

Summary of Fish Catch Results for Third Lagoon, 2008 and 2009

Skagit River System Cooperative Research Program

January 2013

Beach seine sampling for fish was conducted at Third Lagoon as part of Washington State's Salmon Recovery Funding Board Project # 07-1863 N: *WRIA2 Habitat Based Assessment of Juvenile Salmon*, also locally known as the *Big Picture Project*.

Third Lagoon is located along Griffin Bay on the south end of San Juan Island within the San Juan Islands (Figure 1). Two sites, Third Lagoon E and Third Lagoon W, were sampled in the lagoon. Small net beach seines were used after methods described in Skagit System Cooperative Research Department (2003). Twenty-two sets were made during the two-year study period. Beach seining at Third Lagoon E occurred monthly April through September in both 2008 and 2009. Sampling at Third Lagoon W occurred monthly April through August in 2008 and April through July 2009. The data from these two sites is combined and reported below.

The beach seine sites varied from mud to mixed fines to gravel to mixed coarse and cobble substrate. The vegetative cover at Third Lagoon consisted of detritus (5% of the time), green algae, brown algae or mixed algae (50% of the time), or kelp (5% of the time). The sampling sites were without vegetative cover 40% of the time. The average maximum water depth was 0.98 meters; the average salinity within the area seined was 32.5 parts per thousand. The water temperatures varied by month, ranging from an average low of 11.5 °C in April 2008 to a high of 23.3 °C in July 2009.

At Third Lagoon we caught a total of 14,699 fish from 24 different species or species groupings over the two-year study period, including three species of forage fish (Table 1). Juvenile salmon were not caught. The most abundant fish species was arrow goby with a catch of 9,579 fish, present in 63.6% of beach seine sets. They accounted for 65.2% of the total catch at this site. We kept count of Dungeness crab (3) caught by seines, as this species is of commercial and recreational interest.

Please refer to Beamer and Fresh (2012) for more information regarding timing, abundance, and habitat selection of focal fish species for the Big Picture Project. The focal species are: Chinook salmon, chum salmon, pink salmon, Pacific herring, surf smelt, Pacific sand lance, and hexagrammids (greenlings and lingcod).

References

Beamer, EM and KL Fresh. 2012. Juvenile Salmon and Forage Fish Presence and Abundance in Shoreline Habitats of the San Juan Islands, 2008-2009: Map Applications for selected fish species. Report to San Juan County Department of Community Development and Planning and San Juan County Marine Resources Committee. Friday Harbor, WA.

Skagit System Cooperative Research Department. 2003. Estuarine fish sampling methods. Skagit River System Cooperative. LaConner, WA. Available: <http://www.skagitcoop.org/documents>

