

CNMI Proactive Species Conservation Contract Semi-Annual Progress Report

- A. Order Number: AB133F09SE4484
B. Amount of Award: Federal \$74,000
C. Project Title: Proactive Species Conservation Program:
Assessment of habitat specificity and development of a draft archipelagic
management plan for *Cheilinus undulatus* and *Bolbometopon muricatum* in the
Mariana Islands
D. Grantee: CNMI Coastal Resources Management Office
E. Award Period: From 10/1/09 To 9/30/10
F. Period Covered by this Report: From 10/01/2009 to 04/31/2010
G. Summary of Progress and Expenditures to Date:

Report Summary:

1. Work Accomplishments for reporting period:

a. Describe tasks scheduled for this period (from proposal and amendments, if appropriate).

- 1) Quantitative assessment of *B. muricatum* and *C. undulatus* on Guam's reefs
- 2) Qualitative assessment of *B. muricatum* and *C. undulatus* on Guam's reefs
- 3) SOC awareness and outreach in CNMI
- 4) Literature search and compilation
- 5) Development of an archipelagic management plan

b. Describe tasks accomplished this period.

1) A combination of delays in setting up the award account and contract with University of Guam collaborators and, more critically, weather and scheduling conflicts in conducting surveys on Guam have hampered the start of this aspect of the project.

2) Interview questions have been generated to integrate into an ongoing Elder fishermen Interview project being conducted by NOAA PIRO. In addition to leveraging this activity, a knowledgeable interviewer on Guam has been identified to carry out interviews with a range of fishers that would complement the NOAA PIRO effort. The interview guidance is attached as Appendix 1.

3) The Species of Concern outreach efforts are being broadly integrated into ongoing local coral reef initiative outreach activities in addition to targeted activities that are SOC specific:

- The program website, http://www.cnmicoralreef.net/big_fish.htm, has been redesigned and is updated with current information on the project as it becomes available. The page now includes pages dedicated available biological information on both species.
- Flyers/posters are being designed that will provide current available information on SOC status and relevant life history data, including photos of juveniles. The initial goal of this effort is to raise awareness of juvenile

life history stages as CNMI-based interviews indicate that many fishers confuse juvenile *B. muricatum* with smaller parrotfish and *C. undulatus* juveniles are frequently not recognized as a juvenile phase of the larger adult fish.

- A CNMI Coral Reef Initiative publication, Coral Reefs 2008 includes mention of both SOC, continues to be distributed to classes as a general introduction to coral reef conservation issues. A pdf version is available online at http://www.cnmicoralreef.net/rp/publications/2008CNMI_Coral_Reefs.pdf
- The CRM staff biologist presented a powerpoint presentation on the aims and status of the project to representatives of the Western Pacific Fisheries Management Council during their 2010 meeting on Saipan.

4) Literature search. This has been completed and is posted on the website as an annotated bibliography. The survey resulted in a very limited number of references with little more than mention of either species in the Marianas. A copy of the bibliography is attached as Appendix 2.

5) The development of an archipelagic management plan is the final step of the proposed process and thus will require input from relevant stakeholders such as, but not limited to CNMI's Division of Fish and Wildlife, Guam Division of Aquatic and Wildlife Resources, local spearfishermen, the diving community, etc. Until the necessary supporting research can be presented to stakeholders, initiating the process of developing this plan remains on hold until later in the contract period.

c. Explain special problems, differences between scheduled and accomplished work, etc.

2. Expenditures:

a. Describe expenditures scheduled for this period.

Contractual

Survey Contract to UOG \$51,233

Interviews \$7,000

b. Describe actual expenditures this period.

None.

c. Explain special problems, differences between scheduled and actual expenditures, etc.

Initial delays were caused by administrative delays in setting up the award account and developing a contract with University of Guam collaborators. Guam field surveys were hampered by poor weather conditions during our winter, which is better known as the typhoon season and lasts from roughly September to

April. We have had other logistical constraints- including delays on repairs to boats we had planned to use for these projects and scheduling conflicts with ongoing projects, which have hampered completion of these tasks.

