

# Summary of Fish Catch Results for Zeo's, 2008 and 2009

Skagit River System Cooperative Research Program

December 2012

Beach seine sampling for fish was conducted at Zeo's 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*.

Zeo's is located on the east side of Waldron Island within the San Juan Islands (Figure 1). Large net beach seines were primarily used at Zeo's (along with one small net beach seine set) after methods described in Skagit System Cooperative Research Department (2003). We made 13 beach seine sets over the two-year study period. Beach seining occurred monthly from May through September in 2008 and March through September in 2009.

The beach seine site within Zeo's consisted of gravel to mixed coarse substrate, usually without vegetative cover (such as eelgrass, kelp or other macro algae). Average maximum water depth was 3.26 meters deep and average salinity was 28.0 parts per thousand within the area seined. Water temperature varied by month, but ranged from a low of 7.2 °C in March 2009 to a high of 15.2 °C in July 2008.

We caught a total of 7,840 fish from 34 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 total catch of 2,807 fish, present in 46.2 % of the beach seine sets. The catch of subyearling pink salmon was a close second with 2,185 fish. Dungeness crab and red rock crab were not caught at Zeo's (Table 1).

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 Zeo's beach seine site.

Table 1. Fish catch summary for Zeo's 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
Forage fishes	Ammodytidae	Ammodytes hexapterus post larval	Pacific sand lance, post larval juvenile	LANCE pl	5	0.38	7.7%
		Ammodytes hexapterus adult body form	Pacific sand lance, adult body form	LANCE a	213	16.38	46.2%
	Clupeidae	Clupea pallasii adult body form	Pacific herring, adult body form	HERR a	52	4.00	7.7%
	Osmeridae	Hypomesus pretiosus adult body form	Surf smelt, adult body form	SMELT a	3	0.23	7.7%
Greenlings/ lingcod	Hexagrammidae	Hexagrammos lagocephalus	Rock greenling	ROCK GREENLING	3	0.23	15.4%
		Hexagrammos spp	Unidentified greenling species	O/U GREENLING	16	1.23	30.8%
		Hexagrammos decagrammus	Kelp greenling	KELP GRNLNG	19	1.46	23.1%
		Hexagrammos stelleri	Whitespot greenling	WHITESPOT GR	20	1.54	38.5%
Gunnels and Pricklebacks	Pholidae	Pholis schultzi	Red gunnel	RED GUNNEL	1	0.08	7.7%
		Apodichthys flavidus	Penpoint gunnel	PENPT GUNL	7	0.54	38.5%
		Pholis laeta	Crescent gunnel	CRES GUNL	14	1.08	23.1%
		Pholis ornata	Saddleback gunnel	SADLBCK GUNL	28	2.15	61.5%
Pacific salmon	Salmonidae	Oncorhynchus tshawytscha age 0+ no external mark	Chinook salmon, wild subyearling	CK 0+ nem	23	1.77	46.2%
		Oncorhynchus kisutch age 1+ no external mark	Coho salmon, wild yearling	CO 1+ nem	13	1.00	23.1%
		Oncorhynchus kisutch age 1+ cwt only	Coho salmon, hatchery marked yearling	CO 1+ ucwt	1	0.08	7.7%
		Oncorhynchus kisutch age 1+ external mark	Coho salmon, hatchery marked yearling	CO 1+ em	6	0.46	7.7%
		Oncorhynchus keta age 0+	Chum salmon, subyearling	CH 0+	2807	215.92	46.2%
	Salmonidae	Oncorhynchus gorbuscha 0+	Pink salmon, subyearling	PK 0+	2185	168.08	23.1%
Rockfish	Scorpaenidae	Sebastes maliger	Quillback rockfish	QUILLBACK ROCKFISH	1	0.08	7.7%
Sculpins	Cottidae	Gilbertidia sigalutes	Soft sculpin	SOFT SCULP	1	0.08	7.7%
		Blepsias cirrhosus	Silverspotted sculpin	SILVER SPOT SC	3	0.23	15.4%
		Hemilepidotus hemilepidotus	Red Irish lord	RED IRISH LORD	7	0.54	15.4%

Assemblage Groupings	Taxonomic group	Genus species, age & mark	Common name	Species abbreviation	Total catch	Catch per set	Frequency in catch
Sculpins	Cottidae	Leptocottus armatus	Pacific staghorn sculpin	STAG	12	0.92	38.5%
		Arteidius fenestralis	Padded sculpin	PADD SCULP	14	1.08	30.8%
		Clinocottus acuticeps	Sharpnose sculpin	SHARPNOSE	26	2.00	38.5%
		Myoxocephalus polyacanthocephalus	Great sculpin	GRT SCULP	34	2.62	38.5%
		Other or unknown Cottid	Unidentified sculpin species	O/U SCULP	265	20.38	38.5%
		Enophrys bison	Buffalo sculpin	BUFF	386	29.69	84.6%
	Liparidae	Snailfish spp	Unidentified snailfish species	SNAILFISH	1	0.08	7.7%
Sea perches	Embiotocidae	Rhacochilus vacca	Pile perch	PILE PERCH	1	0.08	7.7%
		Embiotoca lateralis	Striped seaperch	STRIPED	29	2.23	23.1%
		Cymatogaster aggregata	Shiner perch	SHINER	366	28.15	46.2%
Sticklebacks	Gasterosteidae	Gasterosteus aculeatus	Three spined stickleback	STICKL	4	0.31	7.7%
True cods	Gadidae	Theragra chalcogramma	Alaska pollock	POLLOCK	2	0.15	15.4%
		Microgadus proximus	Pacific tomcod	TOMCOD	4	0.31	15.4%
		Other or unknown Cod	Unidentified true cod species	O/U COD	69	5.31	23.1%
		Gadus macrocephalus	Pacific cod	PACIFIC COD	1199	92.23	15.4%