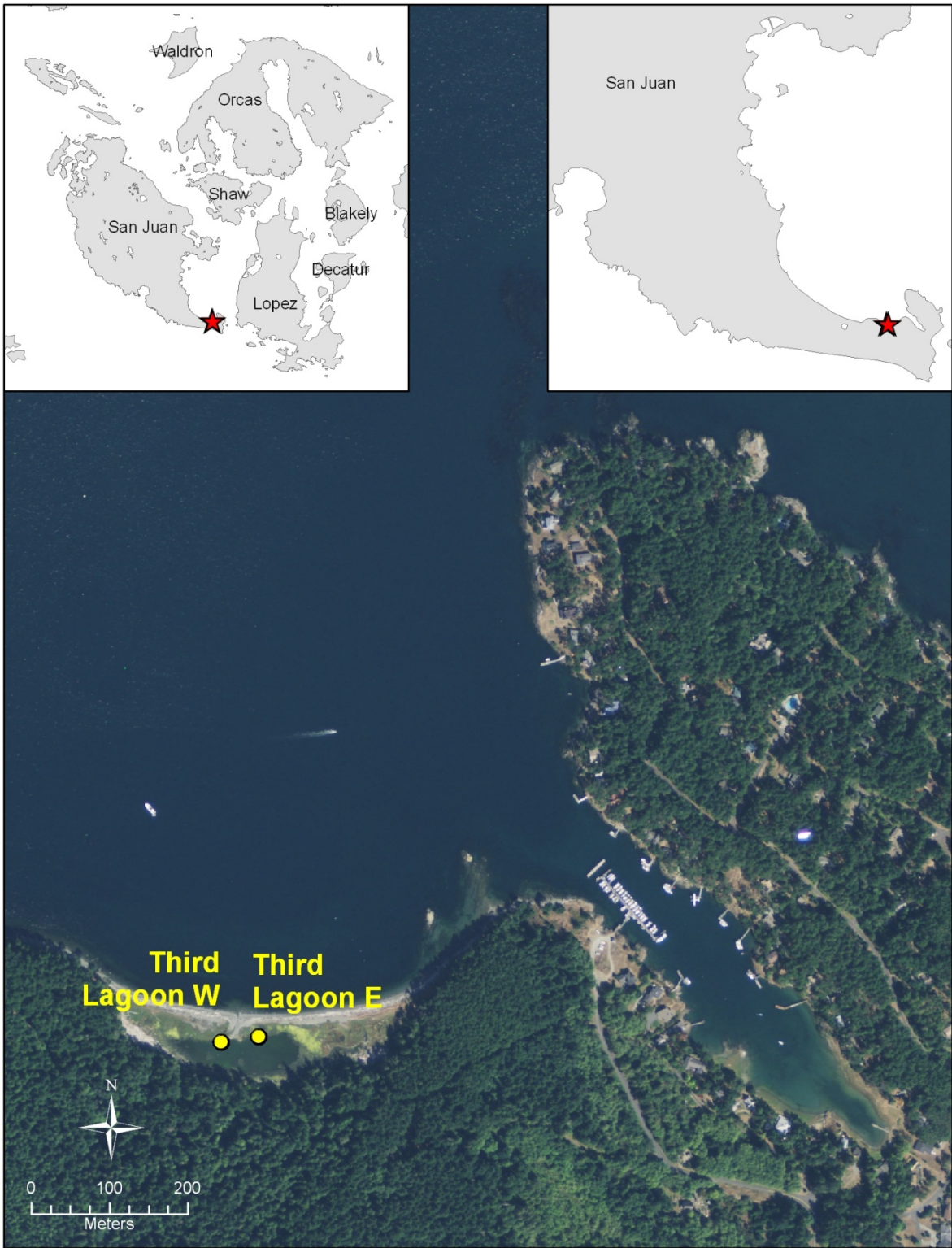


Figure 1. Location of Third Lagoon E and Third Lagoon W beach seine sites.

Table 1. Fish catch summary for Third Lagoon beach seining, 2008 and 2009.

Assemblage Groupings	Taxonomic group	Genus species, age & mark	Common name	Species abbreviation	Total catch	Catch per set	Frequency in catch
Crabs and shrimp	Cancridae	Cancer magister <6.5"	Dungeness crab, sublegal size	DUNGI small	3	0.14	9.1%
Flatfish	Bothidae	Psettichthys melanostictus	Sand sole	SAND SOLE	1	0.05	4.5%
	Pleuronectiformes	Parophrys vetulus	English sole	ENG SOLE	3	0.14	9.1%
		Platichthys stellatus	Starry flounder	STARRY	66	3.00	45.5%
Forage fishes	Ammodytidae	Ammodytes hexapterus adult body form	Pacific sand lance, adult body form	LANCE a	232	10.55	4.5%
	Clupeidae	Clupea pallasii adult body form	Pacific herring, adult body form	HERR a	1	0.05	4.5%
	Osmeridae	Hypomesus pretiosus adult body form	Surf smelt, adult body form	SMELT a	98	4.45	4.5%
Greenlings/lingcod	Hexagrammidae	Ophiodon elongatus	Lingcod	LINGCOD	1	0.05	4.5%
		Hexagrammos spp	Unidentified greenling species	O/U GREENLING	14	0.64	18.2%
Gunnels and Pricklebacks	Pholidae	Pholis laeta	Crescent gunnel	CRES GUNL	1	0.05	4.5%
		Pholis ornata	Saddleback gunnel	SADLBCK GUNL	3	0.14	9.1%
		Unidentified Gunnel Species	Unidentified gunnel species	GUNNEL	37	1.68	45.5%
	Stichaeidae	Lumpenus sagitta	Snake prickleback	SNAKE	1	0.05	4.5%
Other - marine	Gobiidae	Clevelandia ios	Arrow goby	ARROW GOBI	9579	435.41	63.6%
Sculpins	Cottidae	Enophrys bison	Buffalo sculpin	BUFF	1	0.05	4.5%
		Gilbertidia sigalutes	Soft sculpin	SOFT SCULP	1	0.05	4.5%
		Myoxocephalus polyacanthocephalus	Great sculpin	GRT SCULP	3	0.14	9.1%
		Blepsias cirrhosus	Silverspotted sculpin	SILVER SPOT SC	6	0.27	13.6%
		Other or unknown Cottid	Unidentified sculpin species	O/U SCULP	50	2.27	13.6%
		Clinocottus acuticeps	Sharpnose sculpin	SHARPNOSE	420	19.09	45.5%
		Leptocottus armatus	Pacific staghorn sculpin	STAG	425	19.32	90.9%
Sea perches	Embiotocidae	Cymatogaster aggregata	Shiner perch	SHINER	274	12.45	36.4%
Sticklebacks	Gasterosteidae	Gasterosteus aculeatus	Three spined stickleback	STICKL	3452	156.91	95.5%
True cods	Gadidae	Microgadus proximus	Pacific tomcod	TOMCOD	4	0.18	4.5%
		Other or unknown Cod	Unidentified true cod species	O/U COD	26	1.18	4.5%