



Species richness of reef food fishes in Ambon Island waters, Maluku Province, Indonesia

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Abstract. Maluku Province in Eastern Indonesia is well known as an archipelago province which has various marine resources. However, information about the resources is still lacking. This research was conducted to study species composition of reef food fish in Ambon Island waters, Maluku Province on April to November 2016. Samples were collected at fish markets and at fisher villages in Ambon Island and then identified to the species level using standard literature. Totally, there were 1,187 specimen of reef food fishes collected during the study which consists of 32 families, 106 genera and 355 species. This finding is the highest species richness of reef fishes reported so far in Ambon Island.

Key Words: species composition, reef fish, Serranidae, Lutjanidae, Labridae.

Introduction. Maluku is well known as an archipelago province in Indonesia because it has 1,394 islands and most of those are surrounded by water in which 93.5% of its territorial is covered by sea water (Suryawati & Tajerin 2015). It is not surprising that Maluku Province has various marine resources that cause three out of 11 Fisheries Management Area (Wilayah Pengelolaan Perikanan, WPP) of Indonesia occur in its sea territorial i.e. WPP 714 (Banda sea), WPP 715 (Seram sea) and WPP 718 (Arafura sea). One of the marine resources in Maluku province is reef fish that is estimated about 28.8% of 6,000 species of reef fishes in the world occur in Maluku waters (Allen 2007). These reef fishes have ecological and economical values that can generate income as ornamental fish and food fish.

Reef food fishes are commodity that is in demand both locally and internationally. Because the demand for these commodities is increasing, then the intensity of fishing is also higher and the gears used are sometimes not environmentally friendly such as the use of bombs and cyanide. This unenvironmentally friendly activity not only has a negative impact on the reef fish resources but also on the environment in which those resources are located. As a result, habitats where the fish live become damaged and diversity of reef fish species will decline (Mallawa 2006).

As government of Maluku province is trying to gain recognition as Lumbung Ikan Nasional (Center of National Food Fish) in Indonesia, all the potential of fishery resources especially the species of reef fishes in Maluku waters must be known. For that reason, this study was conducted to study reef fishes in Maluku waters by focusing on species composition of reef food fish in Ambon Island waters.

Material and Method. The research was conducted from April to November 2016 in Ambon Island (Figure 1). Samples of reef food fish were collected at fish markets and fisher villages in Ambon Island. Each specimen of reef food fish collected was photographed by using Canon EOS 500D camera and then identified in the laboratory to the species level as possible. Identification was based on Kuitert (1992), Allen (2000),

Kuiter & Tonozuka (2001), Allen et al (2003), Kuiter & Debelius (2006) and Allen & Erdmann (2012). Identified specimen of reef food fishes were then labeled and kept frozen in the fridge at -20°C as voucher specimen.

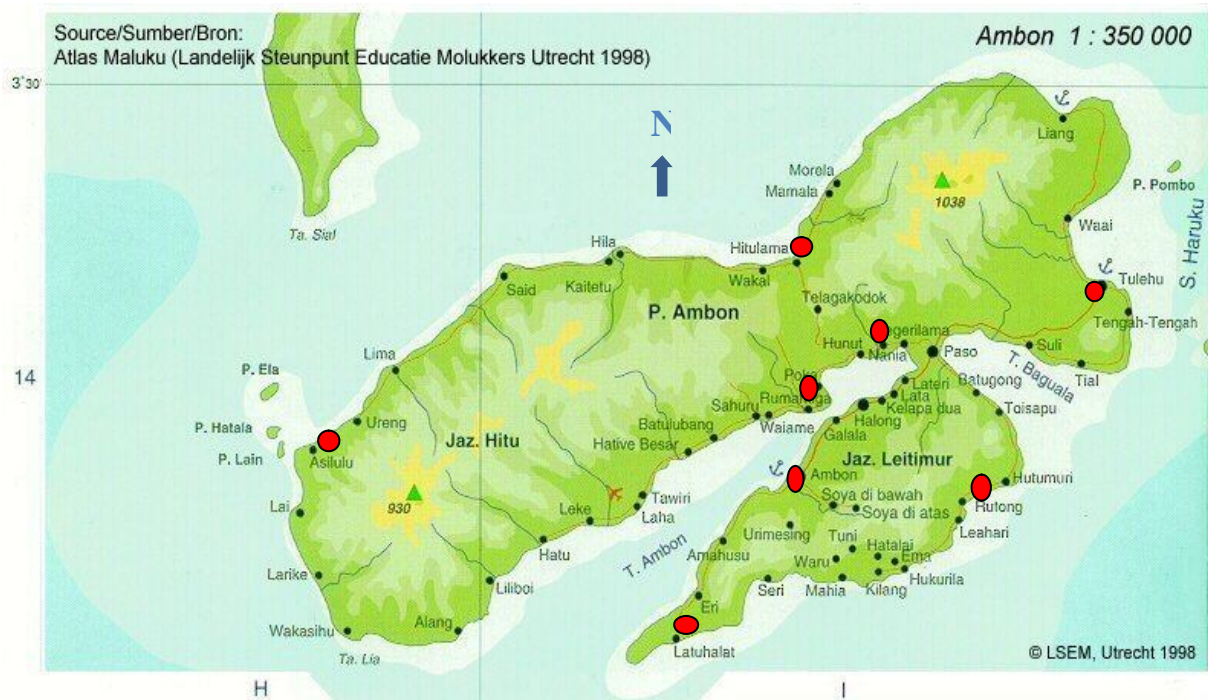


Figure 1. Map of sampling sites (red circles) in Ambon Island.

