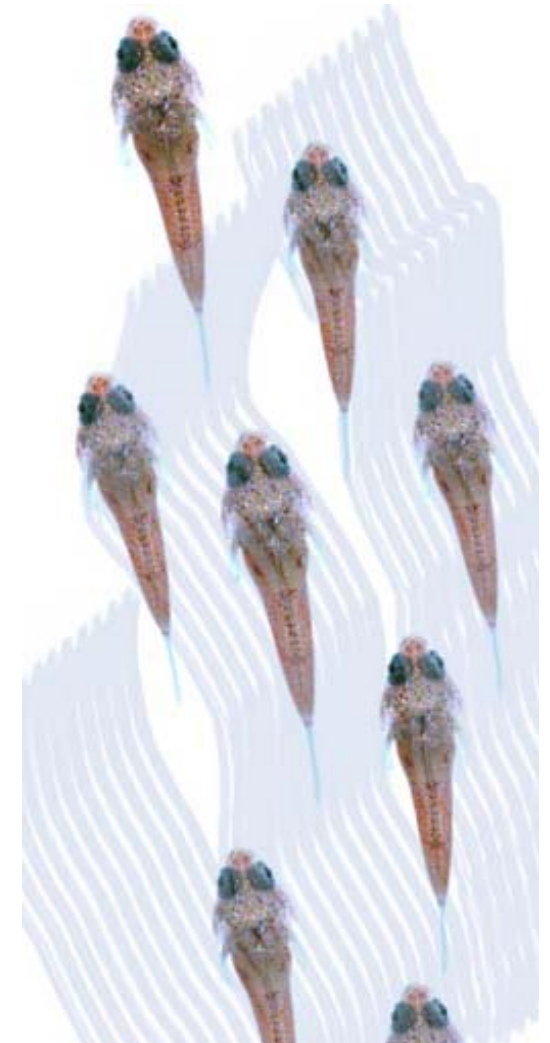


A

Fish Larval Studies in the Philippines

(*Past and Present*)

C

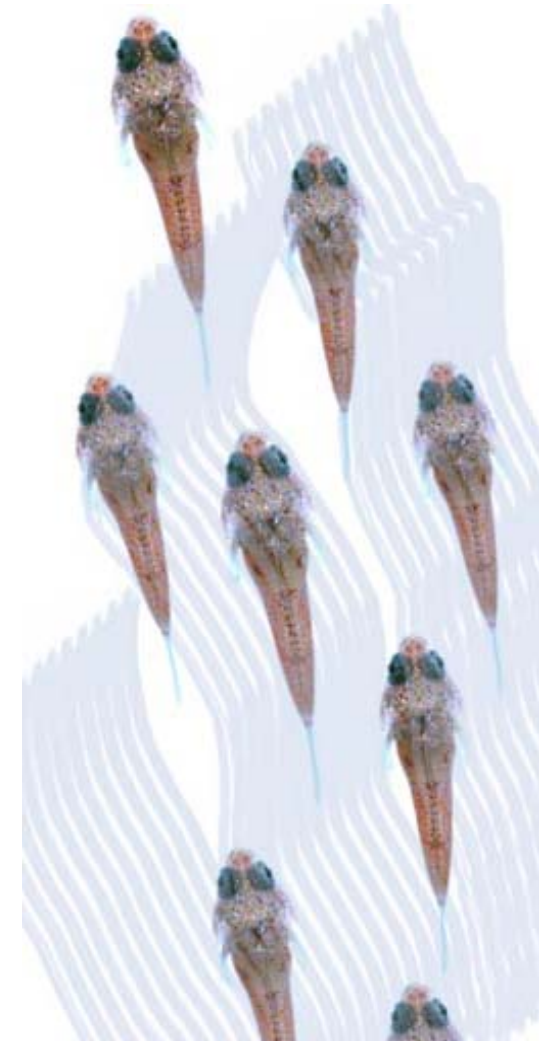




(NFRDI)



(BFAR)



Fish Larval Identification in Palawan Waters on-board M.V SEAFDEC 2



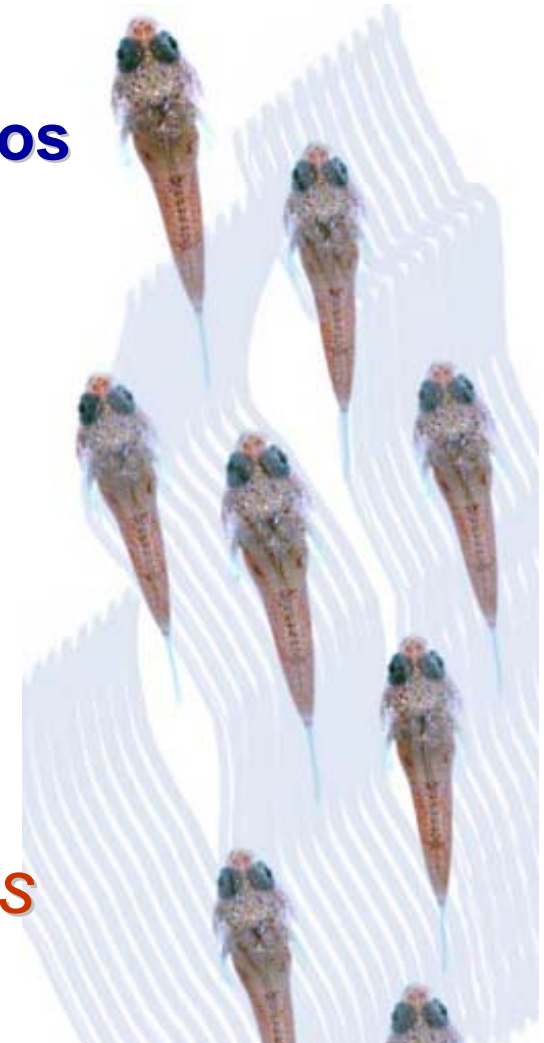
Dr. Yoshinobu Konishi and Joseph C. Rayos

Period:

24 July - 07 August 2005

Area:

East coast of Palawan Island, Philippines

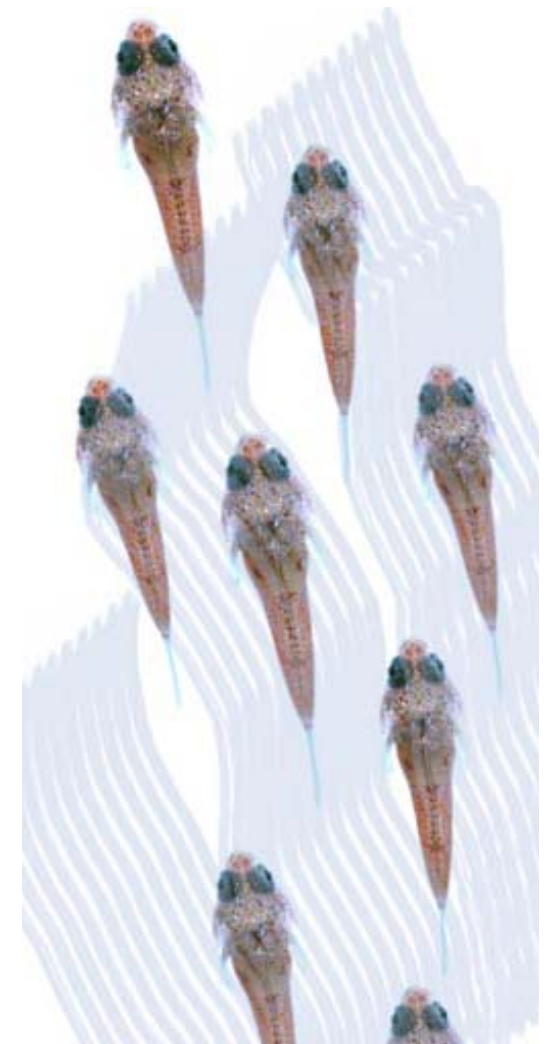


Results:

