

## FLATFISH (FLOUNDER) CARE

**PURPOSE:** To describe methods of care for flounders.

**POLICY:** To provide optimum care for all animals.

**RESPONSIBILITY:** Collector and user of the animals. If these are not the same person, the user takes over responsibility of the animals as soon as the animals have arrived on station.

**PROCEDURE:** At present there are numerous flatfish species found around BMSC.

<b>Species:</b>	Pacific sanddab	<i>Citharichthys sordidus</i>
	Rex sole	<i>Glyptocephalus zachirus</i>
	Flathead sole	<i>Hippoglossoides elassodon</i>
	Rock sole	<i>Lepidopsetta bilineata</i>
	Slender sole	<i>Lyopsetta exilis</i>
	Dover sole	<i>Microstomus pacificus</i>
	English sole	<i>Parophrys vetulus</i>
	Starry flounder	<i>Platyichthys stellatus</i>
	C-O sole	<i>Pleuronichthys coenosus</i>

**Identification:** Refer to Lamb and Edgell's book, "Coastal fishes of the Pacific Northwest" for in depth descriptions of individual specimens.

*Citharichthys sordidus* a left-eye flounder, it has a brownish-gray mottled pattern and a high bony ridge over the lower eye. Has long pectoral fins each reaching to the middle of the eye when projected forward.

*Glyptocephalus zachirus*: a right-eyed flounder, the rex sole has a tiny mouth and a long, blackish pectoral fin on the eyed side of the body. The lateral line is almost straight and the tail fin is rounded. Its body is slender and thin.

*Hippoglossoides elassodon*: a right-eyed flounder, it has a thin, brownish body and a tail fin that is straight or just slightly rounded. There is no accessory branch to the lateral line. Mouth is moderately large, reaching to about the middle of the lower eye, with a single row of teeth in the upper jaw.

*Lepidopsetta bilineata*: the right-eyed rock sole has a roundish body with rough scales on the eyed side of the body. It has a prominent arch in the lateral line and a short accessory branch. Rusty-brown body color.

*Lyopsetta exilis*: the right-eyed slender sole has a slender, pale brown body. It has a rounded tail fin and large, thin, easily removable scales. It has a moderately large mouth that extends back to about the middle of the lower eye.

*Microstomus pacificus*: the right-eyed dover sole has a thick body and a nearly straight lateral line. It has bulging eyes and tiny gill openings. It also has a tiny mouth with very fat lips. It exudes great quantities of slime.

*Parophrys vettilus*: the right-eyed English sole has a somewhat slender body with small scales. The lateral line does not have a high arch but does have a long accessory branch. The upper eye is only partially visible from the blind side. It has a pointed snout with a small mouth.

*Platyichthys stellatus*: large in size, up to 90cm long; the right-eyed starry flounder is easily distinguished by the prominent, dark bands on its dorsal tail and anal fins. It also has rough, star-shaped plates on the body.

*Pleuronichthys coenosus*: up to 36 cm long; may be indistinct but there are 'C' and 'O' markings on the tail. Colour may vary depending on habitat but unlike many other sole the body has very contrasting light and dark patterns.

**Sites:** All are bottom dwelling flatfishes, lying on soft muddy substrates at great depths.

**Methods:** caught in trawl nets or sometimes in dredging gear, occasionally by longline. They usually suffer from hemorrhaging when caught in trawl nets. Bringing the trawl up slowly from depth reduces the amount of injury to the fish.

**Holding:** Held in continually flowing seawater. Lids are necessary. Mud or sand will help reduce stress levels.

**Feeding:** flatfish feed on marine worms, shrimp, squid, clams and pieces of fish. Frozen fish must be chopped up quite small as most flatfish have small mouths.

**Tank Cleaning:** Once every 3 weeks the fish should be removed from the tank and placed into a holding bucket. The tanks should be drained and the sides and bottom should be scrubbed and rinsed with warm freshwater. The tanks should then be rinsed with cold seawater and allowed to refill, and the fish replaced.

**Anesthetic:** size, species, density dependent; approximately 0.2mg/L of MS-222. Always wear gloves when using MS-222.

Clove oil is most effective as an anesthetic at concentrations of 40-60 mg/L, and should be dissolved in ethanol (e.g., 1:9) before mixing into the water. Clove oil has a slightly faster induction time and a longer recovery time than similar concentrations of TMS. Clove oil has a wide margin of safety between effective and lethal doses, and fish do not show signs of distress when being anaesthetized.

Always oxygenate the anesthetic bath during procedure.

**Euthanasia:** size, species, density dependent; inhalant anesthetic overdose of 0.4 - 2.0 g/L of MS-222

**Animal Return:** Animals should be returned to the site of their collection. If any anesthetic chemical has been used on the fish during it's holding at BMSC, the animal must not be released before the drug withdrawal time. Withdrawal time

should be on the label of an anesthetic in degree-days (degree-days are the accumulated thermal units for a given day. One day at 10C is 10 degree-days).

Note: MS222 has a 5 day withdrawal time for salmon above 10C.

**DAILY ACTIVITIES:**

1. Ensure water is flowing into the tank at a reasonable rate.
2. Ensure the standpipe is in place and not blocked.
3. Check for and remove any dead animals.
4. Check for and remove any uneaten prey organisms.
5. Check for and remove any foreign organisms.