

Summary of Fish Catch Results for Clark Island N and Clark Island S, 2008 and 2009

Skagit River System Cooperative Research Program

December 2012

Beach seine sampling for fish was conducted at Clark Island N and Clark Island 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*.

Clark Island N is located on the southeast side of Clark Island and Clark Island S is located on the southwest side Clark Island (actually more northerly than Clark Island N) within the San Juan Islands (Figure 1). Large and small net beach seines were used at both sites after methods described in Skagit System Cooperative Research Department (2003). We made 29 beach seine sets (26 large net and 3 small net 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 sites consisted of gravel to mixed coarse substrate. Vegetative cover consisted of eelgrass, kelp or other macro algae 60% of the time; 40% of the time there was no vegetative cover. Average maximum water depth was 2.56 meters; average salinity 29.1 parts per thousand within the areas seined. Water temperatures varied by month and site. Water temperature at Clark Island N ranged from a low of 7.6 °C in March 2009 to a high of 28.9 °C in August 2009. At Clark Island S it varied from 7.2 °C in March 2009 to 15.8 °C in September 2009.

At Clark Island N we caught a total of 3,218 fish from 41 different species or species groupings over the two-year study period, including three species of juvenile salmon and two species of forage fish (Table 1). The most abundant fish species was subyearling pink salmon with a total catch of 821 fish, present in 25.0% of the beach seine sets. We kept count of Dungeness crab (2) and red rock crab (2) caught by seines, as these species are of commercial and recreational interest.

At Clark Island S we caught a total of 2,907 fish from 44 different species or species groupings over the two-year study period, including three species of juvenile salmon and three species of forage fish (Table 2). The most abundant fish species was great sculpin with a total catch of 609 fish, present in 84.6% of the sets of the beach seine sets. We kept count of Dungeness crab (1) caught by seines, as this species is 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>

