	537504	4847764

Surface Area (m2)	750	Types of aquatic vegetation ¹	
Average Depth (m)	0.3	Submergent	5
Maximum Depth (m)	0.5	Emergent	15
Water Temperature (C)	17	Floating	0
Percent Silt / Organics	10	Algae	5
		<i>Total</i>	25

Native Fish Species Collected:

Oregon Chub	2
Cottids	1
Speckled Dace	10
Redside Shiners	
Northern Pikeminnows	3
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: P/A, SUBSAMPLED HABITAT, LOWER WEST

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	YETI SLOUGH 2	Map Code	YETI3*	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	9/7/2017	
Subbasin		Location: Zone 10T	537585	4847657

Surface Area (m2)	3000	Types of aquatic vegetation ¹	
Average Depth (m)	0.3	Submergent	50
Maximum Depth (m)	1.25	Emergent	20
Water Temperature (C)	19	Floating	0
Percent Silt / Organics	30	Algae	15
		<i>Total</i>	85

Native Fish Species Collected:

Oregon Chub	242
Cottids	3
Speckled Dace	47
Redside Shiners	16
Northern Pikeminnows	88
Largescale Suckers	5
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: P/A, SUBSAMPLED HABITAT, LOWER EAST

Site Name	YETI SLOUGH 3	Map Code	YETI2A*	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	9/7/2017	
Subbasin		Location: Zone 10T	537792	4847702

Surface Area (m2)	3600	Types of aquatic vegetation ¹	
Average Depth (m)	0.5	Submergent	5
Maximum Depth (m)	1.5	Emergent	15
Water Temperature (C)	18	Floating	0
Percent Silt / Organics	10	Algae	5
		<i>Total</i>	20

Native Fish Species Collected:

Oregon Chub	655
Cottids	2
Speckled Dace	106
Redside Shiners	87
Northern Pikeminnows	68
Largescale Suckers	6
Sand Rollers	
Threespine Sticklebacks	
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: P/A, SUBSAMPLED HABITAT, MIDDLE POND

Appendix A (continued).

MIDDLE FORK WILLAMETTE RIVER BASIN

Site Name	YETI SLOUGH 4	Map Code	YETI4*	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	9/7/2017	
Subbasin		Location: Zone 10T	537873	4847629

Surface Area (m2)	750	Types of aquatic vegetation ¹	
Average Depth (m)	0.5	Submergent	70
Maximum Depth (m)	1	Emergent	20
Water Temperature (C)	21	Floating	0
Percent Silt / Organics	10	Algae	10
		<i>Total</i>	100

Native Fish Species Collected:

Oregon Chub	85
Cottids	1
Speckled Dace	
Redside Shiners	5
Northern Pikeminnows	48
Largescale Suckers	19
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: P/A, SUBSAMPLED HABITAT, MID-UPPER

Site Name	YETI SLOUGH 5	Map Code	YETI5A*	
Basin	MIDDLE FORK WILLAMETTE RIVER	Sampling Date	9/7/2017	
Subbasin		Location: Zone 10T	537971	4847209

Surface Area (m2)	2000	Types of aquatic vegetation ¹	
Average Depth (m)	0.2	Submergent	70
Maximum Depth (m)	0.4	Emergent	20
Water Temperature (C)	21	Floating	0
Percent Silt / Organics	10	Algae	10
		<i>Total</i>	100

Native Fish Species Collected:

Oregon Chub	1
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: P/A, SUBSAMPLED HABITAT, UPPER POND

Appendix A (continued).

MID-WILLAMETTE RIVER BASIN

Site Name	FAIRCHILD POND	Map Code	FAIR1B	
Basin	MID-WILLAMETTE RIVER	Sampling Date	2/3/2017	
Subbasin	MARYS RIVER	Location: Zone 10T	463216	4926448

Surface Area (m2)	600	Types of aquatic vegetation ¹	
Average Depth (m)	0.5	Submergent	20
Maximum Depth (m)	3	Emergent	30
Water Temperature (C)	8	Floating	0
Percent Silt / Organics	90	Algae	10
		<i>Total</i>	60

Native Fish Species Collected:

Oregon Chub	65
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: REINTRO 2015, P/A, MOVED TO GRAY CR SWMP

Site Name	FINLEY NWR BEAVER POND	Map Code	FIN1U	
Basin	MID-WILLAMETTE RIVER	Sampling Date	7/27/2017	
Subbasin	MARYS RIVER	Location: Zone 10T	473717	4916127

Surface Area (m2)	4400	Types of aquatic vegetation ¹	
Average Depth (m)	0.7	Submergent	50
Maximum Depth (m)	1.2	Emergent	30
Water Temperature (C)	23	Floating	0
Percent Silt / Organics	100	Algae	10
		<i>Total</i>	90

Native Fish Species Collected:

Oregon Chub	1991
Cottids	
Speckled Dace	293
Redside Shiners	13
Northern Pikeminnows	
Largescale Suckers	
Sand Rollers	
Threespine Sticklebacks	50
Salmonids ²	
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

Western Mosquitofish	
Bullheads	10
Common Carp	
Bluegills	
Largemouth Bass	
Pumpkinseeds	
Crappies	
Smallmouth Bass	
Banded Killifish	

Other:

NOTE: POP EST, 100 MOVED TO FIELD 22

Appendix A (continued).

