Standard Operation Procedure (SOP) #18

Shrimp (uhang) Net Surveys in Guam

Version 1.02 (March 21, 2022)

Change History

New Version #	Revision Date	Author	Changes Made	Reasons for Change	Previous Version #
1.01	8/20/2021	Amanda McCutcheon, Anne Farahi	Added more descriptive text and moved the datasheet from the Appendix to this SOP.	Text was added for clarification of methods. The datasheet was originally in an Appendix. It was moved here so it could be revised more easily.	1.0
1.02	3/21/2022	Kim Weisenborn	Updated content to refer to new PACN I&M SharePoint.	PACN data is no longer stored on a networked drive (I:\ drive) and is now stored on the PACN SharePoint site.	1.01

Only changes in this specific SOP will be logged here. Version numbers increase incrementally by hundredths (e.g., version 1.01, version 1.02) for minor changes. Major revisions should be designated with the next whole number (e.g., version 2.0, 3.0, 4.0). Record the previous version number, date of revision, author of the revision, identify paragraphs and pages where changes are made, who approved the revision, and the reason for making the changes along with the new version number.

Purpose

This SOP describes conducting a sectional shrimp net survey. This SOP will be used in Guam at WAPA. Visual shrimp surveys are described in SOP #17 Visual Fish (atot) and Shrimp (uhang) Surveys in Guam, and the general procedure for setting up a site and the order of surveys at WAPA are described in SOP #10 Conducting Surveys in Guam. The shrimp net survey datasheet is included in this SOP.

Overview of procedure

Sampling moves from downstream to upstream. The 30 m reach will be divided into five sections each measuring 6 m. Sampling requires 2-3 observers collecting shrimp using an ‘opae net or dip net as available. The same or different observers measure and identify larger crustaceans (*Macrobrachium lar*), count smaller atyid shrimp, and place them in marked sample jars filled with 90 % ethanol for later identification.

Conducting a Survey for Shrimp Using a Net

The 30 m reach is divided into five 6 m sections (from downstream to upstream the sections are called T1-T2, T2-T3, T3-T4, T4-T5, and T5-T6). Two to three observers utilize an ‘opae net and/or dip net to catch shrimp using three targeted scoops per section. One observer holds the net open wide and flush with the substrate, while one to two additional observers disturb the substrate upstream of the net in a targeted area and push water and shrimp toward the net. A targeted scoop is directed towards an area that appears to be suitable shrimp habitat. Generally, stream edges near areas with roots, leaves, and tree trunks tend to provide good hiding places for shrimp. Another strategy would be to place the net downstream of a cascade or riffle and stir up the substrate upstream of the net to dislodge smaller shrimp. Also, observers can pick up pebbles and leaves, as smaller atyid shrimp tend to hide under debris, and guide shrimp into nets. Larger crustaceans can also be found in deeper pools. Observers should sample a variety of substrate types to maximize the species diversity sampled. Observers will need to carefully inspect each piece of debris (rock, leaf, stick, etc.) scooped up by the net in order to find shrimp. Shrimp can be as small as 1 cm and relatively clear, therefore, net contents must be inspected thoroughly. Shrimp caught within a section should be placed in a bucket with water from the site. Larger crustaceans (*Macrobrachium lar*) that can be readily identified should be measured in terms of total length (from tip of the rostrum to the tip of the tail), identified as gravid (carrying eggs) or not (Y or N), and returned to the stream. Lengths should be recorded in mm on the datasheet (on the next page). All other shrimp (the atyid shrimp) that cannot be confidently identified in the field should be enumerated, collected, and placed in a marked sample jar containing 90 % ethanol for later lab identification and analysis. The number of atyid shrimp collected in each section should be written on the datasheet. If possible, the observer should also indicate the number of gravid shrimp. The sample jar label should include the site name, section name (i.e., T1-T2), date, observer initials, and a description of the contents (i.e., “Shrimp in Ethanol, n = 12”). A small piece of paper with the same information written in pencil should go inside the sample jar in case the outer label falls off or is unreadable. A Guam field guide, located in the Streams Monitoring Documents Reference folder in SharePoint, has been developed to identify atyid shrimp in Guam’s streams. In the future, we will be moving toward field identification.

Shrimp Net Surveys

Site:	**Date:**
Observers:	**Recorded by:**

Segment	Species	Length (mm)	Gravid (Y/N)	Segment	Species	Length (mm)	Gravid (Y/N)