APPENDIX 1- INTERVIEW TEMPLATE

Date: _____ Island (circle): Guam Saipan Rota Tinian Other:

Village: _____ Notes: _____

Introduction (in your own words): State your name, agency work with (DFW, DEQ, CRM), and explain the project

-We are conducting interviews for a project related to traditional fishing and changes in fishing over time in the Marianas, talking with a number of experienced fishermen in order to learn from their experience about changes in fishing, coastal resources, and the changes in different types of fish and other ocean life over time.

- Do you have experience with this topic? (if yes) Would you be willing to be interviewed regarding this topic?

(if yes) Explain that there are a number of questions, but they don't have to answer any questions that you don't want to answer. (Ask permission to record and let them know that they can ask you to turn off the recorder at any time.)

(if no) Can you recommend anyone who might be a good person for me to talk to about this subject? Thank you for your time.

Question Guidelines for Fisherman Interviews

Name: _____ Age: _____ Gender: Male / Female

Fishing experience and history

1. How long have you been fishing in CNMI/Guam? _____

1a. Do you fish often, or did you in the past? How often? (Has this changed over time?)
(minimum 1x/week at some point in their life)

2. Have you always fished here, or have you lived and fished in other locations?

*(Prompts: History of **where they have lived** over time (**dates** if possible). If they have moved, make sure you are clear about the different locations they are talking about during the interview.)*

3. What **types of fishing** have you done (methods/gears/target species)?
(Get dates, locations – reasons for choice of method...?)

3b. *(Follow-up if needed)* Have the fishing method(s) you use **changed** over time? **How?**
When did you change (dates if possible)? **Why?**

4. How has your fish catch changed over time (in general)?

Prompts: Size, species, quantity – when, where, how, why? (specific years and locations if possible)

Nearshore fishing conditions

5. How does fishing now compare to the past for **reef fish (in general)**?

 better about the same worse don't
know

(For each species where they answer "better / worse", follow up with:)

How so? (clarify **abundance vs. gear**) What do you think are the reasons for these changes? *Do you know approximately when these changes took place? (Write detailed notes here or on separate page if necessary)*

- I have a list and pictures of different types of fish. Could you let me know which ones you have fished, and how fishing now compares to fishing in the past for each of these fish?

Fish

Big eye scad better about the same worse don't
know

Atulai

Juv. Jacks better about the same worse don't
know

EE

Juv. goatfish better about the same worse don't
know

Tiao

Juv. rabbitfish better about the same worse don't
know

Manahak

Rabbitfish (adult) better about the same worse don't
know

Sesyun / Hiting

Bluespine Unicornfish better about the same worse
don't know

Tataga / Alenatag

Orangespine Unicornfish better about the same worse don't
know

Hangun / Havgov

Mullets better about the same worse
don't know

Laiguan / Aguas / Pegi

Emperors know better about the same worse don't

Mafuti / Lililok / Matan Hagon

Parrotfish/wrasse know better about the same worse don't

Palaksi / Kabora

Invertebrates

Octopus know better about the same worse don't

Gamson

Lobster don't know better about the same worse

Mahongang / Papangpang

Giant clam know better about the same worse don't

Hima

Trochus don't know better about the same worse

Aliling- tulumpo

Trochus know better about the same worse don't

Aliling- pulan

6. What changes have you seen over time for the following species?

a. **Bumphead parrotfish (lagua / atuhung)** (Show photos with 3 life stages to see which ones they are familiar with and how they have changed)

more abundant same less abundant not sure not familiar with this species

Describe: Timeframe, location of fish, life stages observed, change in methods, targeting, other. Reasons for change?

What is the largest size (pounds or length) of this fish you've seen on Guam?

What is the largest group of this fish you've seen on Guam?

Have you seen this fish for sale on Guam? (if yes- when and what size?)

Are you aware of any cultural importance of this fish?

b. **Humphead (Napoleon) wrasse (tanguison)** (Show photos with 3 life stages to see which ones they are familiar with and how they have changed)

more abundant same less abundant not sure not familiar with this species

Describe: Timeframe, location of fish, life stages observed, change in methods, targeting, other. Reasons for change?

