

Summary of Fish Catch Results for Sea Farms Lagoon and Sea Farms Spit, 2008 and 2009

Skagit River System Cooperative Research Program

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Beach seine sampling for fish was conducted at Sea Farms Lagoon and Sea Farms Spit 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*.

Sea Farms Lagoon and Sea Farms Spit are located within Westcott Bay on the northwest side of San Juan Island within the San Juan Islands (Figure 1). Small net beach seines were used after methods described in Skagit System Cooperative Research Department (2003). Twelve sets were made at Sea Farms Lagoon and 19 sets were made at Sea Farms Spit during the two-year study period. Beach seining at Sea Farms Lagoon occurred monthly May through July 2008 and April through September 2009 (except in August of 2009). At Sea Farms Spit the sampling occurred monthly May through September 2008 and March through September 2009.

The beach seine site at both locations varied from mud to mixed fines to fines with gravel substrate, without any vegetative cover (such as eelgrass, kelp or other macro algae) within the set area. The average maximum water depth was 0.46 meters (m) at Sea Farms Lagoon and 0.53 m at Sea Farms Spit. The average salinity within the area seined was 30.7 parts per thousand (ppt) at Sea Farms Lagoon and 31.7 ppt at Sea Farms Spit. The water temperatures varied by month, ranging from a low of 13.5 °C in May 2008 to 22.4 °C in June 2009 at Sea Farms Lagoon. At Sea Farms Spit the temperatures ranged from 9.7 °C in March 2009 to 22.4 °C in June 2009.

At Sea Farms Lagoon we caught a total of 7,176 fish from 6 different species or species groupings over the two-year study period, including one species of forage fish (Table 1). Juvenile salmon were not caught. The most abundant fish species was shiner perch with a catch of 5,862 fish, present in 83.3% of beach seine sets. They accounted for 81.7% of the total catch.

At Sea Farms Spit we caught a total of 3,730 fish from 10 different species or species groupings over the two-year study period, including two species of juvenile salmon and one species of forage fish (Table 2). The most abundant fish species was Pacific staghorn sculpin with a catch of 2,051 fish, present in 100.0% of beach seine sets. They accounted for 55.0% of the total catch.

