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Mangrove Shoreline Fishes of Ulugan Bay, Palawan

Benjamin J. Gonzales[1] and Naohiko Watanuki[2]

Abstract

Mangrove shoreline fishes of Ulugan Bay were sampled using a modified fish corral. A diversity of 126 species, 88 genera, 50 families in 11 orders, were recorded. Species belonging to eight (8) families are commercially important. The use of varied fish sampling gear is suggested to collect more mangrove associated fishes in the Bay.

INTRODUCTION

A rough estimate of about a little less than two thirds of the shoreline of Ulugan Bay is covered by mangrove swamps. Mangrove habitats are always associated with the abundance and diversity of fish species. Mangroves are rooted plant communities in the intertidal, marine soft sediments rich in marine and terrestrial life (Levinton, 1995). High densities of fishes and invertebrates in mangrove habitats in part may be the result of protection afforded by both the physical structure of the habitat and the frequent occurring of high turbidity (Hoss and Thayer, 1993). To know the extent of fish fauna along the mangrove shoreline of Ulugan Bay, it is critical to record the fish species composition in the area. The study was likewise carried out in line with the objective of documenting the fish resources of Ulugan Bay (Gonzales and Dolorosa, 1994), and to form an ichthyofaunal diversity basis of the future resource management of the bay.

METHODOLOGY

Because of its geographic location and its thick mangrove community, the Sagasa area (Fig. 1) of Ulugan Bay was chosen as a sampling site to represent the mangrove shoreline fishes of the said Bay. Fish sample collection was done in six months duration from September 1 to February 28, 1989. The

[1] Faculty Member, SPCP-IMS Marine Fisheries Department
[2] JOCV Member (SPCP Volunteer 1987-1990)

