

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 | Cancridae | 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% |