



REPORT ON

IUCN Sea Turtles Conservation Volunteer Programme

(2014 – 2020)

Bui Thi Thu Hien, Nguyen Son Tra



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INTERNATIONAL UNION FOR CONSERVATION OF NATURE





**REPORT ON
IUCN SEA TURTLE CONSERVATION VOLUNTEER
PROGRAM
(2014 – 2020)**

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This report has been made possible in part by the generous support of Marine Turtle Conservation Fund (MTCF) – U.S. Fish and Wildlife Service (USFWS).

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Citation:

Bui Thi Thi Hien, Nguyen Son Tra (2020). Report on IUCN Sea Turtle Conservation Volunteer Program (2014 – 2020)
Hanoi, Viet Nam: IUCN Viet Nam Country Office. 58pp.

Cover photo: © Nguyen Son Tra – Volunteers and MPA officers in Hon Cau Marine Protected Area (2019)

Layout by: Nguyen Son Tra

Available from: IUCN Viet Nam Country Office

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TABLE OF CONTENTS

EXECUTIVE SUMMARY	5
1. ABOUT IUCN	6
2. SEA TURTLE CONSERVATION STATUS IN VIETNAM	6
3. INTRODUCTION TO IUCN SEA TURTLE VOLUNTEER PROGRAM	9
4. OBJECTIVES AND OUTCOMES	10
5. LOCATIONS	12
A) CON DAO NATIONAL PARK	12
B) HON CAU MARINE PROTECTED AREA	15
C) NUI CHUA NATIONAL PARK	17
6. RESPONSIBILITIES	18
7. PROGRAM CONCEPT: FROM SELECTION TO EXECUTION	19
8. RESULTS AND EVALUATION	24
A) DEMOGRAPHICS	24
B) CONSERVATION ACHIEVEMENTS	29
C) PROGRAM CRITERIA BASED ON VOLUNTEER SELF-EVALUATION	30
D) POST-PROGRAM ACHIEVEMENTS	38
E) UNTOLD STORIES	45
9. LESSON LEARN	49
A) STRENGTHS	49
B) WEAKNESSES AND SUGGESTED SOLUTIONS	50
10. FINANCES	55
11. HUMAN RESOURCES	56
ACKNOWLEDGEMENT	56

Executive summary (2014 - 2020)

Sea turtle conservation volunteer program

Vision

Conserving sea turtle and marine habitats throughout community-based solutions

Outcomes

- (1) Raised awareness about critical sea turtle conservation issues with communities and the wider public as well as with governmental institutions at the policy level;
- (2) Volunteer join hands in supporting the sea turtle conservation program in Viet Nam through outreach education, awareness raising, technical and fundraising support.



~ 10000 applications



472 sea turtle rescue volunteers



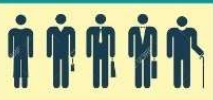
Vietnamese people in
many regions and abroad



30 local volunteers



36 artist volunteers



From diverse age
and backgrounds

Post-program achievements



Thousands pictures



Thousands posts on social media



>60 videos



>15 events



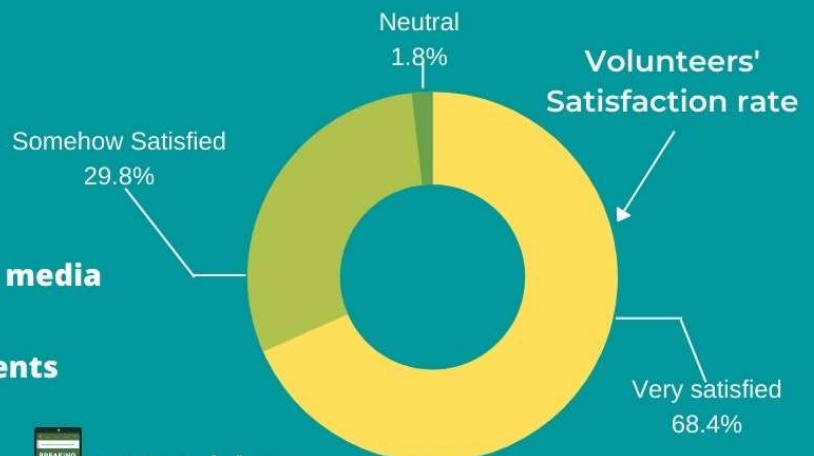
5 projects



~ 15 reportages



> 40 articles



1. About IUCN

The International Union for Conservation of Nature (IUCN) is a membership Union which has involvement of both government authorities and civil society organizations. IUCN takes advantages from experience, resources, and achievements of more than 1400 Member organizations and the input of more than 15000 experts. The comprehension and extensive competence bring to IUCN ability and responsibility to evaluate the status of natural world and the measures necessary to conserve it.

In regards to Vietnam, a country located in Southeast Asia with a diverse ecosystem full of typical fauna and flora. The country is laid on the tropical and sub-tropical zones with long coastline bounding the East side, giving opportunity for several forms of topography to emerge. However, with the booming of population and industrialization of a developing country, Vietnam is facing many environmental challenges combined of deforestation, water, soil, and air pollution, exhaustion of natural resources, extinction of endemic species, plastic wastes, and climate change.

IUCN has been working in Viet Nam since the mid-1980s, and the country became a State Member in 1993, the same year the IUCN Viet Nam office was established. Together with government, NGOs, academic agencies, and businesses, we deliver programs focused on two main thematic areas: water and wetlands, and coastal and marine. Current projects include supporting the formation of multi-stakeholder groups to supervise initiatives that impact on the environment, supporting local NGOs with small grant financing, enhancing the quality of environmental reporting, engaging business and cooperating with provincial governments to demonstrate nature-based solutions.

2. Sea turtle conservation status in Vietnam

With over 3,000 km of coastline and thousands of offshore islands, Viet Nam is home to a wide range of species, including sea turtles. According to researches, scientists recognized 5 species of sea turtle in Vietnam, which include: Green (*Chelonia mydas*), Hawksbill (*Eretmochelys imbricate*), Olive ridley (*Lepidochelys olivacea*), Loggerhead (*Carreta carreta*), Leatherback (*Dermochelys coriacea*). Except the Loggerhead sea turtle (*Carreta carreta*), the other 4 species have been recorded laying eggs on the coastlines of Vietnam.

Sea turtle species in Vietnam



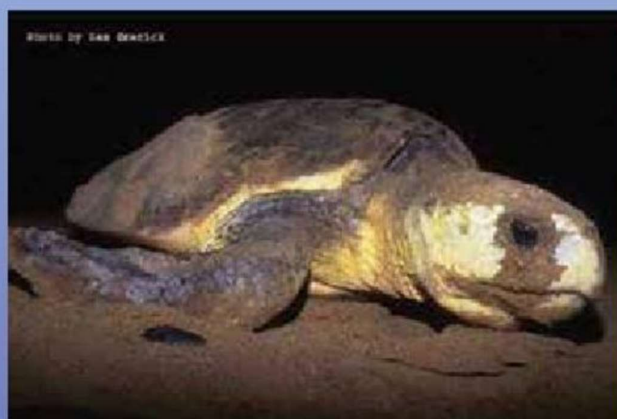
Chelonia mydas
(Green: Rùa xanh)¹



Eretmochelys imbracata
(Hawksbill: Đồi mồi)



Lepidochelys olivacea
(Olive Ridley: Đồi mồi dứa)



Caretta caretta
(Loggerhead: Quắn đồng)



Dermochelys coriacea
(Leatherback: Rùa da)



Please check and notify information on the sea turtle ID tags to Marine Resource Protection Authority in your local areas

1, The common name in many regions is "Vích".