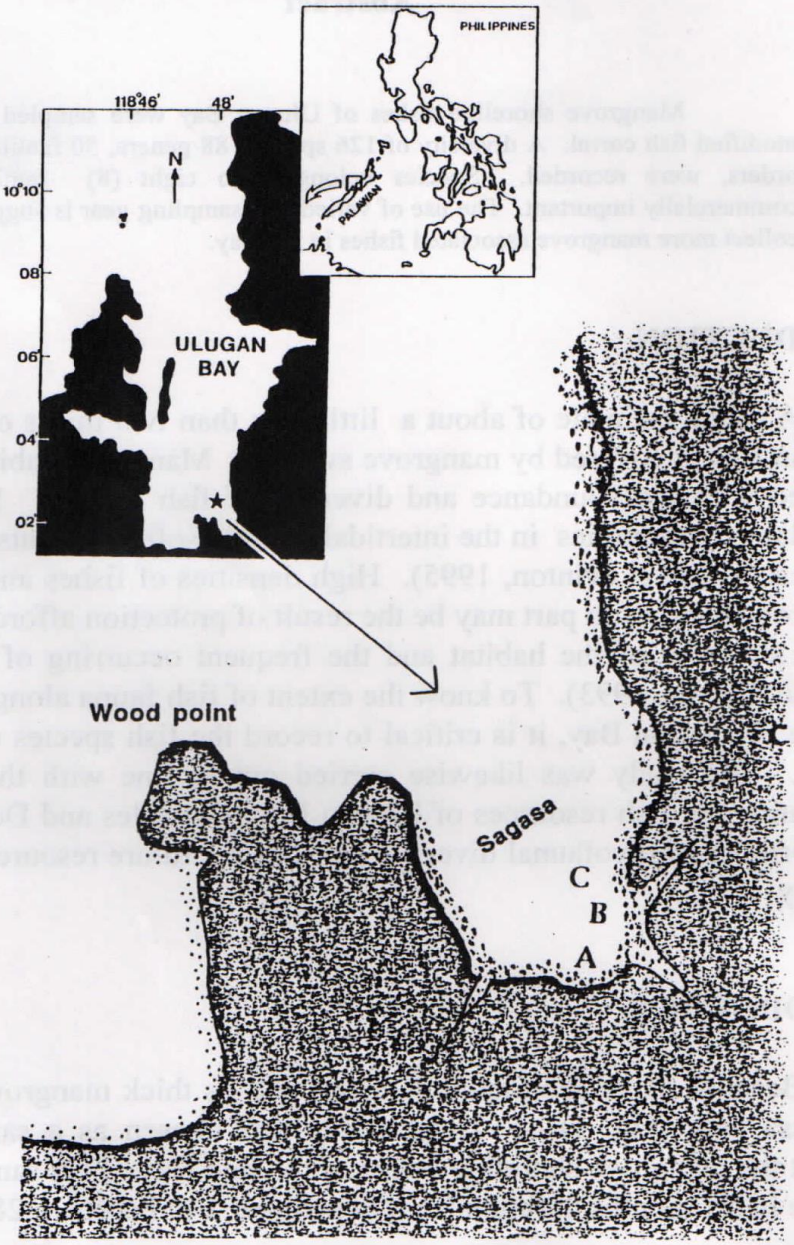

Fig. 1. Map of Ulugan Bay showing the sampling sites A, B, C. Dotted portions indicate mangrove shoreline.

gear used was a shallow-water type fish corral (baklad), with a 300 m leader net and a modified (covered) catching area (Fig. 2). This type of fish corral was originally used by the baklad fishermen in Jacana Village, Puerto Princesa City. The cover on top of the catching area prevents high jumping fishes such as hemiramphids from coming out of the fish corral. The fish corral was set about 50-70 m off the mangrove swamp. The net was transferred successively in three areas A, B, and C (Fig. 1) between one to two weeks depending on the volume of catch. The net was visited twice a day, just before sunrise and during sunset, though hauling was synchronized with low tide.

Species identification of the fish collected were done with the help of Dr. Keiichi Matsuura of the Department of Zoology, National Museum, Tokyo, Japan. Japanese names of the species were included for the convenience of Japanese researchers and for industry purposes.

RESULTS AND DISCUSSION

Classified and taxonomically arranged list of all species collected are shown in Table 1. A total of 136 species, 88 genera, 50 families in 11 orders were recorded. This result shows that the mangrove shoreline in the study site is more diversified in fish species than that of the two mangrove habitats combined in the Lagos Lagoon at Ikoye (near Gulf of Guinea), Nigeria. In these areas, only a total of 23 species were collected within a 20 month sampling period using a seine net (Nwadukwe, 1995). Of the species sampled, fishes belonging to eight families are commercially valuable: Carangidae (local: talakitok, matang-baka, salay-salay), Centropomidae (matang-pusa), Lethrinidae (bilitilya, sapingan), Lutjanidae (maya-maya, bambangin, dolesan), Scathophagidae (pompano), Serranidae (lapu-lapu), Siganidae (samaral), and Sphyraenidae (torsilyo).

It was found out that there are 15 species collected in the area that are not recorded in the coastal waters of Japan. These are the *Atelomycterus marmoratus* (Scyliorhinidae), *Taenura lymma* (Dasyatidae), *Plotosus canius* (Plotosidae), *Hemiramphus georgii* (Hemiramphidae), *Cheilodepterus singapurensis* (Apogonidae), *Scolopsis margaritifer*, *S. temporalis, Pentapodus caninus* (Nemipteridae), *Abudefduf lorenzi, A. sexfasciatus, Dischistodus perspicillatus* (Pomacentridae), *Choerodon oligocanthus, Halechoeres chloropterus* (Labridae), *Siganus javus* (Siganidae), *Stephanolepsis japonicus* (Monacanthidae).

The use of fish corral limits the collection of fish samples. Since this gear is stationary, other fish species inhabiting the mangrove shoreline might