MID-WILLAMETTE RIVER BASIN

Site Name	FINLEY NWR- CATTAIL POND	Map Code	FIN7I	
Basin	MID-WILLAMETTE RIVER	Sampling Date	5/18/2017	
Subbasin	MARYS RIVER	Location: Zone 10T	474188	4916199

Surface Area (m2)	9600	Types of aquatic vegetation ¹		
Average Depth (m)	0.5	Submergent	10	
Maximum Depth (m)	1.5	Emergent	60	
Water Temperature (C)	16	Floating	1	
Percent Silt / Organics	100	Algae	20	
		<i>Total</i>	91	

Native Fish Species Collected:

Oregon Chub	0
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	10
Common Carp	
Bluegills	20
Largemouth Bass	
Pumpkinseeds	
Crappies	
Smallmouth Bass	
Banded Killifish	

Other:

NOTE: P/A, MINNOW TRAPS

Site Name	FINLEY NWR DISPLAY POND	Map Code	FIN16Y	
Basin	MID-WILLAMETTE RIVER	Sampling Date	3/13/2017	
Subbasin	MARYS RIVER	Location: Zone 10T	473263	4917131

Surface Area (m2)	9900	Types of aquatic vegetation ¹		
Average Depth (m)	1	Submergent	15	
Maximum Depth (m)	2.3	Emergent	25	
Water Temperature (C)		Floating	0	
Percent Silt / Organics	100	Algae	0	
		<i>Total</i>	40	

Native Fish Species Collected:

Oregon Chub	3
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: P/A, LOW CATCH, CHUB MOVED TO FLD 22

Appendix A (continued).

MID-WILLAMETTE RIVER BASIN

Site Name	FINLEY NWR DISPLAY POND	Map Code	FIN16Y	
Basin	MID-WILLAMETTE RIVER	Sampling Date	5/18/2017	
Subbasin	MARYS RIVER	Location: Zone 10T	473263	4917131

Surface Area (m2)	9900	Types of aquatic vegetation ¹	
Average Depth (m)	0.5	Submergent	15
Maximum Depth (m)	2.3	Emergent	25
Water Temperature (C)	16	Floating	0
Percent Silt / Organics	100	Algae	0
		<i>Total</i>	40

Native Fish Species Collected:

Oregon Chub	10
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: P/A, SPILLWAY DMG, CHUB MOVED TO FLD 22

Site Name	FINLEY NWR FIELD-22 POND	Map Code	FIN28A	
Basin	MID-WILLAMETTE RIVER	Sampling Date	5/18/2017	
Subbasin	MARYS RIVER	Location: Zone 10T	473903	4917589

Surface Area (m2)	14222	Types of aquatic vegetation ¹	
Average Depth (m)	1	Submergent	20
Maximum Depth (m)	2	Emergent	30
Water Temperature (C)	17	Floating	0
Percent Silt / Organics	100	Algae	10
		<i>Total</i>	60

Native Fish Species Collected:

Oregon Chub	13
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: INTRO, 2015 REST, FROM DISPLAY POND

Appendix A (continued).

MID-WILLAMETTE RIVER BASIN

Site Name	FINLEY NWR FIELD-22 POND	Map Code	FIN28B	
Basin	MID-WILLAMETTE RIVER	Sampling Date	6/9/2017	
Subbasin	MARYS RIVER	Location: Zone 10T	473903	4917589

Surface Area (m2)	14222	Types of aquatic vegetation ¹	
Average Depth (m)	1	Submergent	20
Maximum Depth (m)	2	Emergent	30
Water Temperature (C)	17	Floating	0
Percent Silt / Organics	100	Algae	10
		<i>Total</i>	60

Native Fish Species Collected:

Oregon Chub	37
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: INTRO, 2015 REST, FROM FINLEY-BUFORD

Site Name	FINLEY NWR FIELD-22 POND	Map Code	FIN28C	
Basin	MID-WILLAMETTE RIVER	Sampling Date	7/27/2017	
Subbasin	MARYS RIVER	Location: Zone 10T	473903	4917589

Surface Area (m2)	14222	Types of aquatic vegetation ¹	
Average Depth (m)	1	Submergent	20
Maximum Depth (m)	2	Emergent	30
Water Temperature (C)	17	Floating	0
Percent Silt / Organics	100	Algae	10
		<i>Total</i>	60

Native Fish Species Collected:

Oregon Chub	100
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: INTRO, 2015 REST, FROM FINLEY BEAVER

Appendix A (continued).

MID-WILLAMETTE RIVER BASIN

Site Name	FINLEY NWR- GRAY CREEK SWAMP	Map Code	FIN4X	
Basin	MID-WILLAMETTE RIVER	Sampling Date	2/3/2017	
Subbasin	MARYS RIVER	Location: Zone 10T	472649	4915908

Surface Area (m2)	22872	Types of aquatic vegetation ¹	
Average Depth (m)	0.5	Submergent	17
Maximum Depth (m)	1.5	Emergent	53
Water Temperature (C)	8	Floating	1
Percent Silt / Organics	100	Algae	4
		<i>Total</i>	75

Native Fish Species Collected:

Oregon Chub	65
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: INTRO 50 CHUB FRM FAIRCHILD, MID+LOW PND

Site Name	FINLEY NWR- GRAY CREEK SWAMP	Map Code	FIN4X	
Basin	MID-WILLAMETTE RIVER	Sampling Date	7/27/2017	
Subbasin	MARYS RIVER	Location: Zone 10T	472649	4915908

Surface Area (m2)	22872	Types of aquatic vegetation ¹	
Average Depth (m)	0.5	Submergent	17
Maximum Depth (m)	1.5	Emergent	53
Water Temperature (C)	23	Floating	1
Percent Silt / Organics	100	Algae	4
		<i>Total</i>	75

Native Fish Species Collected:

Oregon Chub	269
Cottids	24
Speckled Dace	2217
Redside Shiners	483
Northern Pikeminnows	
Largescale Suckers	
Sand Rollers	
Threespine Sticklebacks	5929
Salmonids ²	
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

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

Other:

RSS/SD=2

NOTE: EST MID ONLY, NO IN UPPER, LOW # LOWER

Appendix A (continued).