Green turtle (*Chelonia mydas*) is the most populous sea turtle species in the maritime zone of Vietnam, they reproduce on many beaches and islands of the country. However, according to collected surveys in the following years, the population of green turtle is declining critically in major desired habitats with exemption in Con Dao island. Recently, beside a stable population of 230 to 300 green sea turtles nesting in Con Dao annually, other areas records an extremely low number of green sea turtles come to lay eggs (Ninh Thuan, Binh Thuan provinces: 10 individuals/year, Binh Dinh province: 4 – 5 individuals/year, Bai Tu Long and Co To: > 10 individuals/year). Even though the appearance of sea turtles is confirmed on Truong Sa archipelago, Hoang Sa archipelago, Bach Long Vi and Phu Quy islands, there is neither survey nor investigation to determine the species of sea turtles and their population in those areas.

In early 20th century, Hawksbill (*Eretmochelys imbricate*) used to be widespread in the territorial waters of Vietnam. Although official data on the population of hawksbill turtle was not collected at that time, results from surveys estimated more than 500 individuals crawled up to lay eggs in the area of Northern Gulf, Thailand Gulf and Con Dao. Due to overexploitation of hawksbill turtles to harvest their shells, the number of this species dropped down significantly, leaving a very small population in Vietnam which can reach the verge of extinction.

Olive Ridley (*Lepidochelys olivacea*) distributes mainly in the area of Bai Tu Long Gulf and Central provinces (from Ha Tinh to Phu Yen). Nowadays, there are only approximately 10 individuals crawl up to lay eggs in the area of Bai Tu Long Gulf (Quan Lan, Ngoc Vung islands), Son Tra peninsula (Da Nang city) and Quang Binh province. Noteworthy is the inauguration of bounding road surrounding Son Tra peninsula and the emergence of many resorts which makes Olive Ridley disappear in this area.

Loggerhead (*Caretta caretta*) does not breed in Vietnam territorial waters but feeding in some areas of Co To – Thanh Lan (Quang Ninh), South Central Coast provinces (Quang Ngai to Ninh Thuan) and some islands of Con Dao. Despite of information unavailability on the trend of loggerhead feeding in Vietnam, through observation of fishers and estimated surveys also reveals a decreasing trend of their population in Vietnam.

Leatherback (*Dermochelys coriacea*) used to be popular in the maritime zone of Vietnam 30 years ago, quantity of mother sea turtles laying eggs were approximately 500 individuals/year. However, updated reports illustrate significant reduction of this species, only 1 – 2 individuals come to coastlines along Central area from Thanh Hoa to Binh Thuan annually, otherwise they are absent in other areas.

In Viet Nam, sea turtles are protected by both international and national legislation. Despite current laws, threats to sea turtles have increased due to the accidental and opportunistic capture by fishers; direct taking of nesting females and their eggs; commercial hunting of hawksbill turtles for the shells in domestic and international markets; sea level rising encroaching nesting shores of sea turtles; and plastic waste killing the sea turtles and their ecosystem.

Sea turtles used to nest in 13 of the 27 coastal provinces of Viet Nam. With the exception of the nesting population of green turtles in Con Dao, the number of green, hawksbill, leatherback and Olive Ridley turtles nesting each year has declined significantly over the last 30 years. Similarly, with the exception of the protected beaches on Con Dao, Hon Cau and Nui Chua, a significant and mostly non-commercial harvest of nesting turtles and eggs still occurs for each species.

3. Introduction to IUCN Sea Turtle Volunteer Program

To raise awareness of local communities on marine biodiversity conservation and support sea turtle conservation, IUCN has been working with partners and the communities to support the sea turtle conservation volunteer network in the pilot sites through nesting beach and bycatch monitoring; conduct communications, education and awareness raising activities; and support preparation and implementation of the Marine Turtle Conservation Action Plan (MTCAP) 2015-2025.

Since 2014, IUCN has initiated the sea turtle conservation volunteer program in partnership with Con Dao National Park, Hon Cau Marine Protected Area and Nui Chua National Park. The program is funded by Marine Turtle Conservation Fund (MSCF), US Fish and Wildlife Services.

The IUCN sea turtle conservation volunteer program has been gathering lots of interest from people who come from all fields of work. For 7 years from 2014 to 2020, IUCN has received almost 10000 applicants and we have been able to select approximately less than 5% of these people to join our volunteer scheme due to the special requirements of the selected sites and specific field activities. The program has obtained positive results and feedback from volunteers. This 7-year report is an overview of sea turtle conservation volunteer activities from 2014 till 2020 and further evaluate to improve the effectiveness and the sustainability of program in long-term.

4. Objectives and outcomes

The objectives of the sea turtle conservation volunteer program:

- (1) Enhance awareness of communities about the value and importance of sea turtles by creating an opportunity for them to be involved in sea turtle research and conservation;
- (2) Provide training for volunteers to assist staff in sea turtle conservation areas;
- (3) Build capacity for marine turtle conservation programs at important sites;
- (4) Promote community-based conservation of marine turtles and their habitats, which entails identifying and enhancing benefits of marine biodiversity conservation for local communities and increasing knowledge about threats to nesting and migrating marine turtles;
- (5) Support the implementation of Marine Turtle Conservation Action Plan for period 2015-2025.

Expected outcomes of the program:

- (1) Raised awareness about critical sea turtle conservation issues with communities and the wider public as well as with governmental institutions at the policy level;
- (2) Volunteer join hands in supporting the sea turtle conservation program in Viet Nam through outreach education, awareness raising, technical and fundraising support.

IUCN volunteer site map in Vietnam



Picture shown is for illustrative purposes only, does not reflect the sovereignty of any country

5. Locations

Since 2014, IUCN has started the sea turtle conservation volunteer program in 3 pilot sites: Con Dao National Park (Ba Ria – Vung Tau), Hon Cau Marine Protected Area (Binh Thuan) and Nui Chua National Park (Ninh Thuan). Those sites are some of the scarcely remaining areas in Vietnam having sea turtles return to lay eggs each year. Besides that, local volunteer's activities with network of volunteers who are fisherman, woman union, border police, etc., have been set up in Bai Tu Long NP, Co To MPA, Con Co MPA, Cu Lao Cham MPA, Ly Son MPA. There were also volunteer activities in Bai Tu Long NP¹ and Ly Son MPA^{2 3} on Artwork which have impacted to local communities as well as the wider public. However, this report will focus on summer sea turtle conservation volunteer program in Con Dao, Nui Chua and Hon Cau;

a) Con Dao National Park

Con Dao National Park (NP) is one out of 33 National Parks of Vietnam situated in Ba Ria – Vung Tau province, the park was established by Decision 135/QĐ-TTg on March 31, 1993 of The Prime Minister of Vietnam on the basis of Con Dao Protected Forest Zone was established by Decision 85/CT of The President of Council of Ministers on March 01, 1984. Recently, total area of Con Dao NP is 19990.7 ha, which combined of 2 constituents: Terrestrial constituent (Forest protection) has area of 5990.7 ha and Marine conservation constituent has area of 14000 ha.

Con Dao National Park belongs to Con Dao archipelago which is located 80 km off the shore from the Southeast coast of Vietnam, consists of 16 small islets in which the largest island is Con Son.

Geographic coordinates: From 106°31'E to 106°45'E; 8°34'N to 8°49'N.

Con Dao National Park is acclaimed by local and international scientific organizations as high biodiversity potential Park, which has abundant, diverse ecosystem making home of several endangered fauna and flora that are globally significant in term of marine organisms and terrestrial landscapes. Con Dao is one of 16 planned marine protected areas established by Decision 742/QĐ-TTg of The Prime Minister of Vietnam, it is prioritized zone to develop tourism in Vietnam. Con Dao NP is recognized as 2203rd Ramsar site of the world and the first Ramsar site in Vietnam. The New

¹ <https://www.iucn.org/news/viet-nam/201807/%E2%80%99Cone-man%E2%80%99s-trash-another-man%E2%80%99s-treasure%E2%80%9D-art-plastic-bai-tu-long-national-park>

² <https://www.iucn.org/news/viet-nam/201708/saving-sea-turtles-viet-nam-touching-hearts-local-communities>

³ <https://en.nhandan.com.vn/pictures/item/6554202-quang-ngai-ly-son-island-attractive-with-mural-paintings.html>

York Times Journal (11/2010) made a comment as Con Dao is one of the remarkable destinations in Southeast Asia. In 2 consecutive years (2011 – 2012), Lonely Planet (England) – a global famous travel journal – rated Con Dao as one of the World’s best secret islands to enjoy a romantic vacation.