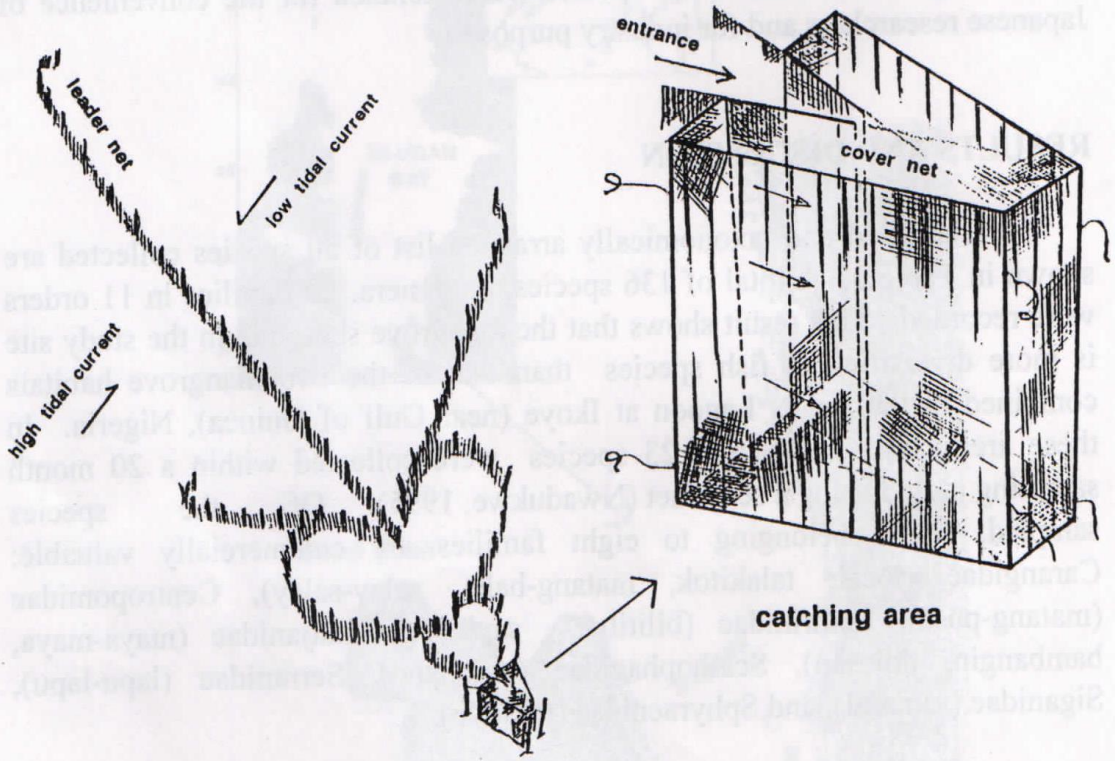

Fig. 2. The fish corral (baklad) used in this study with an enlarged catching area (drawn by E. Rodriguez and Charlito Alayon).

have avoided the gear, consequently not appearing in our samples. This is supported by the study of Gonzales and Dolorosa (1994) who reported 14 species of serranids and 13 species of lutjanids in the area. In this study only three species of serranids and eight species of lutjanids were caught. These show that more mangrove associated fish species could be recorded using a variety of fishing gears such as seine net, gill net, hook and line, and fish traps. Currently, the number of fishes recorded in Ulugan Bay is 152 species (present study; Gonzales and Dolorosa, 1994).

Table 1. Fish species found to occur in the mangrove shoreline of Ulugan Bay. (In parenthesis are the Japanese name equivalent for each species and in braces are the English common name(s) for the families)

Class: Chondrichthyes
- Order: Lamniformes
  - Family: Scyliorhinidae [cat sharks]
    - *Atelomycterus marmoratus*
  - Family: Orectolobidae [carpet sharks]
    - *Chilosyllium griseum* (shima zame)
- Order: Rajiformes
  - Family: Dasyatidae [sting rays]
    - *Dasyatis kuhlii* (yakko-ei)
    - *Taeniura melanospila* (madara-ei)
    - *Taenura lymma*
  - Family: Myliobatididae [eagle rays]
    - *Aetobatus narinari* (madara-tobi-ei)

Class: Osteichthyes
- Order: Elopiformes
  - Family: Elopidae [tenpounders]
    - *Megalops cyprinoides* (isegoi)
- Order: Siluriformes
  - Family: Plotosidae [plotosids]
    - *Plotosus lineatus*
    - *Plotosus canius*
- Order: Myctophiformes
  - Family: Synodontidae [lizardfishes]
    - *Synodus variegatus* (minami-aka-eso)
    - *Saurida gracilis* (madara-eso)
- Order: Beloniformes
  - Family: Belonidae [needlefishes]
    - *Strongylura incisa* (ryukyu-datsu)
    - *Tylosurus crocodilus* (okizayori)