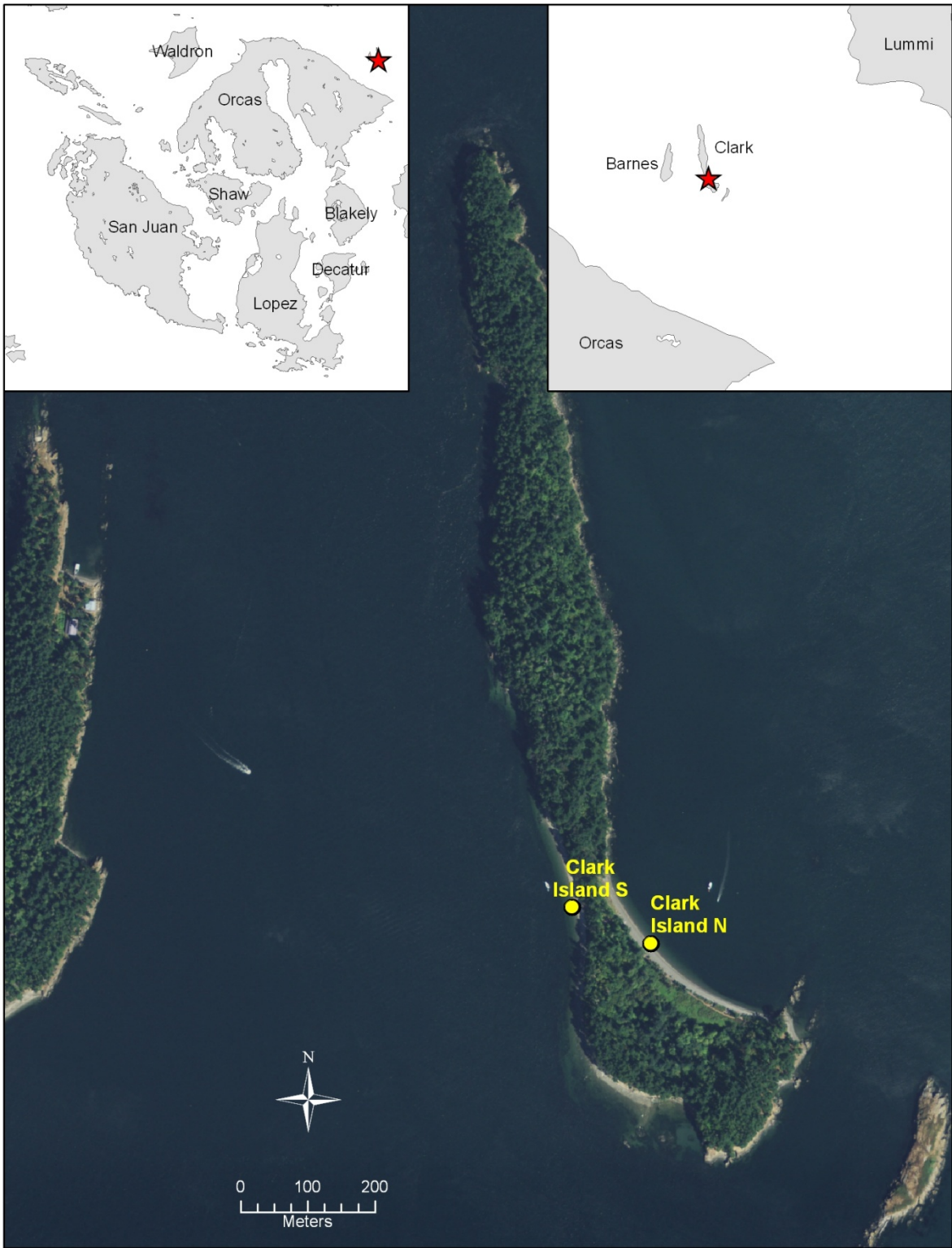


Figure 1. Location of Clark Island N and Clark Island S beach seine sites.

Table 1. Fish catch summary for Clark Island N 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 magister <6.5"	Dungeness crab, sublegal size	DUNGI small	2	0.13	6.3%
		Cancer productus	Red rock crab	RED ROCK CRAB	2	0.13	6.3%
Flatfish	Pleuronectiformes	Lepidopsetta bilineata	Rock sole	ROCK SOLE	2	0.13	6.3%
		Parophrys vetulus	English sole	ENG SOLE	8	0.50	18.8%
Forage fishes	Ammodytidae	Ammodytes hexapterus post larval	Pacific sand lance, post larval juvenile	LANCE pl	21	1.31	6.3%
		Ammodytes hexapterus adult body form	Pacific sand lance, adult body form	LANCE a	274	17.13	37.5%
	Clupeidae	Clupea pallasii adult body form	Pacific herring, adult body form	HERR a	4	0.25	18.8%
Greenlings/lingcod	Hexagrammidae	Hexagrammos decagrammus	Kelp greenling	KELP GRNLNG	8	0.50	25.0%
		Hexagrammos stelleri	Whitespot greenling	WHITESPOT GR	30	1.88	37.5%
		Hexagrammos spp	Unidentified greenling species	O/U GREENLING	89	5.56	62.5%
Gunnels and Pricklebacks	Pholidae	Pholis ornata	Saddleback gunnel	SADLBCK GUNL	14	0.88	25.0%
		Pholis laeta	Crescent gunnel	CRES GUNL	19	1.19	37.5%
		Unidentified Gunnel Species	Unidentified gunnel species	GUNNEL	74	4.63	37.5%
		Apodichthys flavidus	Penpoint gunnel	PENPT GUNL	109	6.81	50.0%
Other - marine	Stichaeidae	Lumpenus sagitta	Snake prickleback	SNAKE	15	0.94	25.0%
	Agonidae	Other or unknown Agonid	Unidentified poacher species	O/U POACHER	1	0.06	6.3%
	Aulorhynchidae	Aulorhynchus flavidus	Tubesnout	TUBESNT	3	0.19	6.3%