Further information regarding to Con Dao NP could be referred to the website: <http://www.condaopark.com.vn/>

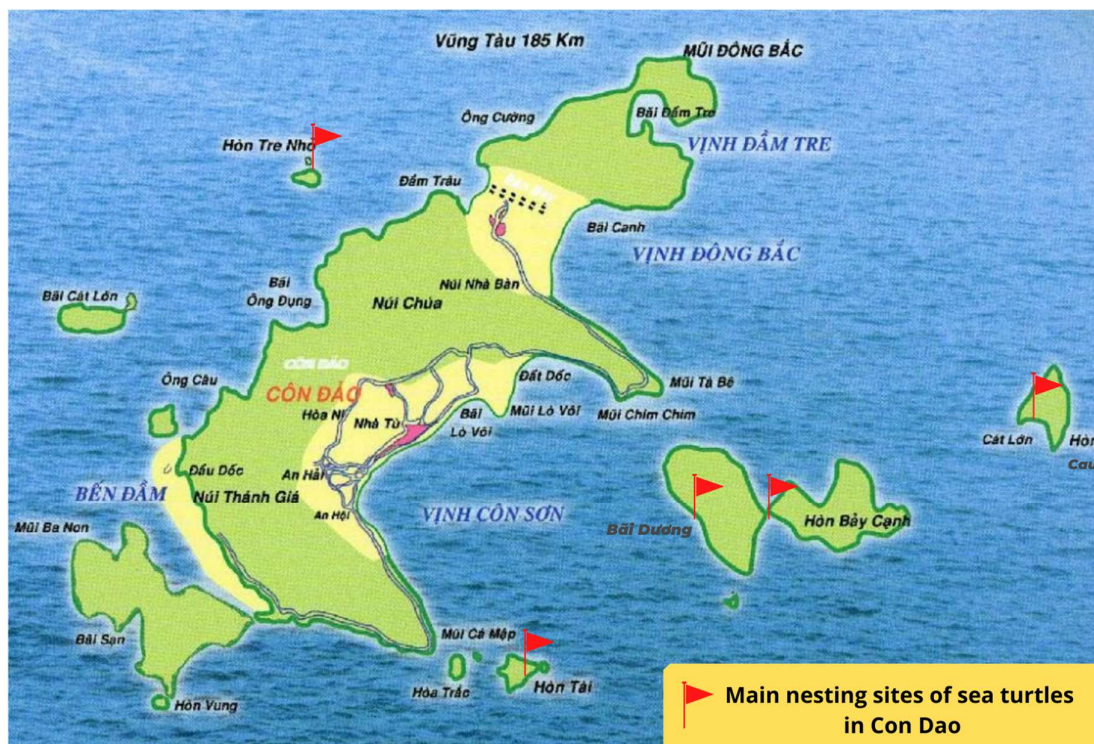


Figure 1: Map of important sea turtle nesting sites in Con Dao National Park (Ba Ria – Vung Tau province)

Con Dao marine area is nesting habitat of Green sea turtles (*Chelonia mydas*) or locally called Vich/Rùa xanh and Hawksbill sea turtles (*Eretmochelys imbricate*). In Con Dao NP, there are 18 beaches recorded sea turtles come to lay eggs, some of them having large area and significant number of nesting sea turtles such as Cat Lon beach in Bay Canh island, Hon Cau island, Great Hon Tre island (Hon Tre Lớn), Hon Tai island, Duong beach (Bãi Dương) in Bay Canh island. Those beaches are arranged with 5 ranger stations to take missions to protect natural resources and marine turtle conservation. Each station has 3 to 8 official Park rangers.

From April to November each year, approximately 400 mother sea turtles crawl up shore of Con Dao NP to dig their nest and lay eggs. Moreover, there are more than 150000 turtle hatchlings were rescued and released to the sea, successful hatching rate reached 87%. In peak seasons, some seaside in Bay Canh island and Great Hon Tre island recorded 10 to 20 mother sea turtles come to lay eggs every night.

Since 1994, the Board of Management of Con Dao NP had launched the sea turtle conservation program with the following:

- (1) Investigate ecological features of sea turtles through many activities like ID tagging, GPS tagging, measuring body sizes, etc.
- (2) Protect nesting habitat and nests via patrolling, monitoring; backfilling and clean nesting sites; relocating nests to safe incubation ground, etc.
- (3) Construct breeding farm by the way of building safe incubation ground; checking and releasing young turtles to the sea.

Con Dao National Park is the first place in Vietnam successfully implemented the sea turtle conservation program. The quantity of sea turtles nesting in Con Dao makes up 85% of nesting sea turtles in Vietnam waters. The green sea turtle population nesting in Con Dao is one of the largest populations of this species in Southeast Asia.

Con Dao National Park set a nation record on “The National Park released most sea turtles to the sea in Vietnam”, the certification was awarded on January 31, 2009 and is the first institution in Vietnam became a member in the “Memorandum of Understanding on the Conservation and Management of Marine Turtles and their Habitats of the Indian Ocean and South-East Asia (IOSEA)” network as the 11th member on October 22, 2019.

Annually, June and July are considered as peak season of nesting sea turtles. Therefore, the Board of Management of Con Dao NP collaborates with IUCN to launch IUCN sea turtle conservation volunteer program to select volunteers to enhance human resources and support Park rangers in conservation activities on significant laying beaches in the area, at the same time through the network of volunteer to raise communities’ awareness on sea turtle conservation efforts. The program started in 2014 and Con Dao is the first pilot place in Vietnam implementing this program. Since then, the program has achieved successful outcomes in terms of sea turtle conservation support and public awareness on the importance of sea turtle conservation and marine protection.

