Al-Hayat: Journal of Biology and Applied Biology
Volume 5, No 1 (2022): 47-54
DOI. 10.21580/ah.v5vi1.11201

Conservation Status of Marine Biota Sold in Restaurants in Pangandaran Regency, West Java

Rega Permana[1*], Syntiah Widayani[2]

[1,2]Faculty of Fisheries and Marine Sciences, Padjadjaran University, Indonesia

Abstract

One of the most potential activities regarding fisheries business in Pangandaran Regency is seafood restaurants which hold the prospect for tourists. However, there are still many restaurants that sell conservationally-important biota. This study aimed to identify the conservation status of marine biota sold in restaurants in Pangandaran Regency. Data were collected by observation or direct survey by purposive sampling in six seafood restaurants. The fish species were then identified for their conservation status based on the International Union for Conservation of Nature (IUCN) and the Convention on International Trade in Endangered Species (CITES). The identification results revealed that there were biotas included in the IUCN, which were Lanjaman Shark (Carcharhinus sealei) with IUCN Appendix II CITES status, Black Fin Shark (Carcharhinus melanopterus) with IUCN Near Threatened (NT) status and Mobula Stingray (Mobula eregoodootenkee) with Endangered status. The findings of this study indicated that conservation efforts needed to be strengthened.

Keywords: Marine life; CITES; IUCN; Pangandaran; Restaurant

Introduction

Pangandaran Regency is one of the new regencies in West Java Province, which was formed in 2021 through Law Number 21 of 2012 concerning the Establishment of Pangandaran Regency in West Java Province, with the administrative activity center of the Regency located in Parigi District. Pangandaran Regency has a total area of +1,010 km^2, and geographically and astronomically, Pangandaran Regency is located at 108°8'0" to 108°50'0" East Longitude and 7°24'0" to 7°54 '20" South Latitude (Anggraeni et al., 2021).

Pangandaran is a tourist destination that many tourists visit, especially on holidays (Kurniasih et al., 2020; Rizal et al., 2020). The condition and geographical location of Pangandaran Regency, which is dominated by beaches, make it one of the marine tourism destinations in West Java. The Pangandaran Coastline, which stretches for 91 km, has different characteristics and offers various tourist privileges. The number of tourists who visit impacts several other fields, especially the economic sector. In 2018 the Pangandaran Regency's Original Regional Revenue from the tourism sector reached Rp. 144 billion. This achievement had increased seven times compared to before Pangandaran became an independent district, which was Rp. 22 billion (Lestari, 2018). This is evidence of the high potential of tourism activities that positively impact regional economic development.

*Corresponding Author: **Rega Permana**, email: rega.permana@unpad.ac.id. Faculty of Fisheries and Marine Sciences, Padjadjaran University, Indonesia. Jl. Raya Bandung Sumedang KM 21, Jatinangor 40600*

Apart from being a natural tourist destination, the beaches in Pangandaran Regency also have the potential for abundant marine resources. Fish production in Pangandaran Regency during 2018 was still dominated by the production of captured fish in the sea depicting the great marine potential (BPS, 2018). Commodities from capture fisheries that become superior are commodities of high economic value, such as shrimp, lobster, red snapper, white snapper, grouper, and tuna. With this potential, 2,212 people of Pangandaran Regency work as fishermen, fish traders, fish processors, and open seafood restaurants (BPS, 2018). This is an excellent opportunity for the community or entrepreneurs to profit. The people of Pangandaran Regency, especially those living in coastal areas, take advantage of the great potential of the sea to become fishermen, salted fish producers, fish processors, and open seafood restaurants (BPS, 2018). The abundance of fish resources, as well as being easy to obtain and diverse in Pangandaran Regency, also allows the development of culinary tourism, tourism processing of fishery products, and shopping tourism for fishery products (Ali, 2015).