MID-WILLAMETTE RIVER BASIN

Site Name	FINLEY-BUFORD POND	Map Code	FBP1E	
Basin	MID-WILLAMETTE RIVER	Sampling Date	6/9/2017	
Subbasin	MARYS RIVER	Location: Zone 10T	472365	4926042

Surface Area (m2)	2500	Types of aquatic vegetation ¹	
Average Depth (m)	1	Submergent	60
Maximum Depth (m)	2.5	Emergent	20
Water Temperature (C)	15.5	Floating	10
Percent Silt / Organics	90	Algae	10
		<i>Total</i>	100

Native Fish Species Collected:

Oregon Chub	770
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: 2011 INTRO, P/A, 10% MOVED

Site Name	GAIL ACHTERMAN WILDLIFE AREA	Map Code	GAWA3	
Basin	MID-WILLAMETTE RIVER	Sampling Date	7/20/2017	
Subbasin		Location: Zone 10T	490701	4974071

Surface Area (m2)	750	Types of aquatic vegetation ¹	
Average Depth (m)	1.5	Submergent	50
Maximum Depth (m)	2	Emergent	30
Water Temperature (C)	21	Floating	5
Percent Silt / Organics	40	Algae	5
		<i>Total</i>	90

Native Fish Species Collected:

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

Non-native Fish Species Collected:

Western Mosquitofish	1000
Bullheads	
Common Carp	
Bluegills	
Largemouth Bass	1
Pumpkinseeds	1
Crappies	
Smallmouth Bass	
Banded Killifish	

Other:

GREEN=11

NOTE: P. FEATHER

Appendix A (continued).

MID-WILLAMETTE RIVER BASIN

Site Name	GAIL ACHTERMAN WILDLIFE AREA	Map Code	GAWA1	
Basin	MID-WILLAMETTE RIVER	Sampling Date	7/20/2017	
Subbasin		Location: Zone 10T	490774	4974443

Surface Area (m2)	12000	Types of aquatic vegetation ¹	
Average Depth (m)	1	Submergent	5
Maximum Depth (m)	1.5	Emergent	70
Water Temperature (C)	22	Floating	1
Percent Silt / Organics	70	Algae	1
		<i>Total</i>	77

Native Fish Species Collected:

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

Non-native Fish Species Collected:

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

Other: GREEN=1

NOTE: NONNATIVE LUDWIGIA, YP=2, YBH, BG\PK=20

Site Name	GAIL ACHTERMAN WILDLIFE AREA	Map Code	GAWA4	
Basin	MID-WILLAMETTE RIVER	Sampling Date	7/20/2017	
Subbasin		Location: Zone 10T	490563	4973675

Surface Area (m2)	80	Types of aquatic vegetation ¹	
Average Depth (m)	0.75	Submergent	50
Maximum Depth (m)	1.5	Emergent	20
Water Temperature (C)	22	Floating	0
Percent Silt / Organics	60	Algae	1
		<i>Total</i>	71

Native Fish Species Collected:

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

Non-native Fish Species Collected:

Western Mosquitofish	
Bullheads	
Common Carp	
Bluegills	
Largemouth Bass	
Pumpkinseeds	3
Crappies	
Smallmouth Bass	
Banded Killifish	

Other: GREEN=1

NOTE: PONDS AROUND CULVERTS

Appendix A (continued).

MID-WILLAMETTE RIVER BASIN

Site Name	GAIL ACHTERMAN WILDLIFE AREA	Map Code	GAWA5	
Basin	MID-WILLAMETTE RIVER	Sampling Date	7/20/2017	
Subbasin		Location: Zone 10T	490094	4972993

Surface Area (m2)	1200	Types of aquatic vegetation ¹	
Average Depth (m)	1	Submergent	50
Maximum Depth (m)	1.5	Emergent	5
Water Temperature (C)	22	Floating	0
Percent Silt / Organics	50	Algae	10
		<i>Total</i>	65

Native Fish Species Collected:

Oregon Chub	0
Cottids	2
Speckled Dace	
Redside Shiners	
Northern Pikeminnows	9
Largescale Suckers	
Sand Rollers	
Threespine Sticklebacks	
Salmonids ²	
Lamprey	
Chiselmouth	1

Non-native Fish Species Collected:

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

Other: GREEN=1

NOTE: NEAR UPS MOUTH, P. FEATHER, BG\PK=1

Site Name	GAIL ACHTERMAN WILDLIFE AREA	Map Code	GAWA2	
Basin	MID-WILLAMETTE RIVER	Sampling Date	7/20/2017	
Subbasin		Location: Zone 10T	490771	4974233

Surface Area (m2)	10000	Types of aquatic vegetation ¹	
Average Depth (m)	0.5	Submergent	70
Maximum Depth (m)	2	Emergent	10
Water Temperature (C)	20	Floating	5
Percent Silt / Organics	70	Algae	5
		<i>Total</i>	90

Native Fish Species Collected:

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

Non-native Fish Species Collected:

Western Mosquitofish	1000
Bullheads	
Common Carp	
Bluegills	
Largemouth Bass	
Pumpkinseeds	15
Crappies	
Smallmouth Bass	
Banded Killifish	

Other: GREEN=11

NOTE: BG\PK=3

Appendix A (continued).