Ichthyoplankton samples from 16 stations were collected in East Coast of Palawan using plankton nets (with mesh sizes of 500 μ m and 330 μ m respectively) attached to a 60 cm diameter bongo frame. Both nets were equipped with calibrated flowmeters to allow estimates of water volume filtered by the net. At each station an oblique tow of the bongo net was made with the ship speed of 1-2 knots approximately. Angle of towing cable was maintained at 60°. The depth of operations was from surface to 10-15 m above the sea bottom. The samples were preserved in 10% buffered formalin and seawater.

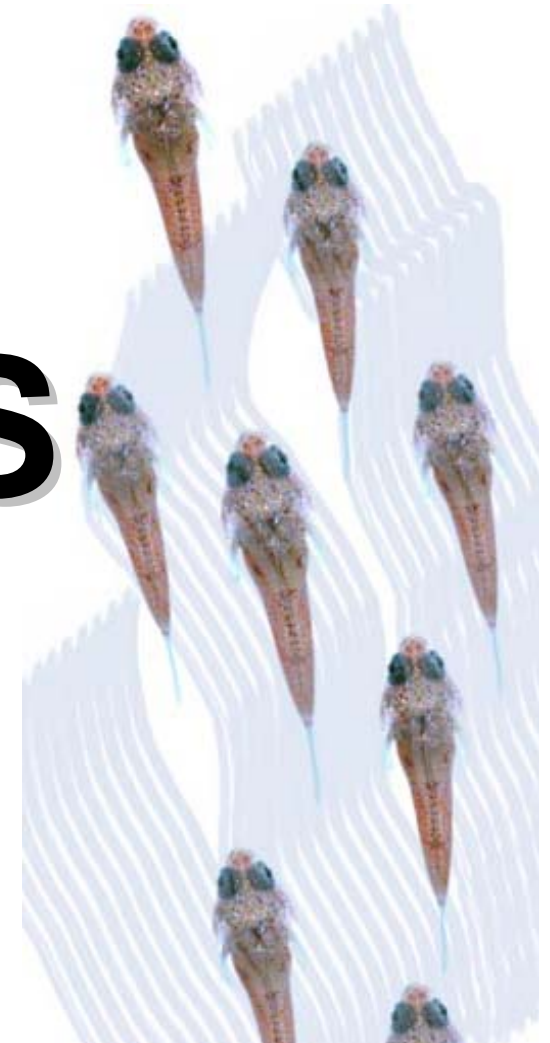
Twenty fish taxonomic families were identified. The most dominant families in almost all the stations are Lutjanidae and Nemipteridae. Six of the identified families have high economic value as food source in the Philippines namely: Scombridae, Carangidae, Nemipteridae, Labridae and Siganidae

Family	% (based on 16 stations)
Lutjanidae	14.03
Nemipteridae	10.52
Labridae	8.77
Gobiidae	8.77
Callionymidae	7.01
Myctophidae	7.01
Leiogathidae	5.26
Gonostomatidae	5.26
Apogonidae	5.26
Bregmaceritidae	5.26
Synodontidae	3.50
Lethrinidae	3.50
Siganidae	3.50
Carangidae	1.75
Engraulidae	1.75
Balistidae	1.75
Pomacentridae	1.75
Scaenidae	1.75
Monacanthidae	1.75
Scombridae	1.75





ON-GOING RESEARCHES



Ichthyoplankton Survey in Busuanga Waters



Joseph Christopher Rayos and Suzette Barcoma
National Fisheries Research and Development Institute

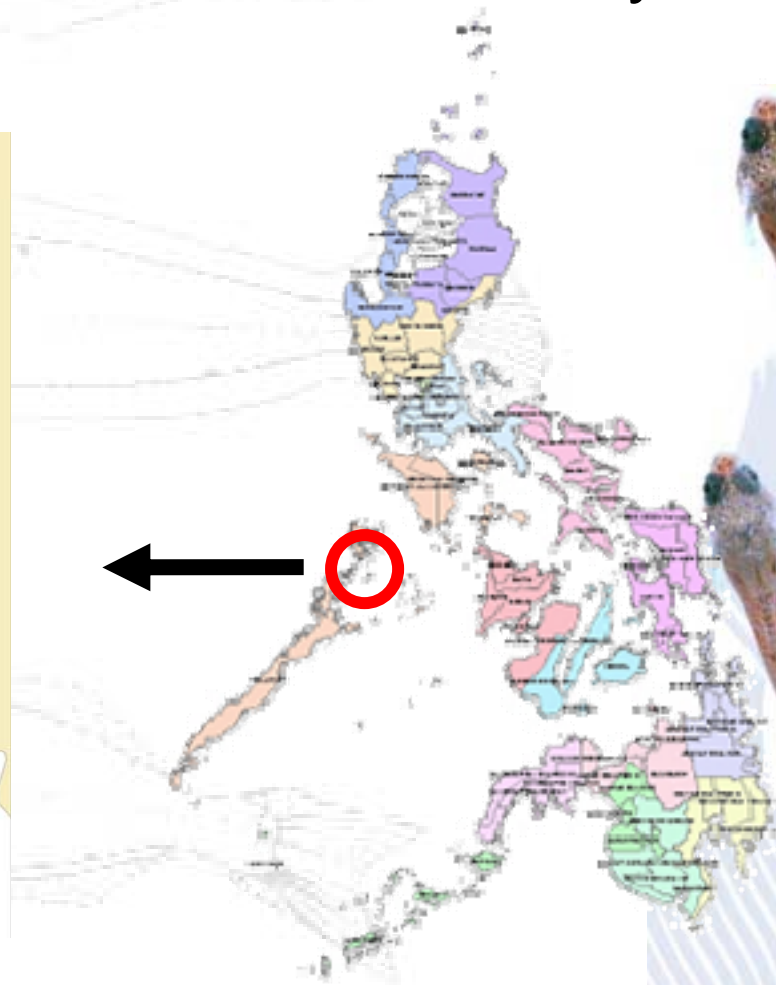
Period:
23 April 2008

Area:
Gutob Bay, Busuanga Palawan, Philippines

Status:
Processing of Samples is still on-going



Results: Ichthyoplankton samples are taken from 15 stations inside Gutob Bay on April 23 2008.





