

MARINE TOURISM CHALLENGE SPECIAL INTEREST DIVING WITH MANTA RAYS IN MANTA POINT, NUSA PENIDA, BALI

Donny Juliandri Prihadi

Department Marine Science, Fakultas Perikanan dan Ilmu Kelautan,
Universitas Padjadjaran, Kampus Jatinangor, UBR 40600

ABSTRACT

Marine tourism is now becoming very popular activities in the island nation like in Indonesia. A lot of the good influence of marinel tourism towards well-being, and comfort of society in a tourist location, but there is also disruptive. Integrated coastal management approach has to do with comprehensive. Various ways of integrated management of the coastal region can be done with collaboration of integration of Government, private parties and the community. Marine tourism is an activity that gives more attention to the environment and in the coast and the sea waters, either on the beach or at sea. Marine tourism activities as long as it is known for its diving, snorkling, fishing, boating or play cano, playing water sports such as surfing, jet skiing, and swimming, activities on the beach. Manta rays are one of the biological resources of the sea which became the exotic species of marine fish for diving, snorkling or simply just viewed from the boat. Oceanic Manta Rays (*Manta birostris*) is a big fish that has a flattened body shape, a tail, long wings, and a pair of eyes that are on the upper side. Manta rays are found in areas of the seabed especially on sandy (benthic), with high current although often foraging in the ocean surface (pelagic). This research aims to know the challenges of marine tourism in Manta Point, and knowing the kind of habitat as well as Oceanic Manta Rays on Manta point the island of Nusa Penida, Bali province. The research was carried out in December 2014 by using method survey. The research results showed the challenge against the larger marine tourism activities due to a myriad of foreign tourists who want to do fun diving, sea fotografic with oceanic manta rays or just snorkling in Manta Point and found there are 10 species of manta rays were found. Oceanic Manta Rays are found on the South side of Bali's Nusa Penida region namely the Manta Point more than on the other side of the island, This is supposedly due to the difference in the characteristics of the habitat is the area of the rocky seabed, condition its waters the water quality is clear and still correspond to the raw quality of sea water for sea life., and sea current was high.

Keywords: marine tourism, welfare, oceanic manta rays, nusa penida

INTRODUCTION

The waters that existed in the country of Indonesia has been utilized by the community with a variety of things. Indonesia is the largest archipelago in the world with an area of territorial lands and seas of around 7.7 million km² consisting of 17,504 Islands 95,181 km² with a coastline stretching from Sabang to Merauke (Prihadi, 2015). The utilization of water use by humans as transportation, fisheries, multiply the resources of oil and gas, energy, health and nature tourism. The development of technology and science be one benchmark improvement of existing human resources in the face of this earth. Already many resources have been exploited by humans comes from the waters of both the public and marine waters. Fish resources is one of the producers of protein that contain lots of good nutrients for living beings including utilized by humans. Since the first Country Indonesia is renowned as a maritime State has a high biodiversity and natural wealth. Fish resources has become a major source of food for humans. However, lately the number of exploitation on existing fish resources, have been able to make the most of the existing types of fish have become extinct or are in the verge of extinction. But the magnitude of the potential results of the sea when it is identified and managed properly will be able to improve the science and knowledge, increasing the country's foreign exchange from selling seafood and community can be know what is in the water.

Most important is as a society who socialize and always coexist fellow humans also interact agat all communities the majority of Indonesia religion is Islam since long ago, hereditary, and trusted best and Allah is one God so he is omniscient and omnipotent compassionate. Ecotourism can be utilized optimally and justified the command or method of experimental observation, all of them will be able to improve the welfare of society/the fisherman fishes, open jobs, take advantage of the coastal region and the sea of potential biological resources sustainability, improving the fisheries and increase the country's foreign exchange (Prihadi, 2003). Environmental resources, such as air, water, land, and biota, are able to provide goods and services directly or indirectly benefiting economically (Djajadiningrat et al., 2011). The potential area of marine ecotourism in Indonesia is very large. Spread from Sabang to Papua, both daratannya, the conservation forest area as well as at sea, the Marine National Park. Damanik J & Weber h. F (2006) stated that a study of the top nine conservation areas in Indonesia showed not only the uniqueness but also the diversity of the objects is the great potential of ecotourism development. Almost all objects and tourist attraction (ODTW) is already operational and many attract tourists. At the global level the growth market of ecotourism recorded much higher than the overall tourism market. Based on the analysis of the TIES (2000) in Damanik j., Weber & H.F. (2006) ecotourism market growth ranging between 10-30% per annum whereas the growth of tourists overall only 4%. The year 1998 the WTO estimates growth of ecotourism is about 20%. In the Asia Pacific region on its own growth rate last ranged from 10-25% in the mid-1990s. In Indonesia is estimated to be

around 25% House in 1996 was ecotourist. These statistics show that the shift in the behavior of the tourism market is in progress at the moment and ecotourism is expected to be a very prospective tourism market in the future (Damanik j., H.F. Weber 2006).