Results and Discussion. Reef food fish fishery in Ambon Island is traditional one. Fishers who live at the village in coastal area usually catch reef fish close to their villages. Most of the fishers use pedal wooden boat without engine and some use outboard machine or locally known as "katinting". Fishers in the coastal area in Ambon Island catch reef food fish by using simple gears such as spear gun, trap, handline and bottom gill net. Handline fishers usually do their fishing during the night, while fishers who use trap and gill net usually set their gears during the day, leave it overnight and haul it the next day. Most of the fishes captured are sold directly to the fish retailer at the market and some are sold to the seafood restaurant in Ambon city.

Most of the specimen of reef food fishes was collected at central fish market in Mardika, Ambon city. Totally, there were 1,187 specimen of reef food fishes collected during the study which consists of 32 families, 106 genera and 355 species (Table 1). The number of genus of reef food fishes for each family found during the study ranging from one genus to 14 genera whereas the number of species ranged from one species to 40 species. The lowest genus were represented by 12 families, i.e., Eleotridae, Ephippidae, Gerreidae, Kyphosidae, Malacanthidae, Ostraciidae, Pempheridae, Pinguipedidae, Plotosidae, Pomachantidae, Siganidae and Sparidae. Seven out of those families had one species only, namely: Eleotridae, Ephippidae, Malacanthidae, Ostraciidae, Pinguipedidae, Plotosidae and Sparidae. Family Labridae had the highest genus (14 genera) and followed by family Serranidae (10 genera). Family Serranidae also had the highest species (40 species), followed by Lutjanidae (39 species) and Scaridae (33 species).

The number of species belonged to family Serranidae found in this study is higher than found in similar studies conducted by Rhodes & Tupper (2007) that reported 24 species in fish markets of Pohnpei, Micronesia and Alcantra & Yambot (2014) that identified 27 species of Serranidae from major fish landing sites and markets in the Philippines.

The present study also found three species of Serranidae that potentially can be declared as new records in Maluku waters and possibly in Indonesian waters, i.e., *Hyporthodus ergastularius* Whitley, 1930, *Saloptia powelli* Smith, 1964 and *Cephalopholis*

igarashiensis Katayama, 1957. *S. powelli* with common name golden grouper never been reported to be found in Indonesian waters. This species was reported to be found only in Pacific Ocean, Western Pacific and French Polynesia (Heemstra & Randall 1993).

Table 1

Species richness of reef food fish in Ambon Island waters

No.	Family	Genus	Species
1.	<i>Acanthuridae</i>	4	20
2.	<i>Apogonidae</i>	3	5
3.	<i>Balistidae</i>	5	6
4.	<i>Caesionidae</i>	2	10
5.	<i>Carangidae</i>	6	6
6.	<i>Chaetodontidae</i>	3	9
7.	<i>Eleotridae</i>	1	1
8.	<i>Ephippidae</i>	1	1
9.	<i>Gerreida</i>	1	3
10.	<i>Haemulidae</i>	2	11
11.	<i>Holocentridae</i>	5	31
12.	<i>Kyphosidae</i>	1	4
13.	<i>Labridae</i>	14	20
14.	<i>Leiognathidae</i>	2	4
15.	<i>Lethrinidae</i>	4	17
16.	<i>Lutjanidae</i>	7	39
17.	<i>Malacanthidae</i>	1	1
18.	<i>Monacanthidae</i>	2	5
19.	<i>Mullidae</i>	3	20
20.	<i>Nemipteridae</i>	4	23
21.	<i>Ostraciidae</i>	1	1
22.	<i>Pempheridae</i>	1	2
23.	<i>Pinguipedidae</i>	1	1
24.	<i>Plotosidae</i>	1	1
25.	<i>Pomacanthidae</i>	1	3
26.	<i>Pomacentridae</i>	3	7
27.	<i>Priacanthidae</i>	3	7
28.	<i>Scaridae</i>	6	33
29.	<i>Serranidae</i>	10	40
30.	<i>Siganidae</i>	1	15
31.	<i>Sparidae</i>	1	1
32.	<i>Terapontidae</i>	6	7
	Total	106	355

Among the reef food fishes collected, species belong to families Serranidae (groupers), Lutjanidae (snappers) and Labridae (Napoleon) are considered as the most important species and have the highest economical value in the fish market. Other important species belong to families of Carangidae, Letrinidae and Caesionidae. In local market, the price of grouper is 25 to 30 US\$ kg⁻¹, while in international market such as in Hong Kong, Taiwan and China it is sold alive up to 55 US\$ kg⁻¹ (Akbar & Sudaryanto 2001).

The number of reef species found in this study is far higher than the number of species reported by other researchers in Ambon. As comparisons, Hukom et al (1987) found 122 species of reef fish in Ambon bay, while Syahailatua (2010), Rijoly (2015) and Limmon et al (2017) reported as many as 276, 229 and 293 species of reef fishes in Ambon Island and its surrounding waters, respectively.

Conclusions. It can be concluded that there were 32 families consist of 106 genera and 355 species found during the study of reef food fishes in Ambon Island waters. Family Labridae had the highest genera, followed by family Serranidae while the lowest genera

belonged to 12 families. Families of Serranidae, Lutjanidae and Scaridae had the highest species while the lowest represented by six families namely Eleotridae, Malacanthidae, Ostraciidae, Pinguipedidae, Plotosidae and Sparidae.

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