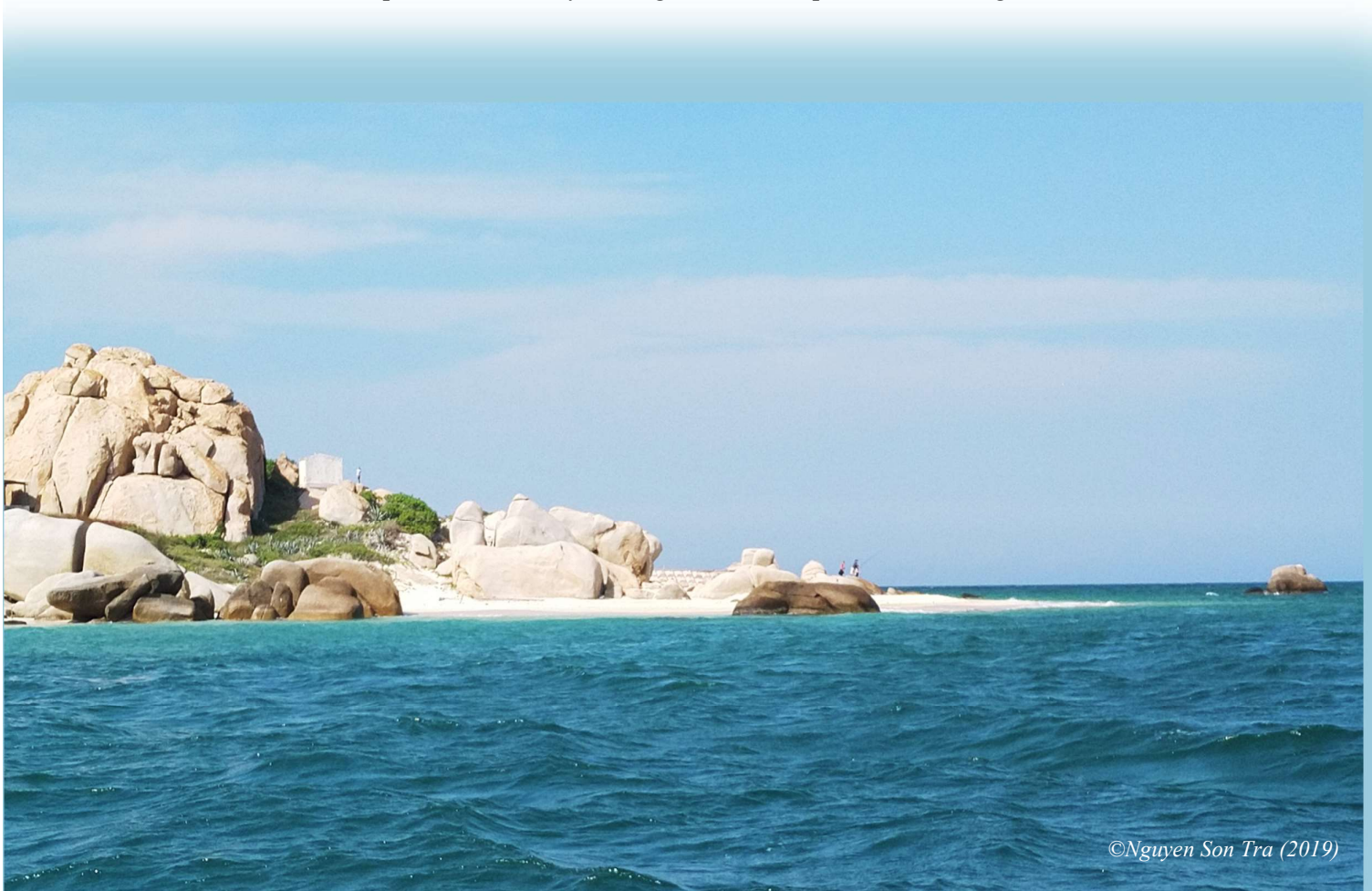


©Ho Anh Thu (Con Dao, 2019)

b) Hon Cau Marine Protected Area

Hon Cau – an island ranked in the top high value ecosystems in Vietnam by biological scientists. Hon Cau Marine Protected Area (MPA) was established by Decision 2606/QĐ-UBND of People's Committee of Binh Thuan province on November 15, 2010 in the Marine protected area system planning in Vietnam until 2020.

With an area of 12500 ha including waters (with island area of 140ha), Hon Cau Marine Protected Area still remains primitive features which can be demonstrated through smooth white sandy beaches and pristine waters. According to research outputs, Hon Cau MPA is home of 234 coral species, 324 fish species, 119 mollusk species, 32 great-sized echinoderm species, and 46 species of crustaceans, in which there are a lot of important species with high economic value such as Ornate spiny lobster (*Panulirus ornatus*), Longlegged spiny lobster (*Panulirus longipes*), Green sea turtle (*Chelonia mydas*) or locally called Vich and Hawksbill sea turtles (*Eretmochelys imbricate*). Furthermore, Hon Cau has an abundant and diverse marine flora system, typically seaweed and algae. However, due to overexploitation of fishes and marine creatures accompanied with other effects, the fauna and flora in the area has been seriously depleted. According to Nha Trang Institute of Oceanography, coral reefs cover in Hon Cau area have been reduced more than 6% each year in the last 10 years. Statistic data shows that Hon Cau MPA has 34 aquatic species in the protected lists of species under threat of extinction, in which 1 species is critically endangered and 11 species are endangered.



Tuy Phong sea areas generally and Hon Cau island area (Hon Cau Marine Protected Area) particularly are nest sites of the sea turtles in breeding season. In 2013, Board of Management of Hon Cau MPA discovered 10 sea turtle individuals came off ashore to nest and successfully protected those nests. In the following years, the number of mother sea turtles nesting on Hon Cau beaches was 3, 10, 13 and 8 in 2014, 2015, 2016 and 2017, respectively. In 2018, there were 8 nests and 468 successful incubated hatchlings to release to the sea. Exceptionally, there was no record of mother sea turtles come to the island in 2019. Recently, in the first quarter of 2020, there have been 4 nests which are incubated at the moment.

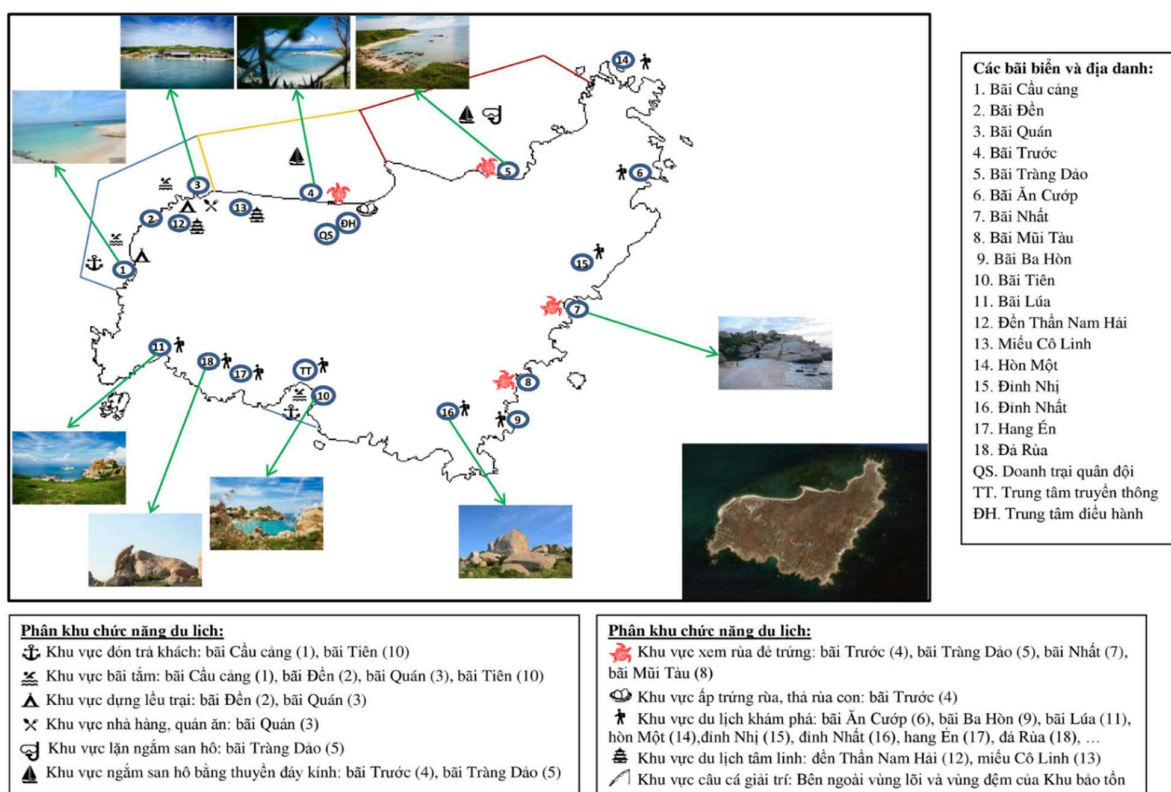


Figure 2: Map of sea turtle nesting sites (red icons) in Hon Cau Marine Protected Area (Binh Thuan province)

Hon Cau area is a traditional fishing ground of fishermen living in surrounding areas. Even though the Board of Management of Hon Cau MPA has propagated, avoided and handled many violation cases encroaching protected area, there are still remaining some stealthy trespassers harvesting marine animals (Netcraft fishing – “Giã cào bay” in Vietnamese) in the area. Therefore, sea turtles are usually caught in the fishing nets of those offenders in breeding season (accidentally or intentionally). These offenders who usually catch sea turtles, via screening have been mobilized, raised awareness through communication activities related to sea turtle conservation and their living habitat.

