The Sustainable Ecotourism Potential Development With Special Reference to Oliveridley Sea Turtle (*Lepidochelys olivacea*) Along Bantul Beaches, Indonesia

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**Abstract.** All seven species of sea turtle are endangered species, Olive ridley *Lepidochelys olivacea* is listed as red list of threatened species by the IUCN. From 2012 until 2018 only *L. Olivacea* that can be found landing at Bantul Beaches. Bantul has four beaches for sea turtle conservations; Pandansimo, Goa Cemara, Samas, and Pelangi. The purpose of this study was to obtain information on the perception of general tourists about the potential development of turtle conservation based ecotourism in Bantul. A questionnaire by random sampling used to collect data to respondents (200 visitors). The data processed using quantitative descriptive. SWOT analysis methods use to evaluate the possibility of sea turtle based sustainable ecotourism development. The results show that almost of tourist perception about: the condition of the beach in Bantul that is positive; the responses of the beach operators were good; approve of turtle conservation based ecotourism development; agree with the policy to donate for the efforts of turtle conservation; have the perception that the turtle has its attractiveness for beach tourism; agree that giving an explanation of the importance of turtle conservation before the release of hatchlings open to the tourists' insight about the importance of turtle conservation. The area of the beach during the release of hatchlings is very supportive because of limited visitors when release hatchlings. The presence of donations by tourists in conservation efforts can be used as a source of funding for turtle conservation. From SWOT analysis, the sea turtle conservation in Bantul is potential to be developed into sustainable ecotourism.

**Keywords:** ecotourism, conservation, sea turtle.
1. Introduction

The living species of sea turtle in the world only seven species, and six of them can be found in Indonesia. The six species are the olive ridley (*Lepidochelys olivacea*), green turtle (*Chelonia mydas*), HAwkshill (*Eretmochelys imbricata*), loggerhead turtle (*Caretta caretta*), flat turtles (*Natator depressus*) and leatherback turtles (*Dermochelys coriacea*) [1]. The threat to the existence of sea turtles recorded in India [2] in the form of lighting on the beach, coastal erosion, and also planting Casuarina in near-shore. Human activities also impact in the animal behavior [3], fisheries also related to sea turtle mortality [4]. Many conservation programs to save the sea turtle; monitor nesting activities egg harvest program [5], link identification between nesting and foraging ground [6,7]. The important thing is research focusing on ecology, physical and natural environment. Since 1982 the sea turtle conservation program in India conducted for the existence of *L. olivacea* sea turtles remain stable. The number of sea turtles that could reach 600,000 in the hatching season is very significant to support the population of Olive Ridley (*L. olivacea*) on the earth. Support from the researchers, the public and the government is also the support of the sea turtle conservation program [2].

Sea turtle conservation program also use for ecotourism programs. Ecotourism programs are as non-consumptively that involve local people [8], educational programs [9]. Ecotourism integrates ecology, economy, and social [10] also have many benefits such as economic benefit, community benefit, social and political deeper promote to conservation outcomes[11]. The two domains evolving in parallel pathways in tourism studies: sustainable tourism (ST) and community-based tourism (CBT) [12].

Sea turtle Ecotourism is one of the tourist attraction great potential to suck a lot of tourists, both foreign and domestic tourist. Although its’ can appeal to tourists, the management should not disturb with conservation efforts. Travelers who waited for sires sea turtle arrival can cause a sound, or if using more light, a sea turtle will be afraid of landing. There is little disbelief that the sea turtle used for wildlife tourism attraction. If the sea turtle -based ecotourism established, it made a positive influence on sea turtle conservation. For an example of exceptional care is given to the development of sea turtle ecotourism at Mon Repos Beach, Australia [13]. Many conservationists believe that ecotourism will have a good impact on society and nature. Conservation programs in Brazil (Brazilian Sea turtle Conservation Program) or called Tamar to deliver employment and income for conservation programs in Praia do Forte, Brazil to reduce sea turtle hunting. The negative impact of many immigrants who come on this beach to get money on the beach. More research is needed on the state of ecotourism in the medium term or long term in an ecotourism project [14]. To increase the number of tourists, the collaboration between coastal tourism facilities-infrastructure and socialize the ecotourism program are two main factors increasing performance on coastal tourism [15].

