

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

Skagit River System Cooperative Research Program

January 2013

Beach seine sampling for fish was conducted at Third Lagoon Spit 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 Spit is located on the adjacent beach outside Third Lagoon, along Griffin Bay, on the south end of San Juan Island within the San Juan Islands (Figure 1). Two sites, Third Lagoon Spit E and Third Lagoon Spit W, were sampled along the spit beach. Large net beach seines were used after methods described in Skagit System Cooperative Research Department (2003). Twenty sets were made during the two-year study period. Beach seining at Third Lagoon Spit E occurred in March and then monthly May through August 2008 and monthly from June through September 2009. Sampling at Third Lagoon Spit W occurred in April and May then monthly August through October in 2008 and monthly April through July and in October of 2009. The data collected at these two sites is combined and reported below.

The beach seine sites varied from gravel to mixed coarse to cobble substrate. The vegetative cover at Third Lagoon Spit consisted of detritus (15% of the time), green algae or mixed algae (50% of the time), or was without vegetative cover (35% of the time). The average maximum water depth was 1.96 meters; the average salinity within the area seined was 31.5 parts per thousand. The water temperatures varied by month, ranging from an average low of 7.7 °C in March 2008 to a high of 13.2 °C in July 2009.

At Third Lagoon we caught a total of 2,165 fish from 38 different species or species groupings over the two-year study period, including three species of juvenile salmon and three species of forage fish (Table 1). The most abundant fish species was adult surf smelt with a catch of 410 fish, present in 25.0% of the beach seine sets. They accounted for 18.9% of the total catch at this site. We kept count of Dungeness crab (6) and red rock crab (2) caught by seines, as these species are 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>

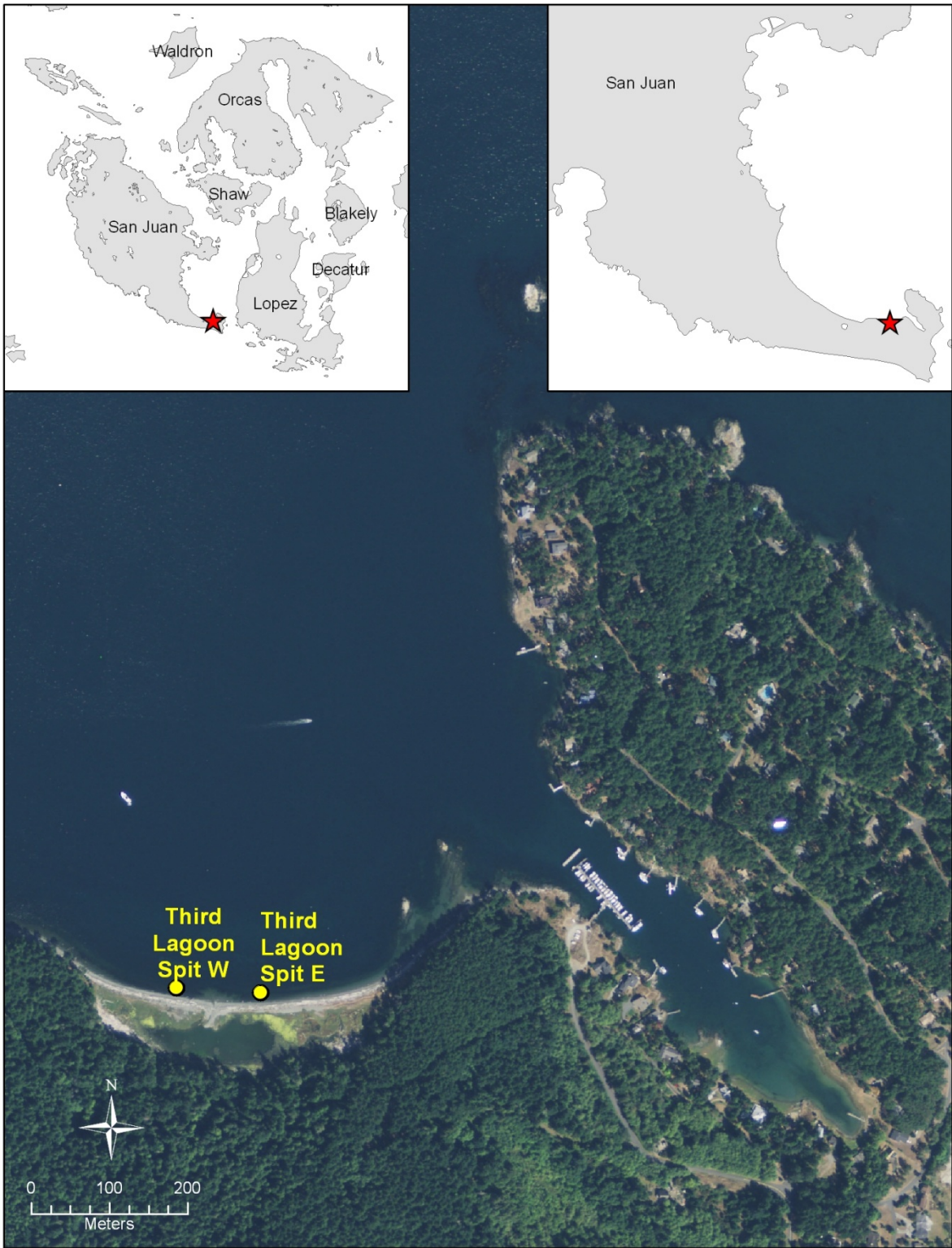


Figure 1. Location of Third Lagoon Spit E and Third Lagoon Spit W beach seine sites.