IUCN has been working with Hon Cau MPA since 2015. Afterwards, IUCN has recruited many volunteers to support for Hon Cau MPA in the breeding season of sea turtles and further elaborates with the MPA to bring knowledge and understanding of sea turtle to publics, which towards attracting public attentions for nature conservation issues. Due to the low number of mother sea turtles coming each year, there is high possibility that volunteers could not see the sea turtles during the time participating program. However, with dedicated time and interest of the publics, the volunteers will contribute somewhat to the marine protection generally and sea turtle conservation particularly.

c) Nui Chua National Park

Nui Chua National Park is situated on the coastline of Ninh Thuan province, it was established by Decision 134/2003/QĐ-TTg of The Prime Minister of Vietnam on July 09, 2003. Its area is 29865 ha which consists of 22513 ha on-land constituent and 7352 ha sea constituent.

According to researches, Nui Chua National Park has diverse and abundance forest resources with large area of typical unique dry forest, and evergreen forest area interleaving between broadleaf trees with coniferous trees typically of Asian humid subtropical climate is still pristine. Through results from published initial surveys, Nui Chua National Park has 1265 vascular plant species and 306 animal species (including bird, mammal, reptile and amphibian classes), especially there are many endangered fauna and flora species. The above data is still updated to compensate to the existing fauna and flora species categories in Nui Chua NP. Besides, Nui Chua National Park also manipulates a marine protected area with 25km of coastline long, the widest part from the shore reached 4500m. The sea bounding on the east side, southeast and northeast sides creates a typical ecosystem in the area. Marine resources are very distinctive and plentiful, containing 307 hard coral species forming reefs which belong to 59 breeds, 15 families, typically 46 species of corals are classified as new species in Vietnam. Nui Chua National Park is further recognized as one of the important nesting sites of 3 species of sea turtles as Hawksbill sea turtle (*Eretmochelys imbricata*), Green sea turtle (*Chelonia mydas*), Olive Ridley sea turtle (*Lepidochelys olivacea*).

In 2016, IUCN signed an agreement with Nui Chua National Park to launch the sea turtle conservation volunteer program in order to support for the national park in the nesting season of sea turtles and further strengthen the knowledge and understanding of society for marine turtle conservation and nature protection. However, there is another volunteer program also have been setting up for Nui Chua NP, therefor IUCN saving the resources to support other activities and sites. This report will mostly concentrate on the volunteer activities and assessment of the effectiveness of program in Con Dao National Park and Hon Cau Marine Protected Area.

6. Responsibilities

IUCN collaborates with national parks and marine protected areas to organize the volunteer program on the spirit of mutual supports. Therefore, both parties contribute partly for the success of the program. Below is table of responsibilities shared by IUCN and the other parties:

IUCN	National Parks/Marine Protected Areas
Opens call for application and selection of volunteers;	Prepares facilities for volunteers: meeting room, living places in small island;
Provides training documents, notebooks to the volunteers;	Provides necessary equipment during the volunteer program: projector, nest markers, sea turtle tags, life jacket, beds, hammock, etc.
Sponsors for sea turtle conservation training activities for the volunteers;	Assigns officers and park rangers to do trainings, monitoring and field-work instructions for volunteers;
Awards completion certificate to volunteers;	Awards completion certificate to volunteers (together with IUCN);
Supports accommodation fee for the first night of volunteer on Con Son island;	Organizes transportation between small islands and Con Son;
Supports a part of petrol fees to deliver volunteers between Con Son island and small islands;	Supports a part of petrol fees to deliver volunteers between islands.
Provides T-shirt or jackets for volunteers to patrol along the shore to wait for sea turtles;	
Follow up volunteer activities post-program.	

7. Program concept: From selection to execution

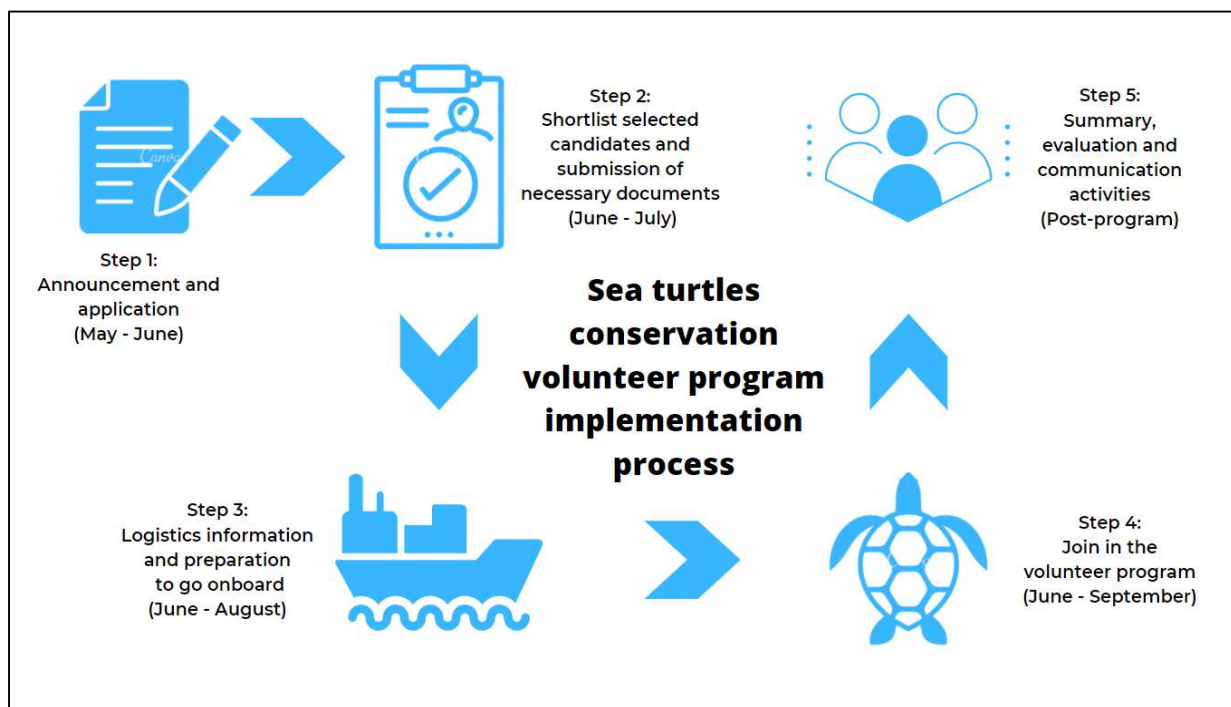


Figure 3: Sea turtles volunteer program implementation process

Figure 3 shows a brief illustration for implementation process of sea turtles conservation volunteer program. Details related to execution of the program is described as follows:

1) **Application:** Call for application accompanied with program information is published on the website and Facebook webpages of IUCN Vietnam in May to June separately for each location every year. Normally, the program in Con Dao National Park is posted in May while the program in Hon Cau Marine Protected Area is launched in June. Besides, the program information is also shared via other website and social media channels to the publics by third parties and alumni volunteers. Application form includes personal information of applicants, desired phases to participate in program, knowledge about sea turtles, fieldwork experiences, and commitments of applicants to support communication and fundraising activities post-program if they were selected. Within only 2 weeks of application period, the organizing committee receives approximately 1000 applications each year for each location. Annually, the program will divide volunteers into 3 to 5 phases, in which each phase contains 10 to 20 volunteers.

2) **Selection and submission of documents:** At the end of application period, the organizing committee organized by IUCN started selection process to choose most suitable candidates to join

in the program. Selected candidates should meet some compulsory criteria of IUCN such as high motivation to participate in the program; good understanding of sea turtle biology; diverse backgrounds; active contribution for social activities; good health conditions; and concrete commitments for post-program activities. After 1 week from application deadlines, organizing committee screens and shortlists selected candidates after careful consideration. Then, IUCN sends the results combined with program details to selected volunteers as well as publishes on Facebook page. Selected candidates need to send confirmation email to IUCN and submit digital version of the following documents 2 weeks before starting of the volunteer phase at the latest to qualify program requirements:

- ID card or passport;
- Public health insurance and/or travel insurance;
- Health certificate;
- Signed disclaimer of responsibility.