One of the peculiarities in the Pangandaran Beach area is the availability of culinary tours with various types of marine fish (Seafood). The location of the tourist beach area adjacent to the Fish Auction Place (TPI) chooses fish served diverse so that it becomes an attraction for tourists, both domestic tourists and foreign tourists (Purwidyo et al., 2018). Approximately ten seafood restaurants are located in the tourist area of Pangandaran Beach. They all serve various types of coastal specialties with their uniqueness regarding taste, place, or the dish's uniqueness (Widowati, 2012).

Based on information from the Pangandaran Village, there are only a few restaurants that have a relatively high level of consumer visits, especially during the holiday season, such as restaurants Risma, Sari Melati, Tunas Sustenance, Berkah, Karya Bahari, Laksana, Kidang Mas Putra, Ditha, Sauyunan, Sarimbit Pujasera, and Mrs. Surman's restaurant. The high level of consumer visits is due to its strategic location. On weekends, the tourist beach location of Pangandaran Regency will be crowded with tourists. This opens up opportunities for the seafood restaurant business with economic potential (ADJI, 2019).

The high consumer interest in fish makes fishermen catch large numbers continuously, regardless of their conservation status (Nugraha et al., 2020; Rizal et al., 2017). Many protected fish species are still caught by fishermen and then distributed to restaurants around the coast, especially sharks (Permana & Kusuma Pringgo, 2020; Prihatiningsih & Chodriyah, 2019). Therefore, this study aims to identify the conservation status of marine biota sold in restaurants in Pangandaran Regency. This research is expected to be helpful information for the community, fishermen, and seafood restaurant entrepreneurs in Pangandaran Regency.

Research Methods

Data collection was carried out in December 2021 with the method of observation or direct survey by purposive sampling at six seafood, namely Karya Bahari Restaurant, Berkah Restaurant, Tunas Sustenance Restaurant, Risma Restaurant, Dita Restaurant, and Tanjina Restaurant (Figure 1). The fish species were then identified for their conservation status based on the International Union for Conservation of Nature (IUCN) and the Convention on International Trade in Endangered Species (CITES).

Figure 1
Research Location

Results and Discussion

The results of observations made at six Seafood Restaurants in Pangandaran Regency obtained as many as 12 types of fish sold at Karya Bahari 3 Restaurant, ten types of fish at Berkah Restaurant, ten types of fish in Restaurant Tunas Rezeki, 15 types of fish at Risma Restaurant, 14 types of fish at Dita Restaurant, and nine types of fish at Tanjina restaurant. Overall types of biota that had been observed were presented in table 1. The results of a direct survey of six Seafood Restaurants in Pangandaran Regency still found that several species were protected or whose population was being monitored in the area. Nature, including Mobula Stingray, Lanjaman Shark, Black Fin Shark, and Lobster, were traded either in raw or processed conditions. Based on the CoP-17 trial in Johannesburg from September 24 to October 5, 2016, it was decided that the lanjaman shark was listed in the CITES Appendix II red list (Chari & Lestari, 2019; Sentosa & Hedianto, 2016). Listed as "Near Threatened" (NT) by the International Union for Conservation of Nature (IUCN). The Blackfin shark (Carcharhinus melanopterus) on the IUCN red list has been included in the near threatened(NT) category (Nurastri & Marasabessy, 2021)

