

STUDIES ON THE RESPONSE OF PRESETTLING FISH TO SOUND

AUDREY PRIYA A/P DANABAL

DEPARTMENT OF MARINE SCIENCE  
FACULTY OF SCIENCE AND TECHNOLOGY  
SHELL UNIVERSITI SAINS DAN TEKNOLOGI MALAYSIA

2004

1100028931

PERPUSTAKAAN KOLEJ UNIVERSITI SAINS & TEKNOLOGI MALAYSIA (KUSTEM)			
Pengarang Audrey Priya A/P Danabai		No. Panggilan IP1	
Judul studies on the response of of presenting fish			
Tarikh	Waktu Pemulangan	Nombor Ahli	Tanda tangan

31/3/10

STUDIES ON THE RESPONSE OF PRESETTLING FISH TO SOUND

BY

AUDREY PRIYA A/P DANABAL

Research Report submitted in partial fulfillment of  
the requirements for the degree of  
Bachelor of Science (Marine Biology)

Department of Marine Science  
Faculty of Science and Technology  
KOLEJ UNIVERSITI SAINS DAN TEKNOLOGI MALAYSIA  
2004

This project report should be cited as follows:

Danabal, A. P. 2004. Studies on the response of presettling fish to sound. Final Year Project Report. Bachelor of Science (Marine Biology). Faculty of Science and Technology, Kolej Universiti Sains dan Teknologi Malaysia.

## ACKNOWLEDGEMENT

First and foremost, I would like to thank the Lord, for his guidance and never ending blessings he showered on me for the strength and courage in my life.

I would like thank Mr. Liew Hock Chark and Dr. Khalid Samo for their help and guidance in helping me overcome my problems in this study and to complete this report. Not forgetting En. Azizi, in his never ending help in my equipment preparation. Thank you to my instructor, En. Anuar for his help during sampling.

Appreciation goes to the Marine Park Officers for their help in collecting the samples and making our stay at the marine park very comfortable. I would also like to thank Laguna Redang for providing us with transportation, logging

Irece, Pelf, James, Sau Hong and Mun Heang, thank you guys for the fun and memories we had together during sampling. To the rest of my friends of Marine Biology (2001/04), see how far we have come!

Cynthia, Beatrice, and Natt thank you for always accompanying me, lending me books and for not being “kedekut ilmu”. Specially C-put, Lobou, Dominic, Francis, Clandon, Ritchie thank you very much for helping me catch my fish! Thank you, Colobo for lending me your computer, you’re an angel!

Never forgetting my parents, Anne, Douglas and Sohan for their love, support, and MONEY! Amani and Perima for your “Power Prayers”. I love you all.

Last but not least, special thank you to Peyei, Pam, Steven, Juni, Mann, Nelson, Andrew, Jojo, Willison & Armon.co for their friendship, support and presence in my life.

## ABSTRACT

The current state of our knowledge on the hearing capacities of the presettling fish is still too meager. This experiment is meant to understand better the response to sound by the presettling fishes. This study was carried out to observe the response of presettling fish to the different sounds from the marine environment and non-natural sounds in an acoustic tank. This study will serve as a basis for the generation of ideas on the course of future research. Particularly may be useful in fisheries management. In this study, the recorded sound used was the coral during the day, night, rocky shore and boat engine. The sounds were then tested one at a time on the three groups of presettling fish which are the Amphiprionae, Gobiidae and Serranidae. The experiment was conducted in an acoustic tank in the laboratory. The presettling fish were observed to show varies response to sounds that were tested. The fish was noticed to have either swim towards the sound source, stay in middle or either swim away from the sound source in the tank. For the presettling Amphiprionae, log-likelihood ratio (G-statistic), showed no significant choice of sound selection for the natural sounds tested. There was a significant choice for the sound of the boat engine. As for the Gobiidae, the analysis showed that the larvae did not show any selection for the sound of coral during the day and night. The presettling Gobiidae showed selection of the sound of the rocky shore and boat engine. The Serranidae, on the other hand showed a significant selection for all the sounds tested. There is a significant difference of the response between the natural sound of the marine environment and the non natural sounds.

## ABSTRAK

Pada masa kini, pengetahuan kita terhadap kapasitas pendengaran ikan juvenil adalah masih kabur. Experimen ini adalah untuk memahami reaksi ikan juvenil terhadap bunyi. Selain itu, ia juga adalah untuk memerhatikan reaksi ikan terhadap bunyi persekitaran marin dan bunyi dan bunyi buatan di dalam tangki akustik. Ini akan dapat dijadikan sebagai asas untuk penjanaaan idea penyelidikan pada masa hadapan. Khususnya, dalam bidang perikanan. Dalam kajian ini, bunyi yang telah di rakam adalah bunyi batu karang pada siang hari, malam, kawasan pantai berbatu dan enjin bot. Bunyi-bunyi ini di uji satu demi satu dari tiga keluarga ikan juvenil iaitu Amphiprionae, Gobiidae dan Serranidae didalam tangki akustik. Ikan-ikan juvenile telah diperhatikan menunjukkan pelbagai reaksi terhadap bunyi yang diuji. Ikan-ikan ini diperhati sama ada berenang kearah punca bunyi, menjauhi punca bunyi atau berada di bahagian tengah tangki. Bagi ikan juvenil Amphiprionae, nisbah 'log-likelihood' (Statistik-G), telah menunjukkan tidak ada pemilihan untuk bunyi-bunyi persekitaran marin. Akan tetapi, terdapat pemilihan yang nyata bagi bunyi enjin bot. Bagi ikan juvenil Gobiidae pula, analisis statistik telah menunjukkan taburan yang sekata untuk bunyi batu karang pada waktu siang dan malam yang bermakna tidak ada pemilihan. Bagi bunyi pantai berbatu dan bot enjin, menunjukkan taburan yang tidak sekata, iaitu terdapat pemilihan bunyi. Untuk ikan juvenil Serranidae pula, analisis menunjukkan taburan ikan ini terhadap ujian kesemua bunyi sebagai tidak sekata yang bermakna terdapat pemilihan. Maka, jelas bahawa terdapat perbezaan reaksi antara pengujian bunyi persekitaran marin dan bunyi yang tidak semulajadi.