The ecotourism must allow local people to receive economic benefits from tourism. A Local community is essential achieved in sustainable tourism which can be attained by education and training programs. Such activities support public participation and will, therefore, accelerate tourism to achieve its sustainability goals. The tourism will contribute in chemical and biological pollution also habitat degradation and resources exploitation (Hakim et al., 2012). This growth set in the context of the history and contribution to conservation is discussed as well as possible to raise revenue without disrupting tourism place promotion of ecotourism at sea turtle conservation program is not enough to legend, culture and history associated with the sea turtle. This has been recognized in Australia. Promotion, the results are not enough if only the tourism promotion related to the legend of Australia’s relationship with native sea turtles. As a tourism-based sea turtle, sea turtle utility to humans much better in promoting sea turtle -based tourism. The tourism development involves a dynamic relationship between tourism, biodiversity, and communities, facilitate by great management (Tisdell & Wilson, 2002).

The negative impact that may result if not better sea turtle ecotourism management including; travelers’ garbage especially plastic waste, habitat destruction landings if many tourists go into sea turtle landing areas, tourist action make a noise that could disturb the sea turtle landings. The issue should be the anxiety of sea
turtle ecotourism managers to set the best possible waste management, the number of tourists when brood stock spawning observations, and also the prevention to make noise or use a light that can interfere (Pegas & Stronza, 2010). Wilson & Tisdell (2001), noted that there is significant economic potential for using wildlife resources for non-consumptive wildlife-oriented recreation (NCWOR) tourism and this type of tourism if well managed, can result in the long-term conservation of natural resources. This is mainly vital in cases where nature resources are declining due to habitat destruction, thieving and other human threats, as is so for sea turtles. Ecotourism is over a genuine chance for the conservation of wildlife resources in the long term, when natural resources are dwindling due to habitat damage, poaching and other human actions (Marzouki et al., 2012). This ecotourism program by presenting a sustainable economic value for wildlife resources, habitat damage, poaching, and reduce other threats. Such tourism activities are also educational. Non-consumptive economic principles show the chance costs of current consumptive uses sea turtle conservation programs traditionally sought to limit human access and presence on nesting beaches, for example by creating exclusionary parks or by limiting development (Tisdell & Wilson, 2002).

Ecotourism is a complex matter, include both in terms of environmental and social. Finkbeiner Research (2009) in Baja California, Mexico, showed that in spite of the low contribution of local communities but there is a strong motivation among them to better participate in ecotourism. This system recommends that we need a system that can make the best use of the role of local people in ecotourism efforts sea turtles. Gilbert and Dodds (1992) said that trying to manage nature without first gaining proper knowledge of the ecological relations, environmental controls, and the zoological realities of the situation could cause more harm than good. Currently, nature management uses a multidisciplinary method representation knowledge primarily from wildlife biology which subsumes scientific subjects such as ecology, animal behavior, and conservation biology. For ecologically sustainable managers need scientific data on which they can base their decisions. The data can be used for management devotions (to help achieve sustainability) and also improve the nature of tourism experience with information. Non-consumptive wildlife has the potential to warrant the conservation of wildlife resources in the long-term. The economic potentials for using wildlife habitats in a non-consumptive way are large (Hoyt, 2000). Sea turtle conservation-based ecotourism programs in Bantul community expected to make an effort to support sea turtle conservation success.

2. Methods
The research was conducted using survey method and descriptive analysis. It was collected 200 survey data from the random visitors with criteria that only go to enjoy at the Bantul beaches (Pandansimo, Goa Cemara, Samas, and Pelangi). The survey contain some questions related to beach conditions and sea turtle ecotourism potential development. Data of the survey was processed by using descriptive quantitative analysis method, transforming raw data into the form of data that will easily understood and interpreted, compiled, and presented. It becomes be an information that suitable with the purpose of research. SWOT analysis use to know more of the potensial development of ecotourism with special reference of sea turtle along Bantul Beaches, Indonesia.
3. Results and Discussion

In general, at Figure 2, visitors more than 65% consider the condition or environmental quality in Bantul beaches are excellent. Its quality is good enough to allow for the development of ecotourism based on turtle conservation. According to the results of the study Pegas & Stronza (2010), that Sustainable tourism will focus on the quality area, valuable experience for visitors and increased life quality for host communities through cultural identity, poverty reduction, and environmental quality. Bantul beaches are the natural area with a good condition; ecotourism comes to promote responsible travel to natural areas, to make a positive contribution to an environmental, and to enhance the well-being of local communities. If sea turtle ecotourism develop in Bantul beaches, it will support the sea turtle conservation program because visitors who initially did not know will understand that Bantul beaches place for turtle nesting. The visitors support the sea turtle conservation program with their fund.

