

Summary of Fish Catch Results for South Beach E and South Beach W, 2008 and 2009

Skagit River System Cooperative Research Program

January 2013

Beach seine sampling for fish was conducted at South Beach E and South Beach W 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*.

South Beach E and South Beach W are located along Haro Strait on the south 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-three sets were made during the two-year study period: 10 at South Beach E and 13 at South Beach W. Beach seining at South Beach E occurred monthly April through August 2008 and during the months of April, June, July, September and October 2009. Sampling at South Beach W occurred April through June and in September and October of 2008, then monthly April through October 2009.

The beach seine site at both sites was similar, and varied from gravel to mixed coarse to cobble substrate. The vegetative cover at South Beach E consisted of mixed eelgrass and/or kelp 30% of the time; the site was without vegetative cover 70% of the time. The vegetative cover at South Beach W consisted of kelp or mixed algae 15% of the time, and was without vegetative cover 85% of the time. The average maximum water depth was 2.74 meters (m) and 3.27 m at South Beach E and South Beach W, respectively, while the average salinity within the area seined was 31.4 parts per thousand (ppt) and 31.2 ppt at each site, respectively. The monthly average water temperature was similar at both sites, ranging from a low of 8.3 °C in April 2008 to 12.4 °C in July 2009.

At South Beach E we caught a total of 1,131 fish from 29 different species or species groupings over the two-year study period, including three species of juvenile salmon and one species of forage fish (Table 1). The most abundant fish species was Pacific tomcod with a catch of 558 fish, present in 40.0% of beach seine sets. They accounted for 49.3% of the total catch at this site. We kept count of Dungeness crab (70) caught by seines, as this species is of commercial and recreational interest.

At South Beach W we caught a total of 48,272 fish from 32 different species or species groupings over the two-year study period, including three species of juvenile salmon, one species of adult salmon and three species of forage fish (Table 1). The most abundant fish species was Pacific sand lance with a combined age class catch of 46,024 fish, present in 38.5% of beach seine sets. They accounted for 95.3% of the total catch at this site. Most of the sand lance (36,059) were caught in one set on June 26, 2009. We kept count of Dungeness crab (245) 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>