MID-WILLAMETTE RIVER BASIN

Site Name	JACKSON-FRAZIER WETLAND	Map Code	JF4*	
Basin	MID-WILLAMETTE RIVER	Sampling Date	9/14/2017	
Subbasin		Location: Zone 10T	480078	4940154

Surface Area (m2)	100	Types of aquatic vegetation ¹	
Average Depth (m)	0.6	Submergent	25
Maximum Depth (m)	1.2	Emergent	30
Water Temperature (C)	16	Floating	5
Percent Silt / Organics	90	Algae	10
		<i>Total</i>	70

Native Fish Species Collected:

Oregon Chub	0
Cottids	7
Speckled Dace	13
Redside Shiners	5
Northern Pikeminnows	1
Largescale Suckers	1
Sand Rollers	
Threespine Sticklebacks	47
Salmonids ²	
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

Western Mosquitofish	200
Bullheads	
Common Carp	
Bluegills	
Largemouth Bass	
Pumpkinseeds	
Crappies	
Smallmouth Bass	
Banded Killifish	

Other: RSS/SD=1

NOTE: P/A, S CHNL

Site Name	JACKSON-FRAZIER WETLAND	Map Code	JF5*	
Basin	MID-WILLAMETTE RIVER	Sampling Date	9/14/2017	
Subbasin		Location: Zone 10T	480137	4940196

Surface Area (m2)	540	Types of aquatic vegetation ¹	
Average Depth (m)	1	Submergent	25
Maximum Depth (m)	2	Emergent	30
Water Temperature (C)	21	Floating	5
Percent Silt / Organics	100	Algae	10
		<i>Total</i>	70

Native Fish Species Collected:

Oregon Chub	0
Cottids	1
Speckled Dace	2
Redside Shiners	3
Northern Pikeminnows	1
Largescale Suckers	1
Sand Rollers	
Threespine Sticklebacks	11
Salmonids ²	
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

Western Mosquitofish	500
Bullheads	
Common Carp	
Bluegills	4
Largemouth Bass	
Pumpkinseeds	
Crappies	
Smallmouth Bass	
Banded Killifish	

Other:

NOTE: P/A, POND ON N CHNL AT BOUNDARY

Appendix A (continued).

MID-WILLAMETTE RIVER BASIN

Site Name	JACKSON-FRAZIER WETLAND	Map Code	JF6*	
Basin	MID-WILLAMETTE RIVER	Sampling Date	9/14/2017	
Subbasin		Location: Zone 10T	479949	4940172

Surface Area (m2)	400	Types of aquatic vegetation ¹	
Average Depth (m)	0.8	Submergent	25
Maximum Depth (m)	1.4	Emergent	30
Water Temperature (C)	16	Floating	5
Percent Silt / Organics	90	Algae	10
		<i>Total</i>	70

Native Fish Species Collected:

Oregon Chub	0
Cottids	3
Speckled Dace	3
Redside Shiners	96
Northern Pikeminnows	
Largescale Suckers	1
Sand Rollers	
Threespine Sticklebacks	34
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: P/A, BRAIDED SECTION ON S CHNL

Site Name	JACKSON-FRAZIER WETLAND	Map Code	JF3*	
Basin	MID-WILLAMETTE RIVER	Sampling Date	9/14/2017	
Subbasin		Location: Zone 10T	480407	4940152

Surface Area (m2)	90	Types of aquatic vegetation ¹	
Average Depth (m)	1	Submergent	20
Maximum Depth (m)	2	Emergent	20
Water Temperature (C)	17	Floating	0
Percent Silt / Organics	90	Algae	5
		<i>Total</i>	45

Native Fish Species Collected:

Oregon Chub	0
Cottids	3
Speckled Dace	2
Redside Shiners	5
Northern Pikeminnows	
Largescale Suckers	
Sand Rollers	
Threespine Sticklebacks	32
Salmonids ²	
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

Western Mosquitofish	500
Bullheads	
Common Carp	
Bluegills	
Largemouth Bass	
Pumpkinseeds	
Crappies	
Smallmouth Bass	
Banded Killifish	

Other:

NOTE: P/A, DEEP BVR POND JUST UPSTREAM OF 99

Appendix A (continued).

MID-WILLAMETTE RIVER BASIN

Site Name	JACKSON-FRAZIER WETLAND	Map Code	JF2*	
Basin	MID-WILLAMETTE RIVER	Sampling Date	9/14/2017	
Subbasin		Location: Zone 10T	480646	4939784

Surface Area (m2)	100	Types of aquatic vegetation ¹	
Average Depth (m)	0.3	Submergent	20
Maximum Depth (m)	1	Emergent	5
Water Temperature (C)	17	Floating	0
Percent Silt / Organics	80	Algae	5
		<i>Total</i>	30

Native Fish Species Collected:

Oregon Chub	0
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: NO FISH

NOTE: P/A, EAST OF HWY 99, SMALL SIDE CHANNEL

Site Name	JACKSON-FRAZIER WETLAND	Map Code	JF1*	
Basin	MID-WILLAMETTE RIVER	Sampling Date	9/14/2017	
Subbasin		Location: Zone 10T	480682	4939854

Surface Area (m2)	400	Types of aquatic vegetation ¹	
Average Depth (m)	0.65	Submergent	70
Maximum Depth (m)	1.4	Emergent	10
Water Temperature (C)	16	Floating	10
Percent Silt / Organics	90	Algae	10
		<i>Total</i>	100

Native Fish Species Collected:

Oregon Chub	0
Cottids	1
Speckled Dace	
Redside Shiners	
Northern Pikeminnows	
Largescale Suckers	
Sand Rollers	
Threespine Sticklebacks	8
Salmonids ²	
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

Western Mosquitofish	500
Bullheads	
Common Carp	
Bluegills	
Largemouth Bass	
Pumpkinseeds	
Crappies	
Smallmouth Bass	
Banded Killifish	

Other:

NOTE: P/A, EAST OF HWY 99, NEAR OLD BARN

Appendix A (continued).