As an open area, Bantul beaches are a destination that triggers by external factors in the condition. Bantul beaches must be adaptive if there created sustainable ecotourism. Jovicic (2016), the capability to adapt internal and external factors, allows tourism to maintain for an indefinite period. It is needed to stress the attempt to link the theory of complex adaptive systems and sustainable tourism, understanding the ability of tourism to recover from the events that have occurred in a recent period, as well as the ability of destinations to maintain popularity and achieve the sustained growth in the long term. From the biological aspect, fig 3.a. Shows that Bantul beach has pine trees (Casuarina equisetifolia) that are not endemic used to prevent abrasion. The leaves long in the process becomes composted; it decreases the acidity of the sand. The reduced of salinity has a negative effect in early embryo development. The sea turtle eggs should be moved to a semi-natural nest to get optimum pH for the embryo development. Beachside housing can be found in several areas. It can disturb the sea turtle that will be landing to lay eggs, so lighting arrangement needs to be done. The sea turtle will change behaviors in the selection of nesting affected by light pollution (Da-Silva et al, 2007).

1.1. Responses of the beach operators and beach facilities supporting tourism.
The beach manager in providing a place and welcoming visitors is one of the factor beaches that will be fun for visitors or not.

Figure 4. Beach operator respond

Figure 4 shows that 76% the beach manager good in providing a place and welcoming visitors. Well-maintained beach conditions with other carrying capacity such as stalls, clean water, garbage (cleanliness) are some of the factors that beach managers must pay attention to if they are to develop the potential of this turtle-based ecotourism conservation. The following (table 1.) are the results of a survey of environmental support factors at four environmental conservation points in Bantul.

Tabel 1. Visitors' perceptions of environmental conditions supporting tourism on the coast of Bantul

| Supporting factors | Bantul Beaches |
|--------------------|----------------|
|                    | Pelangi | Samas | Goa Cemara | Pandansimo |
| Lodging            | Less    | Less  | Less        | Less       |
| Clean water        | Enough  | Enough| Enough      | Enough     |
| Street             | Good    | Good  | Good        | Good       |
| Food stall         | Less    | Less  | Enough      | Enough     |
| Electricity        | Less    | Enough| Enough      | Good       |
| Trash can          | Less    | Less  | Enough      | Enough     |
| Convenience        | Enough  | Less  | Good        | Good       |
| Cleanliness        | Enough  | Less  | Clean       | Clean      |

The environmental conditions for Pelangi beach and Samas Beach look less supportive than the evergreen Goa Beach and Pandansimo Beach (table 1.). The importance of the coastal community as a key stakeholder in conservation in welcoming tourists is needed so that sustainable ecotourism will occur. This is so that later in ecotourism there will be a balance of conservation and development goals. The stakeholders of the local community must be able to fairly share in the socio-economic benefits. Their involvement, involvement and empowerment are very important for the success of ecotourism as a multidisciplinary conservation approach (Cheung, 2015).

1.2. Approve of turtle conservation based ecotourism development.

Sea turtle ecotourism is an adaptive program that can be developed in Bantul. Most of the visitors (86%) agree if in Bantul beaches will develop sea turtle ecotourism. Only 12 % visitors disagree about the sea turtle ecotourism. It can be seen in figure 5 below.
Local community ecosystem with the community-based management of sea turtle conservation is the base to develop the area for ecotourism. The sea turtle ecotourism has to keep environmental quality biodiversity and natural regeneration and also get an economic increase in income and local market development. In the socio-economic, ecotourism increase the welfare for education and health care, so knowledge and sharing will improve human and community well-being. Integrate community participation into the promotion of sea turtle conservation by enhancing the government and communities’ efforts at reducing mortality and increasing nest protection. To achieve this goal, we will consolidate multiple workshops and training events directed toward stake-holders and fishers (Allman, 2013).