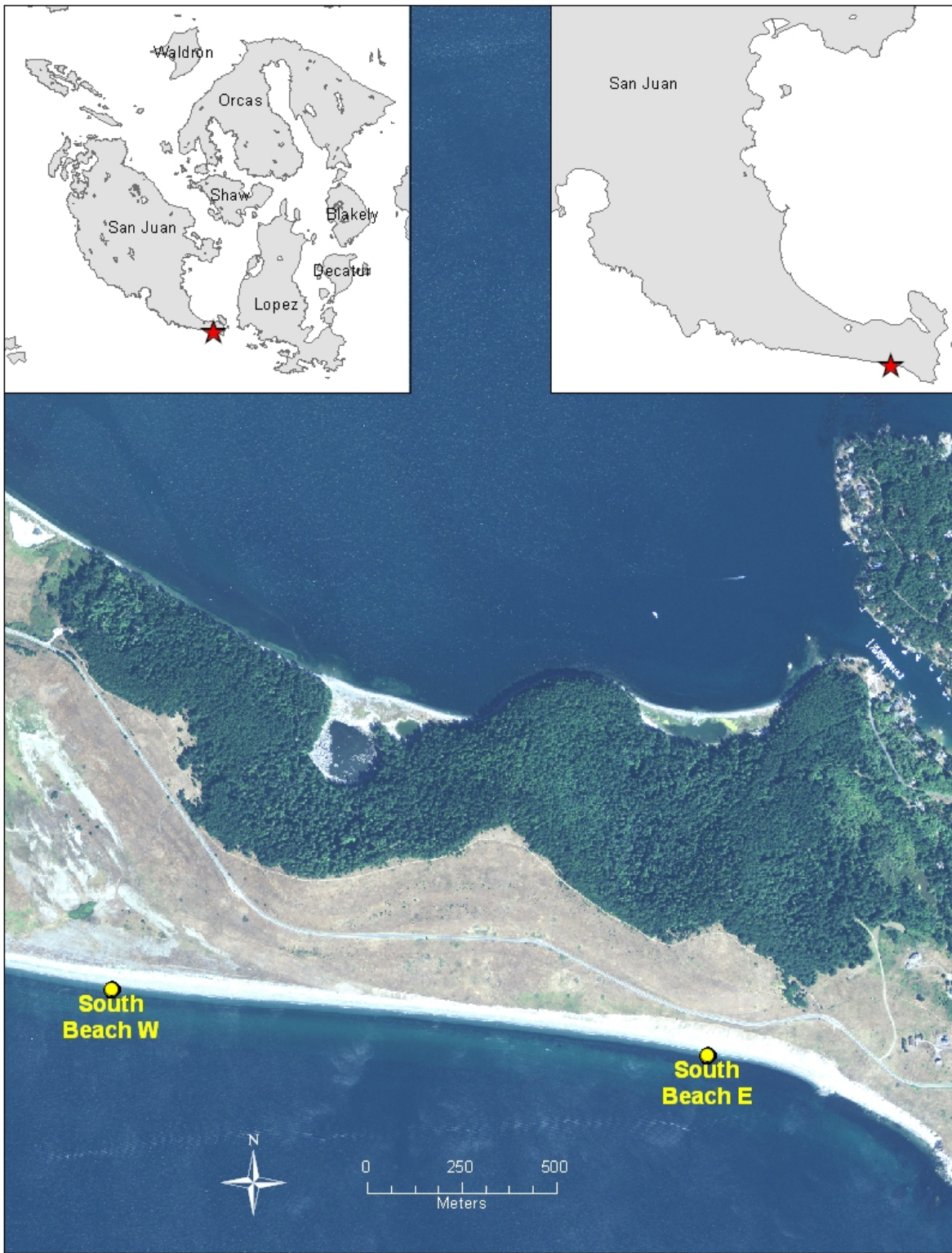


Figure 1. Location of South Beach E and South Beach W beach seine site.

Table 1. Fish catch summary for South Beach E 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	70	7.00	10.0%
Flatfish	Pleuronectiformes	Other or unknown flatfish	Unidentified flatfish species	O/U FLAT	3	0.30	10.0%
Forage fishes	Ammodytidae	Ammodytes hexapterus adult body form	Pacific sand lance, adult body form	LANCE a	237	23.70	40.0%
Greenlings/lingcod	Hexagrammidae	Hexagrammos decagrammus	Kelp greenling	KELP GRNLNG	2	0.20	10.0%
		Ophiodon elongatus	Lingcod	LINGCOD	5	0.50	30.0%
		Hexagrammos spp	Unidentified greenling species	O/U GREENLING	7	0.70	30.0%
		Hexagrammos stelleri	Whitespot greenling	WHITESPOT GR	20	2.00	20.0%
Gunnels and Pricklebacks	Pholidae	Pholis laeta	Crescent gunnel	CRES GUNL	1	0.10	10.0%
		Unidentified Gunnel Species	Unidentified gunnel species	GUNNEL	1	0.10	10.0%
		Apodichthys flavidus	Penpoint gunnel	PENPT GUNL	3	0.30	20.0%
Other - marine	Agonidae	Other or unknown Agonid	Unidentified poacher species	O/U POACHER	1	0.10	10.0%
Other - marine	Aulorhynchidae	Aulorhynchus flavidus	Tubesnout	TUBESNT	1	0.10	10.0%
Pacific salmon	Salmonidae	Oncorhynchus tshawytscha age 0+ no external mark	Chinook salmon, wild subyearling	CK 0+ nem	13	1.30	10.0%
		Oncorhynchus tshawytscha age 0+ external mark	Chinook salmon, hatchery marked subyearling	CK 0+ em	6	0.60	30.0%
		Oncorhynchus kisutch age 1+ no external mark	Coho salmon, wild yearling	CO 1+ nem	23	2.30	20.0%
		Oncorhynchus kisutch age 1+ external mark	Coho salmon, hatchery marked yearling	CO 1+ em	6	0.60	20.0%
		Oncorhynchus keta age 0+	Chum salmon, subyearling	CH 0+	28	2.80	20.0%
Sculpins	Cottidae	Clinocottus acuticeps	Sharpnose sculpin	SHARPNOSE	1	0.10	10.0%
		Blepsias cirrhosus	Silverspotted sculpin	SILVER SPOT SC	1	0.10	10.0%
		Enophrys bison	Buffalo sculpin	BUFF	3	0.30	30.0%
		Myoxocephalus polyacanthocephalus	Great sculpin	GRT SCULP	12	1.20	20.0%

Assemblage Groupings	Taxonomic group	Genus species, age & mark	Common name	Species abbreviation	Total catch	Catch per set	Frequency in catch
		Other or unknown Cottid	Unidentified sculpin species	O/U SCULP	29	2.90	30.0%
		<i>Gilbertidia sigalutes</i>	Soft sculpin	SOFT SCULP	38	3.80	30.0%
	Hemitripteridae	<i>Nautichthys oculofasciatus</i>	Sailfin sculpin	SAILFIN	1	0.10	10.0%
	Liparidae	Snailfish spp	Unidentified snailfish species	SNAILFISH	1	0.10	10.0%
Sea perches	Embiotocidae	<i>Embiotoca lateralis</i>	Striped seaperch	STRIPED	1	0.10	10.0%
		<i>Cymatogaster aggregata</i>	Shiner perch	SHINER	5	0.50	20.0%
		<i>Brachyistius frenatus</i>	Kelp perch	KELP PERCH	7	0.70	10.0%
Sticklebacks	Gasterosteidae	<i>Gasterosteus aculeatus</i>	Three spined stickleback	STICKL	2	0.20	20.0%
True cods	Gadidae	Other or unknown Cod	Unidentified true cod species	O/U COD	51	5.10	20.0%
		<i>Theragra chalcogramma</i>	Alaska pollock	POLLOCK	64	6.40	10.0%
		<i>Microgadus proximus</i>	Pacific tomcod	TOMCOD	558	55.80	40.0%