Have you ever seen this fish in groups in the water? (**If yes**- when & where)

Have you ever caught this fish? (If so what is the largest, and when did you catch it?)

Have you seen this fish for sale on Guam? (**if yes** when & what size?)

Are you aware of any cultural importance of this fish?

d. **Sharks (alu)** (note differences for reef sharks and larger pelagic they've seen (species if possible)

more abundant same less abundant not sure

Prompt: For sharks, get them to differentiate for differences in species – ie. Gray, black tip, white tip, tiger(?), pelagic that come near to shore...

Describe: Timeframe, location of fish, change in methods, targeting, other. Reasons for change?

7. (If they answered “worse” for any options in questions 5 and 6)

For the types of fishing that you said have become worse, or the species that are less abundant now, is there anything that you think can or should be done to improve this?

7 a1. If the following regulations were being considered to improve Tangison numbers, which would you support: (Check all that are supported)

Closed season (no fishing) during reproductive season

Size limits: minimum- can't catch fish smaller than a certain size

Size limits: maximum- can't catch fish larger than a certain size

Total closure (no fishing)

For 3-5 years For 5-10 years Permanent

7 a2. If the following regulations were being considered to improve Atuhong numbers, which would you support: (Check all that are supported)

Closed season (no fishing) during reproductive season

Size limits: minimum- can't catch fish smaller than a certain size

Size limits: maximum- can't catch fish larger than a certain size

Total closure (no fishing)

For 3-5 years For 5-10 years Permanent

7b. Are there any fish that you have avoided taking now or in the past? Why did you avoid them?

(Prompts: Were there health related reasons like fish toxicity (ciguatera), or cultural beliefs? Personal preference?)

Individual fishing behavior

8. Why do/did you usually go fishing? What do you generally do with your catch (keep, sell, give away...)? Does this vary by species? Has this changed over time? How? Why?

9. Have you ever been involved in fishing expeditions to the Northern Islands?
(Prompts: Could you describe a trip out there? When, where, and how often would you go? What methods did you use? What fish did you target? Were you successful? Have you observed changes in those areas changed over time?)

Climate and habitat change

10. Have you noticed any changes in the coral reefs over time? Y N
What did you observe, did you see a change in species, has it affected your fishing practices?

(prompt – if white coral was observed, show picture of Crown of Thorn Starfish – ask if these were observed)

10a. Have you noticed any changes in the sea grass areas over time? Y N

What did you observe, did you see a change in species, has it affected your fishing practices?

10b. Have you noticed any changes in nearshore water quality over time? Y N

What did you observe, did you see a change in species, has it affected your fishing practices?

11. Have you ever noticed any other large scale changes over time like changes in fish populations, weather patterns, water temperature, or fishing seasons? (Either in the past or in recent times?) Could you describe these changes? (What, when, where, how, why?)

Local Marine Management

12. In the past, have there ever been local or traditional restrictions or limits on fishing, harvesting, or using the coast near your village or elsewhere on the island? Y

N

Please describe.

(Prompts: Where? When? Who? Why? How enforced?

Permanent/Temporary/Seasonal? Species? Still taking place?... Local master fisherman or decision-maker, systems of patrolling, social pressure, limits on fish caught, limit on who can fish, enforcement methods, inter-village collaboration, traditional ceremonies, other...)

13. *Question about could you describe your biggest/best/most memorable catch-when/what/where? (Flexible question – to be used when/if needed)*

14. What do you think about current Guam regulations on marine resource use? Are there any changes you would like to see in these regulations or how they are enforced? Why?

(Prompts if ask “what regulations?”: Trochus and lobster size limits, MPAs...? Input from them on what regulations are helpful/harmful?)

15. Is there anything else that you would like to share with us about changes in fishing and use of marine resources that we have not yet asked?

(Prompts: Legends, traditions, stories, other things you think are important?)