1.3. Policy to donate for the efforts of turtle conservation

The operation of the places of the ecotourism need money also the local operator must get mean value. The willingness of the beach visitors as a general tourist to pay for sea turtle ecotourism development seen in the following data:

![Figure 6. Willingness to Pay in Seaturtle Ecotourism Program(%)](image)

Figure 6. shows about 70% of visitors said that they would pay for the development of turtle ecotourism. It is economic potential for conservation groups because so far the fund has become one of the main issues. There is the fund from the government in the last five years, the conservation groups using their own money to manage the sea turtle conservation in Bantul. Ecotourism must have an economic impact (Charnley, 2005; Klak, 2007). The mean value can make sustain in the ecotourism program because local communities get benefit from the visitors.

1.4. Perception that the turtle has its attractiveness for beach tourism

Bantul has some groups of sea turtle conservation communities. It potential as sea turtle ecotourism guide, they must learn about all of sea turtle biology and environment support nesting. In the beaches, place for specially sea turtle education space for the visitors must be built to support the ecotourism. Figure 7 shows Hatchling release program to tourists special interest sea turtle conservation; it carried out every year during hatchling season.

![Figure 7. Visitors perception that Sea Turtle is an Specific Attraction](image)

At first, ecotourism that occurs in Bantul beaches only hatchling release to the sea (Figure 8.). Visitors are removing the hatchlings to the sea, without given an explanation about the conservation aspects that need attention before. It only can be done in the hatchling season. It becomes a good potential if made a building where conservation education. Here the tourists were given education about sea turtle conservation so that they will be more schools and more support conservation program
although there is no hatchling there. Research needs to be done support sea turtle conservation that ecotourism program that will be implemented.

Conservation education should also be made to all walks of life, from children to adults. Sea turtle education program by given an explanation of the ecological functions in aquatic sea turtles to the visitors. If the number of visitors in sea turtle ecotourism program rising in the future, there will be a new problem. For example, in any case, the yearly number of tourists visiting the nesting beaches of French Guiana is growing each year. Change of ecotourism infrastructure is going to take place. The question is how much and to what extent, and whether it can be done in such a way as to affect the turtles the least while benefiting the local economy. We endorse that guidelines and standards for evaluation be established before the application of ecotourism programs; these criteria must encompass not only the biological impacts but also the social and political issues surrounding growth (Scheyvens, 1999). The focus should not be so much on emulating other programs elsewhere but finding solutions to problems and situations in the ecotourism area (Godfrey, 2001).

Figure 8. Release program of hatchling, annually in Bantul Beaches from 2013-now.

1.5. Providing understanding about the importance of turtle conservation

Hatchling release program must be accompanied by conservation learning. This event should be accompanied by scientists who understand the biology of sea turtle. Standard Operational Procedure (SOP) how to release should be made so that the release hatchling is not stressful so that the level of life remains high. Most sea turtles die before adults (Brei et al., 2014); the light entire the beach can trigger the hatchling so the release program should have attention to biological factors. Almost visitors agree that giving an understanding of turtle conservation before the release of hatchlings is very open to the tourists’ insight about the importance of turtle conservation. From figure 9. that almost visitors agree giving an Understanding about Sea turtle conservation (98%).

Figure 9. Giving an Understanding about Sea turtle conservation.
Conservation education program supports the ecotourism program that will develop in Bantul beaches. Conservation education programs should be mutually supportive between academia (universities), government, and conservation community. The threat of theft and sea turtle breeding sea turtle conservation is still an obstacle in Bantul. There are still sellers who openly sell eggs at the market, or there is also a black market trade in sea turtle eggs. Conservation education for children ages elementary, junior high, and high school and for the community in Pandansimo Bantul beaches has been done by Budiantoro and Wijayanti (2013). By involving the school and the community, it is expected that all components of the coastal communities understand the importance of sea turtle conservation efforts.

Bantul has a beach that reaches 16.85 km in length with a number of turtle landing points reaching 35 places and the average landing time in one six month landing season is only 40 times (Budiantoro, 2017). Four points of turtle conservation; Pandansimo, Goa Cemara, Samas, and Pelangi each have a community based conservation (CBC) and also a specific location for hatchlings. The attraction of the release of hatchlings by the CBC with tourists in recent years has been carried out with special procedures in the afternoon. The number of interest tourists specifically releases hatchlings is limited according to the number of hatchlings released. This is so that the attraction of the hatchling release remains with the calculation of the carrying capacity of the environment on each beach. From the observation of the area in each beach it is still very supportive of the hatchling tourist attraction activities in Bantul because the number of hatchlings is relatively small at release.