Table 1

Types of Marine Biota Found at the Research Site

No	Types of Fish (Spesies)	KBR	BR	TRR	RR	DR	TR
1	Black pomfret (*Parastromateus niger*)	√	√	√	√	√	√
2	White pomfret (*Pampus argenteus*)	√	√	√	√	√	√
3	Squid (*Mastigoteuthis flammea*)	√	√	-	√	√	√
4	Octopus (Octopoda)	-	-	-	-	√	-
5	Silky Shark (*Carcharhinus sealei*)	-	√	√	-	-	-
6	Black tip shark (*Carcharhinus melanopterus*)	-	-	-	√	√	-
7	Starry triggerfish (*Abalistes stellaris*)	√	-	-	-	-	-
8	Baronang fish (Siganus)	-	-	-	√	-	-
9	Mobula ray (*Mobula eregoodootenkee*)	-	-	-	-	√	-
10	Indian Halibut (*Psettodes erumei*)	-	-	-	√	-	-
11	Red snapper (*Lutjanus campechanus*)	-	√		√	√	√
12	Crab (Brachyura)	√	√	√	√	√	√
13	Blood clam (*Anadara granosa*)	√	-	-	-	-	-
14	Green mussels (*Perna viridis*)	-	√	√	√	√	√
15	Scallop (Pectinidae)	√	√	√	√	√	√
16	Grouper (*Epinephelus coioides*)	√	√	√	√	√	√
17	Lobster (Nephropidae)	-	-	-	√	-	-
18	Mackare tuna (*Euthynnus affinis*)	√	-	-	-	√	-
19	Tiger prawns (*Penaeus monodon*)	√	√	√	√	√	√
20	River prawns (*Macrobrachium rosenbergii*)	-	√	-	-	-	-
21	Vanamei Shrimp (*Litopenaeus vannamei*)	√	-	-	-	-	-

KBR = Karya Bahari Restaurant, BR= Berkah Restaurant, TRR = Tunas Rezeki Restaurant, RR = Risma Restaurant, DR = Dhita Restaurant, TR = Tanjina Restaurant

Table 2

Conservation Status and Information on Fish Sold at Restaurants in Pangandaran Regency

No	Fish Species (Species)	IUCN	CITES	Remarks
1	Silky Shark (carcharhinus sealei)	-	Appendix II	Species that may be in a threatened or near-threatened state, even though they are not included into a threatened state.
2	Black tip Shark (Carcharhinus melanopterus)	Near Threatened (NT)	-	Species that have decreased in population, so that their status is almost endangered.
3	Mobula ray (Mobula eregoodootenkee)	Endangered	-	a species that is facing a high risk of extinction in the wild in the future
4	Lobsters (Nephropidae)	Least Concern	-	Species that need to be protected in the wild because they are increasingly sought after both for export and for consumption by society.

Figure 2
Marine Biota with Important Conservation Status Successfully identified at the Research Site. Blackfin Shark (A), Mobula Ray (B), Lanjaman Shark (C), Lobster (D)

The results of observations made at six Seafood Restaurants in Pangandaran Regency obtained as many as 12 types of fish sold at Karya Bahari 3 Restaurant, ten types of fish at Berkah Restaurant, ten types of fish in Restaurant Tunas Rezeki, 15 types of fish at Risma Restaurant, 14 types of fish at Dita Restaurant, and nine types of fish at Tanjina restaurant. Overall types of biota that have been observed are presented in From the results of a direct survey of six Seafood Restaurants in Pangandaran Regency, it is still found that several species are protected or whose population is being monitored in the area. Nature, including Mobula Stingray, Lanjaman Shark, Black Fin Shark, and Lobster, are traded either in raw or processed conditions. Based on the CoP-17 trial in Johannesburg from September 24 to October 5, 2016, it was decided that the lanjaman shark was listed in the CITES Appendix II red list (Chari & Lestari, 2019; Sentosa & Hedianto, 2016). It was listed as "Near Threatened" (NT) by the International Union for Conservation of Nature (IUCN). The Blackfin shark (Carcharhinus melanopterus) on the IUCN red list has been included in the near threatened(NT) category (Nurastri & Marasabessy, 2021).

Results and Discussion

The results of observations made at six Seafood Restaurants in Pangandaran Regency obtained as many as 12 types of fish sold at Karya Bahari 3 Restaurant, ten types of fish at Berkah Restaurant, ten types of fish in Restaurant Tunas Rezeki, 15 types of fish at Risma Restaurant, 14 types of fish at Dita Restaurant, and nine types of fish at Tanjina restaurant. Overall types of biota that have been observed are presented in table 1.