The waters of Bali province in Indonesia has become one of the tourist destination locally or internationally. There is a very phenomenal kuta Beach, as almost all tourists who come to the island of Bali always visit kuta beach. The existence of the Kuta Beach very close to the Ngurah Rai airport growth creating between jalan legian and kuta is very crowded and congested. Legian area is one of the centers of activity for entertainment that is on the island of Bali. The province of Bali has a small island in the area of governance, namely, Pulau Menjangan Island attack, the island of Nusa Lembongan, Nusa Ceningan and Nusa Penida island. The coordinates of the island of Bali is 8o 23II LS and 25I 115o 14I 55II BT, and tropical. Limitations on the territory in the northern part of the sea is the southern part of Bali, Indonesia, in the Ocean is the western part of East Java Province and is in the eastern part is the province of West Nusa Tenggara. The total area of the province of Bali is 5,636.66 km² or 0.29% of the total area of the country Indonesia (BPS, 2011). Nusa Penida island is an island that is sought after by tourists special interest, supported geographical location not far from the provincial capital so many tourists who come and enjoy the natural beauty of the green. Nusa Penida island can be reached from the port that is in the Sanur Beach crossings with fares of Rp. 25,000/person for General ships with 2 hours of travel time and Rp. 50,000/person for fast ship with travel time 40 minutes. Nusa penida island is an island located in the southeastern part of the island of Bali and is separated by the Badung Strait. Nusa Penida waters known by specific interest, namely its coastal and tourist activities, some regions are already common they visit namely Tanjung Penida, Manta Point, the SD Point, Kutapang, Toyapakeh, Midfielder, Kutapang, Buyug, Crystal Bay, and Malibu Point. Some coastal and marine tourism activities can be carried out on the island of Nusa Penida is snorkeling, diving, sailing, sea fishing, surfing and just the beach tourism. Nusa Penida island can be surrounded by boat with a journey time of 3 hours. Time travel to Nusa Penida dive sites in Bali is influenced by a number of physical parameters, namely: sea water currents, waves, wind.

Figure 1: Location map of Dives at Nusa Penida island.

Source: lembongandiving.com

Oceanic Manta rays (*Manta birostris*) is a fish that has great size and became the biggest fish to the existing group of stingrays and ever found in the world. Like other sea fish, manta rays choose the environment temperature and salinity waters suitable for life. The temperature of the water surface in the waters of the archipelago we generally on 28-31° C and salinity ranged from 17 – 35 ppt (Nontji, 2007). According to Romimohtarto and Juwana (2007) stated sharks, rays and chimaera including Chondrichthyes class. Stingrays are always swimming and migrate. Stingrays are generally live in coastal waters and the sea with depths of being, but these fish have always migrated to the area of coral reefs as well as the area of mangroves and are generally found on the bottom of the water. The coastal area including the area important for existing food chain in the ocean. According to Nontji (2007) States that the stingrays can be distinguished in two groups namely: 1). The tail is actually part of his body and 2). The tail is only an extra parts only or in the form of a whip. The rays also adjusted to act in similar forms of the body except the shark and the flat top-down and had a gut with a diameter of very large size and short, contain membrane screw that keeps the food when circling through it so that the delay long enough to be digestible and absorbed, has a very big heart, which helps digest food by producing bile and save a huge amount of substance ingested hara (Romimohtarto and Juwana (2007). Generally food stingrays are fish, squid, crab, oysters and plankton. But oceanic manta rays are included on how to eat it with fish opened his mouth wide and food such as plankton can get into

the stomach channels. How different oceanic manta rays, mobula rays or with other stingrays. Oceanic manta rays more bigger than mobula rays.

Marine tourism development planning such as snorkling, and diving. Diving destination for fun and observations of ecosystems. Indonesia has more than 13.466 island. The amount of this island has been named and registered in the United Nation. 17.504 island that have been found in the region of Indonesia. According to KKP (2017) by ministry of Marine Affair and Fisheries Indonesia Mrs. Susi Pujiastuti spech in Unpad campus that already 16.650 island have been ratification by Indonesia government to United Nation. More than thousands island have been yet have name of island. The future of small islands development of tourism in the world has risen from economic and regional aspects on local and foreign people at several beaches in the waters of Indonesia. Also, there is the world's longest coastline and the second has to Indonesia. After Canada, Indonesia has long coastal lines and 84.000 km² and should be managed to minimize negative impacts of ecotourism and in some areas. Indonesia could become the largest island in the world. Ecotourism has strong relationships with sustainable tourism. The latter depends on the relationship between tourism and the environment. Ecotourism can be defined as an opportunity to promote social values in the protected area, and to finance to related stakeholders (Bunruamkaew 2012). Let sharp for a value of more than a billion species living in Indonesia, the country has mega biodiversity and Integrated Coastal Zone Management (ICZM). The purpose of this research is to know the behavior of special interest divers diving with Oceanic Manta Rays (*Manta birostris*) at Manta Point, Nusa Penida, Bali. Research areas on outside of Bali main island. Tourism can be seen from socio-economic phenomenon that most remarkable of 20th century (Neto Frederico. 2003). While domestic tourism currently accounts for about 80 percent of all tourist activities (UN 1999a), international tourists gradually become the key dimensions of the integration of global (UN 1997;UN in 1999a, in Freedman et al 2005).