Table 1. Fish catch summary for Third Lagoon Spit 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 productus	Red rock crab	RED ROCK CRAB	2	0.10	10.0%
		Cancer magister <6.5"	Dungeness crab, sublegal size	DUNGI small	6	0.30	15.0%
Flatfish	Pleuronectiformes	Isopsetta isolepis	Butter sole	BUTTER SOLE	1	0.05	5.0%
		Parophrys vetulus	English sole	ENG SOLE	1	0.05	5.0%
		Other or unknown flatfish	Unidentified flatfish species	O/U FLAT	1	0.05	5.0%
		Other or unknown flatfish post larval	Unidentified post larval flatfish species	O/U FLAT pl	23	1.15	10.0%
		Lepidopsetta bilineata	Rock sole	ROCK SOLE	2	0.10	5.0%
		Platichthys stellatus	Starry flounder	STARRY	8	0.40	10.0%
Forage fishes	Ammodytidae	Ammodytes hexapterus post larval	Pacific sand lance, post larval juvenile	LANCE pl	2	0.10	10.0%
		Ammodytes hexapterus adult body form	Pacific sand lance, adult body form	LANCE a	16	0.80	15.0%
	Clupeidae	Clupea pallasii adult body form	Pacific herring, adult body form	HERR a	1	0.05	5.0%
	Osmeridae	Hypomesus pretiosus adult body form	Surf smelt, adult body form	SMELT a	410	20.50	25.0%
Greenlings/lingcod	Hexagrammidae	Ophiodon elongatus	Lingcod	LINGCOD	1	0.05	5.0%
		Hexagrammos stelleri	Whitespot greenling	WHITESPOT GR	4	0.20	15.0%
		Hexagrammos spp	Unidentified greenling species	O/U GREENLING	64	3.20	45.0%
Gunnels and Pricklebacks	Pholidae	Pholis laeta	Crescent gunnel	CRES GUNL	28	1.40	20.0%
		Apodichthys flavidus	Penpoint gunnel	PENPT GUNL	64	3.20	40.0%
		Pholis ornata	Saddleback gunnel	SADLBCK GUNL	85	4.25	30.0%
		Unidentified Gunnel Species	Unidentified gunnel species	GUNNEL	188	9.40	35.0%
	Stichaeidae	Xiphister atropurpureus	Black prickleback	BLK PRICKLE	12	0.60	20.0%
		Lumpenus sagitta	Snake prickleback	SNAKE	14	0.70	20.0%
Other - marine	Agonidae	Other or unknown Agonid	Unidentified poacher species	O/U POACHER	1	0.05	5.0%
	Myctophidae	Brosmophycis sp.	Brotula	BROTULA	1	0.05	5.0%

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Pacific salmon	Salmonidae	Oncorhynchus nerka age 0+	Sockeye salmon, subyearling	SOCK 0+	1	0.05	5.0%
		Oncorhynchus keta age 0+	Chum salmon, subyearling	CH 0+	14	0.70	15.0%
		Oncorhynchus gorbuscha age 0+	Pink salmon, subyearling	PK 0+	119	5.95	30.0%
Rockfish	Scorpaenidae	Other or unknown Scorpaenids	Unidentified rockfish species	O/U ROCKFISH	3	0.15	5.0%
Sculpins	Cottidae	Enophrys bison	Buffalo sculpin	BUFF	1	0.05	5.0%
		Artedius fenestralis	Padded sculpin	PADD SCULP	1	0.05	5.0%
		Gilbertidia sigalutes	Soft sculpin	SOFT SCULP	13	0.65	20.0%
		Blepsias cirrhosus	Silverspotted sculpin	SILVER SPOT SC	34	1.70	25.0%
		Leptocottus armatus	Pacific staghorn sculpin	STAG	43	2.15	60.0%
		Other or unknown Cottid	Unidentified sculpin species	O/U SCULP	95	4.75	35.0%
		Clinocottus acuticeps	Sharpnose sculpin	SHARPNOSE	102	5.10	70.0%
		Myoxocephalus polyacanthocephalus	Great sculpin	GRT SCULP	158	7.90	80.0%
	Hemitripterae	Nautichthys oculofasciatus	Sailfin sculpin	SAILFIN	7	0.35	10.0%
	Liparidae	Snailfish spp	Unidentified snailfish species	SNAILFISH	17	0.85	35.0%
	Sea perches	Embiotocidae	Cymatogaster aggregata	Shiner perch	SHINER	261	13.05
Sticklebacks	Gasterosteidae	Gasterosteus aculeatus	Three spined stickleback	STICKL	173	8.65	40.0%
True cods	Gadidae	Theragra chalcogramma	Alaska pollock	POLLOCK	5	0.25	5.0%
		Other or unknown Cod	Unidentified true cod species	O/U COD	54	2.70	5.0%
		Microgadus proximus	Pacific tomcod	TOMCOD	137	6.85	35.0%