MID-WILLAMETTE RIVER BASIN

Site Name	MURPHY POND	Map Code	MURPHY1D	
Basin	MID-WILLAMETTE RIVER	Sampling Date	6/9/2017	
Subbasin	MARYS RIVER	Location: Zone 10T	473134	4926405

Surface Area (m2)	2500	Types of aquatic vegetation ¹		
Average Depth (m)	0.75	Submergent	10	
Maximum Depth (m)	2	Emergent	20	
Water Temperature (C)		Floating	5	
Percent Silt / Organics	100	Algae	0	
		<i>Total</i>	35	

Native Fish Species Collected:

Oregon Chub	37
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: 37 INTRO FINLEY-BUFORD, AZOLLA REMOVED

Site Name	RICKREAL CREEK	Map Code	RICKREAL2	
Basin	MID-WILLAMETTE RIVER	Sampling Date	7/20/2017	
Subbasin	RICKREAL CREEK	Location: Zone 10T	490762	4974924

Surface Area (m2)	2000	Types of aquatic vegetation ¹		
Average Depth (m)	0.35	Submergent	5	
Maximum Depth (m)	1.5	Emergent	5	
Water Temperature (C)	18	Floating	1	
Percent Silt / Organics	40	Algae	20	
		<i>Total</i>	30	

Native Fish Species Collected:

Oregon Chub	0
Cottids	2
Speckled Dace	2
Redside Shiners	1
Northern Pikeminnows	8
Largescale Suckers	1
Sand Rollers	
Threespine Sticklebacks	
Salmonids ²	
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

Western Mosquitofish	
Bullheads	
Common Carp	
Bluegills	53
Largemouth Bass	3
Pumpkinseeds	89
Crappies	
Smallmouth Bass	
Banded Killifish	

Other: YP=4

NOTE: MOUTH OF CREEK, 200 M UPS, BG\PK=13

Appendix A (continued).

MID-WILLAMETTE RIVER BASIN

Site Name	SAM DAWS LANDING	Map Code	SAMDAWS6	
Basin	MID-WILLAMETTE RIVER	Sampling Date	5/24/2017	
Subbasin		Location: Zone 10T	482094	4917442

Surface Area (m2)	5000	Types of aquatic vegetation ¹		
Average Depth (m)	1	Submergent		5
Maximum Depth (m)	2	Emergent		30
Water Temperature (C)		Floating		0
Percent Silt / Organics	40	Algae		1
		<i>Total</i>		36

Native Fish Species Collected:

Oregon Chub	0
Cottids	1
Speckled Dace	
Redside Shiners	
Northern Pikeminnows	
Largescale Suckers	
Sand Rollers	
Threespine Sticklebacks	350
Salmonids ² UT	1
Lamprey	
Chiselmouth	1

Non-native Fish Species Collected:

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

Other:

NOTE: SLOUGH NW OF GRAVEL PIT, GOOD HABITAT

Site Name	SAM DAWS LANDING GRAVEL PIT	Map Code	SAMDAWS5	
Basin	MID-WILLAMETTE RIVER	Sampling Date	5/24/2017	
Subbasin		Location: Zone 10T	482307	4917352

Surface Area (m2)	10000	Types of aquatic vegetation ¹		
Average Depth (m)	0.5	Submergent		40
Maximum Depth (m)	1.5	Emergent		40
Water Temperature (C)		Floating		1
Percent Silt / Organics	80	Algae		5
		<i>Total</i>		86

Native Fish Species Collected:

Oregon Chub	0
Cottids	
Speckled Dace	
Redside Shiners	
Northern Pikeminnows	
Largescale Suckers	
Sand Rollers	
Threespine Sticklebacks	47
Salmonids ²	
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

Western Mosquitofish	
Bullheads	
Common Carp	
Bluegills	3
Largemouth Bass	
Pumpkinseeds	
Crappies	
Smallmouth Bass	
Banded Killifish	

Other:

NOTE: GRVL PIT, T=20-24, POOR WATER QUAL

Appendix A (continued).

MOLALLA RIVER BASIN

Site Name	CAMP ADAMS 1	Map Code	CAMPA1	
Basin	MOLALLA RIVER	Sampling Date	6/1/2017	
Subbasin		Location: Zone 10T	540102	5001239

Surface Area (m2)	3750	Types of aquatic vegetation ¹	
Average Depth (m)	0.5	Submergent	0
Maximum Depth (m)	1	Emergent	5
Water Temperature (C)	14	Floating	1
Percent Silt / Organics	10	Algae	0
		<i>Total</i>	6

Native Fish Species Collected:

Oregon Chub	1
Cottids	19
Speckled Dace	124
Redside Shiners	26
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: CONFLUENCE OF MILK CR AND NATE CR

Site Name	CAMP ADAMS 2	Map Code	CAMPA2	
Basin	MOLALLA RIVER	Sampling Date	6/1/2017	
Subbasin		Location: Zone 10T	540073	5001762

Surface Area (m2)	1200	Types of aquatic vegetation ¹	
Average Depth (m)	0.75	Submergent	0
Maximum Depth (m)	1.5	Emergent	10
Water Temperature (C)	16	Floating	0
Percent Silt / Organics	15	Algae	0
		<i>Total</i>	10

Native Fish Species Collected:

Oregon Chub	0
Cottids	16
Speckled Dace	193
Redside Shiners	
Northern Pikeminnows	
Largescale Suckers	
Sand Rollers	
Threespine Sticklebacks	
Salmonids ² CT	3
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

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

Other:

NOTE: NATE CREEK NEAR OLD POOL

Appendix A (continued).

MOLALLA RIVER BASIN

Site Name	CAMP ADAMS 3	Map Code	CAMPA3	
Basin	MOLALLA RIVER	Sampling Date	6/1/2017	
Subbasin		Location: Zone 10T	540335	5001874

Surface Area (m2)	1000	Types of aquatic vegetation ¹	
Average Depth (m)	0.5	Submergent	0
Maximum Depth (m)	1	Emergent	10
Water Temperature (C)	14	Floating	0
Percent Silt / Organics	10	Algae	0
		<i>Total</i>	10

Native Fish Species Collected:

Oregon Chub	0
Cottids	14
Speckled Dace	108
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: NATE CREEK, ABOVE POOL IN RIFFLE

Appendix A (continued).