Station	START RECORD		END COORD		Speed Km/h	FLOW METER		REMARKS
	North	East	North	East		initial	final	
Gut 01	12.14970	119.9176	12.13940	119.9185	4.4	124279	138799	Temp:30.1, Sal:33
Gut 02	12.14235	119.8995	12.13183	119.8995	4.6	949478	959680	Temp:31, Sal:34
Gut 03	12.12698	119.8996	12.12739	119.8888	4.7	959680	972597	Temp:30, Sal:34
Gut04	12.12955	119.8826	12.13331	119.8924	5.1	972597	994124	Temp:30.8, Sal:34
Gut05	12.14631	119.8930	12.15415	119.8860	4.7	994124	010197	Temp:30.2, Sal:34
Gut06	12.15913	119.8828	12.16679	119.8758	4.7	010197	039390	Temp:30, Sal:34
Gut07	12.17189	119.8706	12.18317	119.8715	5.0	029390	048764	Temp:30, Sal:34
Gut08	12.19555	119.8817	12.19516	119.8793	4.7	048764	057769	Temp:29.5, Sal:34
Gut09	12.20089	119.8836	12.20045	119.8846	4.0	057769	073725	Temp:30, Sal:34
Gut10	12.19416	119.8938	12.19285	119.8934	5.0	073725	083093	Temp:30, Sal:34
Gut11	12.19285	119.8934	12.18564	119.889	3.9	083093	090962	Temp:30.5, Sal:34
Gut12	12.18545	119.8895	12.17598	119.8932	4.5	090962	099999	Temp:30.1, Sal:34
Gut13	12.17016	119.8945	12.16107	119.8974	4.2	099999	109999	Temp:30, Sal:34
Gut14	12.15848	119.8981	12.14810	119.8995	4.3	109999	124279	Temp:30.5, Sal:34
Gut15	12.13916	119.9190	12.13552	119.9103	4.7	936783	949469	Temp:30, Sal:33

Stn No.	Flowmeter		No. revoltn	Distance (in m)	Vol. filtered
	init	final			(in m3)
1	124279	138799	14520	390.2	73.17
2	949478	959680	10202	274.2	51.41
3	959680	972597	12917	347.1	65.09
4	972597	994124	21527	578.5	108.47
5	994124	010197	10043	269.9	50.61
6	010197	039390	29193	784.5	147.10
7	029390	048764	19374	520.7	97.62
8	048764	057769	9005	242.0	45.38
9	057769	073725	15956	428.8	80.40
10	073725	083093	9368	251.8	47.21
11	083093	090962	7869	211.5	39.65
12	090962	099999	9037	242.9	45.54
13	099999	109999	10000	268.7	50.39
14	109999	124279	14280	383.8	71.96
15	936783	949469	12686	340.9	63.92

Stn No.	Egg Count	Larvae Count	Displaced vol	Vol. filtered	Egg Density	Larval Density
				(in m3)	(in 100m3)	(in 100m3)
1	147	14	70	13.13	1120.0	106.7
2	55	25	65	12.19	451.3	205.1
3	951	20	45	8.44	11271.1	237.0
4	323	14	70	13.13	2461.0	106.7
5	92	18	55	10.31	892.1	174.5
6	232	37	50	9.38	2474.7	394.7
7	62	14	30	5.63	1102.2	248.9
8	22	29	30	5.63	391.1	515.6
9	5	10	25	4.69	106.7	213.3
10	61	25	45	8.44	723.0	296.3
11	110	14	40	7.50	1466.7	186.7
12	135	42	85	15.94	847.1	263.5
13	185	84	70	13.13	1409.5	640.0
14	516	21	50	9.38	5504.0	224.0
15	239	31	145	27.19	879.1	114.0

Abundance and Distribution of Fish Larvae Along Eastern Philippines Waters Focusing on Tuna Larvae (*Scombridae*)



RHODA S. SERVIDAD

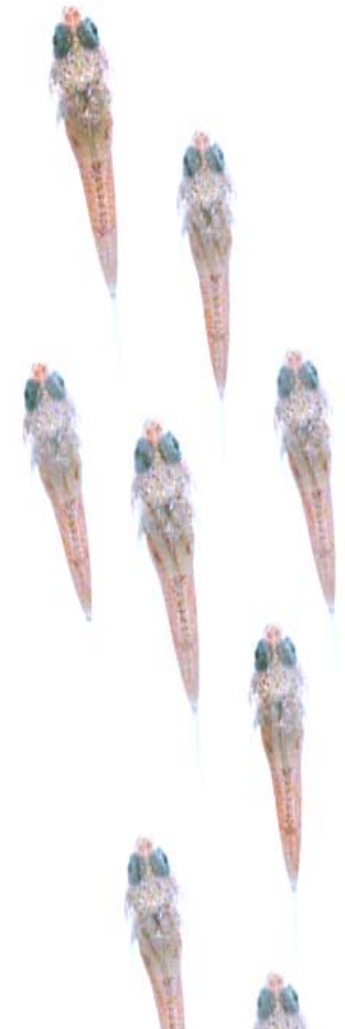
Bureau of Fisheries and Aquatic Resources