16. What is your ethnicity?

Interview conducted in *(Circle language(s) that apply)*:

English

Chamorro

Carolinian

Other:

Thank you for your time and for sharing your knowledge with us. Are there other experienced long-time fishermen you recommend we talk to? (How can I get in contact with him/her?)

(Provide contact information for them to get in contact with you if necessary)

Ask if you have permission to use their name and stories if we decide to use quotes from their interview in a publication.

Permission given = _____ Yes

Permission not given = _____

No

Interviewer notes: Potential candidate for video footage? Yes _____ No _____

Potentially _____

Explain (why? what topics?):

ATUHONG

TANGISON

Youngest Phase



Intermediate Phase



Adult Phase



Bumphead Parrotfish

C: Pachak (s); Fohmo (m); Atuhong

J: Kanmuribudai

S: Roow (Ghúún)

Humphead (Napoleon) Wrasse

C: Tâsen guâguan (s); Tangison (lg)

J: Megane-mochino-uo

S: Máám

APPENDIX 2- CNMI SOC Bibliography

A Bibliography of Reports including Mention of *Cheilinus undulatus* and *Bolbometopon muricatum* in the Commonwealth of the Northern Mariana Islands.

Compiled and annotated by John Starmer
Coral Reef Monitoring Program,
Coastal Resources Management Office
Saipan, CNMI, 2010

*The following compilation is intended to aggregate available records of *Cheilinus undulatus* and *Bolbometopon muricatum*, two fish species considered 'Species of Special Concern' by the CNMI DLNR Division of Fish and Wildlife and NOAA National Marine Fisheries Service, Office of Protected Species. All cited references are available at the Coastal Resources Management Office on Saipan.

Amesbury, S.S. and Te, T.F. 1991. March-April 1991: Fish survey of Laulau Bay, Saipan. In Cheenis Pacific Company. Quantitative Marine Baseline Survey: Biological Resources and Water Quality. Bahia Laulau and Unai Laulau Kattan Areas. Saipan, Mariana Islands. Interim Dry Season Session I Report.

Transect and SPC-based surveys on reef flat, spur-and-groove and 'reef terrace' or fore reef. Only two *C. undulatus* were recorded on the transects 5 m SPC at Unai Baput, although surveys were also conducted at Unai Laolao, between Puntan Baput and Puntan Hakmang and near Marine Beach, east of Putna Laolao Kattan.

Anonymous. 1991. CNMI Fishing Regulations. Department of Natural Resources, Division of Fish and Wildlife. 15pp.

Has 'slot limit' of 20-36 inches total length listed for both species of concern. Smaller and larger fishes could not be harvested. This regulation (along with other size limits in this publication) were either repealed or are no longer enforced.

Anonymous. 2002. Fish and Wildlife Fact Sheet: *Atuhong*: Humphead Parrotfish. Guam Division of Aquatic and Wildlife Resources and Guam Coastal Management Program.

Notes that *Bolbometopon muricatum* have become rare around most of Guam, with the majority of remaining fishes in less accessible the northern parts of the island.

Anonymous. 2002. Fish and Wildlife Fact Sheet: *Tangison* (Humphead Wrasse). Guam Division of Aquatic and Wildlife Resources and Guam Coastal Management Program.

Notes juvenile *Cheilinus undulatus* are found in reef flat and lagoon areas, with fishes over a foot in length generally found in reef fronts down to 60 m.

Brewer, W.A. 1977. Draft environmental impact assessment: Rota harbor Project, Rota Island, Mariana Islands. Typhoon Coordinating Office, Saipan.

Notes observation of *C. undulatus* in Rota, but no observation in Sonsanlagh Bay in the area of West Harbor prior to the expansion of the dock facility and construction of a causeway to Anjota Island .

Flores, T.R. 1999. Checklist of the fishes of the Commonwealth of the Northern Mariana Islands. CNMI DLNR DFW Technical Report 99-01. 50 pp. *in* CNMI DFW. 1999. Sportfish restoration research program annual progress report. Department of Lands and Natural Resources, Division of Fish and Wildlife, Saipan.