Original copies of above-mentioned documents are required to bring to submit at the head offices of National Park or Marine Protected Area when joining the program. In case some volunteers withdraw from the program, volunteers in the waiting list will be contacted, otherwise new selection will be done by IUCN to compensate for the program. This whole process lasts from June to July and sometimes even later until the last volunteer phase of that year.

3) **Logistics information and preparation to go onboard:** The next step after finishing all of the administrative work is sending logistics information to volunteers. Information related to working schedules, accommodation, transportation, necessary equipment, and further information is forwarded to the volunteers. In case of program in Con Dao, IUCN supports accommodation fee for the first night to the volunteers in Con Son island before being distributed to small islands to work. In this phase, the organizers also gather volunteers into groups on messaging services, typically Zalo or Facebook Messenger to create a platform for volunteers to meet their peers and ask for inquiries from the organizers. In case of volunteers in Con Dao program, the Board of Management of Con Dao NP also distributes volunteers into different ranger stations, including Cat Lon station on Ba Canh island, Hon Cau island, Great Hon Tre island, Hon Tai island, Duong station of Bay Canh island. This part of program takes place between June and August based on the phases of each program.

4) **Volunteer program participation:** This is the main step and most important step of the program: volunteer program execution. Detailed working schedule is presented in the following page. In this section, volunteers work mostly with park rangers, they live, work, and experience a life of rangers to protect natural resources, specifically sea turtles. The volunteer period for each volunteer phase lasts for 10 days in case of Con Dao program while only 7 days for Hon Cau program. Volunteers involve in several live experiences with sea turtles from patrolling to wait for sea turtles, measuring their body sizes, tagging, marking nest, collecting eggs to deliver to incubation ground during the night, to gathering, guiding tourists and releasing turtle hatchlings early in the morning. Beside the working time with sea turtles, they spend the rest of the day to pick up garbage along the shore; razing sand dunes made by mother turtles; cleaning hatched chambers and removing egg shells or infertile eggs; digging new chambers in incubation ground for nests coming in the next day; decorating ranger station with billboards and slogans in regards to sea turtle conservation and environmental protection; teaching English for park rangers; and cooking. In their free time, they had chance to discover the island, go swimming, snorkeling, or diving. Throughout the volunteer time, volunteers develop manual skills in sea turtle rescue, understand difficulties, pressures and challenges that park rangers are facing in conservation works. This volunteer section in the whole implementation process of sea turtle conservation volunteer program runs from June to the middle of September, in which volunteers are divided into many phases and working in different time.

Working Schedule

SEA TURTLES VOLUNTEER PROGRAM

Date	Volunteer activities
Day 1	Arrival, hotel check-in, team meetings Afternoon: Training and submission of documents; Preparing necessities for going to working islands
Day 2	Travel to working island(s); Welcoming and setting up at working island
Day 3 to day 9 (Con Dao) or day 6 (Hon Cau)	Volunteers take part in the following activities: <ul style="list-style-type: none">- Patrolling to wait for sea turtles;- Marking nests; measuring and tagging mother turtles;- Digging nests and deliver eggs to incubation ground;- Digging incubation chambers;- Collecting sea turtle nestlings and releasing to the sea;- Cleaning hatched chambers;- Guiding tourists coming to see turtle laying or young turtle releasing (Con Dao only);- Razing the sand after sea turtle laying;- Picking up trash, removing dead corals and cleaning the beaches;- Decorating ranger station and surroundings;- Cooking;- Teaching English for rangers;- Swimming, snorkeling and hiking.
Day 10 (Con Dao) or day 7 (Hon Cau)	Return to Con Son (Con Dao) or mainland (Hon Cau); Closing ceremony: Awarding certificates; Summary, evaluation and suggestions.

5) **Evaluation, suggestions, and communication activities:** In the last day of volunteer period, volunteers participate in closing ceremony where volunteers would be awarded certificates with photo shooting. Then, all volunteers give their own opinions and emotions throughout the volunteer time. The most valuable part of this meeting is discussion on the issues remaining associated with program and other conservation works in the area of national park and marine protected area. Via different perspectives and points of view, volunteers suggest new solutions to handle those problem. Furthermore, volunteers have to take an online survey made by IUCN after coming back from the program to share their stories, evaluation on many aspects of programs and propose new ideas to improve the program in the upcoming years. Moreover, the volunteer program does not solely finish after the volunteer period but goes beyond the scope of program through commitments of volunteers post-program. Volunteers play as ambassadors of program sharing information about sea turtle conservation activities and their experiences to their community through social media network (Facebook, Instagram), TV, news, Youtube and blogs. In addition, they organized several activities such as workshops, trainings, photo exhibition, fundraising events, and on-site projects to contribute for sea turtle conservation and environmental protection works in the national parks and marine protected areas. They have contributed significantly raising awareness and changing visions of society for sea turtle conservation issues, and further forcing community to take actions to use less plastics and protect the marine environment.

8. Results and evaluation

a) Demographics

Based on the collected data since inauguration, demographics of volunteers participating in sea turtle conservation program is illustrated clearly to build up an overview picture of program throughout the years. The results demonstrate good impact of program on different sectors of businesses, generations, professions, and geographical locations.

In connection with geography, volunteers gathering in sea turtle conservation programs derives from various areas of Vietnam. However, they concentrate in 2 largest cities: Hanoi capital and Ho Chi Minh city. It could be understandable for the reasons behind: First of all, people who live in big cities usually have better income in contrast with those in small cities and rural areas, then they can adapt the costs to spend in 7 to 10 days during the volunteer time; Secondly, better income also means better life quality, when all of the physical necessities are met, people tend to focus more on mental needs and search for new experiences like volunteer and discovery activities; Thirdly, urban residents are well-educated and can access easier to knowledge of nature conservation and environmental issues, so they pay more attention for conservation and look for volunteer opportunities; Finally, a subjective opinion would be the communication of program reached better to urban people than those live in smaller cities and countryside.



In respect to age classes, statistical data reveals interesting output, in which people involving in program are from many age groups representing diversity and success of the program. The youngest volunteers are high school students (15 – 18 years old) while oldest individuals are more than 40 years old. This outcome proved that the program is not only attractive to young people, but also beneficial for old people to learn more new things about sea turtles and conservation works. The range of age classes is aggregated between 22 and 30 years old. To interpret this trend, there are main motives that make this group more representative in the program: Firstly, people in this group are mostly in the middle-income class, they are independent in term of finance so they are dare to pay for extra-activities; Secondly, this age group contains majority of single people who have enough time, capability to go for a volunteer trip lasting 7 to 10 days; Thirdly, they come from new generation with better understandings and getting most impacts from natural degradation, environmental pollution as well as climate change, then they are aware of the importance of nature conservation and environmental protection. Finally, this is a young group who have a lot of motivation to dedicate for community through volunteer activities and they are willing to experience new things to fulfill their personal skills.

Volunteers participating in the program is working in different sectors and have diverse backgrounds which consist of students, public officers, businessman, servicers, freelancers and so on. Results from Con Dao National Park data (Figure 4) throughout the years show large proportion of volunteers have graduated from university or working, which strengthen the reason of being independent in term of finance to cover for volunteer costs in the program.

