



Republic of the Philippines  
Department of Environment and Natural Resources  
**MIMAROPA Region**  
**Provincial Environment and Natural Resources Office**  
Bgy. Sta. Monica, Puerto Princesa City, Palawan  
E-mail: penropalawan@denr.gov.ph  
Telfax No. (048) 433-5638

17 June 2022

**MEMORANDUM**

**FOR :** **The Regional Executive Director**  
MIMAROPA Region  
Roxas, Blvd. Ermita, Manila

**The Director**  
Ecosystems Research and Development Bureau  
College, Laguna

**FROM :** The Provincial Environment and  
Natural Resources Officer

**SUBJECT :** **LETTER REQUEST OF DR. PATILUNA OF WESTERN  
PHILIPPINES UNIVERSITY (WPU) TO CONDUCT  
RESEARCH STUDY ON ZOOPLANKTON IN SNAKE ISLAND,  
HONDA BAY, PUERTO PRINCESA CITY, PALAWAN**

Respectfully endorsing the attached letter and copy of capsule proposal of Dr. Ma. Lotus E. Patiluna, research adviser of MS Marine Biology students of Western Philippines University (WPU), requesting to conduct a research study on the abundance and emergence pattern of sublittoral demersal zooplankton in different substrates in Snake Island, Honda Bay, Puerto Princesa City, Palawan.

In line with this, may we request the ERDB, as the chairman of Technical Review Committee (TRC) for the conduct of research in Snake Island, for the review and recommendation or approval of the requested research study of WPU students based on the existing policies and guidelines.

For your information and consideration.



  
**FELIZARDO B. CAYATOC**

**DENR PENRO  
PALAWAN RECORDS  
RELEASED**

BY:   
DATE:  22-1528  
**JUN 21 2022**



Republic of the Philippines  
**Western Philippines University**

A STRONG PARTNER FOR SUSTAINABLE DEVELOPMENT

**College of Fisheries and Aquatic Sciences**

**DENR PENRO  
PALAWAN RECORDS  
RECEIVED**

**June 10, 2022**

**MR. FELIZARDO B. CAYATOC**  
PENRO

BY: \_\_\_\_\_  
DATE: 06-15-2022 CN 22-5216

Department of Environment and Natural Resources-PENRO PALAWAN

**SUBJECT: Endorsement letter for the students to conduct sampling in Snake Island, Honda Bay, Palawan**

**Dear Sir,**

Warm greetings!

Zooplankton are a diverse group of animals found in oceans, bays, and estuaries. By eating phytoplankton, and each other, zooplankton play a significant role in the transfer of materials and energy up the oceanic food web (e.g., fish, birds, marine mammals, humans.) Like phytoplankton, environmental and oceanographic factors continuously influence the abundance, composition and spatial distribution of zooplankton. These include the abundance and type of phytoplankton present in the water, as well as the water's temperature, salinity, oxygen, and pH. Zooplankton can rapidly react to changes in their environment. For this reason, monitoring the status of zooplankton is essential for detecting changes in, and evaluating the status of ocean ecosystems.

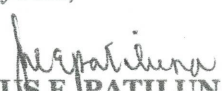
In connection with this, the MS Marine Biology students of the College of Fisheries and Aquatic Sciences of Western Philippines University are aiming to conduct a research study on the abundance and emergence pattern of sublittoral demersal zooplankton in different substrates in Snake Island, Honda Bay, Puerto Princesa City, Palawan.

With regards to this, we would like to formally seek a clearance from your good office to conduct field sampling and data collection within the island. We will be collecting water samples to collect zooplankton. Rest assure that we will perform the activity with minimal disturbance to the ecosystem. Any assistance from your office will be much appreciated.


Attached here is the proposal for the study for your reference.

Thank you so much and God bless you.

Very truly yours,

  
**MA. LOTUS E. PATILUNA, PhD** 09068208181  
Research Adviser

Noted:

  
**HERMINIE P. PALLA, PhD.**  
Dean, College of Fisheries and Aquatic Sciences  
Sta. Monica, Puerto Princesa City 5300  
www.wpu.edu.ph cfas@wpu.edu.ph

**CFAS  
RECEIVED**  
6-10-22



**College of Fisheries and Aquatic Sciences**

June 10, 2022

**DR. HERMINIE P. PALLA**

Dean  
College of Fisheries and Aquatic Sciences

Dear Dr. Palla:

Warm greetings!

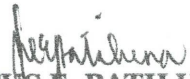
In partial fulfillment of the requirements for the degree and the subject Marine Plankton, MS Marine Biology students of the College of Fisheries and Aquatic Sciences of Western Philippines University are aiming to conduct a research study on the abundance and emergence pattern of sublittoral demersal zooplankton in different substrates in Snake Island, Honda Bay, Puerto Princesa City, Palawan

In connection to this, we would like to formally seek permission to allow the following students to conduct field sampling and data collection within their assigned coastal barangays in Palawan.

1. Sharah Marie Barredo
2. Russell B. Climaco
3. Razel Cubillas
4. Lea Janine Gajardo


We are looking forward to your kind response regarding this matter. Thank you so much.

