Summary of Fish Catch Results for Hughes Bay, 2008 and 2009

Skagit River System Cooperative Research Program

December 2012

Beach seine sampling for fish was conducted at Hughes Bay 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*.

Hughes Bay is located on the south side of Lopez Island within the San Juan Islands (Figure 1). A combination of large and small net beach seine sets were used at one location within Hughes Bay after methods described in Skagit System Cooperative Research Department (2003). We made 33 beach seine sets (17 large and 16 small) over the two-year study period. Beach seining occurred monthly March through September in 2008 and March through October in 2009.

The beach seine sites within Hughes Bay consisted of gravel to mixed coarse substrate, usually without vegetative cover (such as eelgrass, kelp or other macro algae). Average maximum water depth was 1.97 meters and average salinity was 28.3 parts per thousand within the area seined. Water temperature varied by month, but ranged from a low of 7.8 °C in March 2008 to a high of 13.3 °C in August 2009. Water temperatures in 2008 averaged 13.1 °C from June through August, cooling to 12.2 °C in September. In 2009 the water temperature reached a high of 13.3 °C in August and then declined to about 11 °C by October.

We caught a total of 7,747 fish from 45 different species or species groupings over the two-year study period, including four species of juvenile salmon and three species of forage fish (Table 1). The most abundant fish species was adult Pacific herring with a total catch of 1,429 fish. We kept count of Dungeness (323) and red rock crab (10) 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 sandlance, 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