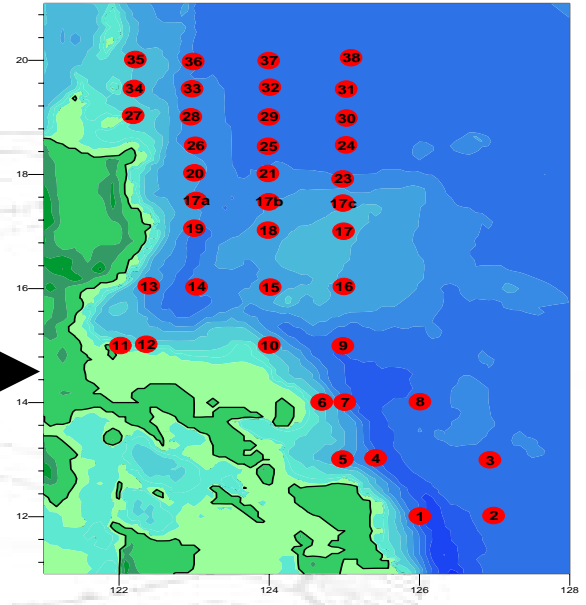
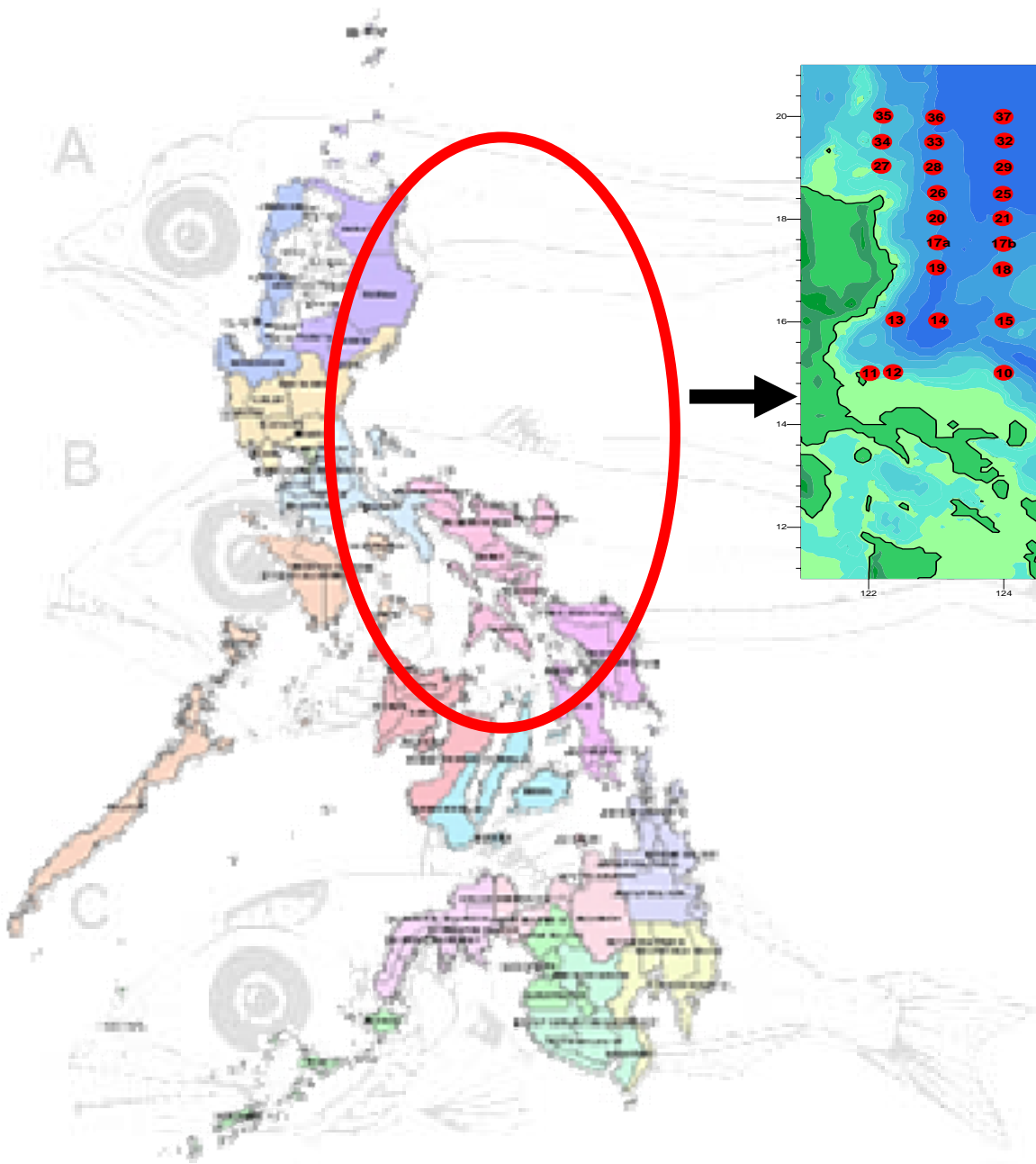
Period:

03 April - 06 July 2006

Area:

Eastern Philippines





Results:

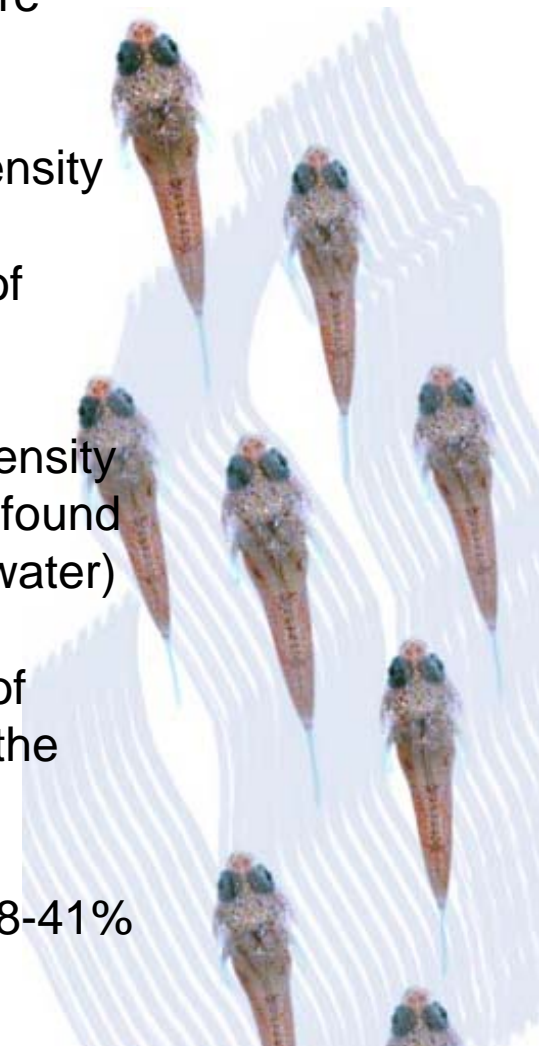


Determination of species composition, abundance and distribution of fish larvae specifically *Scombridae* species predicts migration and spawning of commercially valuable tuna species along eastern Philippines. Collection of fish larvae was done for the period of April 3 to July 6, 2006 onboard M/V DA-BFAR. A total of 40 stations were established at surface and 25m depth.

Surface sampling collected a total of 353 fish larvae, or a density of $2311.20/1000^m^3$ of seawater. Fish larvae density was $1316.49/1000^m^3$ of seawater at daytime and $994.71/1000^m^3$ of seawater at nighttime.

At 25m depth, a total of 1063 larvae were found, having a density of $5430.79/1000^m^3$ of seawater. Fish larvae at 25 m were also found more abundant at nighttime (density = $3361.40/1000^m^3$ of seawater) than during daytime (density= $2069.39/1000^m^3$ of seawater). However, there was no significant difference in the occurrence of larvae with sampling depth (between surface & 25 m) based on the statistical analysis of variance calculated.

The three stations which were analyzed so far indicate that 8-41% of the fish larvae were tuna larvae (*Scombridae*).



Pacific Seaboard R&D Program: Offshore- Inshore Dispersal of Larval Fishes



Wilfredo Campos and DM Estremadura
University of the Philippines in the Visayas

Period:

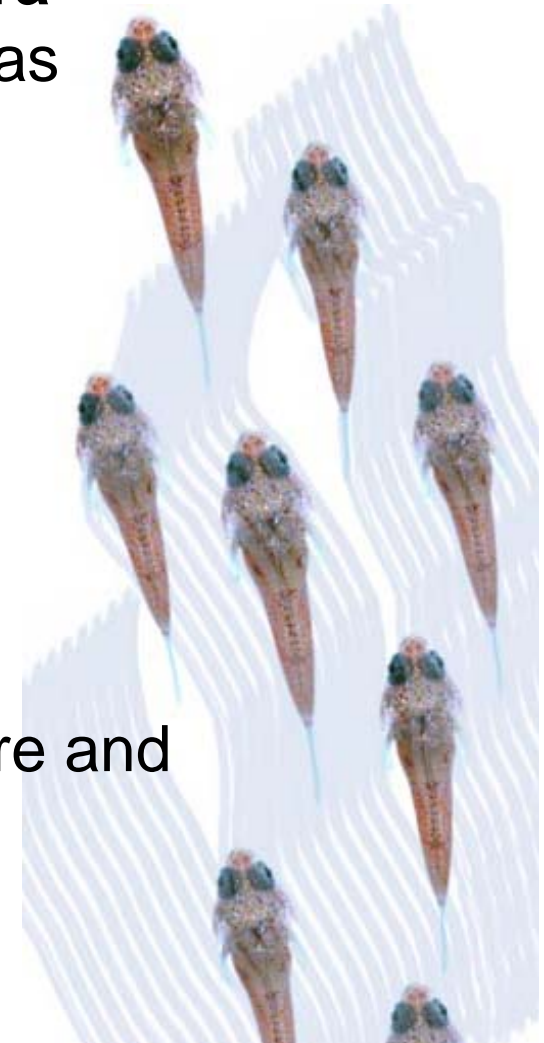
October 2005 – October 2008

Area:

Eastern Philippines

Objectives:

To determine connectivity between inshore and offshore waters of Bicol Shelf and its relation to hydrographic conditions



Distribution of Ichthyoplankton assemblage in the Visayan Sea and adjacent Waters



DM Estremadura

University of the Philippines in the Visayas

Period:

April 2005 – Present

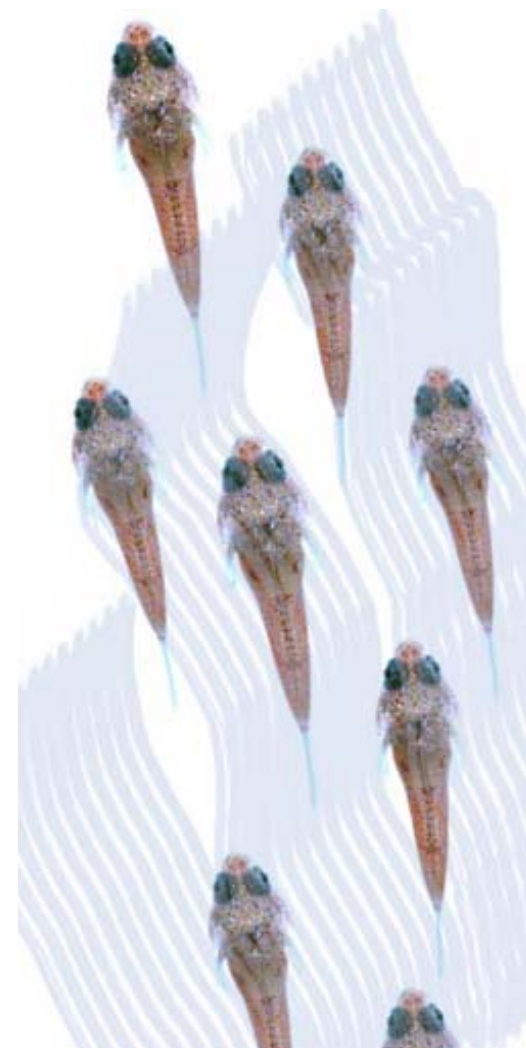
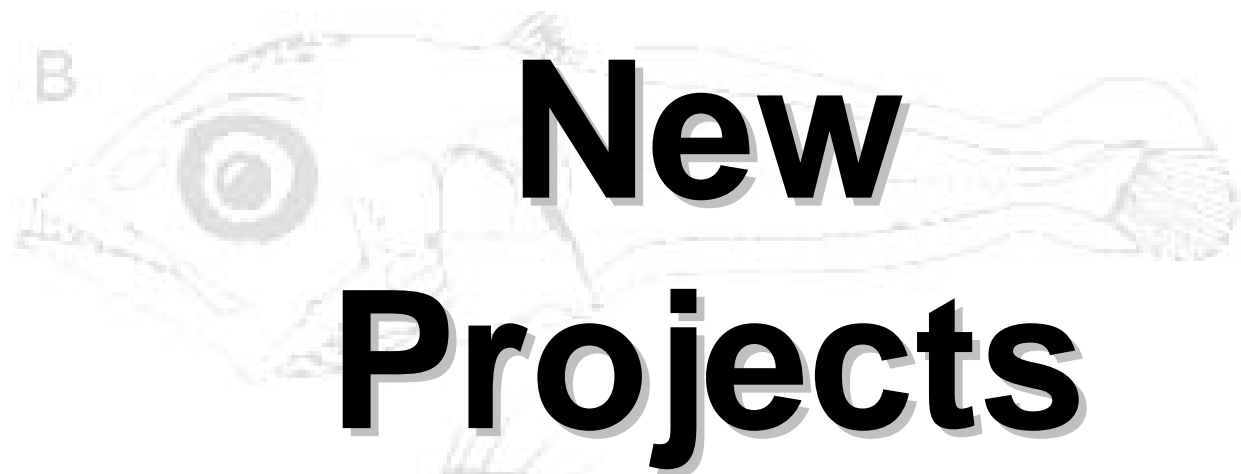
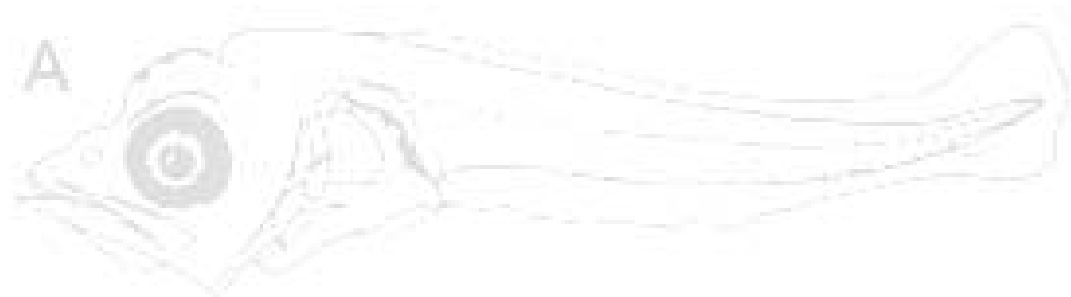
Area:

Visayan Sea

Objectives:

Determine ichthyoplankton assemblage in the area
Seasonal and inter-annual variation
insights on dispersal





Fish Larvae Identification in Selected Fishing Areas in the Philippines

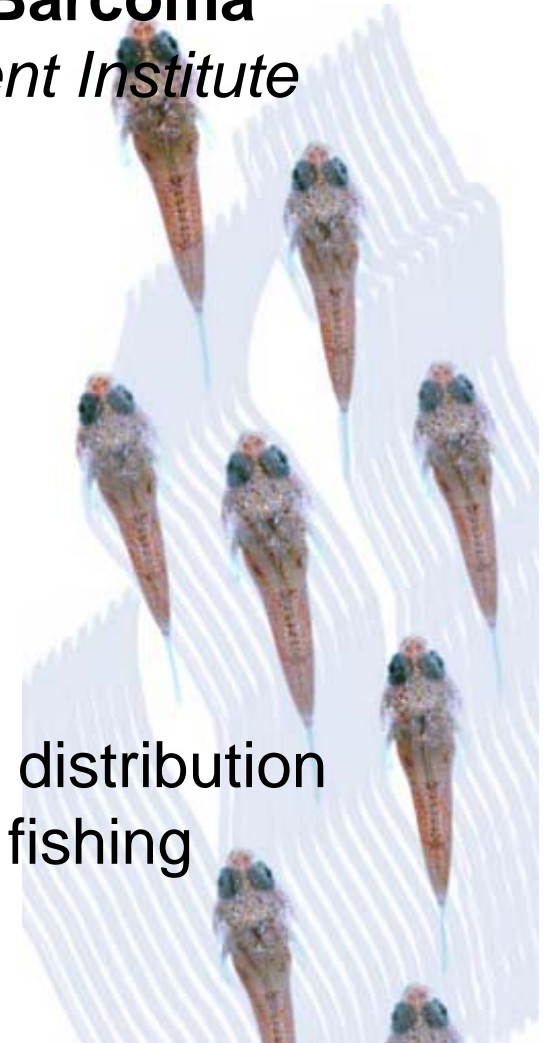


Joseph Christopher Rayos and Suzette Barcoma
National Fisheries Research and Development Institute