The expected recovery in world tourism in the near future so that it will depend on the evolution of the world economy, among other factors, including several important attributes that should be pay attention to regional conflicts, terrorist acts and epidemics International. In the medium and long term, tourism into international markets in an attempt to the phenomenon of globalization then tourism in Indonesia can continue the existence of the rapid growth in achieving the living standards and increase revenues, expansion and the increase in various modes of tranport, increasing the amount of free time and other factors (Neto 2003) help. This helps explain why the WHO (2001c) has confirmed the long-term forecasts made before September 2001 from the level of average annual growth in international arrivals from over 4% in the period until the year 2020 (Neto 2003). The number of international arrivals is expected to reach a striking sign of the 1 billion in 2020, and 1.6 billion in 2020 (Neto 2001d in WTO 2003). International tourism is one of the fastest-growing sector of the global economy. Tourism is the only major service sector

developing countries have consistently noted the trade surplus relative to the rest of the world (Neto 2003). Tourism is now one of the world's second largest foreign exchange income/gain. Tourism has also become the main income for the increasing number of island developing countries (SIDS) (Neto 2003). There are several important attributes that appeal to be considered in order to free from urban settlements, untouched landscape, rich vegetation cover wildlife, native and recreational attractions/ family recreation, and there have been a number of grounds including provincial Marine Park, Bird Park and the National Park, which is next to the presence of recreational and tourist assistance to keep some natural feature (Bunruamkaew k., 2012). In addition to the physical attributes of the product, and the scale of the landscape of Nusa Penida and the underwater ecosystem make the area a popular and became the prime candidate for ecotourism. Therefore, sustainable management of ecotourism in the region is very important to the long term commitment of Bali for sustainable development. In many ways, such as in accordance with the characteristics of the election area for case studies to demonstrate the application of the methodology (Bunruamkaew k., 2012). The interaction between the manta rays with a divers taste and pleasant for divers at Manta Point, Nusa Penida, Bali. Research shows that the Manta Rays that often reside and stay in Manta Point. Diving with oceanic manta rays in Nusa Penida dive spot is a place which became one of the busiest point/station for diving in the area of Nusa Lembongan and Nusa Penida, Bali. But nowadays not we have seen oceanic manta rays anymore in Manta Point, now many *Mobula Manta Rays* has come to Manta Point it is because the sea condition has change, the current is not high and normally oceanic manta rays will swimming far to the deep of the sea.

There are three islands in the province of Bali, which is Nusa Penida, Nusa Lembongan, Bali Barat and more than 20 famous beaches already likes by the thousands of tourists ever visit. 6 years of Bali can recover well since the terrorist attacks of the bombed Cafe in Kuta Street, Kuta Beach, Bali. So many people die where surprise and make a degradation of tourist arrivals. With the support of the United Nation, Indonesia needs to make a change to a better solution as the island nation that can produce the solution to the coastal and marine areas for sustainable development. Biodiversity below sea level is the forest of stunning coral reefs and thousands of marine fish that live. Neto (2003) the tourism sector is an increasingly important source of the work including the tourism sector, such as construction and agriculture for unskilled labour, migrants from rural areas are poor, people who prefer to part-time work and especially women. This sector is relatively labor intensive, investments in tourism to generate increasing bigger and faster in the work of the same investment in other economic activities. At the same time the available data indicate that the majority of workers in the tourism sector particularly in hotels and catering, tend to earn less than workers for comparable jobs in the developed and developing countries (ILO 2001 in Bunruamkaew k., 2012). '; Diversity of objects and tourist attraction (ODTW), into the comparative advantages for tourism products in international market. Many of

the objects only offer ODTW "as is" in a sense almost without packaging and without a clear target market. He explained the ODTW diversity can only give you an advantage when optimally developed based on the findings of the planning results measurable (Damanik J & H.F Weber 2006). Tuwo A (2011) declare ecotourism could increase economic opportunities in the form of: 1). The expansion of employment, 2). An increase in the income of local communities, 3). Increased income of the region.

