

SOP #13: Baited Trap Shrimp Survey

Version 1.0 (November 7, 2018)

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

Previous Version Number	New Version Number	Revision Date	Author	Changes Made	Reasons for Change	Network Regional Reviewer Approval

Purpose

This Standard Operating Procedure (SOP) describes conducting a baited trap shrimp survey for the Pacific Island Network Anchialine Pool Monitoring Protocol.

Overview of Sampling Procedure

This procedure is done after water quality measurements have been made, and should correspond with fish trap deployment. Previous field trials of traps and procedures showed that 5-10 traps per pool can be processed in 30 minutes or less (A. Farahi, *personal observation*). The number of shrimp observed to generally be captured ranges in the tens of individuals, as opposed to hundreds of individuals. A maximum of six baited shrimp traps are deployed. The number of traps deployed depends on the size of the pool (Table 13.1). Traps are deployed at least 0.5 m from the edge and dispersed haphazardly across the pool. If different substrates are present in the pool (e.g., cobbles, sand, emergent vegetation), traps locations are stratified between substrates. Observer(s) identify and count all shrimp and fish in the shrimp traps after a deployment time of 15 minutes. Trap placement details will be recorded on the data sheet. The baited trap shrimp survey returns relative abundance data.

Table 13.1. Number of traps to be deployed as a function of pool surface area. A minimum of two shrimp traps and a maximum of six shrimp traps will be deployed in each pool.

Surface Area (m2)	Shrimp Traps
0-5	2
5-10	3

10-20	4
>20	6

Conducting a Baited Trap Shrimp Survey

Within each pool a maximum of six baited traps are distributed around the pool. See Figures 13.1 and 13.2 for examples of traps deployed in pools. The haphazard dispersion of traps should be stratified among substrate types to the degree possible, no less than 0.5m from the edge. A “moist”, or semi-solid, i.e. not canned and not dry, cat food is used as bait with five pieces placed in a bait holder. The location of initial trap deployments are indicated on the pool map diagram. Traps will be deployed at the same location each year. All traps should be deployed and retrieved at the same time to ensure trap deployment time is the same for all traps. Traps are collected after fifteen minutes.

Shrimp are then put into a sorting tray to be identified. The observer identifies, counts, and records all shrimp in each trap. The observer also records any fish caught in the shrimp traps, noting the species and sex, if possible. See Figures 13.3a and 13.3b for an identification guide. Native species are returned to the pool unharmed, as quickly as possible. After the shrimp and fish are identified and counted from one trap, proceed to the next trap and repeat the counting/identification processes. Both native and introduced species caught in a shrimp trap should be recorded. Additionally, if an introduced species is seen in the pool, but is not in a trap, it should be identified and noted on the data sheet in a separate location.

In general, introduced shrimp and fish should be collected and removed from the pool. If the species is not previously known from that area it should be collected as a voucher specimen, preserved in alcohol, and stored at the park. If an introduced species cannot be identified, observers should remove the specimen for expert identification.

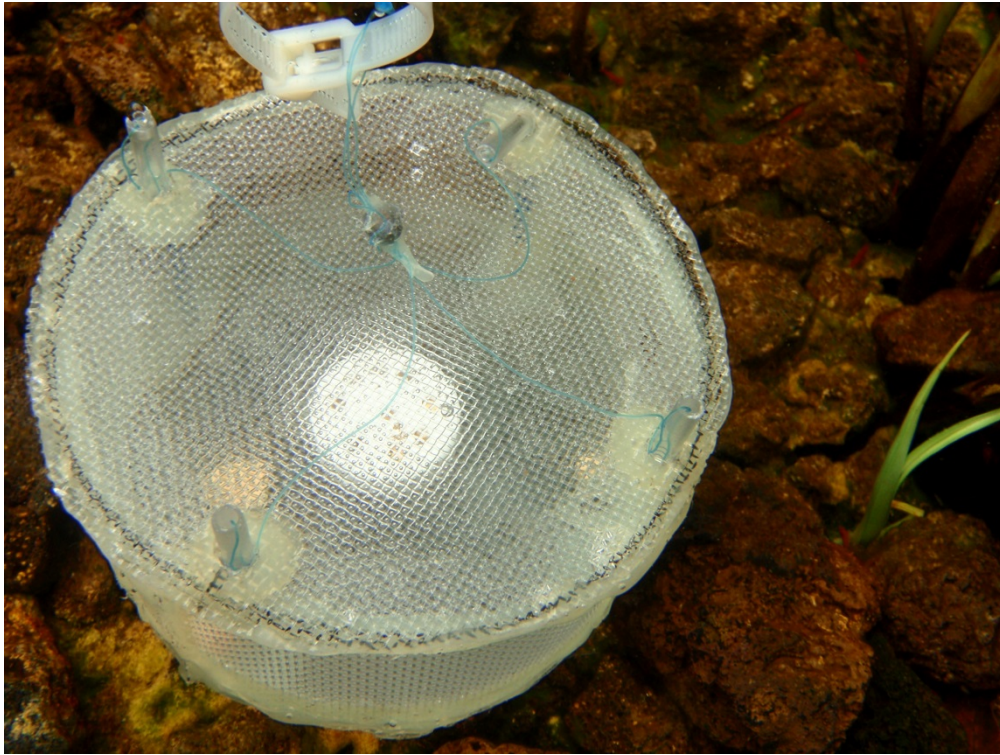
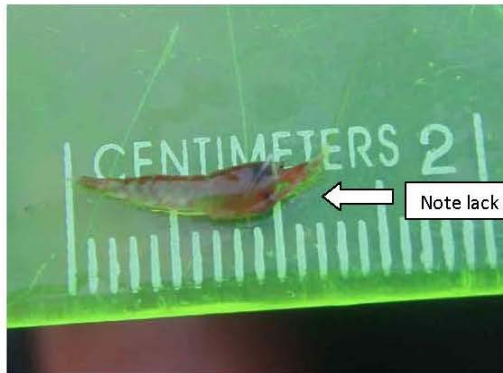


Figure 13.1. Close-up of a shrimp trap.