1.6. SWOT Analysis

The SWOT analysis is used to determine the potential for developing turtle conservation as sustainable ecotourism in Bantul. The development of this ecotourism potential must be well organized so that ecotourism-based turtle conservation can take place continuously.

Table 2. SWOT analysis determine the potential for developing turtle conservation as sustainable ecotourism in Bantul.

| Strengths | Weakness | Opportunities | Threats |
|-----------|----------|---------------|---------|
| a. There are 35 turtle landing points L. Olivacea (Budiantoro, 2017). b. There are four turtle conservation groups in Bantul. c. Each year the eggs are hatched well in semi-natural places with high hatching rates. d. from the survey it was found that tourists generally supported efforts to develop turtle conservation-based ecotourism in Bantul. | a. There is a risk that the eggs will be exposed to waves if they are not moved by a conservation group because of the high wave type to the vegetation zone. b. There has been no special effort for the promotion of hatchling tourism as a tourist attraction c. The condition of some beaches is still not good enough. d. Knowledge Ability Biology of turtles from conservation group members is not so | a. From the survey it was found that many tourists were liked with the dive tourism release attractions, so they took part in seeing the hatchling release process. b. The place (beach) Bantul is very easy to reach by tourists. c. Promotional media is now easier through social media such as Face Book (FB) and Whatapps. d. There is already support from tourism actors, for example hotels that are willing to provide | a. High sea waves during the winter can throw eggs. b. The absence of officers specifically to transfer turtle eggs so that the possibility of eggs being exposed to the waves is also prone to being lost stolen. c. Plastic waste entering from several rivers which empties into the south coast can be considered as a jellyfish by a turtle so that it is consumed. |
From the SWOT analysis (Table 2.) carried out, the strengths are namely; ecologically there are already from universities that do zoning so that there are 35 main points for landing turtles (Budiantoro, 2017). Conservation-based ecotourism development must be supported from various disciplines; ecology, economics, environmental science, tourism, politics, and legal legal aspects (Cheung, 2015). Economic aspects remain the way without leaving ecological and environmental aspects. From the economic benefits obtained, some must be allocated in turtle conservation efforts, for example for the cost of semi-natural nests; replacement of sand, nesting daily, and also making semi-natural nests that support hatchlings. In terms of the community, there are four conservation groups in Bantul, which each year makes every effort to save turtle eggs, reducing the risk of waves being hit and stolen. In terms of the availability of hatchlings to be released, the turtle landing takes place every year, and the results of surveys that support the existence of turtle ecotourism are the basis that turtle ecotourism development can be carried out continuously. Opportunities in the form of tourist attraction information release turtles through Facebook and whatshaap and also cooperation with tourism actors (hotels) is a good opportunity to continue the potential of turtle-based ecotourism and support turtle conservation. The attraction of release hatchlings (Budiantoro and Wijayanti, 2014) besides involving conservation groups (community based conservation) also empowers coastal communities as community-based management of natural resources (CBNRM) so that it is expected to increase management skills in ecotourism. Assistance from Higher Education needs to be increased so that the level of hatching of turtle eggs is increasing. According to the chart below (Raufflet et al. 2001), turtle-based ecotourism in Bantul can be carried out continuously.

Some of the profits generated from tourism can be used to conservation purposes, not only to carry out further research but also to bring more beaches under full safety and to address the dangers that are facing sea turtles. For example, the profits generated can be used to environmental quality, so the number of sea turtle lay egg will increase. As we know, a growing number of examples of turtle-based tourism around the world are offering insights into its risks and benefits, as well as its potential for successful application.

2. Conclusion

Sea turtle conservation based ecotourism program in Bantul is the potential to develop. Advantage or a disadvantage of the program has to calculate. Ecotourism base on the sea turtle conservation is an attraction that can use to education for the visitors. The Education for the student about sea turtle conservation when they release hatchlings in the specific area in the beach is a potential program that supports sea turtle conservation in Bantul.