Further tourism is often identified as the most promising a driving force for the economic development of less developed countries and regions endowed with the natural beauty of the area include small island developing because they offer a valuable opportunity for economic diversification (Neto 2003). Marine tourism in Nusa Penida from time to time are always sought after by large number of divers each semester. Various products of special interest marine tourist diving and snorkling, became one of the largest suppliers of local and foreign tourists to take marine ecotourism packages for diving. The process of drafting a good ecotourism management plan should pay attention to the criteria of a good management plan and actively involving stakeholders (Tuwo, A. 2011).

Ecotourism is a form of special tourism activities. A special shape that makes the ecotourism is often positioned as opposed to mass tourism in a region. In fact the more set it apart from the mass tourism is characteristic of the product and the market. The difference is certainly implies the need for planning and management of the archetypal (Damanik j., H.F. Weber 2006). The International Ecotourism Society perceive it as a responsible nature travel by way of mengonservasi the environment and improving the well-being of the local community (TIES 2000 in Damanik j., H.F. Weber 2006). From this definition of ecotourism can be viewed from three perspektif: first, ecotourism as development approach. As a product, ecotourism is all traction based on natural resources (Damanik j., H.F. Weber 2006).

Nusa Penida has long been made into tourist attractions for divers either from local or international is able to make the popular nautical tourism area from time to time. With a wide range of direct flight from Ngurah Rai of Bali made the journey to reach the Nusa Penida and Nusa Lembongan became extremely variable. Almost all divers from all over the world have come to dive Nusa Penida and Nusa Lembongan, Bali. Various information many obtained when travelers want to visit and travel activity for diving, snorkling or play water sports. Provided in the coastal area of Bali is becoming very complex, the need for transportation so that appropriate management can make the province of Bali which is more independent and clean. Favorite attractions as many local and international travelers, making the island of Bali is considered a tourist magnet in Indonesia.

Varied marine tourism activities there in Nusa Penida and Nusa Lembongan belongs still need the role of the Central Government nor the provinces formed the planning of ecotourism in coastal areas so that Bali was able to become a magnet for tourists and become to complement the increase in revenue from increased tourists visit today. The issue of terrorist attacks had damaged the relationship between tourist spots with tourist/ travellers. A great many victims make tourism in Bali declined, but many different ways have been able to be developed in order for the visit of tourists continues to rise.

MATERIALS AND METHODS

This research was conducted in Nusa Penida, Bali province on research carried out in December 2014 by using method survey. Research results showed the challenge against the larger marine tourism activities due to a myriad of foreign tourists who want to do menyelaman and snorkling in Manta Point and found there are 10 species of manta rays were found. Manta Rays are found on the South side of Bali's Nusa Penida region namely the Manta Point more than on the other side of the island, this is supposedly due to the difference in the characteristics of the habitat is the area of the rocky seabed, condition its waters the water quality is clear and still correspond to the raw quality of sea water for sea life. Using the survey method as a primary data and secondary data to support. Analysis of photos and samples of plankton is carried out in the laboratory of marine science, Faculty of fishery and marine science, Universitas Padjadjaran.

The tools and materials used in the research are:

- full scuba gear
- 12 MP camera with underwater chasing
- identification of the Book (Marine Fishes by Gerry Allen, 2000).
- Boat
- Vest
- Salino Refraktometer
- Plankton Net, bottle samples
- Plankton identification Book (Illustrations of The Marine Plankton of Japan by Isamu Yamaji, 1996)

The research using survey method with dives to the destination location (figure 1 above). Purposive sampling carried out with methods, where the location was selected based on information on diver operators and the presence of manta rays and determined Toyapakeh, Manta Point, the SD Point, and Crystal Bay. This research was conducted at 10 am. Interview and collect all of the data required primary asked with provides a quensioner and tourists fill it, and occasionally asking, as the ordinance written draft with a guided interview so that the goal is

reached. Method of survey data by getting the coral reefs and fish as well as water physical and chemistry parameters via observation and measurement direct in the field. Observations of fish using Underwater Visual Census (UVC) by doing a numbering fish found in the same area with observation of coral reefs, the measurement of the physical chemistry of waters i.e. temperature, brightness, salinity and speed of flow done at every research station. National coral reef management policies have been set in a regulation of the Minister of marine and fisheries No. 38 Year 2004 regarding guidelines management of coral reefs. The policy stated that coral reefs are part of the resources in the area of coastal management is inseparable from the management of other resources such as mangrove forests and seagrass pastures. Therefore the national coral reef management policies should pay attention and use a comprehensive and integrated approach. Besides the management of coral reefs should also consider the implementation of decentralization.

The national policy on the management of coral reefs was drawn up based on the principles of: (1) a balance between intensity and variation in utilization of coral reef management, (2) in accordance with the priority needs of local communities and the national economy, (3) legal certainty through the implementation of laws and regulations to achieve the goal of managing and exploiting coral reefs are optimal, (4) equitable and sustainable management, (5) approach to cooperative management between all related parties, (6) employee administration based on the scientific data available and the ability of power support environment, (7) recognition of customary rights and the institution of social indigenous Alliance about the management of coral reefs, and (8) the management of coral reefs in accordance with the spirit of regional autonomy (Marine and fisheries No. 38 Year 2004).