Very truly yours,

  
**MA. LOTUS E. PATILUNA, PhD**  
Research Adviser

69068208181

Approved by:

  
**HERMINIE P. PALLA, PhD**  
Dean





## CAPSULE PROPOSAL

Research Title	Abundance and emergence pattern of sublittoral demersal zooplankton in different substrates on Snake Island, Puerto Princesa, Palawan
Researcher/s	<div>Russell B. Climaco      MS Marine Biology</div> <div>Razel Cubillas        MS Marine Biology</div> <div>Sharah Marie Barredo   MS Marine Biology</div> <div>Lea Janine Gajardo     MS Marine Biology</div>
Adviser	Dr. Ma. Lotus E. Patiluna    Asst. Prof. IV, CFAS-WPU
Background of the Study	<p>Zooplankton comprises almost all major groups of animals, either as an adult or as larvae these include copepods, shrimp larvae, gastropods, bivalves, medusae, radiolarian, echinoderm larvae, ostracods, cladocerans, chaetognath, and larvae. These minute organisms provide a vital link between the primary producers and numerous large and small carnivores (Nybakken, 1982).</p> <p>Among the different zooplankton, the demersal ones are the most significant as a major source of food for nocturnal fishes and corals in the coral reef. Demersal zooplankton are small, active organisms that reside or hide in or near the substrata, migrating up into the water column from the bottom at night and then returning to the substratum before daylight (Melo P.A.M.C. <i>Et.al</i>, 2010). Studies have reported that high abundances of demersal zooplankton emerge nightly from coral reefs, kelp beds, and soft-bottom habitats (e.g. Hammer 1981; Alldredge &amp; King 1985; Jacoby &amp; Greenwood 1988, 1989; Cahoon &amp; Tronzo 1992; Carleton et al. 2001) this suggests that demersal zooplankton play an important role in the ecology and trophic pathways of many benthic communities. Hence, in the nearshore coastal environment, this plankton indirectly determines the distribution of planktivorous in the area.</p> <p>Such is the case of the coastal water of Puerto Princesa City, specifically on Snake island where a rich and diverse marine life exists. Its richness and diversity have been confirmed and reported in several studies. However much has not yet been explored and studied especially on the nocturnal characteristic of zooplankton in relation to lunar phases. Consequently, since no existing data are available regarding the abundance and emergence behavior of demersal zooplankton in the area, our understanding of its relationship to the presence of the planktivorous organism, including other higher consumers in the food is also apparently limited and challenging.</p>
Objectives of the Study	<p>This study will be conducted to determine and compare the emergence pattern of demersal zooplankton among three different substrates (Corals, Sand, and Seagrass) on snake island.</p> <p>Specifically, it aims to:</p> <ol style="list-style-type: none"> <li>1. Determine the taxonomic composition and density of demersal zooplankton emerging within 24 hours from coral, sand, and seagrass substrate on snake island.</li> <li>2. Determine the abundance of demersal zooplankton relative to different lunar phases.</li> <li>3. Determine the diversity and similarity of demersal zooplankton in different substrata</li> </ol>
Significance of the Study	Zooplankton associated with benthic habitats has been an important point of inquiry because of their significant role in the bioenergetics of marine ecosystems especially coastal water. But, despite its importance, studies on this microscopic organism are limited,

	<p>unnoticed, or even uncharted in some areas. This study will be conducted to provide information on the taxonomic and emergence of demersal zooplankton. Since they directly or indirectly affect the distribution of predators.</p> <p>The result of this study will also provide substantial information on the tropic relationship between demersal zooplankton and other benthic communities, similarly, it can also generate data on the biodiversity of demersal zooplankton in Snake Island, Puerto Princesa, Palawan</p>
Scope and Limitation of the Study	<p>The study will be conducted in Puerto Princesa city, particularly on Snake Island. It is primarily focused to gather information on the taxonomic composition, abundance, and emergence pattern of demersal zooplankton from selected substrata in relation to the lunar phase. A modified demersal zooplankton trap will be used for 24 hours for each phase. the taxonomic composition will be limited only to general group/taxa.</p>
Methodology	<p><b>Sampling design</b>  A sampling station will be established on snake island and will be visited 4 times which corresponds to every lunar phase. The station will be chosen based on the characteristic of each specified substrata (Coral, Sand, Seagrass) Sampling dates will be scheduled on the last quarter, New Moon. First-quarter and Full moon. Two replicates of demersal zooplankton trap for each substratum will be set overnight starting at @1200H. Afterwhich, cod-end collection followed and changed every 4-hour interval within the 24- hour period (1600 hr, 2200 hr,2400 hr,0400hr, 0800hr,1200hr.</p> <p><b>Setting-up of demersal zooplankton trap and collection</b>  Two modified demersal zooplankton will be set at 1200hrs in every sampling substrate. Each will be positioned with heavy rubbles along the sides of the base to hold the trap in place. A buoy will be attached along the trap side sin each sampling site for easy sightings during nighttime. Sampling depth will be 1-3 meters.</p> <p>Each trap will be visited every 4-hour interval with the cod end retrieved carefully. Upon removal and transport of the cod end to the surface, the container mouth will be closed by palm to prevent loss of sample and possible contamination by other plankton in the surrounding area. After retrieval, the samples will be placed in a labeled jar and pre-treated with a 5% formalin solution. The pre-treated sample will be securely placed in a crate and transported to the laboratory for further analysis.</p> <p><b>Laboratory method</b>  In the laboratory, the pre-treated formalin samples will be sieved using a 0.0063µm mesh size sieve net. The sieved sample will be then transferred to a Rose Bengal Solution. The sample will be left for 2 days to assure specimens are completely stained before counting. A stereomicroscope and petri dish with a gridded bottom will be used for counting and identification of samples. Before actual counting, the preserved sample will be brought to a known volume (100ml) and aerated to homogenize the sample. Three replicates of 10ml will be taken from the samples and will be transferred to the Petri dish with a 10ml pipette and aspirator. Identification of sample will be based on the illustrated checklist of Newell G.E and Newell R.C (1963)</p>
Expected Results and Output	<p>Publication  Data Banking</p>



## References

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- Hammer RM. 1981. Day-night differences in the emergence of demersal zooplankton from a sand substrate in a kelp forest. *Marine Biology* 62:275-80.
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