According to several restaurant owners, the fish they sell are obtained from fishermen who catch them directly at sea, purchased through collectors, or purchased at auctions fish (TPI) in Pangandaran include Cikidang TPI, East Coast TPI and West Coast TPI (Dewanti et al., 2021). This shows that many fishermen still catch protected fish because the market's selling price is relatively high.

In this study, the most critical conservation status biota found were sharks and rays from the sub-class elasmobranchii. Indonesia's total catch of sharks and rays reached 121,750 tonnes in 2004, consisting of 59,230 tonnes of sharks and 62,520 tonnes of rays (Elamobranchii). Overall, the annual catch rate for sharks has decreased to close to 1%, but the rate of stingray catches is still increasing every year to 7% (Permana & Kusuma Pringgo, 2020). Overfishing or overexploitation has been reported to be expected in some water areas in Asian countries. The territorial waters of the South China Sea and several other water areas in Indonesia have a relatively high production index for Elasmobranchii fish above 10, which indicates that conditions are already highly exploited or can be called overfishing (Akbarsyah et al., 2017; Fowler et al., 2002).

As an effort to overcome the continuous rate of population decline and in anticipation of saving aquatic biota in the future before it is too late, conservation efforts need to be made. This must include aspects of conservation, protection, and use. The Government of Indonesia, through PP No. 7 of 1999 concerning the Preservation of Wild Plant and Animal Species, has stipulated several protected species from various animal groups. These species include seven species of finfish, 14 species of shellfish, 31 species of reptiles, 30 species of marine mammals, one species of crustacean, and one species of black coral as a protected species (Arief et al., 2015; Hanim et al., 2020).

Although there are still several types of sharks that can be exploited, Some are protected by law. The rules regarding the prohibition of the exploitation of protected animals, including sharks, is regulated in the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and have been ratified by the Indonesian government with Presidential Decree 43/1978 (Andreas Pramudianto & SI, 2022; Ayu, 2021). The Ministry of Marine Affairs and Fisheries has approved a ban on exploiting specific types of sharks. As many as 4 types of sharks are included in appendix II, which means their Trade must be regulated and monitored even though their status is not yet threatened with extinction (Cardeñosa et al., 2019). The types of sharks are hammerhead shark (*Sphyrna leweni*), hammerhead shark (*Sphyrna zygaena*), hammerhead shark (*Sphyrna mokarran*), cowboy shark (*Carcharhinus longimanus*). These four types of sharks are also protected by Permen KP no 59/PERMEN-KP/2014 (Syahfriliani & Sunarsi, 2020).

Other species, such as the Saw Shark (*Pristis microdon*) and the Whale Shark (*Rhyncodon typus*), are protected by Government Regulation No. 7/1999 and Ministerial Decree No. 18/KEPMEN-KP/2013,respectively. Meanwhile, Permen KP No 12/2012, which refers to The Indian Ocean Tuna Commission (IOTC) 10/12 protects three types of sharks, namely Monkey Sharks/Shark Sharks (*Alopias pelagicus*), Lancur Sharks/Lutung Sharks/Tikus Sharks (*Alopias superciliosus*), Common Thresher (*Alopia vulpinus*). Regulations protect and control shark fishing activities in Indonesia

Species of terubuk fish, napoleon, and whale sharks have also been designated as protected species through a Decision Study on other species experiencing population decline in nature. Management arrangements are still needed to regulate conservation efforts to maintain the natural population. Especially for endemic animals, the Indonesian government must give more priority to their management.