SANTIAM RIVER BASIN

Site Name	BIRDHAVEN SLOUGH	Map Code	BH1C	
Basin	SANTIAM RIVER	Sampling Date	6/22/2017	
Subbasin	NORTH SANTIAM	Location: Zone 10T	521285	4959235

Surface Area (m2)	7000	Types of aquatic vegetation ¹	
Average Depth (m)	0.5	Submergent	45
Maximum Depth (m)	1.5	Emergent	15
Water Temperature (C)	15	Floating	0
Percent Silt / Organics	85	Algae	15
		<i>Total</i>	75

Native Fish Species Collected:

Oregon Chub	500
Cottids	10
Speckled Dace	10
Redside Shiners	10
Northern Pikeminnows	10
Largescale Suckers	10
Sand Rollers	
Threespine Sticklebacks	
Salmonids ² CH=1	1
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

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

Other:

NOTE: P/A, 2015 REST, IFPC FIELD TRIP

Site Name	CHAHALPAM (WARREN GRAY) SLOUGH	Map Code	GRAY1S	
Basin	SANTIAM RIVER	Sampling Date	7/7/2017	
Subbasin	NORTH SANTIAM	Location: Zone 10T	513224	4957493

Surface Area (m2)	6600	Types of aquatic vegetation ¹	
Average Depth (m)	0.25	Submergent	50
Maximum Depth (m)	1.5	Emergent	20
Water Temperature (C)	22	Floating	5
Percent Silt / Organics	100	Algae	10
		<i>Total</i>	85

Native Fish Species Collected:

Oregon Chub	11
Cottids	567
Speckled Dace	20
Redside Shiners	103
Northern Pikeminnows	22
Largescale Suckers	4
Sand Rollers	
Threespine Sticklebacks	1573
Salmonids ² CO	1
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

Western Mosquitofish	
Bullheads	1
Common Carp	
Bluegills	1
Largemouth Bass	
Pumpkinseeds	2007
Crappies	
Smallmouth Bass	
Banded Killifish	

Other:

NOTE: POP EST, T RANGE 22 - 11 (W TO E)

Appendix A (continued).

SANTIAM RIVER BASIN

Site Name	CRABTREE CREEK TRIB	Map Code	CRABTRB1	
Basin	SANTIAM RIVER	Sampling Date	3/17/2017	
Subbasin	SOUTH SANTIAM	Location: Zone 10T	512282	4944737

Surface Area (m2)	1200	Types of aquatic vegetation ¹	
Average Depth (m)	0.6	Submergent	0
Maximum Depth (m)	2	Emergent	10
Water Temperature (C)		Floating	0
Percent Silt / Organics	10	Algae	0
		<i>Total</i>	10

Native Fish Species Collected:

Oregon Chub	0
Cottids	9
Speckled Dace	7
Redside Shiners	3
Northern Pikeminnows	
Largescale Suckers	1
Sand Rollers	
Threespine Sticklebacks	
Salmonids ² CO	1
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

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

Other:

NOTE: BELOW AND ABOVE WATERFALL ON SM TRIB

Site Name	DRAGONFLY RANCH HOUSE POND	Map Code	DFLY1A*	
Basin	SANTIAM RIVER	Sampling Date	9/17/2017	
Subbasin	SOUTH SANTIAM	Location: Zone 10T	515618	4934086

Surface Area (m2)	3150	Types of aquatic vegetation ¹	
Average Depth (m)	1	Submergent	65
Maximum Depth (m)	3	Emergent	15
Water Temperature (C)	21	Floating	5
Percent Silt / Organics	100	Algae	5
		<i>Total</i>	90

Native Fish Species Collected:

Oregon Chub	0
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:

NO FISH

NOTE: POND DRAINED FOR INTRO, GREEN/BBH RMVD

Appendix A (continued).

SANTIAM RIVER BASIN

Site Name	DRAGONFLY RANCH UPSLOPE POND 1	Map Code	DFLY2A*	
Basin	SANTIAM RIVER	Sampling Date	9/17/2017	
Subbasin	SOUTH SANTIAM	Location: Zone 10T	515482	4934178

Surface Area (m2)	0	Types of aquatic vegetation ¹		
Average Depth (m)	0	Submergent	15	
Maximum Depth (m)	0	Emergent	70	
Water Temperature (C)		Floating	0	
Percent Silt / Organics	100	Algae	5	
		<i>Total</i>	90	

Native Fish Species Collected:

Oregon Chub	0
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:	NO FISH

NOTE: DESSICATED SUMMER 2017

Site Name	DRAGONFLY RANCH UPSLOPE POND 2	Map Code	DFLY3A*	
Basin	SANTIAM RIVER	Sampling Date	9/17/2017	
Subbasin	SOUTH SANTIAM	Location: Zone 10T	515515	4934201

Surface Area (m2)	0	Types of aquatic vegetation ¹		
Average Depth (m)	0	Submergent	15	
Maximum Depth (m)	0	Emergent	70	
Water Temperature (C)		Floating	0	
Percent Silt / Organics	100	Algae	5	
		<i>Total</i>	90	

Native Fish Species Collected:

Oregon Chub	0
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:	NO FISH

NOTE: DESSICATED SUMMER 2017

Appendix A (continued).

SANTIAM RIVER BASIN

Site Name	DRAGONFLY RANCH UPSLOPE POND 3	Map Code	DFLY4A*	
Basin	SANTIAM RIVER	Sampling Date	9/17/2017	
Subbasin	SOUTH SANTIAM	Location: Zone 10T	515542	4934223

Surface Area (m2)	400	Types of aquatic vegetation ¹	
Average Depth (m)	0.5	Submergent	15
Maximum Depth (m)	1	Emergent	70
Water Temperature (C)	21	Floating	0
Percent Silt / Organics	100	Algae	5
		<i>Total</i>	90

Native Fish Species Collected:

Oregon Chub	0
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: NO FISH

NOTE: POND DRAINED FOR INTRO, BBH REMOVED

Site Name	FOSTER PULLOUT POND	Map Code	FOS2W	
Basin	SANTIAM RIVER	Sampling Date	4/4/2017	
Subbasin	SOUTH SANTIAM	Location: Zone 10T	529156	4918568

Surface Area (m2)	1500	Types of aquatic vegetation ¹	
Average Depth (m)	0.5	Submergent	35
Maximum Depth (m)	1.1	Emergent	10
Water Temperature (C)	7.5	Floating	35
Percent Silt / Organics	100	Algae	15
		<i>Total</i>	95

Native Fish Species Collected:

Oregon Chub	901
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: INTRODUCTION SITE, POP EST.

