

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

Skagit River System Cooperative Research Program

December 2012

Beach seine sampling for fish was conducted at Cowlitz 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*.

Cowlitz Bay is located on the southwest side of Waldron Island (Figure 1). Large net beach seines were primarily used at Cowlitz Bay (along with two small net beach seines sets) after methods described in Skagit System Cooperative Research Department (2003). We made 22 beach seine sets over the two-year study period. Beach seining occurred monthly from April through September in 2008 and March through October in 2009.

The beach seine site within Cowlitz Bay consisted of mixed coarse substrate, usually without vegetative cover (such as eelgrass, kelp or other macro algae). Average maximum water depth was 2.93 meters deep and average salinity was 28.4 parts per thousand within the area seined. Water temperature varied by month, but ranged from a low of 7.3 °C in March 2009 to a high of 13.3 °C in August 2009. Water temperatures cooled by the end of the seining season to 11.6 °C and 10.7 °C in 2008 and 2009, respectively.

We caught a total of 3,798 fish from 42 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 subyearling chum salmon with a catch of 876 fish, present in 22.7 % of the beach seine sets. We kept count of Dungeness crab (8) and red rock crab (1) 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 Cowlitz Bay beach seine site.

Table 1. Fish catch summary for Cowlitz 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	1	0.05	4.5%
		Cancer magister <6.5"	Dungeness crab, sublegal size	DUNGI small	8	0.36	13.6%
Flatfish	Pleuronectiformes	Other or unknown flatfish post larval	Unidentified post larval flatfish species	O/U FLAT pl	2	0.09	4.5%
		Platichthys stellatus	Starry flounder	STARRY	5	0.23	13.6%
		Parophrys vetulus	English sole	ENG SOLE	28	1.27	22.7%
Forage fishes	Ammodytidae	Ammodytes hexapterus adult body form	Pacific sand lance, adult body form	LANCE a	23	1.05	18.2%
	Clupeidae	Clupea pallasii post larval	Pacific herring, post larval juvenile	HERR pl	5	0.23	9.1%
		Clupea pallasii adult body form	Pacific herring, adult body form	HERR a	142	6.45	22.7%
	Osmeridae	Hypomesus pretiosus adult body form	Surf smelt, adult body form	SMELT a	1	0.05	4.5%
Greenlings/lingcod	Hexagrammidae	Hexagrammos lagocephalus	Rock greenling	ROCK GREENLING	6	0.27	4.5%
		Hexagrammos spp	Unidentified greenling species	O/U GREENLING	11	0.50	13.6%
		Hexagrammos decagrammus	Kelp greenling	KELP GRNLNG	48	2.18	40.9%
		Hexagrammos stelleri	Whitespot greenling	WHITESPOT GR	49	2.23	50.0%
Gunnels and Prickleback	Pholidae	Pholis ornata	Saddleback gunnel	SADLBCK GUNL	5	0.23	18.2%
		Pholis laeta	Crescent gunnel	CRES GUNL	42	1.91	45.5%
		Apodichthys flavidus	Penpoint gunnel	PENPT GUNL	92	4.18	72.7%
	Stichaeidae	Lumpenus sagitta	Snake prickleback	SNAKE	38	1.73	27.3%
Other - marine	Agonidae	Other or unknown Agonid	Unidentified poacher species	O/U POACHER	1	0.05	4.5%
		Agonus acipenserinus	Sturgeon poacher	STUR POACHER	2	0.09	9.1%
	Aulorhynchidae	Aulorhynchus flavidus	Tubesnout	TUBESNT	31	1.41	27.3%
Pacific salmon	Salmonidae	Oncorhynchus tshawytscha age 0+ no external mark	Chinook salmon, wild subyearling	CK 0+ nem	142	6.45	50.0%
		Oncorhynchus tshawytscha age 0+ external mark	Chinook salmon, hatchery marked subyearling	CK 0+ em	3	0.14	9.1%
		Oncorhynchus kisutch age 0+	Coho salmon, subyearling	CO 0+	2	0.09	4.5%
		Oncorhynchus kisutch age 1+ no external mark	Coho salmon, wild yearling	CO 1+ nem	16	0.73	9.1%
		Oncorhynchus kisutch age 1+ external mark	Coho salmon, hatchery marked yearling	CO 1+ em	4	0.18	4.5%

Assemblage Groupings	Taxonomic group	Genus species, age & mark	Common name	Species abbreviation	Total catch	Catch per set	Frequency in catch
		Oncorhynchus gorbuscha 0+	Pink salmon, subyearling	PK 0+	740	33.64	22.7%
		Oncorhynchus keta age 0+	Chum salmon, subyearling	CH 0+	876	39.82	22.7%
Rockfish	Scorpaenidae	Other or unknown Scorpaenids	Unidentified rockfish species	O/U ROCKFISH	53	2.41	36.4%
		Sebastes caurinus	Copper rockfish	COPPER ROCKFSH	68	3.09	13.6%
Sculpins	Cottidae	Hemilepidotus spinosus	Brown Irish lord	BROWN IR LORD	1	0.05	4.5%
		Hemilepidotus hemilepidotus	Red Irish lord	RED IRISH LORD	1	0.05	4.5%
		Scorpaenichthys marmoratus	Cabezon	CABEZON	4	0.18	9.1%
		Enophrys bison	Buffalo sculpin	BUFF	8	0.36	18.2%
		Blepsias cirrhosus	Silverspotted sculpin	SILVER SPOT SC	15	0.68	31.8%
		Other or unknown Cottid	Unidentified sculpin species	O/U SCULP	18	0.82	31.8%
		Arteidius fenestralis	Padded sculpin	PADD SCULP	36	1.64	36.4%
		Myoxocephalus polyacanthocephalus	Great sculpin	GRT SCULP	39	1.77	54.5%
		Leptocottus armatus	Pacific staghorn sculpin	STAG	39	1.77	50.0%
		Clinocottus acuticeps	Sharpnose sculpin	SHARPNOSE	102	4.64	40.9%
Sea perches	Embiotocidae	Rhacochilus vacca	Pile perch	PILE PERCH	24	1.09	13.6%
		Embiotoca lateralis	Striped seaperch	STRIPED	113	5.14	59.1%
		Brachyistius frenatus	Kelp perch	KELP PERCH	165	7.50	22.7%
		Cymatogaster aggregata	Shiner perch	SHINER	689	31.32	45.5%
Stickleback	Gasterosteidae	Gasterosteus aculeatus	Three spined stickleback	STICKL	21	0.95	45.5%
True cods	Gadidae	Theragra chalcogramma	Alaska pollock	POLLOCK	1	0.05	4.5%
		Microgadus proximus	Pacific tomcod	TOMCOD	14	0.64	4.5%
		Gadus macrocephalus	Pacific cod	PACIFIC COD	24	1.09	4.5%
		Other or unknown Cod	Unidentified true cod species	O/U COD	49	2.23	22.7%