

Summary of Fish Catch Results for Spirit Cove, 2008 and 2009

Skagit River System Cooperative Research Program

January 2013

Beach seine sampling for fish was conducted at Spirit Cove 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*.

Spirit Cove is located on the north side of San Juan Island within the San Juan Islands (Figure 1). Large net beach seines were used after methods described in Skagit System Cooperative Research Department (2003). Twenty-five sets were made during the two-year study period. Beach seining at Spirit Cove occurred monthly March through September 2008 and March through October 2009.

The beach seine site varied from mixed fines to sand to gravel to mixed coarse substrate. The vegetative cover at Spirit Cove consisted of detritus (4% of the time), mixed algae (8% of the time), eelgrass with a mixture of algae or kelp (64% of the time), or was without vegetative cover (24% of the time). The average maximum water depth was 2.00 meters; the average salinity within the area seined was 30.3 parts per thousand. The water temperature varied by month, ranging from an average low of 7.7 °C in March 2008 to a high of 13.2 °C in July 2008.

At Spirit Cove we caught a total of 10,548 fish from 38 different species or species groupings over the two-year study period, including four species of juvenile salmon and two species of forage fish (Table 1). The most abundant fish species was subyearling chum salmon with a catch of 3,680 fish, present in 28.0% of beach seine sets. They accounted for 34.9% of the total catch at this site. We kept count of Dungeness crab (420) 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>

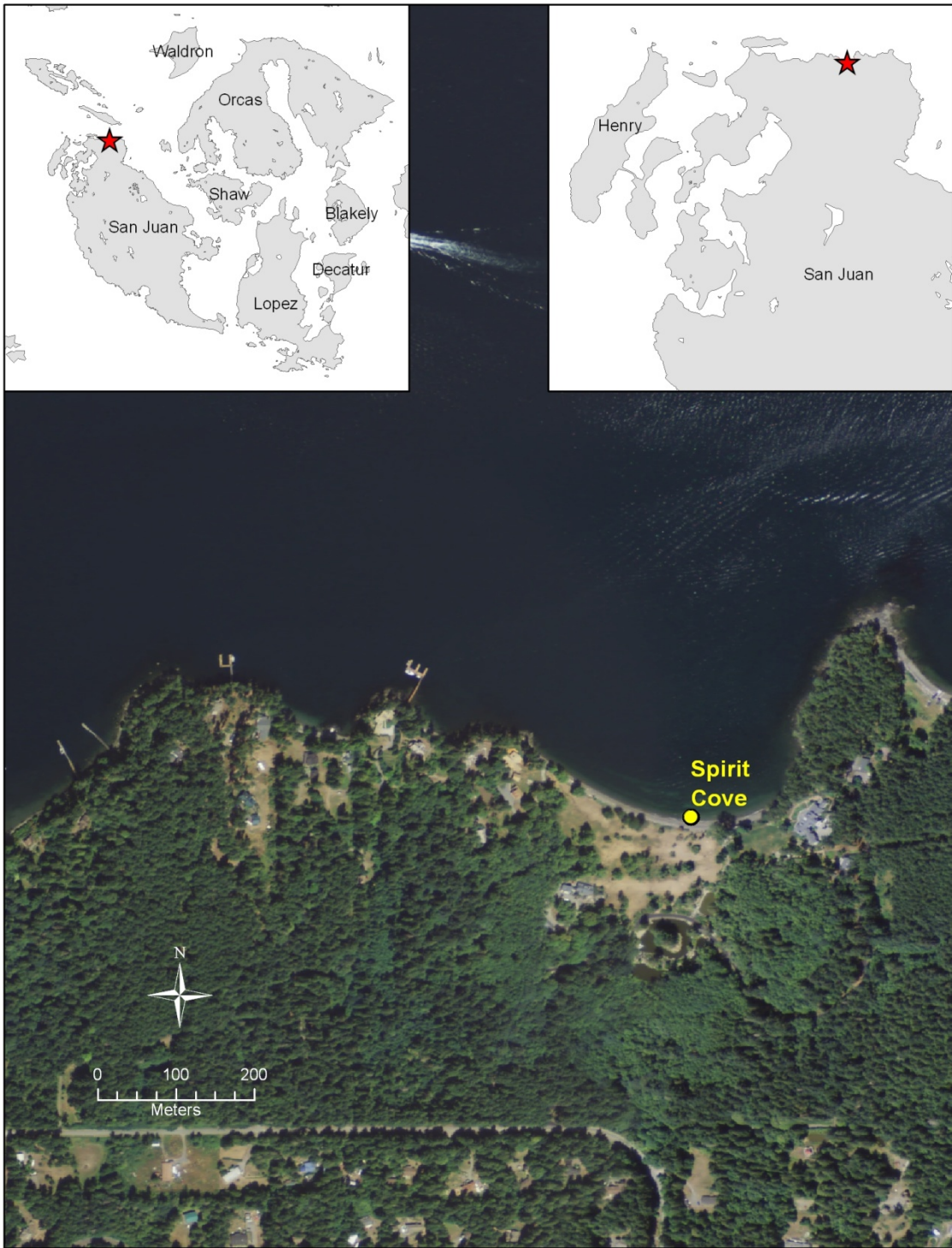


Figure 1. Location of Spirit Cove beach seine site.