Notes presence of *C. undulatus* on Tinian, Saipan, Farallon de Mendinilla, Anatahan, Agrihan, Ascuncion, Maug. *Bolbometopon* was not recorded for any island.

Minton, D., V. Brown, K. Dugger, T. Flores, K. Foster, P. Houk, J. Iguel, C. Kessler, S. Kolinski, T. Schils, J. Starmer, N. Suhkraj, M. Tenorio, and M. Trianni. 2009. Draft Report: Marine Resource Surveys of Tinian, Commonwealth of the Northern Mariana Islands (Vol. I & II) Prepared of Headquarters, United States Marine Corps.

Specifically notes that *C. undulatus* and *Bolobmetopon* were not observed during extensive surveys along Unai Dangkolo, Unai Babui, Unai Chulu and the Tinian Harbor.

Pacific Basin Environmental Consultants, Inc. 1984. Final Report- Biological and physical survey of Bahia Laulau, Saipan, Prepared for CNMI Planning/ Energy Office. 159 pp. + appendices.

Notes presence of *C. undulatus* on the fore reef slope and its interest as a food fish in specific to spearfishermen. No reference is made to *Bolobmetopon* in the report.

Pacific Islands Fisheries Science Center. 2010. Coral reef ecosystems of the Mariana Archipelago: a 2003-2007 overview. NOAA PIFSC Special Publication, SP-10-002. 38pp.

Reports *C. undulatus* abundance- based on towed diver surveys- as higher in the southern than northern islands (11 vs 2 individuals per square km). Mean size was nearly 100 cm. It appears that numbers are based on averages of all three survey years.

Randall, R.H., ed. A marine survey of the Northern Tanapag reef platform, Saipan, Mariana Islands. University of Guam Marine Laboratory Technical Report no. 87. 147 pp.

Section on fishes by P.D. Gates reports on transect based surveys (100 m x 2 m) carried out in northern Tanapag Lagoon in discrete habitats recorded 22 *C. undulatus*. The majority of individuals- including a maximum of 11 on one transect- were found in 'Coral coralline rubble, dead coral in-situ with pockets of sand in outer-mid backreef habitat. Individuals were also found in less complex habitat including *Halodule* seagrass beds, sandy bottom with scattered corals and pavement with boulders. No indication of size of observed individuals is provided, but it is probable that the majority if not all were juveniles(< 30 cm).

Randall, R.H., et al. 1988. A marine survey of the Obyan-Naftan reef area, Saipan, Mariana Islands. University of Guam Marine Laboratory, Technical Report no. 90. 56 pp.

Section on fishes by S. S. Amesbury on the results of transect surveys (50 m x 5 m) on reef flat and fore reef (5-6 m depth). A single *C. undulatus* was recorded on a fore reef transect near Naftan Point. No records of species of concern on any reef flat transects.

Starmer, J. 2008. Coral Reefs 2008: Our Reefs, Our Future. CNMI Coastal Resources Management Office. 11pp.

Discusses the economic value of *C. undulatus* as a tourism vs. fisheries resource and mention is made of scarcity of *B. muricatum* in the Marianas.

Schupp, P. and Kerr, A. 1991. Fish Survey of Laulau Bay, Saipan: August-September 1991. In Cheenis Pacific Company. Quantitative Marine Baseline Survey: Biological Resources and Water Quality. Bahia Laulau and Unai Laulau Kattan Areas. Saipan, Mariana Islands. Final Report Dry and Wet Seasons of 1991.

An intensive fish survey of the Laolao Bay area following up on the work of Amesbury and Te 1991 and Te and Amesbury 1991. Despite a substantial number of survey transects (50m x 2 m) and covering habitats from reef flat, through spur and groove zone down to 5 m, no sighting of *Bolbometopon* or *C. undulatus* are recorded.

Trianni, M.S. 1999. Farallon de Mendinilla: Qualitative Survey of Nearshore Habitat July 11-15, 1999. CNMI Division of Fish and Wildlife Technical Assistance Report 99-01.

Reports abundance of *C. undulatus* on one of five tows as Rare (<5).