Assemblage Groupings	Taxonomic group	Genus species, age & mark	Common name	Species abbreviation	Total catch	Catch per set	Frequency in catch
	Cyclopteridae	Eumicrotremus orbis	Pacific spiny lumpsucker	LUMP	1	0.06	6.3%
	Syngnathidae	Syngnathus griseolineatus	Bay pipefish	PIPEFISH	3	0.19	6.3%
Other - unknown	Unclassified Larval Fish	Larval Fish	Unidentified larval fish	O/U LARVAL FISH	2	0.13	12.5%
Pacific salmon	Salmonidae	Oncorhynchus tshawytscha age 0+ no external mark	Chinook salmon, wild subyearling	CK 0+ nem	1	0.06	6.3%
		Oncorhynchus keta age 0+	Chum salmon, subyearling	CH 0+	638	39.88	37.5%
		Oncorhynchus gorbuscha age 0+	Pink salmon, subyearling	PK 0+	821	51.31	25.0%
Rockfish	Scorpaenidae	Other or unknown Scorpaenids	Unidentified rockfish species	O/U ROCKFISH	3	0.19	12.5%
Sculpins	Cottidae	Chitonotus pugetensis	Roughback sculpin	ROUGH-BACK SCULP	1	0.06	6.3%
		Artedius corallinus	Coralline sculpin	CORALLINE SCULP	2	0.13	12.5%
		Gilbertidia sigalutes	Soft sculpin	SOFT SCULP	4	0.25	18.8%
		Artedius fenestralis	Padded sculpin	PADD SCULP	5	0.31	25.0%
		Blepsias cirrhosus	Silverspotted sculpin	SILVER SPOT SC	5	0.31	18.8%
		Ascelichthys rhodorus	Rosylip sculpin	ROSYLIP SCULP	7	0.44	12.5%
		Leptocottus armatus	Pacific staghorn sculpin	STAG	10	0.63	25.0%
		Hemilepidotus hemilepidotus	Red Irish lord	RED IRISH LORD	15	0.94	37.5%
		Clinocottus acuticeps	Sharpnose sculpin	SHARPNOSE	15	0.94	31.3%
		Enophrys bison	Buffalo sculpin	BUFF	41	2.56	56.3%
		Myoxocephalus polyacanthocephalus	Great sculpin	GRT SCULP	116	7.25	75.0%

Assemblage Groupings	Taxonomic group	Genus species, age & mark	Common name	Species abbreviation	Total catch	Catch per set	Frequency in catch
		Other or unknown Cottid	Unidentified sculpin species	O/U SCULP	734	45.88	81.3%
	Liparidae	Snailfish spp	Unidentified snailfish species	SNAILFISH	2	0.13	6.3%
Sea perches	Embiotocidae	Embiotoca lateralis	Striped seaperch	STRIPED	6	0.38	18.8%
		Brachyistius frenatus	Kelp perch	KELP PERCH	10	0.63	12.5%
		Cymatogaster aggregata	Shiner perch	SHINER	66	4.13	31.3%
Sticklebacks	Gasterosteidae	Gasterosteus aculeatus	Three spined stickleback	STICKL	1	0.06	6.3%
True cods	Gadidae	Other or unknown Cod	Unidentified true cod species	O/U COD	1	0.06	6.3%
		Theragra chalcogramma	Alaska pollock	POLLOCK	9	0.56	18.8%
		Microgadus proximus	Pacific tomcod	TOMCOD	28	1.75	37.5%

Table 2. Fish catch summary for Clark Island 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
Crabs and shrimp	Cancriidae	Cancer magister <6.5"	Dungeness crab, sublegal size	DUNGI small	1	0.08	7.7%
Flatfish	Pleuronectiformes	Isopsetta isolepis	Butter sole	BUTTER SOLE	4	0.31	7.7%
		Lepidopsetta bilineata	Rock sole	ROCK SOLE	8	0.62	23.1%
		Platichthys stellatus	Starry flounder	STARRY	8	0.62	23.1%
		Other or unknown flatfish	Unidentified flatfish species	O/U FLAT	15	1.15	30.8%
		Parophrys vetulus	English sole	ENG SOLE	43	3.31	46.2%
		Other or unknown flatfish post larval	Unidentified post larval flatfish species	O/U FLAT pl	45	3.46	23.1%
Forage fishes	Ammodytidae	Ammodytes hexapterus post larval	Pacific sand lance, post larval juvenile	LANCE pl	101	7.77	7.7%
		Ammodytes hexapterus adult body form	Pacific sand lance, adult body form	LANCE a	223	17.15	38.5%
	Clupeidae	Clupea pallasii post larval	Pacific herring, post larval juvenile	HERR pl	2	0.15	7.7%
		Clupea pallasii adult body form	Pacific herring, adult body form	HERR a	54	4.15	7.7%
	Osmeridae	Hypomesus pretiosus post larval	Surf smelt, post larval juvenile	SMELT pl	1	0.08	7.7%
Greenlings/lingcod	Hexagrammidae	Oxylebius pictus	Painted greenling	PAINTED GRNLING	1	0.08	7.7%
		Ophiodon elongatus	Lingcod	LINGCOD	2	0.15	7.7%
		Hexagrammos decagrammus	Kelp greenling	KELP GRNLNG	18	1.38	30.8%
		Hexagrammos stelleri	Whitespot greenling	WHITESPOT GR	37	2.85	46.2%
		Hexagrammos spp	Unidentified greenling species	O/U GREENLING	43	3.31	38.5%
Gunnels and Pricklebacks	Pholidae	Pholis ornata	Saddleback gunnel	SADLBCK GUNL	12	0.92	23.1%
		Pholis laeta	Crescent gunnel	CRES GUNL	18	1.38	38.5%
		Apodichthys flavidus	Penpoint gunnel	PENPT GUNL	54	4.15	61.5%
		Unidentified Gunnel Species	Unidentified gunnel species	GUNNEL	118	9.08	23.1%
	Stichaeidae	Xiphister atropurpureus	Black prickleback	BLK PRICKLE	1	0.08	7.7%
		Lumpenus sagitta	Snake prickleback	SNAKE	9	0.69	23.1%
Other - marine	Agonidae	Other or unknown Agonid	Unidentified poacher species	O/U POACHER	5	0.38	7.7%
	Aulorhynchidae	Aulorhynchus flavidus	Tubesnout	TUBESNT	60	4.62	30.8%

