

## Sea Star Necropsy Protocol

**Background:** This protocol provides guidance on how to samples sea stars for laboratory analysis.

### Materials

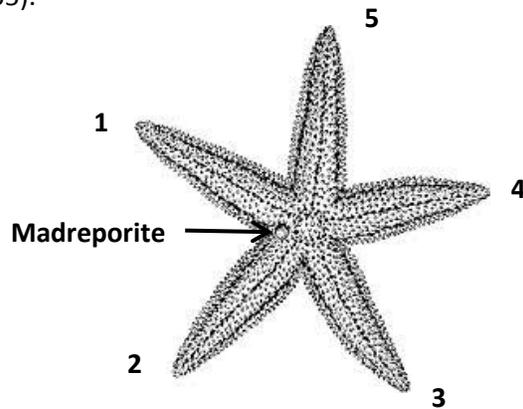
Camera (or iphone)	Whirlpak or ziplock bags
plastic gloves (change between each star)	10% buffered formalin
scalpel	95% ethanol to rinse scissors and scalpel and table between stars
scissors	10% bleach (to wash down afterwards)
Sealable plastic jars (to ship specimens)	Freezer (-80C preferred but -20C will do).
	Magnesium chloride

Warning: Formalin is a hazardous substance. Use gloves, goggles, and work in well ventilated areas when handling this material. Please consult MSDS sheets for list of hazards and guidance for proper disposal.

### Procedure

#### *Documenting lesions*

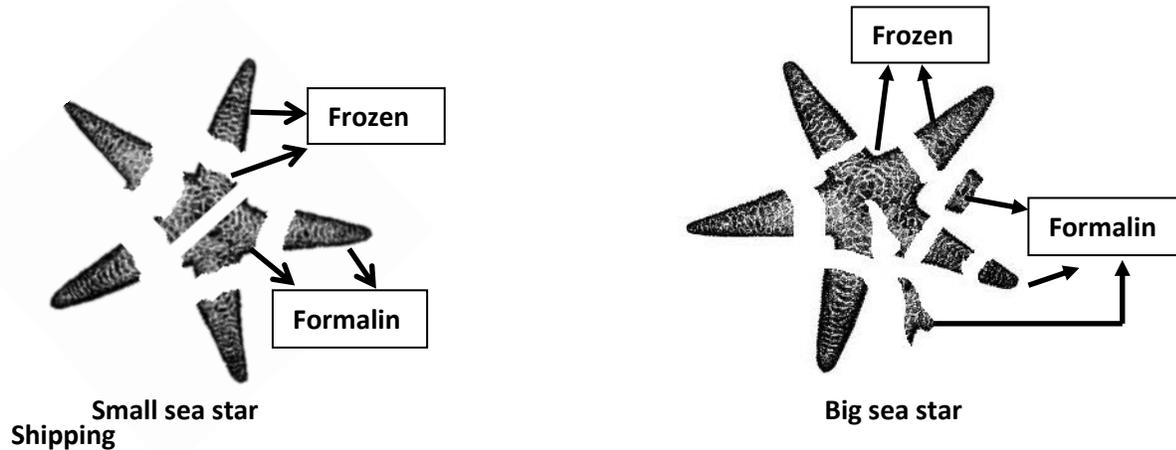
- 1) Photograph the animal dorsal and ventral aspect.
- 2) If describing lesions, arms can be referred to according to standard numbering starting with the arm containing the madreporite (a disc shaped structure on dorsum of animal) and counting counterclockwise (Hyman, 1955).



#### *Sampling*

- 3) If animal is alive, it can be anesthetized by a variety of compounds such as menthol, magnesium chloride or other agents. Recipes are available by clicking [here](#).
- 4) Frozen: Take an entire arm at the base and half of the central disk. Freeze in labelled plastic bag.

- 5) Formalin. If star is small enough (e.g. 6 inches (12 cm) diameter or less), section entire arm and half of central disk. If animal is large, take a section of the arm proximal and distal along with a segment of the central disk (diagram). Place tissues in at least 5 volumes of formalin in labelled jar.
- 6) Labels should include: Date and location of collection and species.



- 1) Frozen tissues: These are double bagged and shipped on dry ice. These are used for microbiology and molecular analyses.
- 2) Formalin fixed tissues: After at least 24 h fixation, drain all formalin and pack jar with formalin moistened gauze or paper towels, seal, double bag, and ship at room temp. These are used for histopathology.
- 3) Ensure all data are enclosed in sealed envelope separate from samples along with DVD or CD of photos labelled and organized in such a way that laboratory can match photos to samples.
- 4) IMPORTANT: Please alert laboratory BEFORE shipping to ensure someone will be available to receive tissues. For frozen tissues, please take into account time zone to ensure tissues do not sit in warehouse over the weekend.

### References

Hyman, L. H., 1955. The Invertebrates: Echinodermata. McGraw Hill, New York.