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>

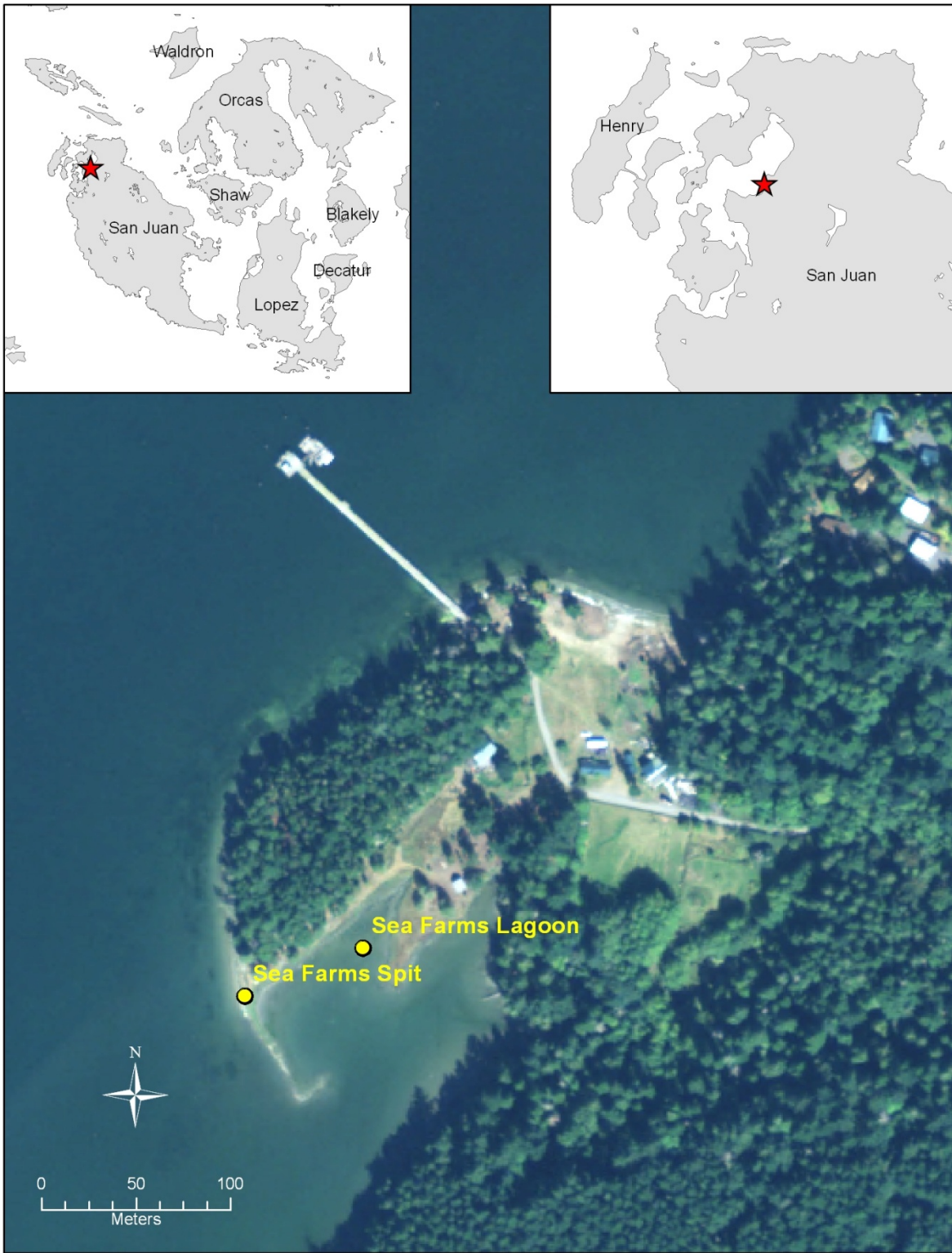


Figure 1. Location of Sea Farms Lagoon and Sea Farms Spit beach seine sites.

Table 1. Fish catch summary for Sea Farms Lagoon 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
Flatfish	Pleuronectiformes	Parophrys vetulus	English sole	ENG SOLE	25	2.08	33.3%
Forage fishes	Osmeridae	Hypomesus pretiosus post larval	Surf smelt, post larval juvenile	SMELT pl	90	7.50	16.7%
		Hypomesus pretiosus adult body form	Surf smelt, adult body form	SMELT a	108	9.00	16.7%
Gunnels and Pricklebacks	Stichaeidae	Lumpenus sagitta	Snake prickleback	SNAKE	166	13.83	8.3%
Other - marine	Gobiidae	Clevelandia ios	Arrow goby	ARROW GOBI	1	0.08	8.3%
Sculpins	Cottidae	Leptocottus armatus	Pacific staghorn sculpin	STAG	924	77.00	91.7%
Sea perches	Embiotocidae	Cymatogaster aggregata	Shiner perch	SHINER	5862	488.50	83.3%

Table 2. Fish catch summary for Sea Farms Spit 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
Flatfish	Pleuronectiformes	Platichthys stellatus	Starry flounder	STARRY	2	0.11	10.5%
		Parophrys vetulus	English sole	ENG SOLE	21	1.11	26.3%
Forage fishes	Osmeridae	Hypomesus pretiosus adult body form	Surf smelt, adult body form	SMELT a	77	4.05	10.5%
		Hypomesus pretiosus post larval	Surf smelt, post larval juvenile	SMELT pl	167	8.79	10.5%
Other - marine	Gobiidae	Clevelandia ios	Arrow goby	ARROW GOBI	5	0.26	26.3%
Pacific salmon	Salmonidae	Oncorhynchus tshawytscha age 0+ no external mark	Chinook salmon, wild subyearling	CK 0+ nem	1	0.05	5.3%
		Oncorhynchus nerka age 1+> no external mark	Sockeye salmon, wild yearling or older	SOCK 1+> nem	1	0.05	5.3%
Sculpins	Cottidae	Clinocottus acuticeps	Sharpnose sculpin	SHARPNOSE	1	0.05	5.3%
		Other or unknown Cottid	Unidentified sculpin species	O/U SCULP	2	0.11	10.5%
		Leptocottus armatus	Pacific staghorn sculpin	STAG	2051	107.95	100.0%
Sea perches	Embiotocidae	Cymatogaster aggregata	Shiner perch	SHINER	1402	73.79	57.9%