Period:
One Year (Aug 2008-Aug 2009)

Area:
Country-wide

Objectives:
To estimate the density, abundance and distribution of eggs, larvae, and small juveniles in selected fishing grounds in the country



A

B

C

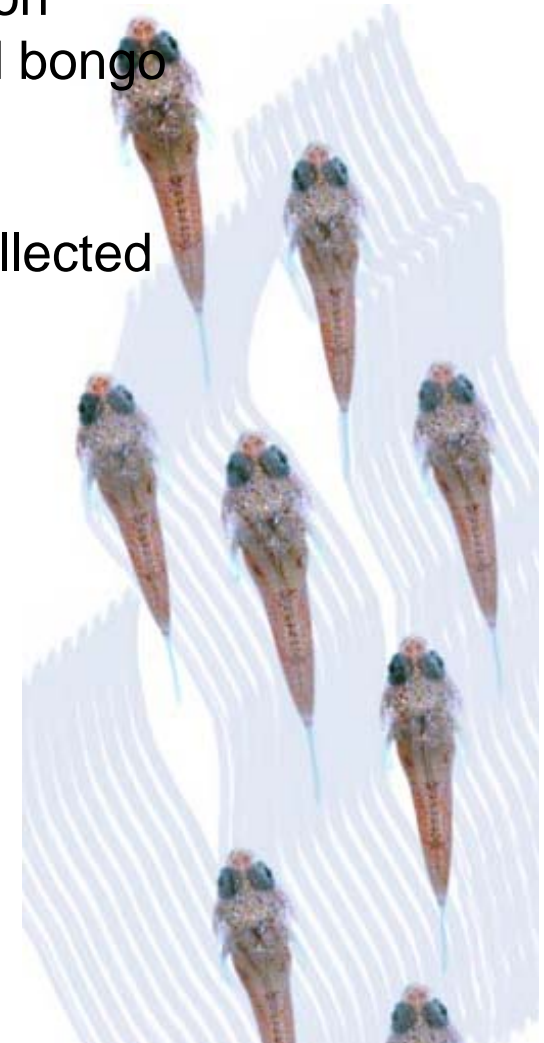
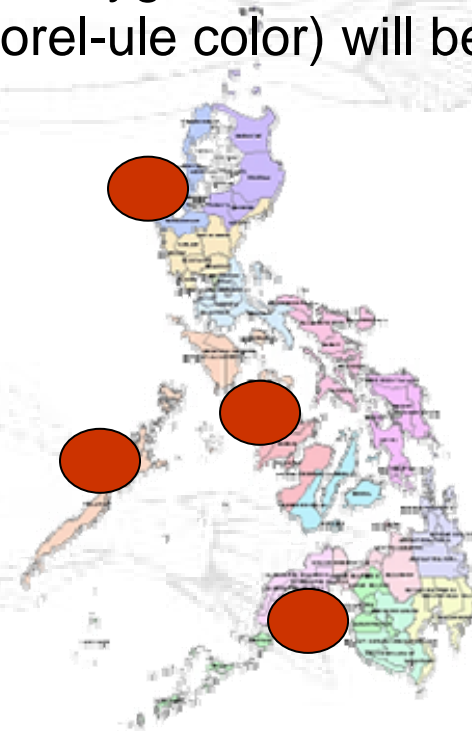
METHODOLOGY

Data Collection

The purpose of the survey is to collect ichthyoplankton samples for estimates of the abundance and distribution of larvae and collect environmental data at all ichthyoplankton stations. Plankton samples are to be taken with standard bongo net. In addition, hydrographic data (surface chlorophylls, salinity, temperature and dissolved oxygen from surface, midwater and near bottom, and Forel-ule color) will be collected at all stations.

Stations

- Bolinao
- Palawan
- Visayas (to be determined)
- Mindanao (to be determined)



Larval Study of Freshwater Sardines (*Sardinella tawilis*)



Joseph Christopher Rayos

National Fisheries Research and Development Institute

Period:

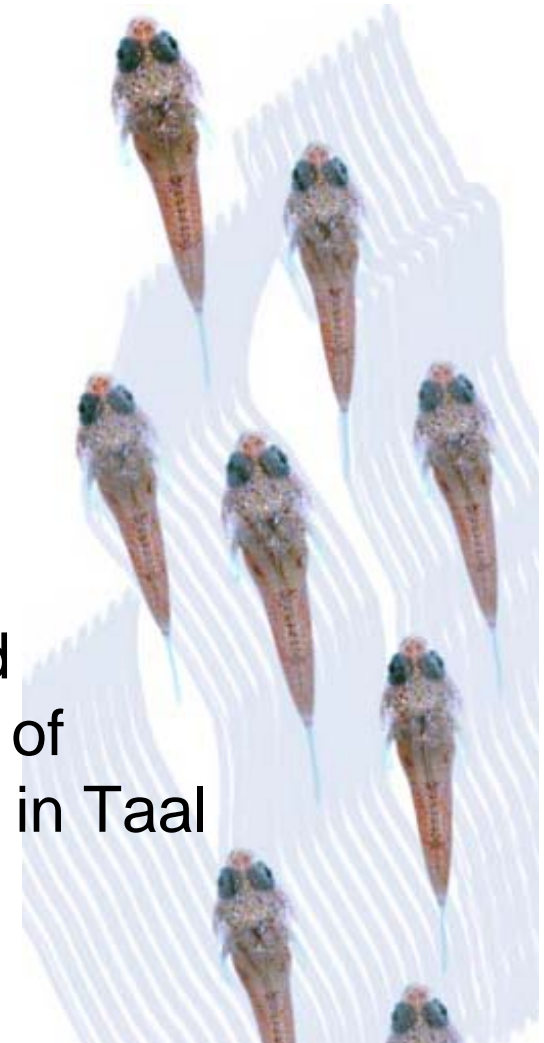
One Year (June 2008-June 2009)