Public policy management of coral reefs in Indonesia is managing coral reefs ecosystems based on a balance between utilization and conservation designed and implemented integrated and synergized by the Central Government, Government by The province, by Kabupaten/Kota Government, by community, by private sector, by universities, and by governmental organizations.

RESULTS AND DISCUSSION

Marine tourism activities is already very long time became the main attractions in Bali for many foreign tourists coming into Indonesia. There are also many hotels and resorts are up and growing in Nusa Penida and Nusa Lembongan, Bali province. Incoming tourists to visit the island of Bali is always bigger than the other tourist areas in Indonesia visitors. Nusa Penida is one of the most popular tourist areas and the importance of the Bali Indonesia. It rich culture, natural history, which makes a favorite destination for many international travelers. Most popular touristy Things between Indonesia and international tourists with gradually increasing the

number of (Bunruamkaew k., 2012). The tourism industry is evolving rapidly and exponentially. Tourism is a very complex activity and Tus need tools to assist in decision-making effectively completing further and meet the demands of economic, social and environmental sustainable development (k. Bunruamkaew, 2012). Tuwo (2011) declaring the potential benefits of ecotourism regions can be either: 1). The increase in economic opportunities, 2). Protection of natural resources and cultural values, 3). Improved quality of life. The benefits of increased economic opportunity the area of ecotourism, among other things: 1). increase opportunity working for the community or local residents, 2) increase revenues, 3). The development of new businesses, and the development of the local economy, 4). Development of business or local craft goods, 5). The widespread acceptance of foreign exchange and improvement of promotion and marketing; 6). Improving living standards and an increase in the income tax area/ region, 7). Encourage employees and community to learn new skills and 8). Upgrading the funding source for the protection of nature and the co management with local communities.

There are so many attractions in Bali province, these include the historical, cultural and natural sites such as waterfalls, mountains, oceans and beaches, as well as the Islands. But some of the sights in Bali still haven't developed in order to achieve sustainable tourism development, it is important for management to plan the Bali province contribute to the degradation of the natural resources, more consumption and waste, water shortages and destruction of forests and mangrove areas. Public space has also been known to be subverted and used for construction of a new expansion of hotels, resorts, villas and condominium. In order to support the development and management of tourism to support the growth of tourism, it is important for Bali to exercise effective planning by considering the future trend in the development of tourism in small island of Indonesia. Nusa Penida is one of the most favorite tourist areas chosen by tourists. Lots of tourists come to Nusa Penida due only to tour special interest marine diving and snorkling with manta rays. Although many of the Pre-eminent destination on the island of Bali, but the marine tourism activities, at Nusa Penida and Nusa Lembongan still is always selected by visitors.

An effective tourism planning and policy making has been somewhat overlooked, though some effort has some major flaws. The presence of planning and marketing and promotion of responsible tourism include the lack of information and sharing, system information to assist decision making even less clear. Ecotourism could increase economic opportunity in the form of an extension besides that rapid increase of visitors in this province can be considered a signal of warming up for the development of tourism in this area, the planning of ecotourism are needed to sustainable development of tourism (Bunruamkaew k., 2012). The process of the development of ecotourism is seen as a process of learning and of ecotourism as the process to maintain the values and ecological environment, promoting local participation in the development of tourism. The improvement of quality of life benefit sustainable, among others 1). Increasing the aesthetic,

spiritual and other values related to welfare, 2). Support the development of environmental education for tourists and locals, 3). Increased understanding between cultures, 4). Encourage the development of culture, arts and crafts, 5). Meningkatkan educational level of local communities, 6). Encourage managers and the public to learn the language and culture of foreign tourists, and 7). Encourage the local community to keep the environment and appreciate the local culture.

The province of Bali has its own potential in South Bali's tourism industry. The province is the hub for tourists on the small island between the islands of Java, Lombok to Komodo Islands or too. A port and a hub for travelers going directly to Nusa Penida from Sanur Beach. Ecotourism is closely related to the concept of "Sustainable Tourism and sustainable development of the environment". The concept of sustainable tourism has been focused on the management of the entire tourism industry to bring into line with the global trend towards sustainable development Dowing, (1995) in Emaad Muhanna (2006).. Ecotourism is responsible travel in areas where the natural resources that have the characteristics of endemic resources and culture or history that is integrated into the area; ecological systems. Ecotourism is closely related to the concept of Sustainable Tourism and sustainable development of the environment. The concept of sustainable tourism has been focused on the management of the entire tourism industry to bring into line with the global trend towards sustainable development (Dowing 1995 in Bunruamkaew k., 2012). Generally the basic concept of ecotourism combines three key ingredients of natural resources, sustainable management, environmental education activities. Other minor elements are low impact a number of tourist or the tour operator, the protection and improvement of the benefits to nature and the local community and local participation (Buckley 1990 in Bunruamkaew k., 2012). These elements are usually included in the component.