References

1. Profauna, 2012. Tentang Penyu Indonesia | ProFauna Indonesia. http://www.profauna.net/id/kampanye-penyu/tentang-penyu-indonesia#.UzqHeFfdJ0w.
2. Tripathy, B., & Rajasekhar, P. S. (2009). Natural and anthropogenic threats to olive ridley sea turtles (Lepidochelys olivacea) at the rushikulya rookery of Orissa coast, India, 38 (December), 439–443.
3. Brown, C. L., Hardy, A. R., Barber, J. R., Fristrup, K. M., Crooks, K. R., & Angeloni, L. M. (2012). The Effect of Human Activities and Their Associated Noise on Ungulate Behavior. *PLoS ONE*, 7(7), e40505. doi:10.1371/journal.pone.0040505

4. Shanker, K., Ramadevi, J., Choudhury, B. C., Singh, L. & Aggarwal, R.K. 2004. Phylogeography of olive ridley turtles (Lepidochelys olivacea) on the east coast of India: implications for Conservation theory. *Molecular Ecology*, 13: 1899–1909.

5. Valverde, R. A., Orrego, C. M., Tordoír, M. T., Gómez, F. M., Solís, D. S., Hernández, R. A., and Spotila, R. (2012). Olive Ridley Mass Nesting Ecology and Egg Harvest at Ostional Beach, Costa Rica Olive Ridley Mass Nesting Ecology and Egg Harvest at Ostional Beach, Costa Rica, *II*(1), 1–11.

6. Da-Silva, A. C. C. D., de Castilhos, J. C., Lopez, G. G., & Barata, P. C. R. (2007). Nesting biology and conservation of the olive ridley sea turtle (*Lepidochelys olivacea*) in Brazil, 1991/1992 to 2002/2003. *Journal of the Marine Biological Association of the UK*, 87(04), 1047. doi:10.1017/S0025315407056378

7. Whiting, S., Long, J., Hadden, K., Council, T. L., & Lauder, A. (2005). Identifying the links between nesting and foraging grounds for the Olive Ridley (*Lepidochelys olivacea*) sea turtles in northern Australia. Final Report to the Department of the Environment and Water Resources June 2005 By, (June).

8. Finkbeiner EM . 2009. Establishing a Socio-economic Baseline of Sea Turtle Ecotourism in Baja California Sur, Mexico. Masters project submitted in partial fulfillment of the requirements for the Master of Environmental Management degree in the Nicholas School of the Environment of Duke University.

9. Fleischer, I. 2009. Conservation and Ecotourism in Brazil and Mexico : The Development Impact, (94), 70052.

10. Klak, T. 2007. Sustainable Ecotourism Development in Central America and the Caribbean : Review of Debates and Conceptual Reformulation, 5, 1037–1057.

11. Charnley, S. (2005). From Nature Tourism to Ecotourism? The Case of the Ngorongoro Conservation Area, Tanzania, 64(1).

12. Dangi, T.B. and T. Jamal. 2016. Jamal. An Integrated Approach to “SustainableCommunity-Based Tourism”, *Sustainability*.

13. Tisdell, C., & Wilson, C. (2002). Ecotourism for the survival of sea turtles and other wildlife. *Biodiversity and Conservation*

14. Pegas, F. V., & Stronza, A. 2010. Ecotourism and sea turtle harvesting in a fishing village of Bahia, Brazil. *Conservation and Society*, 8(1), 15. doi:10.4103/0972-4923.62676

15. Hengky SH. 2017. *Discovering Sustainable Coastal Tourism in Dodola-Island, Indonesia*. *Journal of Aquaculture & Marine Biology*, Vol 6 Issue 2. MedCrave

16. Allman P. 2013. Strengthening The Local Capacity To Integrate Research, Education, And Ecotourism Into Meaningful Sea

17. Turtle Management Strategies In Ghana. Project: September 1, 2012 – August 31, 2013. US Fish and Wildlife Service.

18. Angi, E. M. (2005). Kebijakan pemerintah pusat di bidang konservasi dari perspektif daerah dan masyarakat: studi kasus