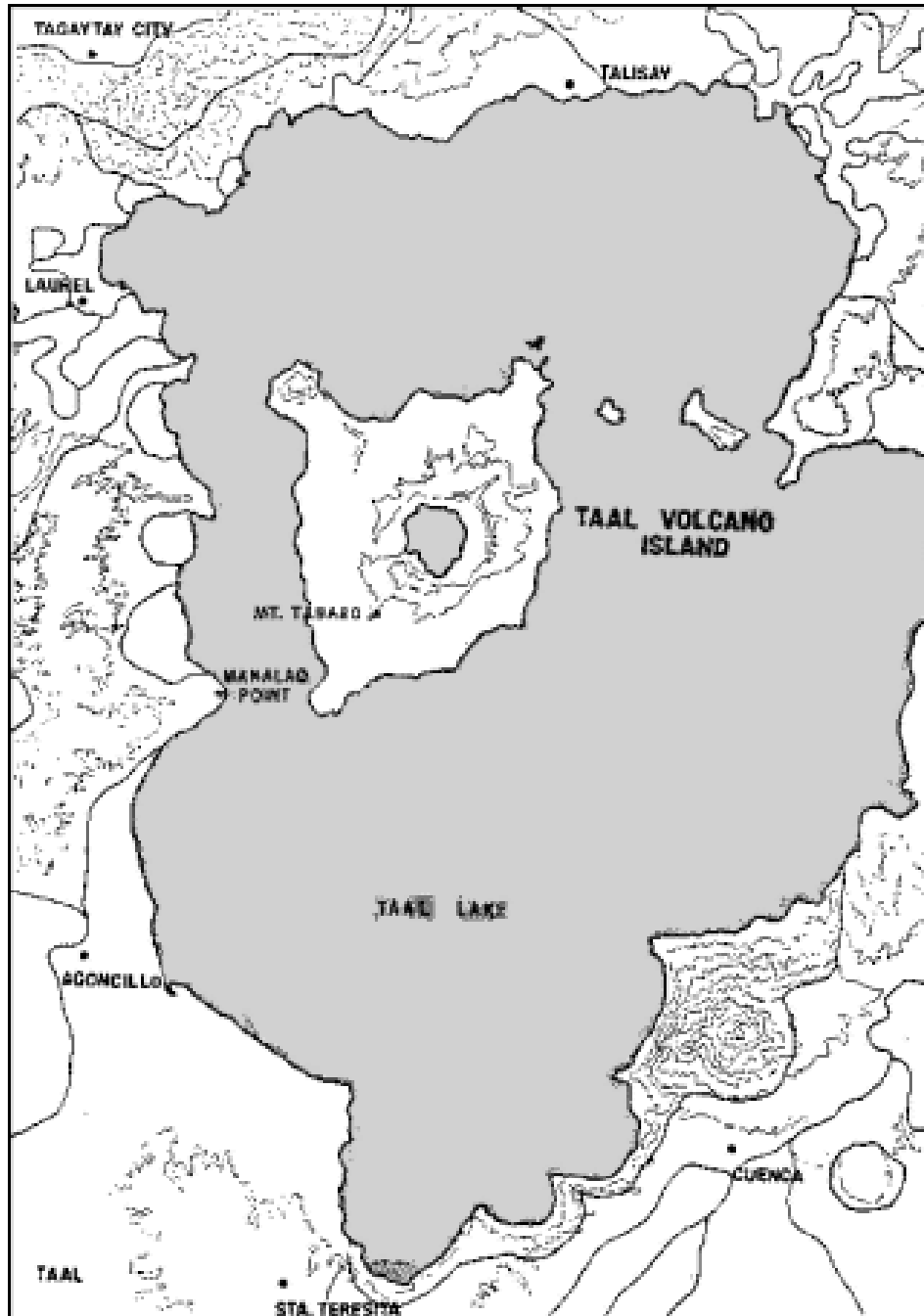
Area:

Taal Lake, Batangas, Philippines

Objectives:

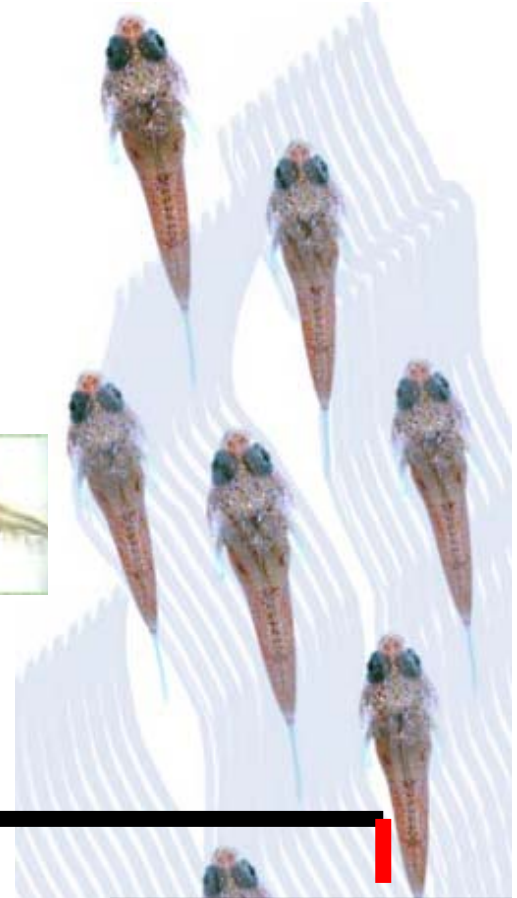
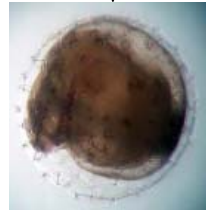
To estimate the Density, abundance and distribution of eggs, larvae, and small juveniles of *sardinella tawilis* (the only freshwater sardines) in Taal Lake.





Zooplankton Biomass and Measurements (Displacement or settled volume)

