

HERRING CARE

PURPOSE: To describe methods of care for herring.

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 is one herring species found around BMSC.

Species: Pacific herring *Clupea harengus pallasii*

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

Clupea harengus pallasii: Pacific herring have no spines on their fins and no scales on either the head or the sides of tail, but the rest of the body has large scales. There is no colour spotting on the silvery body. There is no adipose fin.

Sites: These fish form large schools which crowd into shallow bays and along shores.

Methods: Herring do not do well in captivity. Mortalities are usually very high. They lose scales during netting and are usually permanently damaged and stressed during capture and transport. Seine nets are probably the best method as herring never survive gillnets, or trawls but sometimes they can be caught successfully on longline.

Transport: Please follow transport and handling of fish SOP.

Holding: Herring should be held in continually flowing seawater in large tanks. Lids are necessary. Herring need high levels of dissolved oxygen.

Feeding: Feed herring fresh or frozen fish cut in pieces.

Tank Cleaning: Since herring are so easily stressed it is best if the tank can be gently cleaned without removing the fish. Vacuuming the bottom of the tank with a siphon hose and using a net to remove waste, dead fish and leftover food is the best method.

Anesthetic: Anesthetizing these animals is size, species, and 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 MS-222. 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 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: 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.