Table 2. Fish catch summary for South Beach W 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	245	18.85	61.5%
Flatfish	Pleuronectiformes	Other or unknown flatfish post larval	Unidentified post larval flatfish species	O/U FLAT pl	2	0.15	15.4%
		Other or unknown flatfish	Unidentified flatfish species	O/U FLAT	26	2.00	23.1%
		Lepidopsetta bilineata	Rock sole	ROCK SOLE	2	0.15	15.4%
		Platichthys stellatus	Starry flounder	STARRY	2	0.15	7.7%
		Parophrys vetulus	English sole	ENG SOLE	150	11.54	53.8%
		Forage fishes	Ammodytidae	Ammodytes hexapterus post larval	Pacific sand lance, post larval juvenile	LANCE pl	1
Ammodytes hexapterus adult body form	Pacific sand lance, adult body form			LANCE a	46023	3540.23	38.5%
Clupeidae	Clupea pallasii adult body form		Pacific herring, adult body form	HERR a	19	1.46	7.7%
Osmeridae	Hypomesus pretiosus adult body form		Surf smelt, adult body form	SMELT a	6	0.46	7.7%
Greenlings/lingcod	Hexagrammidae		Hexagrammos decagrammus	Kelp greenling	KELP GRNLNG	11	0.85
		Hexagrammos spp	Unidentified greenling species	O/U GREENLING	25	1.92	30.8%
		Hexagrammos stelleri	Whitespot greenling	WHITESPOT GR	26	2.00	30.8%
		Ophiodon elongatus	Lingcod	LINGCOD	33	2.54	38.5%
Gunnels and Pricklebacks	Pholidae	Unidentified Gunnel Species	Unidentified gunnel species	GUNNEL	1	0.08	7.7%
		Pholis ornata	Saddleback gunnel	SADLBCK GUNL	1	0.08	7.7%
		Pholis laeta	Crescent gunnel	CRES GUNL	3	0.23	7.7%
		Apodichthys flavidus	Penpoint gunnel	PENPT GUNL	4	0.31	15.4%
	Stichaeidae	Lumpenus sagitta	Snake prickleback	SNAKE	1	0.08	7.7%
Other - marine	Agonidae	Other or unknown Agonid	Unidentified poacher species	O/U POACHER	1	0.08	7.7%
	Syngnathidae	Syngnathus griseolineatus	Bay pipefish	PIPEFISH	1	0.08	7.7%

Assemblage Groupings	Taxonomic group	Genus species, age & mark	Common name	Species abbreviation	Total catch	Catch per set	Frequency in catch
Pacific salmon	Salmonidae	Oncorhynchus tshawytscha age 0+ external mark	Chinook salmon, hatchery marked subyearling	CK 0+ em	2	0.15	15.4%
		Oncorhynchus tshawytscha age 0+ no external mark	Chinook salmon, wild subyearling	CK 0+ nem	8	0.62	15.4%
		Oncorhynchus gorbuscha age 0+	Pink salmon, subyearling	PK 0+	1	0.08	7.7%
		Oncorhynchus keta age 0+	Chum salmon, subyearling	CH 0+	2	0.15	7.7%
		Oncorhynchus nerka adult	Sockeye salmon, adult	SOCK ADULT	1	0.08	7.7%
Sculpins	Cottidae	Enophrys bison	Buffalo sculpin	BUFF	16	1.23	23.1%
		Leptocottus armatus	Pacific staghorn sculpin	STAG	23	1.77	46.2%
		Myoxocephalus polyacanthocephalus	Great sculpin	GRT SCULP	124	9.54	46.2%
		Gilbertidia sigalutes	Soft sculpin	SOFT SCULP	320	24.62	46.2%
		Other or unknown Cottid	Unidentified sculpin species	O/U SCULP	945	72.69	30.8%
	Liparidae	Snailfish spp	Unidentified snailfish species	SNAILFISH	3	0.23	15.4%
Sticklebacks	Gasterosteidae	Gasterosteus aculeatus	Three spined stickleback	STICKL	2	0.15	7.7%
True cods	Gadidae	Gadus macrocephalus	Pacific cod	PACIFIC COD	5	0.38	7.7%
		Other or unknown Cod	Unidentified true cod species	O/U COD	33	2.54	23.1%
		Microgadus proximus	Pacific tomcod	TOMCOD	449	34.54	30.8%