Assemblage Groupings	Taxonomic group	Genus species, age & mark	Common name	Species abbreviation	Total catch	Catch per set	Frequency in catch
	Cyclopteridae	Eumicrotremus orbis	Pacific spiny lumpsucker	LUMP	2	0.15	7.7%
	Syngnathidae	Syngnathus griseolineatus	Bay pipefish	PIPEFISH	2	0.15	15.4%
Pacific salmon	Salmonidae	Oncorhynchus tshawytscha age 0+ no external mark	Chinook salmon, wild subyearling	CK 0+ nem	3	0.23	7.7%
		Oncorhynchus gorbuscha age 0+	Pink salmon, subyearling	PK 0+	23	1.77	7.7%
		Oncorhynchus keta age 0+	Chum salmon, subyearling	CH 0+	228	17.54	15.4%
Sculpins	Cottidae	Artedius corallinus	Coralline sculpin	CORALLINE SCULP	1	0.08	7.7%
		Blepsias cirrhosus	Silverspotted sculpin	SILVER SPOT SC	2	0.15	15.4%
		Artedius fenestralis	Padded sculpin	PADD SCULP	5	0.38	15.4%
		Ascelichthys rhodorus	Rosylip sculpin	ROSYLIP SCULP	7	0.54	15.4%
		Clinocottus acuticeps	Sharpnose sculpin	SHARP-NOSE	9	0.69	23.1%
		Hemilepidotus hemilepidotus	Red Irish lord	RED IRISH LORD	15	1.15	38.5%
		Gilbertidia sigalutes	Soft sculpin	SOFT SCULP	23	1.77	30.8%
		Leptocottus armatus	Pacific staghorn sculpin	STAG	33	2.54	30.8%
		Enophrys bison	Buffalo sculpin	BUFF	60	4.62	76.9%
		Other or unknown Cottid	Unidentified sculpin species	O/U SCULP	411	31.62	69.2%
		Myoxocephalus polyacanthocephalus	Great sculpin	GRT SCULP	609	46.85	84.6%
		Liparidae	Snailfish spp	Unidentified snailfish species	SNAILFISH	2	0.15
Sea perches	Embiotocidae	Cymatogaster aggregata	Shiner perch	SHINER	12	0.92	30.8%
		Embiotoca lateralis	Striped seaperch	STRIPED	24	1.85	38.5%
Sticklebacks	Gasterosteidae	Gasterosteus aculeatus	Three spined stickleback	STICKL	5	0.38	7.7%
True cods	Gadidae	Microgadus proximus	Pacific tomcod	TOMCOD	76	5.85	46.2%
		Other or unknown Cod	Unidentified true cod species	O/U COD	99	7.62	7.7%
		Theragra chalcogramma	Alaska pollock	POLLOCK	374	28.77	23.1%