Table 1. Fish catch summary for Spirit Cove 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	Cancriidae	Cancer magister <6.5"	Dungeness crab, sublegal size	DUNGI small	420	16.80	44.0%
Flatfish	Bothidae	Psettichthys melanostictus	Sand sole	SAND SOLE	3	0.12	8.0%
	Pleuronectiformes	Lepidopsetta bilineata	Rock sole	ROCK SOLE	1	0.04	4.0%
		Platichthys stellatus	Starry flounder	STARRY	7	0.28	16.0%
		Isopsetta isolepis	Butter sole	BUTTER SOLE	30	1.20	12.0%
		Other or unknown flatfish post larval	Unidentified post larval flatfish species	O/U FLAT pl	57	2.28	20.0%
		Other or unknown flatfish	Unidentified flatfish species	O/U FLAT	122	4.88	44.0%
		Parophrys vetulus	English sole	ENG SOLE	262	10.48	64.0%
Forage fishes	Ammodytidae	Ammodytes hexapterus post larval	Pacific sand lance, post larval juvenile	LANCE pl	1	0.04	4.0%
	Osmeridae	Hypomesus pretiosus adult body form	Surf smelt, adult body form	SMELT a	2	0.08	8.0%
Greenlings/lingcod	Hexagrammidae	Hexagrammos decagrammus	Kelp greenling	KELP GRNLNG	6	0.24	12.0%
		Hexagrammos spp	Unidentified greenling species	O/U GREENLING	130	5.20	56.0%
		Hexagrammos stelleri	Whitespot greenling	WHITESPOT GR	295	11.80	36.0%
Gunnels and Pricklebacks	Pholidae	Pholis laeta	Crescent gunnel	CRES GUNL	84	3.36	44.0%
		Apodichthys flavidus	Penpoint gunnel	PENPT GUNL	155	6.20	48.0%
		Pholis ornata	Saddleback gunnel	SADLBCK GUNL	498	19.92	44.0%
		Unidentified Gunnel Species	Unidentified gunnel species	GUNNEL	804	32.16	36.0%
	Stichaeidae	Lumpenus sagitta	Snake prickleback	SNAKE	87	3.48	36.0%
Other - marine	Agonidae	Other or unknown Agonid	Unidentified poacher species	O/U POACHER	1	0.04	4.0%
	Syngnathidae	Syngnathus griseolineatus	Bay pipefish	PIPEFISH	2	0.08	4.0%
Pacific salmon	Salmonidae	Oncorhynchus kisutch age 1+ no external mark	Coho salmon, wild yearling	CO 1+ nem	2	0.08	8.0%
		Oncorhynchus nerka age 0+	Sockeye salmon, subyearling	SOCK 0+	18	0.72	12.0%
		Oncorhynchus gorbuscha age 0+	Pink salmon, subyearling	PK 0+	496	19.84	32.0%
		Oncorhynchus keta age 0+	Chum salmon, subyearling	CH 0+	3680	147.20	28.0%
Sculpins	Cottidae	Artedius fenestralis	Padded sculpin	PADD SCULP	20	0.80	20.0%

Assemblage Groupings	Taxonomic group	Genus species, age & mark	Common name	Species abbreviation	Total catch	Catch per set	Frequency in catch
Sculpins	Cottidae	Hemilepidotus hemilepidotus	Red Irish lord	RED IRISH LORD	37	1.48	28.0%
		Enophrys bison	Buffalo sculpin	BUFF	38	1.52	60.0%
		Clinocottus acuticeps	Sharpnose sculpin	SHARPNOSE	49	1.96	20.0%
		Blepsias cirrhosus	Silverspotted sculpin	SILVER SPOT SC	66	2.64	48.0%
		Gilbertidia sigalutes	Soft sculpin	SOFT SCULP	72	2.88	44.0%
		Leptocottus armatus	Pacific staghorn sculpin	STAG	120	4.80	88.0%
		Myoxocephalus polyacanthocephalus	Great sculpin	GRT SCULP	275	11.00	76.0%
		Other or unknown Cottid	Unidentified sculpin species	O/U SCULP	2771	110.84	56.0%
	Hemipteridae	Nautichthys oculofasciatus	Sailfin sculpin	SAILFIN	11	0.44	8.0%
	Liparidae	Snailfish spp	Unidentified snailfish species	SNAILFISH	46	1.84	44.0%
Sea perches	Embiotocidae	Cymatogaster aggregata	Shiner perch	SHINER	39	1.56	20.0%
Sticklebacks	Gasterosteidae	Gasterosteus aculeatus	Three spined stickleback	STICKL	2	0.08	8.0%
True cods	Gadidae	Microgadus proximus	Pacific tomcod	TOMCOD	11	0.44	20.0%
		Other or unknown Cod	Unidentified true cod species	O/U COD	117	4.68	12.0%
		Theragra chalcogramma	Alaska pollock	POLLOCK	131	5.24	4.0%