

# Summary of Fish Catch Results for Agate Beach, 2008 and 2009

Skagit River System Cooperative Research Program

May 2012

Beach seine sampling for fish was conducted at Agate Beach 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*.

Agate Beach is located on the southwest side of Lopez Island within the San Juan Islands (Figure 1). Large and small net beach seines were used at Agate Beach after methods described in Skagit System Cooperative Research Department (2003). We made 35 beach seine sets (32 small net and 3 large net sets) over the two-year study period. Beach seining occurred monthly from March through September in both 2008 and 2009.

The beach seine site within Agate Beach consisted of gravel to mixed coarse substrate, usually without vegetative cover (such as eelgrass, kelp or other macro algae). Average maximum water depth was 1.03 meters deep and average salinity was 28.2 parts per thousand within the area seined. Water temperature varied by month, but ranged from a low of 7.7 °C in March 2008 to a high of 13.3 °C in August 2008. Water temperature declined after the month of August in 2008, but in 2009 it remained high into October, averaging slightly more than 12 °C.

We caught a total of 1,752 fish from 26 different species or species groupings over the two-year study period, including two species of juvenile salmon and one species of forage fish (Table 1). The most abundant fish species was surf smelt which consisted of 912 post larval and 1 adult age class and accounted for 52.1% of the total catch. We kept count of Dungeness (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 Agate Beach beach seine site.

Table 1. Fish catch summary for Agate Beach 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	Canceridae	Cancer productus	Red rock crab	RED ROCK CRAB	1	0.03	2.9%
		Cancer magister <6.5"	Dungeness crab, sublegal size	DUNGI small	8	0.23	5.7%
Flatfish	Pleuronectiformes	Other or unknown flatfish	Unidentified flatfish species	O/U FLAT	1	0.03	2.9%
		Platichthys stellatus	Starry flounder	STARRY	2	0.06	5.7%
		Parophrys vetulus	English sole	ENG SOLE	77	2.20	51.4%
		Other or unknown flatfish post larval	Unidentified post larval flatfish species	O/U FLAT pl	99	2.83	11.4%
Forage fishes	Osmeridae	Hypomesus pretiosus adult body form	Surf smelt, adult body form	SMELT a	1	0.03	2.9%
		Hypomesus pretiosus post larval	Surf smelt, post larval juvenile	SMELT pl	912	26.06	31.4%
Greenlings/lingcod	Hexagrammidae	Hexagrammos decagrammus	Kelp greenling	KELP GRNLNG	2	0.06	5.7%
		Hexagrammos stelleri	Whitespot greenling	WHITESPOT GR	4	0.11	2.9%
		Hexagrammos spp	Unidentified greenling species	O/U GREENLING	9	0.26	17.1%
Gunnels and Pricklebacks	Pholidae	Pholis laeta	Crescent gunnel	CRES GUNL	5	0.14	2.9%
		Apodichthys flavidus	Penpoint gunnel	PENPT GUNL	6	0.17	5.7%
		Pholis ornata	Saddleback gunnel	SADLBCK GUNL	82	2.34	25.7%
Pacific salmon	Salmonidae	Oncorhynchus gorbuscha age 0+	Pink salmon, subyearling	PK 0+	109	3.11	8.6%
		Oncorhynchus keta age 0+	Chum salmon, subyearling	CH 0+	234	6.69	20.0%
Sculpins	Cottidae	Artedius fenestralis	Padded sculpin	PADD SCULP	1	0.03	2.9%
		Hemilepidotus hemilepidotus	Red Irish lord	RED IRISH LORD	1	0.03	2.9%
		Enophrys bison	Buffalo sculpin	BUFF	4	0.11	5.7%
		Other or unknown Cottid	Unidentified sculpin species	O/U SCULP	12	0.34	17.1%
		Blepsias cirrhosus	Silverspotted sculpin	SILVER SPOT SC	12	0.34	11.4%
		Clinocottus acuticeps	Sharpnose sculpin	SHARPNOSE	14	0.40	17.1%
		Leptocottus armatus	Pacific staghorn sculpin	STAG	110	3.14	48.6%
	Hemitripteridae	Nautichthys oculofasciatus	Sailfin sculpin	SAILFIN	5	0.14	2.9%
	Liparidae	Snailfish spp	Unidentified snailfish species	SNAILFISH	1	0.03	2.9%
Sea perches	Embiotocidae	Embiotoca lateralis	Striped seaperch	STRIPED	3	0.09	2.9%
		Cymatogaster aggregata	Shiner perch	SHINER	8	0.23	2.9%
Sticklebacks	Gasterosteidae	Gasterosteus aculeatus	Three spined stickleback	STICKL	17	0.49	17.1%
True cods	Gadidae	Gadus macrocephalus	Pacific cod	PACIFIC COD	6	0.17	2.9%
		Other or unknown Cod	Unidentified true cod species	O/U COD	15	0.43	2.9%