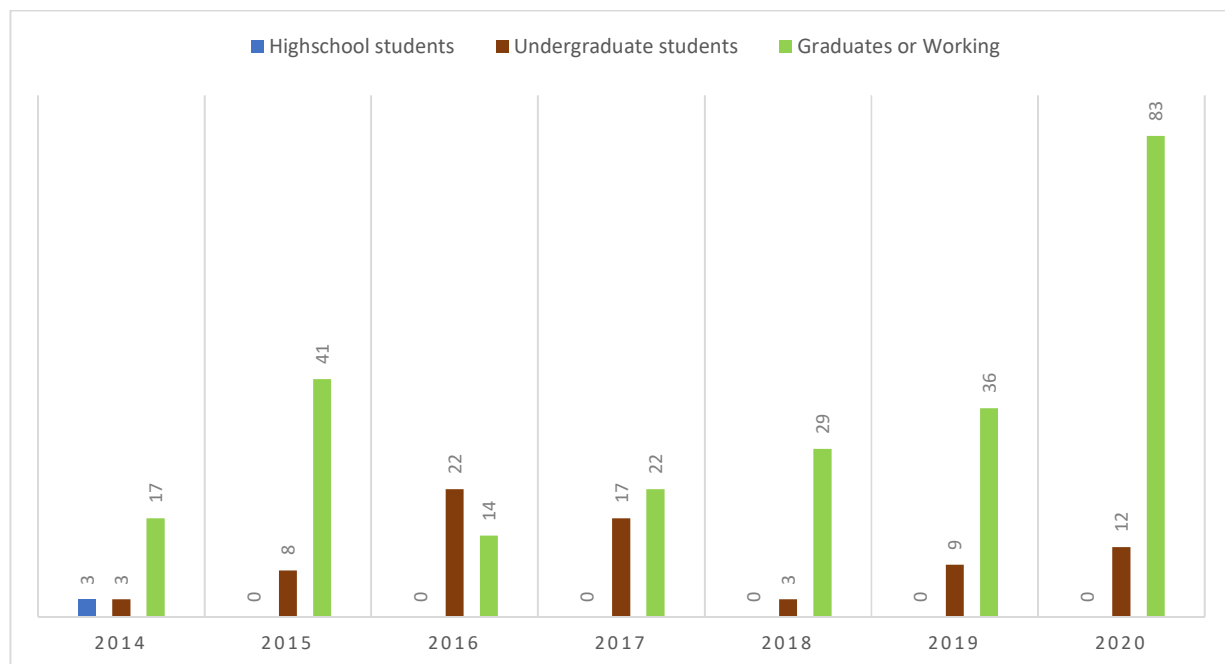


Figure 4: Volunteer distribution by occupations in Con Dao (2014 - 2020)

❖ Con Dao National Park:

In regards to Con Dao National Park, the data from the program is almost fully recorded to see the trends of volunteers. This program attained highest public attentions compared to the other ones in Hon Cau and Nui Chua. After 6 years since beginning of Con Dao program, IUCN has received almost **7000 applications**. Number of applications has increased significantly since the program is launched in 2014, which could be seen in *Figure 5*. Number of applications by year is 500, 431, 1109, 957, 1029 in 2014, 2015, 2016, 2017, 2020 respectively while the data in 2018 and 2019 is not present, so an approximation of more than 1000 applications each year has been calculated. Totally, there are **319 volunteers** were sorted out and divided into 4 phases (2014), 3 phases (2015, 2016, 2017, 2018 and 2019), and 5 phases in 2020 for Con Dao sea turtle volunteer program. Among them, number of selected volunteers by year is 23, 49, 36, 39, 32, 45, 95 which accounts for only 4.6%, 11.3%, 3.2%, 4.1%, 3.2%, 4.5%, and 9.2% from 2014 to 2020, respectively. This is a successful outcome of program in manner of attracting publics into conservation activities. The competitiveness of program further helps organizers to select the best volunteers for program.

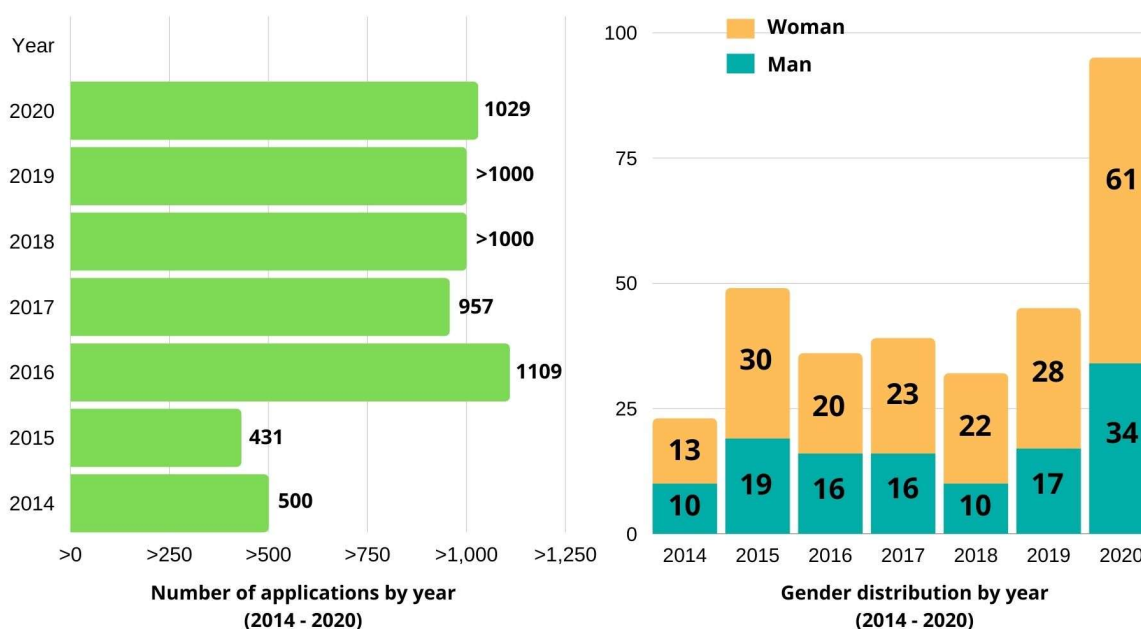


Figure 5: Number of applications and gender distribution by year in Con Dao NP (2014 - 2020)

In term of gender distribution in Con Dao program, the results (*Figure 5*) visibly show the dominance of female over male volunteers. There are totally **197 female** volunteers and **122 male** volunteers. From 2014 to 2020, none of which has number of man higher than that of woman,

which indicates greater consideration of females for conservation and volunteer activities. On average, female quantity is one and a half times larger than male. To answer the question why there are more woman than man engaging in nature conservation activities, a research of scientist from Victoria University of Wellington (New Zealand) pointed out that females have higher tendency of protecting environment which contrasts with environmental utilization propensity in males. It originates from the greater consciousness of females; this also applies to other genders which have more feminine attributes compare to masculine ones. Consequently, woman tends to be excited to involve in pro-environmental activities ¹.

❖ **Hon Cau Marine Protected Area:**

Hon Cau Sea Turtle Conservation Volunteer program was started in 2015, after the successful initiation of sea turtle program in Con Dao. Even though Hon Cau was not popular to the publics earlier before the program, in the first year of program, IUCN had received 140 applications (*Figure 6*). A year later, in 2016, because of some administrative obstacles, the program had been postponed for a year, then rebooted in 2017. Due to technical issues, data on application number has been lost for 2017 and 2018, however, we could see the raising trend of application from only 140 in 2015 (first year) to