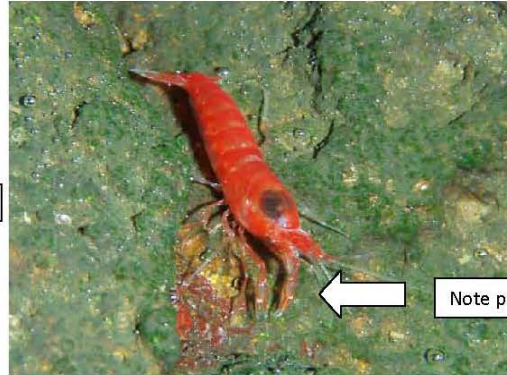
Figure 13.2. A shrimp trap deployed in a pool.

Anchialine Pool Crustaceans Identification Guide



Note lack of pincers

Halocaridina rubra (These shrimp rarely exceed 1.25 cm)



Note presence of pincers

Metabetaeus lohena (These shrimp rarely exceed 2.5 cm)



Numerous *Halocaridina rubra* and one *Metabetaeus lohena* illustrates size difference. *Metabetaeus lohena* is 2-3 times larger than *Halocaridina rubra*.

Figure 13.3.a. Anchialine pool crustaceans identification guide.

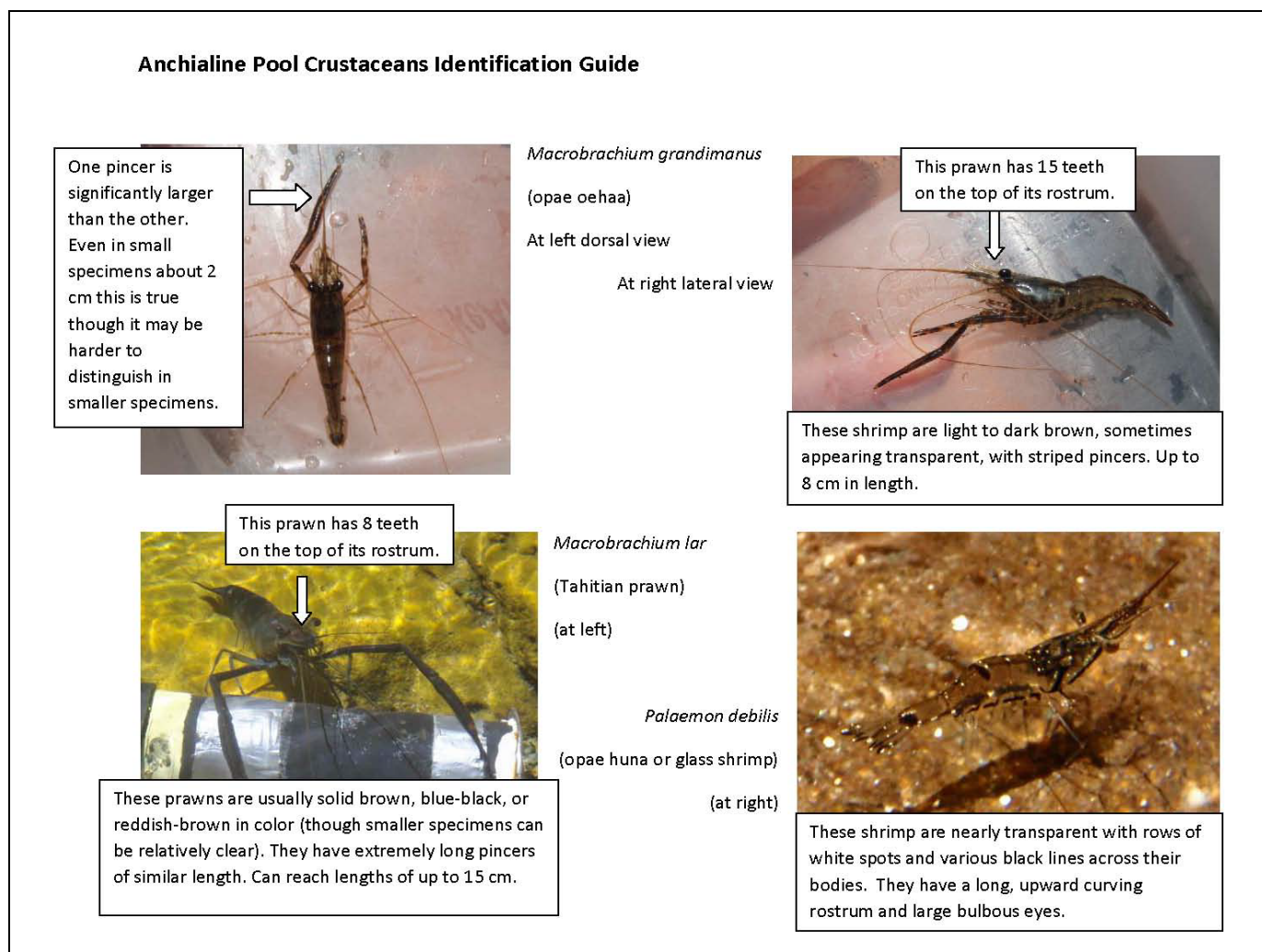


Figure 13.3.b. Anchialine pool crustaceans identification guide.