Ecotourism should in all cases, aimed at sustainable development, ecotourism is based on fundamental principles, guidelines and standards and developing industries that need to have a regulatory system or standard criteria in order for proper certification. Ecotourism is regarded as a component of sustainable tourism development (Linbreggh and Mckercher 1997; Boyd and Butler 1993; Bunruamkaew k., 2012). Ecotourism should be integrated conservation and development of the concept of holistically which means all components must be connected, and compromised balanced each other (Pra Dhammapitika 2000 in Bunruamkaew k., 2012).

The United Nations Environment Program (UNEP) consider ecotourism became a special interest to UNEP for its association with the conservation, sustainability, and diversity of biological, whereas a declaration of Quebec on Ecotourism ecotourism is defined as embracing the principles of sustainable tourism and the following principles which distinguish it from the broader concept of coastal marine tourism and sustainable tourism development. Tuwo A (2011)

stated that the benefits of the protection of natural resources and cultural values, among other things: 1) protects the ecological processes and biodiversity lestarnya hayatinya, 2). The creation of the economic value of the natural resources that had been not providing economic benefits for the community, 3). The rise of local facilities, transport and communications, 4). Help the development of independent financial mechanism in the management of Ecotourism, 5). Protect and preserve local cultural values, 6). Help communication and interpretation of the importance of natural pelesstarian to tourists and locals, so woke up to a new generation that is more responsible, 7). Supporting research and development activities that assist the managers and travelers in fixing the system and paktik environmental management and efforts.

Identification of Ocanic Manta Rays (*Manta birostris*)

Observations of oceanic manta rays have been conducted at 4 locations in the Nusa Penida dive i.e. Toyapakeh, Manta Point, the SD Point, and Crystal Bay. Survey results the presence of oceanic manta rays in Nusa Penida island of Bali shows the difference of the results the presence of manta rays on each dive sites can be seen in table 1. Manta point has always been a marine tourist destination is quite popular in Nusa Penida because unique due to presence of oceanic manta rays (*Manta birostris*) which can always be slow swimming with diver without paddeling when the tourists diving or snorkling. Experience dives like this have not been obtained from the divers who once tried some of the best dive spots in the world. Reasonable when almost all divers who come to Nusa Penida has been visiting Manta Point. The price offered is quite expensive compared to other dive spots. Manta point has become a favorite tourist spot for divers to dive with manta rays along with special requested. Indeed not forever divers can see or meet with oceanic manta rays or maybe diving with Mobula Rays

Table. 1: The Results of Observations of the Manta Rays in Nusa Penida island

No.	Dive Sites	The Number Of Manta Rays
1.	Toyapakeh	0
2.	Manta Point	10
3.	SD Point	0
4.	Crystal Bay	0

Based on the above table it can be stated that found 10 tail oceanic manta rays in Nusa Penida dive sites are only found at Manta Point at a depth of 0.5 – 16 metres below sea level. On the research on site dive Toyapakeh, SD Point and Crystal Bay manta rays were not found. From a number of sources i.e. diving operators in the field stated that typically divers can see manta rays at Manta Point, then it is indeed rare and not found manta rays in Toyapakeh, SD Point and Crystal Bay. It is alluded that naming a location due to the Manta Point dive from this location

often found the Group manta rays at both the time of summer and the rainy season. This is due to the environmental conditions that exist in the Manta Point is very clean, surrounded by cliffs and rocky waters Foundation. While the third dive sites others have clean environmental conditions but in Toyapakeh has a base of stone, weary waters on SD Point have the waters of sand and coral reefs, at Crystal Bay waters have basic stone weary, so on the third dive sites this manta rays that have a larger body shape uncomfortable when the surrounding area of the coral reef.

At Manta Point is rocky sea bed and the waters around it while having a coral reef but most of them are soft coral and coral massive. And sea current quite strong. Unlike the third dive sites that almost is an area of coral reefs beaches are diverse. The coastal area in Indonesia almost has a coral reef. Coral reefs (coral reef) is a typical ecosystems found in the Tropics (Nontji, 2007). The area of coral reefs exist in Nusa Penida island is absolutely beautiful with very high diversity, including in the presence of coral fishes are colorful because that's an awful lot of tourists who want to enjoy it. According to Romimohtarto and Juwana (2007) stated that coral reef ecosystems directly benefit to mankind by providing food, medicine, building materials and other materials.