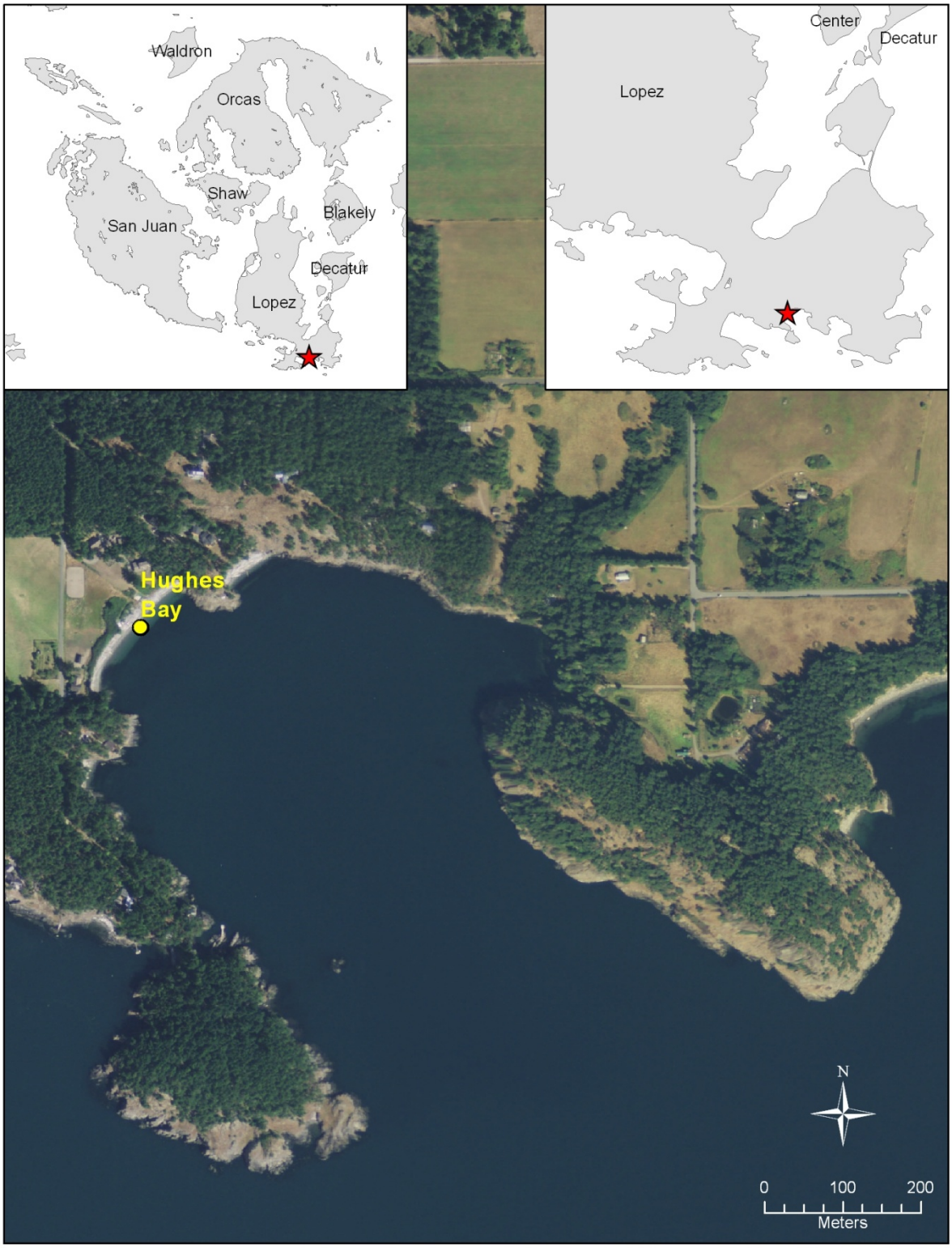

Figure 1. Location of Hughes Bay beach seine site.

Table 1. Fish catch summary for Hughes Bay 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	10	0.30	15.15%
		Cancer magister <6.5"	Dungeness crab, sublegal size	DUNGI small	323	9.79	30.30%
Flatfish	Pleuronectiformes	Other or unknown flatfish	Unidentified flatfish species	O/U FLAT	1	0.03	3.03%
		Other or unknown flatfish post larval	Unidentified post larval flatfish species	O/U FLAT pl	2	0.06	3.03%
		Platichthys stellatus	Starry flounder	STARRY	5	0.15	15.15%
		Parophrys vetulus	English sole	ENG SOLE	72	2.18	51.52%
Forage fishes	Ammodytidae	Ammodytes hexapterus adult body form	Pacific sand lance, adult body form	LANCE a	1126	34.12	30.30%
	Clupeidae	Clupea pallasii adult body form	Pacific herring, adult body form	HERR a	1429	43.30	24.24%
	Osmeridae	Hypomesus pretiosus post larval	Surf smelt, post larval juvenile	SMELT pl	68	2.06	6.06%
		Hypomesus pretiosus adult body form	Surf smelt, adult body form	SMELT a	974	29.52	21.21%
Greenlings/lingcod	Hexagrammidae	Ophiodon elongatus	Lingcod	LINGCOD	2	0.06	6.06%
		Hexagrammos decagrammus	Kelp greenling	KELP GRNLNG	37	1.12	18.18%
		Hexagrammos stelleri	Whitespot greenling	WHITESPOT GR	85	2.58	33.33%
		Hexagrammos spp	Unidentified greenling species	O/U GREENLING	106	3.21	42.42%
Gunnels and Pricklebacks	Pholidae	Pholis schultzi	Red gunnel	RED GUNNEL	1	0.03	3.03%
		Unidentified Gunnel Species	Unidentified gunnel species	GUNNEL	14	0.42	3.03%
		Apodichthys flavidus	Penpoint gunnel	PENPT GUNL	234	7.09	45.45%
		Pholis laeta	Crescent gunnel	CRES GUNL	307	9.30	45.45%
		Pholis ornata	Saddleback gunnel	SADLBCK GUNL	370	11.21	51.52%
	Stichaeidae	Lumpenus sagitta	Snake prickleback	SNAKE	1171	35.48	39.39%
Other - marine	Aulorhynchidae	Aulorhynchus flavidus	Tubesnout	TUBESNT	44	1.33	27.27%
	Cyclopteridae	Eumicrotremus orbis	Pacific spiny lumpsucker	LUMP	1	0.03	3.03%
	Syngnathidae	Syngnathus griseolineatus	Bay pipefish	PIPEFISH	15	0.45	18.18%
Other - unknown	Unclassified Larval Fish	Larval Fish	Unidentified larval fish	O/U LARVAL FISH	24	0.73	9.09%