Conclusions

The results of direct identification in six seafood restaurants in Pangandaran Regency can be seen that there are still many people and fishermen selling fish that are classified as conservation status, both protected and endangered species. Some of these restaurants sell fish with IUCN statuses, such as shark, stingray, and lobster. Sharks are included in the CITES (Appendix II) and also IUCN (Near Threatened (NT)), stingrays are included in the IUCN (Endangered), and lobsters are included in the IUCN (Least Concern). Fish are obtained from fishermen who catch at sea, and traders or restaurant owners sell fish because there is still a lack of understanding about the status of fish

that need to be conserved (Permana & Azizah, 2022). So it is necessary to conduct socialization regarding protected fish, and conservation efforts need to be carried out for fishermen and fishing communities in Pangandaran Regency.

References

ADJI, T. H. (2019). *Analisis Pendapatan Rumah Makan Seafood Di Kecamatan PangandaraN*. Universitas Siliwangi.

Akbarsyah, N., Wiyono, E. S., & Solihin, I. (2017). Tingkat Ketergantungan Dan Persepsi Nelayan Pancing Ulur Terhadap Sumberdaya Ikan Di Prigi Trenggalek Jawa Timur (Dependency and Perception of Handline Fishermen towards Fish Resources at Prigi Trenggalek East Java). *Marine Fisheries: Journal of Marine Fisheries Technology and Management*, *8*(2), 199–210.

Ali, M. (2015). Potensi Wisata Bahari Pulau Pasaran Bandar Lampung. *Prosiding Seminar Nasional Pengembangan Teknologi Pertanian*.

Andreas Pramudianto, S. H., & SI, M. (2022). Pengaturan Hukum Lingkungan Internasional Dan Nasional Dalam Upaya Melindungi Ekosistem Terumbu Karang. *Jurnal Pendidikan Dasar Dan Sosial Humaniora*, *1*(3), 453–464.

Anggraeni, F., Adytia, D., & Ramadhan, A. W. (2021). Forecasting of Wave Height Time Series Using AdaBoost and XGBoost, Case Study in Pangandaran, Indonesia. *2021 International Conference on Data Science and Its Applications (ICoDSA)*, 97–101.

Arief, H., Rahman, A., & Mijiarto, J. (2015). Studi Keanekaragaman Satwaliar Di Areal Konservasi Pt. Pertamina Talisman Jambi Merang. *Media Konservasi*, *20*(1).

Ayu, N. K. (2021). Tinjauan Hukum Terkait Perlindungan Penyu Hijau Sebagai Satwa Yang Di Lindungi Dalam Kasus Perdagangan Penyu Ilegal Di Jembrana. *Jurnal Paradigma Hukum Pembangunan*, *6*(1), 74–97.

BPS, K. C. (2018). Kabupaten Pangandaran Dalam Angka 2019. In *Diakses melalui: https://ciamiskab. bps. go. id*.

Cardeñosa, D., Merten, W., & Hyde, J. (2019). Prioritizing global genetic capacity-building assistance to implement CITES shark and ray listings. *Marine Policy*, *106*, 103544.

Chari, N., & Lestari, N. D. (2019). Silky Shark Trust: Strategi Pengelolaan Konservasi Hiu Kejen (*Carcharhinus falciformis*) di ppp muncar, banyuwangi. *Prosiding pusat riset perikanan*, *1*(1), 293–300.

Dewanti, L. P., Siry, H. Y., & Khan, A. M. A. (2021). A Brief Information On Tuna Pole-And-Line Landings And Fishing Efforts In Larantuka, Flores Timur District, Nusa Tenggara Timur Province, Indonesia. *Indonesian Fisheries Research Journal*, *27*(1), 51–60.

Fowler, S. L., Reed, T. M., & Dipper, F. (2002). *Elasmobranch Biodiversity, Conservation and Management: Proceedings of the International Seminar and Workshop, Sabah, Malaysia, July 1997* (Issue 25). IUCN.

Hanim, L., Chalim, M. A., & Hafidz, J. (2020). Pelaksanaan Perlindungan Satwa Liar Yang Dilindungi Menurut Hukum Indonesia Dan Hukum Internasional. *Prosiding Seminar Nasional Penelitian Dan Pengabdian Kepada Masyarakat*, *1*(1), 161–168.