According to Thomas p. Peschak (2011) stating the classification of the oceanic manta rays are as follows:

Kingdom : Animalia
Phylum : Chordata
Class : Chondrichthyes
Subclasses : Elasmobranchii
Order : Myliobatiformes:
Family : Myliobatidae
Genus : Manta
Species : *Manta birostris*

Figure 2: Manta Rays (*Manta birostris*)



Photo Source: Author

The observations of the existence of 10 oceanic manta rays (*Manta birostris*) add data manta rays found at Manta Point (Figure 2). From observations in the field at discover the Group manta rays are large. Seen in part and wingspan/fin. Same with *Mobula* rays and other stingrays, oceanic manta rays have a tail. Many stingrays have one or more needle which is toxic in its tail (Allen, 2000). According to Nontji (2007) states that some types have a large tooth-like stun lies in their tails that can be working to the top to protect the backs when they burrow themselves in the sand and another rays types can be generate a kind of rechargeable battery took out electric shock if touched. 10 tail oceanic manta rays swim almost always in unison and look like in groups. Some manta rays swim beneath the surface by opening his mouth and part swims close to the divers.

Figure 3: Oceanic Manta Rays Head and Pectoral Fins



Photo Source: Author

Manta rays are one of hundreds of big fish that exist in the world. With the elongated pectoral fins and connected with the head look like manta rays form a triangle with the criteria of an angled triangular body shape then manta rays can easily swim when surprised and often found swimming in the surface waters. Manta rays are generally live in the bottom waters, just like other types of Stingray. According to Nontji (2007) states that the shape of the Stingray is generally flat, with a tail like a whip and swimming movements he did with hoist the fins wide chest with a motion like waves. Based on observations in the field width body of manta rays found reaches approximately 5-6 metres are calculated from the tip of the left pectoral fins and tip right pectoral fins (Figure 3). According to Nontji (2007) states the largest size of the rays is oceanic manta rays that reach 8 meters in width. Wide body oceanic manta rays can reach 9.1 meters with the heaviest weight ever measured reach 3 tonnes (Fishbase.org, 2011). In accordance with the statement of Allen (2000) that the length of the fin 670 cm manta rays and oceanic manta rays is a body weight of more than 2 tons.

Oceanic manta rays have gill slits beneath his body. From observations in the field it can be stated that all the rays have gill slits. Fish including manta rays have cartilage. According to Nontji (2007) states that catch fish (sharks) and stingray belongs to the cartilaginous fishes (Elasmobranchii). According to Romimohtarto and Juwana (2007) states that one of the properties of the outer class Chondrichthyes which are easily known is the presence of the external gill slits and usually there are 5 pairs of gills. On the stingray behind eye on both sides

of his head there was gill slits, each as much as 5-6 fruits and water breathing issued through the cracks this gills (Nontji, 2007).

The color of the upper body and manta rays is a black part underneath are white. The observations underwater can be stated that the skin thick carpet-like manta rays. According to Romimohtarto and Juwana (2007) stated that the whole class Chondrichthyes have skin that is resilient, largely have texture like sandpaper and rough skin as a result of the presence of the gelakoid scales such as small teeth on skin. Her skin covered in scales plakoid be fine thorns that his position leaning back and if we wipe her body with a hand from the head to the back will feel a bit smoother, but not so if from the opposite direction (Nontji, 2007).

The General form of the rays is flattened and the observations in the field assert that oceanic manta rays shaped flat and has wide pectoral fins. According to Romimohtarto and Juwana (2007) states that it is a flat body shape is perfect for hiding in the bottom of the waters and to dig out the crab shells or animals to eat. See how eating with manta rays widen the jaw so his mouth was wide open certainly has a strong jaw. According to Romimohtarto and Juwana (2007) stated that stingrays had a strong jaw and his mouth is located at the bottom of the body, while his eyes above and stingrays can not see anything when food goes into his mouth.

Different from other stingrays, oceanic manta rays have a mouth that is located in front of and between his eyes (Figure 4). Oceanic manta rays can be seen as its main set of plankton feeding while swimming fin flick of her chest. According to Nontji (2007) stated that the food is entirely composed of small animals and zooplankton were obtained by using the organs of the filters contained in the arc of gills. The current swept the krill and plankton to surface waters, they wash over the walls of Coral Bay and turning out onto the open sea (Bruce, 2009). Manta rays swim on the surface of the sea and seen plays like flying in the sea. Manta rays have a pair of horns near its mouth, a pair of horns it helps enter sea water containing food sources for manta rays, namely in the form of plankton (filter feeders). On retrieval of plankton in the field by taking a sample using a plankton net at sea level at the point where the manta rays are visible on the surface. Plankton is indeed became one of the very important organisms in the aquatic food chain in. The observations in the laboratory in plankton identification can be that some types of plankton are dominant i.e. *Acartia omorii*, *Oncaea conifer*, *Gibber* sp, *Acrocalanus Euphausea pacifica*, and *Oncaea venusta*.