19. Kabupaten Kutai Barat, Kalimantan Timur, (5).

20. Budiantoro A. and D. Wijayanti. 2013. Konservasi Menuju Ekowisata Penyu di Pantai Goa Cemara Bantul. Jurnal Research

21. Daerah Kabupaten Bantul

22. Budiantoro, A. 2017. Zonasi Pantai Pendaratan Penyu di Sepanjang Pantai Bantul. Jurnal Riset Daerah Kabupaten Bantul.
24. Cheung H. 2015. Ecotourism as a multidisciplinary conservation approach in Africa. THERYA. Vol. 6 (1): 31-41, DOI: 10.12933/therya-15-243. ISSN 2007-3364. Department of Recreation, Park & Tourism Sciences, Texas A&M University, College Station, TX 77843, USA
25. DKP RI. 2009. Pedoman Teknis Pengelolaan Konservasi Penyu. Direktorat Konservasi dan Taman Nasional Laut, Direktorat Jenderal Kelautan, Pesisir dan Pulau-pulau Kecil.
26. Gilbert FF., and DG. Dodds. 1992. The philosophy and practice of wildlife management. Krieger Pub. Co. Nature.
27. Godfrey M.H., and O. Drif. 2001. Developing Sea Turtle Ecotourism in French Guiana: Perils and Practicalities. Marine Turtle Newsletter. Number 91.
28. Google Inc. 2019. Google Maps. Special Region Yogyakarta. https://www.google.com/maps/search/peta+DIY+hitam+putih+resolusi+tinggi/@-7.8944233,110.6040087.
29. Hakim L., M. Soemarno, and SK Hong. 2012. Challenges for conserving biodiversity and developing sustainable island tourism in North Sulawesi Province, Indonesia. Journal of Ecology and Field Biology. 35(2):61-71
30. Epperly, N.N.K. Fitzsimmons, A. Formia, M. Girondot, G.C. Hays, I.J. Cheng, Y. Kaska, R. Lewison, J.A. Mortimer, W.J. Nichols, R.D. Reina, K. Shanker, J.R. Spotila, J. Tomas, B.P.
31. Hoyt, E. 2000. Whale watching 2000: Worldwide tourism numbers, expenditures, and expanding socioeconomic benefits. International Fund for Animal Welfare, Crowborough, UK.
32. Jovicic D. 2016. Key Challenges in The Implementation of Sustainable Tourism. Tourism & Hospitality Industry. Congress Proceedings.
33. Marzouki, M., Frogger, G., & Ballet, J. 2012. Ecotourism versus Mass Tourism. A Comparison of Environmental Impacts Based on Ecological Footprint Analysis, 123–140. doi:10.3390/su4010123
34. Maulany, R.I. 2009. Penyu Lekang ( Lepidochelys olivacea ) di Taman Nasional Alas Purwo, Banyuwangi - Jawa Timur, Indonesia Pendahuluan Tujuan Penelitian Tujuan Umum Pertanyaan Penelitian, 1–15.
35. Nooren, G. C. & e H. (2002). Mendapatkan keuntungan dari konservasi penyu di kabupaten berau, kalimantan timur, Indonesia, 1–6.
36. Pegas, F. and Stronza, A. 2008. The Ecotourism Equation: Do Benefits Equal Conservation? In Stronza, A . & Durham, W.H. (eds) Ecotourism and Conservation in the Americas Wallingford, Oxfordshire: CABI.
37. Pratomo, A., & Apdillah, D. 2010. Aspek Biologi Penyu di Kabupaten Bintan, (1), 59–66.
38. Priyono. 1989. Habitat Management for Sea Turtles. No.2, 33–38.
39. Raufflet E., A. Berranger, and J.F. Gouin. 2001. Innovation in business-community partnerships: evaluating the impact of local enterprise and global investment models on poverty, biodiversity, and development. DOI 10.1108/14720700810899266. Pp. 546-556.
40. Scheyvens, R. 1999. Ecotourism and the empowerment of local communities. Tourism Management 20: 245-249
41. Setyowati A.B., A. Sriyanto, AW. Amsa, A. Santosa, A. Aliadi, B. Steni, C. Wulandari, E. Indraswati, F. Hanif, H. Alexander, I. Arsyad, N. Adi, S. Nurmawanti, W. Ramono, W. S. (n.d.). Konversasi Indonesia Sebuah Potret. 11: 1521–1538,
42. Wilson, C., & Tisdell, C. (2001). Sea turtles as a non-consumptive tourism resource especially in Australia, 22, 279–288.