Order: Myctophiformes
Family: Synodontidae [lizardfishes]
Synodus variegatus (minami-aka-eso)
Saurida gracilis (madara-eso)
Order: Beloniformes
Family: Belonidae [needlefishes]
Strongylura incisa (ryukyu-datsu)
Tylosurus crocodilus (okizayori)
Family: Hemiramphidae [halfbeaks]
Hemiramphus far (hoshi-zayori)
Hemiramphus georgii
Family: Exocoetidae [flyingfishes]
Cypselurus poecilopterus (aya-tobi-uo)
Order: Sygnathiformes
Family: Sygnathidae [pipefishes/seahorses]
Sygnathoides biaculeatus (togeyoji)
Hippocampus histrix (ibaratatsu)
Order: Beryciformes
Family: Holocentridae [squirrel/soldier fishes]
Sargocentron rubrum (ayame-ebisu)
Myripristis adusta (tsumaguro-matsukasa)
Myripristis berndtii (akamatsukasa)
Myripristis murdjan (yogore-matsukasa)
Order: Perciformes
Family: Mugilidae [mullets]
Liza vaigiensis (oni-bora)
Valamugil seheli (taiwan-menada)
Family: Sphyraenidae [barracudas]
Sphyraena barracuda (oni-kamasu)
Sphyraena putnamiae (o-kamasu)
Sphyraena obstusata (daruma-kamasu)
Family: Polynemidae [threadfins]
Polydactylus plebejus (tsubame-konoshiro)
Family: Centropomidae [snooks]
Psammoperca waigiensis (akame-modoki)
Family: Serranidae [groupers]
Epinephelus merra (kanmonhata)
Epinephelus malabaricus (yaitohata)
Epinephelus suillus (chairomaruhata)
Family: Apogonidae [cardinal fishes]
Apogon savayensis (namida-tenjikudai)
Archamia fucata (atohikitenjikudai-damashi)
Archamia zosterophora (kuroobi-atohikitenjikudai)
Cheilodipterus subulatus (kasumi-yarai-ishimochi)
Cheilodipterus singapurensis
Cheilodipterus quinquelineatus (yarai-shimochi)

Family: Sillaginidae [smelt/whitings]
Sillago sihama (moto-gisu)
Family: Rachycentridae [cobias]
Rachycentron canadum (sugi)
Family: Carangidae [jacks]
Elagatis bipinnulata (tsumuburi)
Scromberoides lysan (ikekatsuo)
Trachinotus baillonii (koban-aji)
Selar crumenopthalmus (me-aji)
Atule mate (mate-aji)
Alepes vari (mabutashima-aji)
Megalaspis cordyla (oni-aji)
Caranx tille (minami-gingame-aji)
Caranx melampygus (kasumi-aji)
Caranx ignobilis (ronin-aji)
Carangicthys oblongus (tenjiku-aji)
Carangoides ferdau (kurohira-aji)
Gnathanodon speciosus (koganeshima-aji)
Alectis ciliaris (itohiki-aji)
Family: Leiognathidae [ponyfishes]
Leiognathus equulus (seitaka-hiiragi)
Gazza minuta (koban-hiiragi)
Family: Lobotidae [tripletails]
Lobotes surinamensis (matsudai)
Family: Mullidae [goatfishes]
Upeneus tragula (yome-himeji)
Upeneus vittatus (minami-himeji)
Upeneus moluccensis (kisuji-himeji)
Mulloidicthys flavolineatus (montsuki-akahimeji)
Parupeneus barberinoides (indo-himeji)
Parupeneus barberinus (osuji-himeji)
Parupeneus indicus (koban-himeji)
Family: Monodactylidae [fingerfishes]
Monodactylus argenteus (himetsubame-uo)
Family: Pempheridídae [sweepers]
Pempheris oualensis (ryukyu-hatanpo)
Family: Lutjanidae [snappers]
Lutjanus fulviflamma (nisekurohoshi-fuedai)
Lutjanus monostigma (itten-fuedai)
Lutjanus argentimaculatus (goma-fuedai)
Lutjanus decussatus (amime-fuedai)
Lutjanus russellii (kurohoshi-fuedai)
Lutjanus spilurus (rokusen-fuedan)
Caesio caerulaureus (sasamuso)
Caesio erythrogaster (yumeumeiro