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+ no external mark	Chinook salmon, wild subyearling	CK 0+ nem	42	1.27	30.30%
		Oncorhynchus tshawytscha age 0+ cwt only	Chinook salmon, hatchery marked subyearling	CK 0+ ucwt	1	0.03	3.03%
		Oncorhynchus tshawytscha age 0+ external mark	Chinook salmon, hatchery marked subyearling	CK 0+ em	2	0.06	6.06%
		Oncorhynchus kisutch age 1+ no external mark	Coho salmon, wild yearling	CO 1+ nem	1	0.03	3.03%
		Oncorhynchus kisutch age 1+ external mark	Coho salmon, hatchery marked yearling	CO 1+ em	2	0.06	6.06%
		Oncorhynchus kisutch age 1+ external mark	Coho salmon, hatchery marked yearling	CO 1+ em	2	0.06	6.06%
		Oncorhynchus keta age 0+	Chum salmon, subyearling	CH 0+	63	1.91	33.33%
		Oncorhynchus gorbuscha age 0+	Pink salmon, subyearling	PK 0+	253	7.67	21.21%
Rockfish	Scorpaenidae	Sebastes caurinus	Copper rockfish	COPPER ROCKFSH	7	0.21	6.06%
		Other or unknown Scorpaenids	Unidentified rockfish species	O/U ROCKFISH	9	0.27	12.12%
Sculpins	Cottidae	Scorpaenichthys marmoratus	Cabezon	CABEZON	1	0.03	3.03%
		Ascelichthys rhodorus	Rosylip sculpin	ROSYLIP SCULP	18	0.55	18.18%
		Synchirus gilli	Manacled sculpin	MANACLED SCULP	23	0.70	9.09%
		Myoxocephalus polyacanthocephalus	Great sculpin	GRT SCULP	47	1.42	48.48%
		Enophrys bison	Buffalo sculpin	BUFF	52	1.58	51.52%
		Blepsias cirrhosus	Silverspotted sculpin	SILVER SPOT SC	53	1.61	42.42%
		Artedius fenestralis	Padded sculpin	PADD SCULP	57	1.73	54.55%
		Clinocottus acuticeps	Sharpnose sculpin	SHARP-NOSE	68	2.06	36.36%
		Other or unknown Cottid	Unidentified sculpin species	O/U SCULP	106	3.21	39.39%
		Leptocottus armatus	Pacific staghorn sculpin	STAG	142	4.30	75.76%

Assemblage Groupings	Taxonomic group	Genus species, age & mark	Common name	Species abbreviation	Total catch	Catch per set	Frequency in catch
		Gilbertidia sigalutes	Soft sculpin	SOFT SCULP	245	7.42	27.27%
	Hemitripteridae	Nautichthys oculofasciatus	Sailfin sculpin	SAILFIN	14	0.42	9.09%
	Liparidae	Snailfish spp	Unidentified snailfish species	SNAILFISH	32	0.97	24.24%
Sea perches	Embiotocidae	Brachyistius frenatus	Kelp perch	KELP PERCH	5	0.15	9.09%
		Cymatogaster aggregata	Shiner perch	SHINER	293	8.88	45.45%
Sticklebacks	Gasterosteidae	Gasterosteus aculeatus	Three spined stickleback	STICKL	56	1.70	36.36%
True cods	Gadidae	Theragra chalocogramma	Alaska pollock	POLLOCK	2	0.06	6.06%
		Other or unknown Cod	Unidentified true cod species	O/U COD	8	0.24	12.12%
		Gadus macrocephalus	Pacific cod	PACIFIC COD	55	1.67	12.12%