Observations have been made on 10 tail oceanic manta rays (*Manta birostris*) found at Manta Point generally have the same behavior i.e. manta rays don't hesitate to approaching divers, calmly approaching manta rays seeming to want to know who is around them. Manta rays showed friendly with divers so some divers there is a photograph on the manta rays also hand in hand while swimming and there are also briefly held the fins or backs of manta rays, although on

different scuba association/ diving operator did not allowed to hold manta rays or take pictures that caused its life interrupted.

CONCLUSION

Marine tourism has been able to increase income in the community who work in the area of Nusa Penida and Nusa Lembongan as well as the surrounding area. Marine tourism special interest diving with manta rays it has been shown that with contributions from different types of sea life guarded its waters and environment preserved his manta rays makes many communities have a better chance of living longer with sustainable action. The results benefited from the activities of specific interest to diving with oceanic manta rays and much more than great when manta rays are only captured and sold for consumption both for local and international markets. Oceanic Manta rays (*Manta birostris*) has become one of the big fish that provide a spectacular experience for divers and Manta Point dive sites of interest become favorite place for diving with Manta rays. The research have found 10 tail oceanic manta rays at Manta Point, the island of Nusa Penida, Bali, at a depth of 0.5 – 16 metres below sea level. Manta rays are often seen swimming under the surface of the sea to catch his food namely plankton and zooplankton mostly. The people of Australia, Singapore, China is the country of origin of foreign tourists in the Manta Point. Maintain and preserve in the Manta Point, Nusa Penida make income areas is becoming better than more developed. And Bali island also more popular.

REFERENCES

- Allen, G. 2000. *Marine Fishes of south East Asia*. Periplus. Singapore.
- Bruce Barcott. 2009. *Feeding Frenzy*. National Geographic.
- Bunruamkaew Khwanruthai. 2012. *Site Suitability Evaluation for Ecotourism Using GIS and AHP: A Case Study of Surat Thani Province Thailand*. School of Life and Environmental Sciences. University of Tsukuba.
- BPS. 2011. *Bali*. Di akses pada tanggal 8 September 2011 di website: <http://bali.bps.go.id>.
- Damanik J & Weber h. F (2006).
- Djajadiningrat, S.T., Hendriani, Y., dan Famiola, M. 2011. *Ekonomi Hijau (Green Economy)*. Rekayasa Sains. Bandung.
- Emaad Muhanna (2006). *Sustainable Tourism Development and Environmental Management for Developing Countries*. Problems and Perspectives in Management, 4(2)

- Fishbase.org. 2011. *Manta Rays*. di akses pada tanggal 8 September 2011 di website: <http://fishbase.org/summary/SpeciesSummary.php?id=2061>.
- Lynn P. Freedman, Roanald J. Waldman, Helen de Pinto, Meg e. Wirth, A. Mushtaque R., Chowdhury, Allan Rosenfield. 2005. Who's got the power? Transforming health systems for women and children. UN Millenium Project Task Force on Child Health and Maternal Health.
- Neto Frederico. 2003. A new approach to sustainable tourism development: Moving beyond environmental protection. *Natural Resources Forum 27* (2009) 212-222 *journal..* United Nations. Publish by Blackwell Publishing. Oxford UK. Malden MA 02148 USA.
- Nontji, A. 2007. *Laut Nusantara*. Penerbit djambatan. Jakarta.
- Marine and fisheries No. 38 Year 2004. About the Organization and the Work of Marine Fisheries Research Hall.
- Prihadi, D.J. 2003. *Pengaruh Jenis dan Waktu Pemberian Pakan terhadap Tingkat Kelangsungan Hidup dan Pertumbuhan Kerapu Macan (Epinephelus fuscoguttatus, FORSKAL) dalam Karamba Jaring Apung di Balai Budidaya Laut Lampung*. Skripsi. Jurusan Perikanan. Fakultas Pertanian. Universitas Padjadjaran.
- Prihadi, D.J. 2015. The existence of Frogfish in Nusa Penida island of Bali. *Journal Akuatika* Vol.VI No.1: 187-197.
- Romimohtarto, K., dan S. Juwana. 2007. *Biologi Laut, Ilmu Pengetahuan tentang Biologi Laut*. Penerbit Djambatan. Jakarta.
- Thomas P. Peschak. 2009. *Photo of Manta Rays.:* <http://ngm.nationalgeographic.com/2009/07/manta-rays/barcott-text>.
- Tuwo A. 2011. *Pengelolaan Ekowisata Pesisir dan Laut*. Pendekatan Ekologi, socio economics, kelembagaan dan sarana wilayah. Brilliant International. Hlm. 337-393.
- WHO (2001). The world health report 2001 - Mental Health: New Understanding, New Hope.