Kurniasih, I., Nurhayati, A., Dewanti, L. P., & Rizal, A. (2020). Potensi Wisata Bahari di Kabupaten Pangandaran (Marine Tourism Potential in Pangandaran Regency). *Jurnal Perikanan Dan Kelautan P--ISSN*, *2089*, 3469.

Lestari, A. D. (2018). *Persepsi Wisatawan Terhadap Aktivitas Wisata Di Pantai Barat Pangandaran*. Universitas Pendidikan Indonesia.

Nugraha, B., Dharmadi, D., & Wiadnyana, N. N. (2020). Status Pemanfaatan Dan Upaya Penanganan Hiu Paus (Rhincodon Typus) Terdampar Di Perairan Indonesia. *Jurnal*

Kebijakan Perikanan Indonesia, *12*(1), 47–57.

Nurastri, V. D., & Marasabessy, I. (2021). Status Konservasi Ikan Terancam Punah yang Diperdagangkan Keluar Kota Sorong (Studi Kasus: Ikan Hiu Berdasarkan Identifikasi di Loka Pengelolaan Sumberdaya Pesisir dan Laut Sorong). *Jurnal Riset Perikanan Dan Kelautan*, *3*(1), 303–318.

Permana, R., & Azizah, F. N. (2022). Status Konservasi Biota Laut yang Teridentifikasi di Tempat Pelelangan Ikan (TPI) Kabupaten Pangandaran, Jawa Barat. *Jurnal Ilmu-Ilmu Perikanan Dan Budidaya Perairan*, *17*(2), 48–57.

Permana, R., & Kusuma Pringgo, D. (2020). Quantitative evaluation of shark fisheries from cantrang fishing gear in Mayangan Coastal Fishery Port, Probolinggo, Indonesia. *World News of Natural Sciences*, *31*.

Prihatiningsih, P., & Chodriyah, U. (2019). Komposisi jenis, hasil tangkapan per upaya, musim dan daerah penangkapan ikan hiu di perairan Samudera Hindia Selatan Jawa. *Jurnal Penelitian Perikanan Indonesia*, *24*(4), 283–297.

Purwidyo, A., Nurhayati, A., Dhahiyat, Y., & Rizal, A. (2018). Analisis Pemasaran Rumah Makan Seafood Kidang Mas Putra Di Pantai Barat Kabupaten Pangandaran Jawa Barat. *Jurnal Perikanan Kelautan*, *9*(2).

Rizal, A., Apriliani, I. M., Permana, R., & Nurruhwati, I. (2020). Development and coastal environment change, will have a meeting point? Case study of coastal zone of west java province, Indonesia. *Geo Journal of Tourism and Geosites*, *31*(3), 1034–1042.

Rizal, A., Suryana, A. A. H., Herawati, H., Lantun, P. D., & Izza, M. A. (2017). Regional Perspective To Build Competitiveness For Indonesian Fishery Sector In The Global And Autonomy Regime. *Int. J. Agric. Env. Res*, *3*(6), 4368–4388.

Sentosa, A. A., & Hedianto, D. A. (2016). Jenis dan sebaran ukuran hiu yang didaratkan di Tanjung Luar, Lombok Timur, Nusa Tenggara Barat. *Prosiding Pertemuan Ilmiah Nasional Tahunan (PIT) XIII ISOI*, 902–914.

Syahfriliani, L. R., & Sunarsi, D. (2020). Perlindungan Hukum Terhadap Perdagangan Satwa Liar Jenis Ikan Hiu Di Indonesia. *SUPREMASI: Jurnal Hukum*, *3*(1), 76–85.

Widowati, R. (2012). Keberadaan bakteri Vibrio parahaemolyticus pada udang yang dijual di rumah makan kawasan Pantai Pangandaran. *VIS VITALIS Jurnal Ilmiah Biologi*, *1*(1).