Family: Pomadasyidae [grunts]
Plectorhynchus diagrammus (museiji-koshodai)
Family: Theraponidae [tiger perches]
Pelatus quadrilineatus (yosuji-shimaisaki)
Family: Nemipteridae [threadfin breams]
Scolopsis cancellatus (yokoshima-tamagashira)
Scolopsis ciliatus(hakusen-tagamashira)
Scolopsis dubiosus (hitosuji-tagamashira)
Scolopsis margaritifer
Scolopsis temporalis
Pentapodus caninus
Family: Lethrinidae [emperors]
Lethrinus ornatus (hana-fuefuki)
Lethrinus lentjan (shimofuri-fuefuki)
Lethrinus semicinctus (ami-fuefuki)
Lethrinus nebulosus (hama-fuefuki)
Lethrinus variegatus (hoso-fuefuki)
Lethrinus mahsena (iso-fuefuki)
Lethrinus miniatus (kitsune-fuefuki)
Family: Ephippididae [spadefishes]
Platax pinnatus (akakukuri)
Platax teira (tsubame-uo)
Family: Scatophagidae [scats]
Scatophagus argus (kurohoshimanjudai)
Family: Chaetodontidae [butterflyfishes]
Chelmon rostratus (hashinagachocho-uo)
Heniochus diphreutes (mure-hatatatedai)
Parachaetodon occellatus (tentsuki-chocho-uo)
Family: Pomacentridae [damselfishes]
Abudefduf lorenzi
Abudefduf sexfasciatus
Abudefduf vaigiensis (oyabiccha)
Dischistodus perspicillatus
Family: Labridae [wrasses]
Cheilinus trilobatus (mitsuba-mochino-uo)
Cheilinus chlorurus (akaten-mochino-uo)
Cheilo inermis (kamasubera)
Choerodon anchorago (kusabibera)
Choerodon shoenleinii (shirokurabera)
Choerodon oligacanthus
Halechoeres chloropterus
Thallosoma lunare (otomebera)
Family: Scaridae [parrotfishes]
Leptoscarus vaigiensis (mizorebudai)
Scarus quoyi (remonbudai)
Scarus ghobban (hibudai)

Family: Echeneididae [remoras]
Echeneis naucrates (kobanzame)
Family: Scrombidae [mackerels]
Rastrelliger kanagurta (gurukama)
Family: Acanthuridae [surgeonfishes]
Naso brevirostris (tsumari-tenuhagi)
Family: Siganidae [rabbitfishes]
Siganus virgatus (hime-aigo)
Siganus canaliculatus (shimofuri-aigo)
Siganus guttatus (goma-aigo)
Siganus javus
Siganus vermiculatus (mushikui-aigo)

Order: Scorpaeniformes
Family: Scorpaenidae [scorpionfishes]
Pterois volitans (hana-minokasago)
Family: Synanceiisae [stonefishes]
Synanceia verrucosa (oni-darumaokoze)
Family: Platycephalidae [flatheads]
Inegocia gutata (wanigochi)

Order: Pleuronectiformes
Family: Soleidae [soles]
Pardachirus pavoninus (minami-ushinoshita)
Synaptura marginata (amami-ushinoshita)

Order: Tetraodontiformes
Family: Balistidae [triggerfishes]
Balistoides viridescens (gomamongara)
Pseudobalistes flavimarginatus (kiherimongara)
Family: Monacanthidae [filefishes]
Aluterus scriptus (soshihagi)
Monacanthus chinensis (morokoshihagi)
Stephanolepsis japonicus
Family: Ostraciidae [boxfishes]
Lactoria cornata (kongo-fugu)
Tetrosomus gibbosus (rakuda-hakofugu)
Family: Tetraodontidae [puffers]
Arothron reticularis (wamonfugu)
Arothron hispidus (sazanamifugu)
Arothron stellatus (moyofugu)
Arothron nigropunctatus (kokutenfugu)
Chelonodon patoca (okinawafugu)
Family: Diodontidae [porcupinefishes]
Diodon liturosus (hitozura-harisenbon)
Diodon hystrix (nezumifugu)

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