

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.

Species:	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: These are left-eye flounders, they have a brownish-gray mottled pattern and a high bony ridge over the lower eye. They have long pectoral fins each reaches to the middle of the eye when projected forward.

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

Hippoglossoides elassodon: These are right-eyed flounder, they have thin, brownish bodies and their tail fin is straight or just slightly rounded. There is no accessory branch to the lateral line. The 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: These right-eyed rock sole have roundish rusty-brown bodies with rough scales on the eyed side of the body. There is a prominent arch in the lateral line and a short accessory branch.

Lyopsetta exilis: These right-eyed slender sole have slender, pale brown bodies. The rounded tail is large and thin with easily removable scales. They have moderately large mouths that extend back to about the middle of the lower eye.

Microstomus pacificus: The right-eyed dover sole have thick bodies and nearly straight lateral lines. They have bulging eyes and tiny gill openings. They also have tiny mouths with very fat lips. They exude great quantities of slime.

Parophrys vettilus: The right-eyed English sole have somewhat slender bodies 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. They have a pointed snout with a small mouth.

Platyichthys stettatus: These fish are large in size, up to 90cm long; right-eyed starry flounder are easily distinguished by the prominent, dark bands on the dorsal tail and anal fins. They also have rough, star-shaped plates on the body.

Pleuronichthys coenosus: These fish are up to 36 cm long. They 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: Flatfish are usually 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.

Transport: Please follow transport and handling of fish SOP.

Holding: These fish should be 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: Anesthetizing these animals is size, species, and density dependent; approximately 0.2mg/L of MS-222. Always wear gloves when using MS-222 (TMS). 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.

Euthanasia: Euthanasia is size, species, and 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. Be sure to have well oxygenated water in bucket that they are being returned in.

If any anesthetic chemical has been used on the fish during its 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: MS-222 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 and dead animals.
4. Check for and remove any uneaten prey organisms.
5. Check for and remove and foreign organisms.