Sorting



1

Identify

2

Count

3

Measure

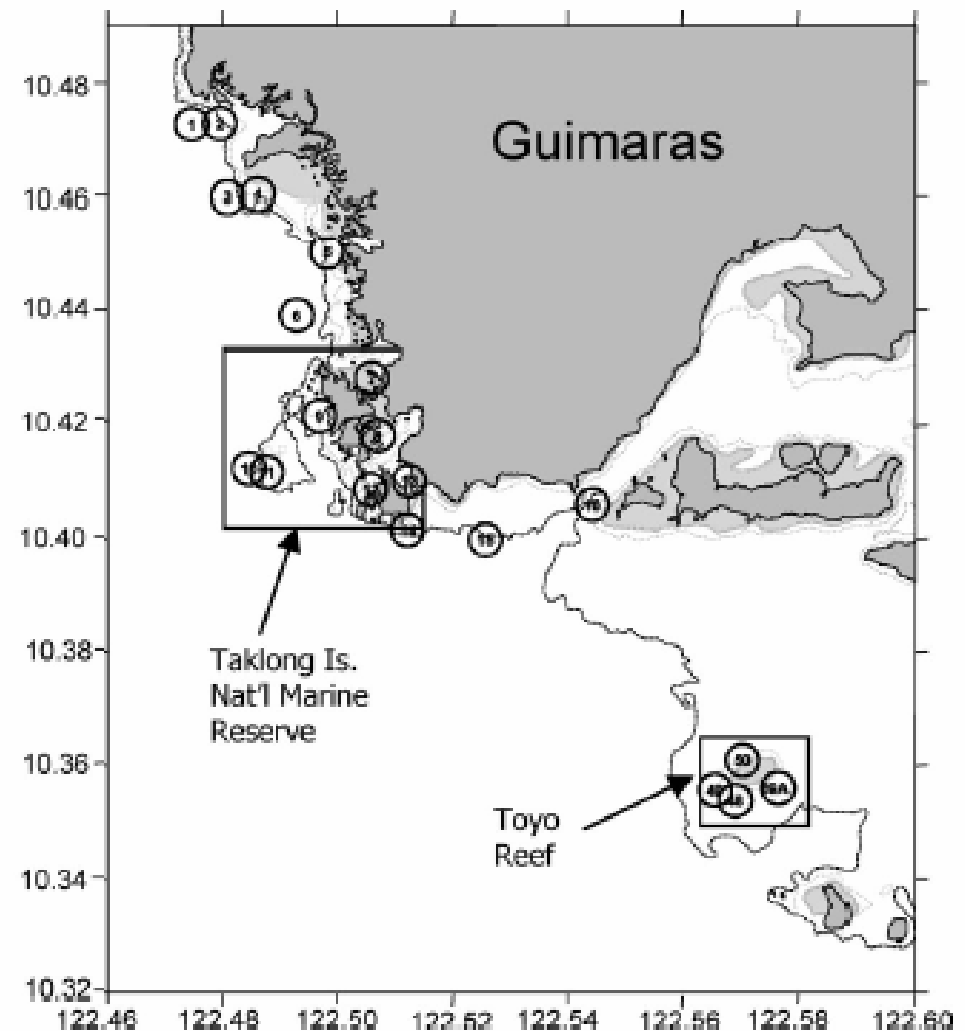
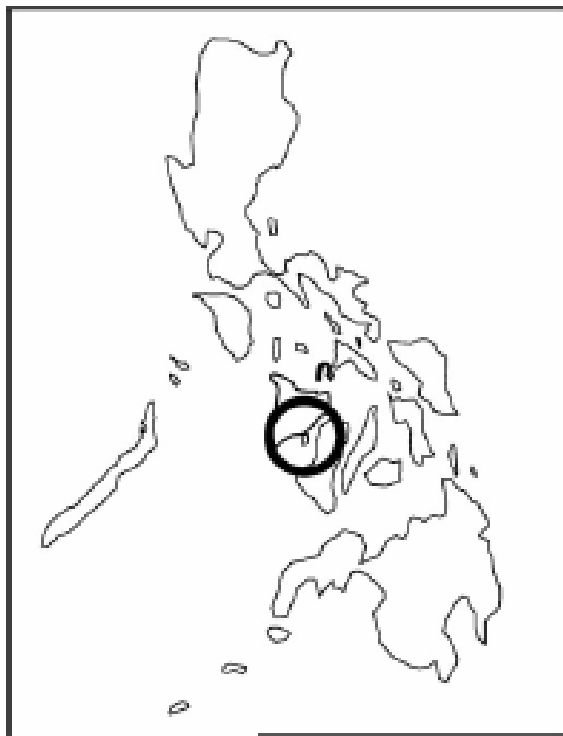
4

Reporting and
data banking

Diel patterns in abundance, distribution and composition of ichthyoplankton in shallow reef areas in Southern Guimaras, Central Philippines



Wilfredo L. CAMPOS and August S. SANTILLAN



Materials and Methods



The study area is located in Southern Guimaras, Central Philippines bounded by the following coordinates: $10^{\circ}20.4_$ to $10^{\circ}28.8_$ N and $122^{\circ}28.8_$ to $122^{\circ}36.0_$ E (Fig. 1). The shallow reef habitats are described in Campos et al. (2002).

Ichthyoplankton samples were collected with the use of a 2.5 m 300m m mesh net attached to a 0.75_0.25 m rectangular steel frame. The net was attached to the boat's outriggers and fished at a fixed layer of 20–40 cm below the water surface.

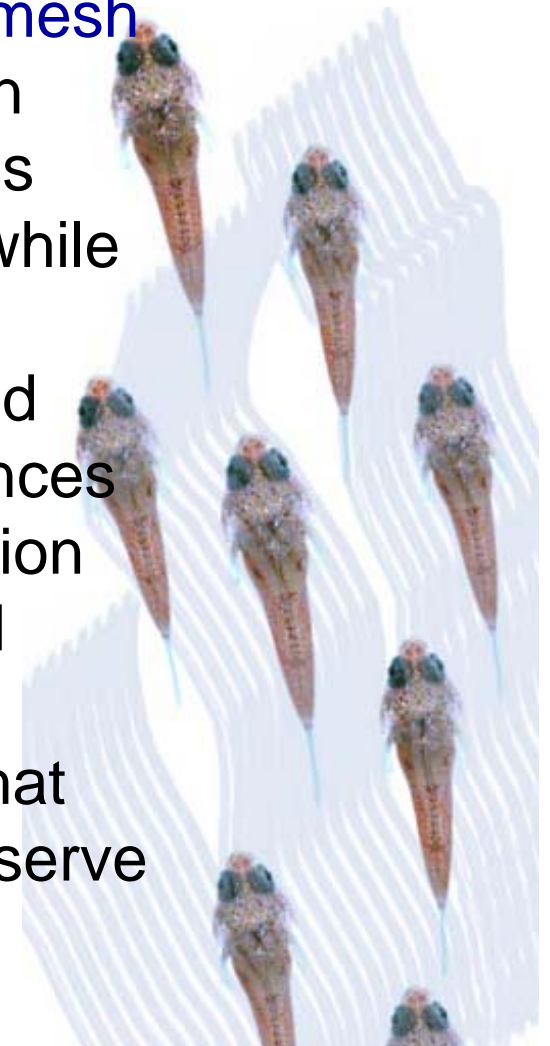
Towing speed was approximately 1–1.5 m/s. A mechanical flowmeter was attached to the mouth of the net to monitor the amount of water filtered by the net. Ichthyoplankton samples were collected between 0800 and 1200 hr

(daytime) and 2000–0000 hr (night) at 20 stations located with the aid of a handheld GPS. The mean volume of water filtered from the 40 samples was 44.6m³ (sd_8.7; range: 25.3–69.9).

All samples were rough-sorted in the field, fixed in 10% seawater-formalin solution, and brought back to the laboratory for sorting and identification to the family level.



Abstract—Ichthyoplankton samples from 20 reef stations were collected in Southern Guimaras, Central Philippines (Dec. 2001), during the day and night by means of 5 minute surface horizontal tows using a rectangular plankton net with a **300 μ m mesh** bag attached to it. Overall mean ichthyoplankton density at **night (168 ind/100m³)** was three times more than that during the **day (56 ind/100m³)**, while taxon richness (family level) was 50% higher at night. These results are compared with observed diel patterns in other investigations. Diel differences in overall egg and larval densities and composition are related to the station location, substrate and other factors. The relative similarity in day-night patterns in stations over deep water suggests that the substrates (seagrass beds and coral reefs) serve as shelters from predation during the daytime.



PAST RESEARCH

- Fish Larval Identification in Palawan Waters on-board M.V SEAFDEC 2

ON-GOING RESEARCHES

- Ichthyoplankton Survey in Busuanga Waters
- Abundance and Distribution of Fish Larvae Along Eastern Philippines Waters Focusing on Tuna Larvae (*Scombridae*)
- Pacific Seaboard R&D Program: Offshore-Inshore Dispersal of Larval Fishes
- Distribution of Ichthyoplankton Assemblage in the Visayan Sea and in Adjacent waters

NEW PROJECTS

- Fish Larvae Identification in Selected Fishing Areas in the Philippines
- Larval Study of Freshwater Sardines (*Sardinella tawilis*)





THANK YOU

SAWADDEE