Appendix A (continued).

SANTIAM RIVER BASIN

Site Name	GEREN ISLAND NORTH CHANNEL	Map Code	GER4V	
Basin	SANTIAM RIVER	Sampling Date	6/21/2017	
Subbasin	NORTH SANTIAM	Location: Zone 10T	519371	4959900

Surface Area (m2)	2700	Types of aquatic vegetation ¹	
Average Depth (m)	0.25	Submergent	50
Maximum Depth (m)	1	Emergent	15
Water Temperature (C)	21	Floating	0
Percent Silt / Organics	40	Algae	20
		<i>Total</i>	85

Native Fish Species Collected:

Oregon Chub	1640
Cottids	1694
Speckled Dace	525
Redside Shiners	65
Northern Pikeminnows	9
Largescale Suckers	20
Sand Rollers	
Threespine Sticklebacks	
Salmonids ²	
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

Western Mosquitofish	
Bullheads	
Common Carp	
Bluegills	1136
Largemouth Bass	
Pumpkinseeds	1136
Crappies	
Smallmouth Bass	
Banded Killifish	

Other:

NOTE: POP EST, VIE PINK, BLUE

Site Name	GREEN'S BRIDGE BACKWATER	Map Code	NS14W	
Basin	SANTIAM RIVER	Sampling Date	6/27/2017	
Subbasin	NORTH SANTIAM	Location: Zone 10T	502329	4950426

Surface Area (m2)	1200	Types of aquatic vegetation ¹	
Average Depth (m)	0.75	Submergent	60
Maximum Depth (m)	1.5	Emergent	15
Water Temperature (C)	16	Floating	1
Percent Silt / Organics	85	Algae	15
		<i>Total</i>	91

Native Fish Species Collected:

Oregon Chub	66
Cottids	58
Speckled Dace	
Redside Shiners	14
Northern Pikeminnows	11
Largescale Suckers	18
Sand Rollers	
Threespine Sticklebacks	756
Salmonids ² CH	1
Lamprey	1
Chiselmouth	

Non-native Fish Species Collected:

Western Mosquitofish	
Bullheads	
Common Carp	
Bluegills	
Largemouth Bass	
Pumpkinseeds	345
Crappies	
Smallmouth Bass	
Banded Killifish	

Other:

NOTE: POPULATION ESTIMATE, SLGH ANN, B LMP

Appendix A (continued).

SANTIAM RIVER BASIN

Site Name	MEHAMA SLOUGH	Map Code	MEHAMA1H	
Basin	SANTIAM RIVER	Sampling Date	6/27/2017	
Subbasin	NORTH SANTIAM	Location: Zone 10T	528045	4958733

Surface Area (m2)	2000	Types of aquatic vegetation ¹	
Average Depth (m)	0.5	Submergent	40
Maximum Depth (m)	2	Emergent	10
Water Temperature (C)	13	Floating	5
Percent Silt / Organics	40	Algae	40
		<i>Total</i>	95

Native Fish Species Collected:

Oregon Chub	912
Cottids	1650
Speckled Dace	5
Redside Shiners	140
Northern Pikeminnows	622
Largescale Suckers	1240
Sand Rollers	
Threespine Sticklebacks	
Salmonids ² CO	7
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

Western Mosquitofish	
Bullheads	
Common Carp	
Bluegills	3
Largemouth Bass	
Pumpkinseeds	53
Crappies	
Smallmouth Bass	
Banded Killifish	

Other: RSS/SD=2

NOTE: 2 BVR PONDS IN EST, VIE YELLOW

Site Name	PIONEER PARK BACKWATER	Map Code	PION3U	
Basin	SANTIAM RIVER	Sampling Date	4/6/2017	
Subbasin	NORTH SANTIAM	Location: Zone 10T	517490	4960119

Surface Area (m2)	1300	Types of aquatic vegetation ¹	
Average Depth (m)	0.3	Submergent	60
Maximum Depth (m)	0.7	Emergent	20
Water Temperature (C)	10	Floating	5
Percent Silt / Organics	90	Algae	15
		<i>Total</i>	100

Native Fish Species Collected:

Oregon Chub	601
Cottids	22
Speckled Dace	47
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: POPULATION ESTIMATE, NO FISH DNS AREA

Appendix A (continued).

SANTIAM RIVER BASIN

Site Name	SANTIAM CONS. EASEMENT SCE1-4	Map Code	SCE1-4S	
Basin	SANTIAM RIVER	Sampling Date	6/29/2017	
Subbasin	NORTH SANTIAM	Location: Zone 10T	500231	4947821

Surface Area (m2)	16300	Types of aquatic vegetation ¹	
Average Depth (m)	1	Submergent	15
Maximum Depth (m)	2	Emergent	65
Water Temperature (C)	16	Floating	0
Percent Silt / Organics	97	Algae	5
		<i>Total</i>	85

Native Fish Species Collected:

Oregon Chub	491
Cottids	119
Speckled Dace	
Redside Shiners	15
Northern Pikeminnows	8
Largescale Suckers	13
Sand Rollers	
Threespine Sticklebacks	4840
Salmonids ²	
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

Western Mosquitofish	1000
Bullheads	
Common Carp	
Bluegills	10
Largemouth Bass	
Pumpkinseeds	
Crappies	
Smallmouth Bass	
Banded Killifish	

Other: PM=12

NOTE: POP EST, SAMPLED TO RIVER, POOL ABV CULV

Site Name	SANTIAM I-5 OUTFLOW SLOUGH	Map Code	I5BW3E	
Basin	SANTIAM RIVER	Sampling Date	7/6/2017	
Subbasin		Location: Zone 10T	495885	4953492

Surface Area (m2)	500	Types of aquatic vegetation ¹	
Average Depth (m)	0.25	Submergent	10
Maximum Depth (m)	1.25	Emergent	20
Water Temperature (C)	18	Floating	0
Percent Silt / Organics	50	Algae	10
		<i>Total</i>	40

Native Fish Species Collected:

Oregon Chub	0
Cottids	11
Speckled Dace	
Redside Shiners	
Northern Pikeminnows	16
Largescale Suckers	5
Sand Rollers	
Threespine Sticklebacks	44
Salmonids ²	
Lamprey	
Chiselmouth	1

Non-native Fish Species Collected:

Western Mosquitofish	60
Bullheads	
Common Carp	
Bluegills	10
Largemouth Bass	10
Pumpkinseeds	2
Crappies	
Smallmouth Bass	
Banded Killifish	

Other:

NOTE: I5BW3 AND NEW POOL DNS, I5BW2 OUTFLOW

Appendix A (continued).

SANTIAM RIVER BASIN

Site Name	SANTIAM I-5 SIDE CHANNEL POND	Map Code	I5BW2S	
Basin	SANTIAM RIVER	Sampling Date	7/5/2017	
Subbasin		Location: Zone 10T	496059	4953434

Surface Area (m2)	6000	Types of aquatic vegetation ¹	
Average Depth (m)	0.5	Submergent	35
Maximum Depth (m)	1.25	Emergent	50
Water Temperature (C)	21	Floating	5
Percent Silt / Organics	97	Algae	10
		<i>Total</i>	100

Native Fish Species Collected:

Oregon Chub	0
Cottids	16
Speckled Dace	
Redside Shiners	54
Northern Pikeminnows	1185
Largescale Suckers	111
Sand Rollers	
Threespine Sticklebacks	4
Salmonids ² CH	1
Lamprey	
Chiselmouth	2

Non-native Fish Species Collected:

Western Mosquitofish	347
Bullheads	10
Common Carp	
Bluegills	44
Largemouth Bass	
Pumpkinseeds	9
Crappies	
Smallmouth Bass	
Banded Killifish	

Other: GF=1 PM=3

NOTE: P. EST, 50% PRT FTHR

Site Name	SOUTH STAYTON POND	Map Code	STAY1L	
Basin	SANTIAM RIVER	Sampling Date	4/5/2017	
Subbasin	NORTH SANTIAM	Location: Zone 10T	515525	4958950

Surface Area (m2)	1200	Types of aquatic vegetation ¹	
Average Depth (m)	0.5	Submergent	10
Maximum Depth (m)	2.5	Emergent	10
Water Temperature (C)	12	Floating	20
Percent Silt / Organics	90	Algae	60
		<i>Total</i>	100

Native Fish Species Collected:

Oregon Chub	1015
Cottids	
Speckled Dace	
Redside Shiners	
Northern Pikeminnows	
Largescale Suckers	
Sand Rollers	
Threespine Sticklebacks	
Salmonids ²	
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

Western Mosquitofish	1000
Bullheads	
Common Carp	
Bluegills	
Largemouth Bass	
Pumpkinseeds	
Crappies	
Smallmouth Bass	
Banded Killifish	

Other:

NOTE: POP EST, MSQ DISCOVERED 2010

Appendix A (continued).

SANTIAM RIVER BASIN

Site Name	SPRINGBANK FARM SIDE CHANNEL	Map Code	SPNGBCH1	
Basin	SANTIAM RIVER	Sampling Date	3/17/2017	
Subbasin	SOUTH SANTIAM	Location: Zone 10T	511937	4928359

Surface Area (m2)	4000	Types of aquatic vegetation ¹	
Average Depth (m)	1	Submergent	15
Maximum Depth (m)	2	Emergent	20
Water Temperature (C)		Floating	0
Percent Silt / Organics	20	Algae	0
		<i>Total</i>	35

Native Fish Species Collected:

Oregon Chub	0
Cottids	16
Speckled Dace	25
Redside Shiners	42
Northern Pikeminnows	25
Largescale Suckers	1
Sand Rollers	
Threespine Sticklebacks	
Salmonids ² CH	2
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

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

Other:

NOTE: P/A, SURVEYED 5 LOCS, HIGH WATER

Site Name	STAYTON PUBLIC WORKS POND	Map Code	SPWP1S	
Basin	SANTIAM RIVER	Sampling Date	6/22/2017	
Subbasin	NORTH SANTIAM	Location: Zone 10T	516568	4959830

Surface Area (m2)	2100	Types of aquatic vegetation ¹	
Average Depth (m)	0.5	Submergent	5
Maximum Depth (m)	1.5	Emergent	1
Water Temperature (C)	21	Floating	0
Percent Silt / Organics	50	Algae	10
		<i>Total</i>	16

Native Fish Species Collected:

Oregon Chub	1300
Cottids	44
Speckled Dace	61
Redside Shiners	628
Northern Pikeminnows	3
Largescale Suckers	
Sand Rollers	
Threespine Sticklebacks	4
Salmonids ²	
Lamprey	
Chiselmouth	

Non-native Fish Species Collected:

Western Mosquitofish	
Bullheads	
Common Carp	
Bluegills	66
Largemouth Bass	
Pumpkinseeds	67
Crappies	
Smallmouth Bass	
Banded Killifish	

Other:

NOTE: POPULATION ESTIMATE



4034 Fairview Industrial Drive SE
Salem, OR 97302