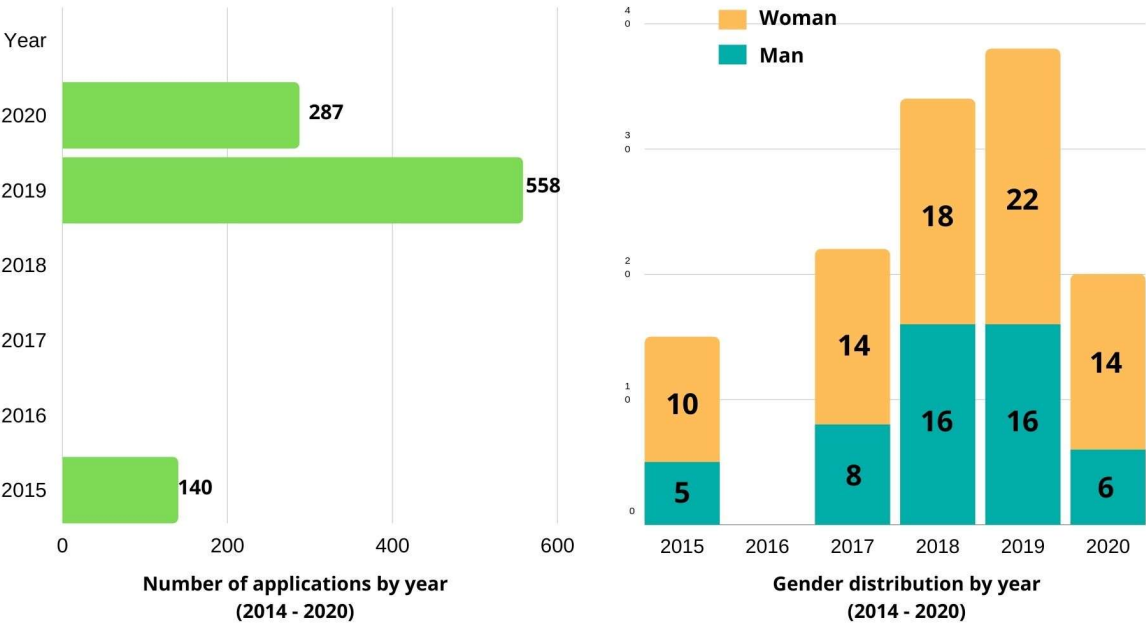


Figure 6: Number of application and gender distribution by year in Hon Cau MPA (2014 - 2019)

558 in 2019, and then decreased to 287 in 2020. The reduction of application in 2020 could be predicted

¹ (Jessica E. Desrochers, Graham Albert, Taciano Milfont, Benjamin Kelly, Steven Arnocky, 2019)

either due to Covid-19 outbreak or the ineffectiveness of communication strategies to advertise the program. Within huge volume of applications, 15 volunteers in 2015, 38 volunteers in 2019, and 20 volunteers in 2020 participated in the program, which occupied 10.7%, 6.8%, and 7.0% respectively. Particularly, due to Covid-19 outbreak on the globe in 2020, the phase 2 and phase 3 of Hon Cau volunteer program were cancelled which results in only half of 40 selected volunteers (20 individuals) in phase 1 and phase 4 could attend the program. This result demonstrates increasing public interests for the program in Hon Cau and the impact of program on the community awareness for sea turtle conservation and environmental protection. At the end, an approximate number of applications was estimated as nearly **3000** in 5 years, which is a positive outcome for Hon Cau program. Totally, there were **129 volunteers** were chosen and divided into 3 phases (2015 and 2017) or 4 phases (2018, 2019 and 2020) for Con Dao sea turtle volunteer program.

As for gender distribution in Hon Cau program, although there is a little bit more balance between male and female volunteers compared to Con Dao program, it is still visible that number of female applications is dominantly distributed over the volunteer periods. At the end, there were **78 females** and **51 males** in 5 years executing program. Explanation for this result is comparable to those in Con Dao program.

❖ **Nui Chua National Park:**

Nui Chua sea turtle conservation volunteer program started in 2016. In the following years, due to different perspectives in performance orientation between IUCN and Nui Chua National Park, even the program is still continued in 2017, the data was not recorded for any other years except 2016. In 2016, the program received **265 applications** and **24 volunteers** (9.1% proportionally) were selected and arranged into 4 phases. Sex ratio is 61.2% females : 38.8% males.

b) Conservation achievements

One of the main purposes of sea turtle conservation volunteer program is supporting park rangers in National Park and Marine Protected Areas in peak season of turtle nesting. Indeed, the engagement of volunteers contributed significantly for conservation works on our sea turtle nesting areas.

In regards to Con Dao National Park – the largest nesting sites of sea turtles in Vietnam recently, almost all volunteers participated in the program had opportunity to work with sea turtles. In summary, volunteers had achieved the following results from 2014 to 2020 (There is no separate data for each year due to lack of information provided by Board of Management – Con Dao National Park): Total number of workdays is **259 days**; Finishing **176 patrol** turns; **2316 nests** were relocated to sea turtle hatchery, which account for **307938 eggs**; Assisting **1349 hatching nests** which comprise of **111108 sea turtle hatchlings**; And supporting more than **3400 visitors** (Figure 7).

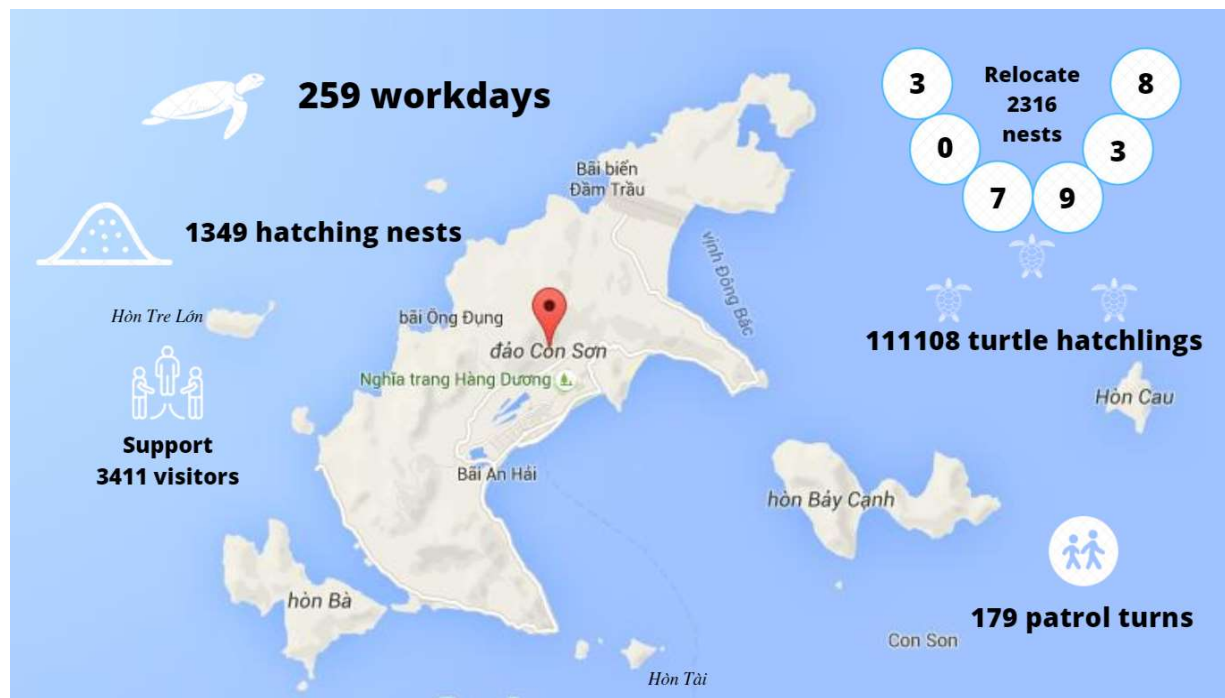


Figure 7: Con Dao sea turtle volunteer program achievements

In Hon Cau Marine Protected Areas, due to low number of mother turtles crawling up to lay eggs each year, not all volunteers had chance to see sea turtles and work with sea turtles during the volunteer time. Specifically, there were only 3, 10, 13, 8, and 6 mother turtles detected to come up shore to lay eggs in 2014, 2015, 2016, 2017, and 2018 respectively. Particularly, in 2019, none of the mother turtle was found laying eggs on Hon Cau area. In 2020, at the time of this report released, there have been at

least 4 mother sea turtles came ashore to lay eggs in Hon Cau. No statistical data was collected on the works taken by volunteers during the program like the case of Con Dao National Park above.

In Nui Chua National Park, data in 2016 showed that only volunteers in phase 2 had opportunity to see mother turtles, the rest could only see the nests. However, similar to Hon Cau, no statistical data was collected on the works done by volunteers during the program.

c) Program criteria based on volunteer self-evaluation

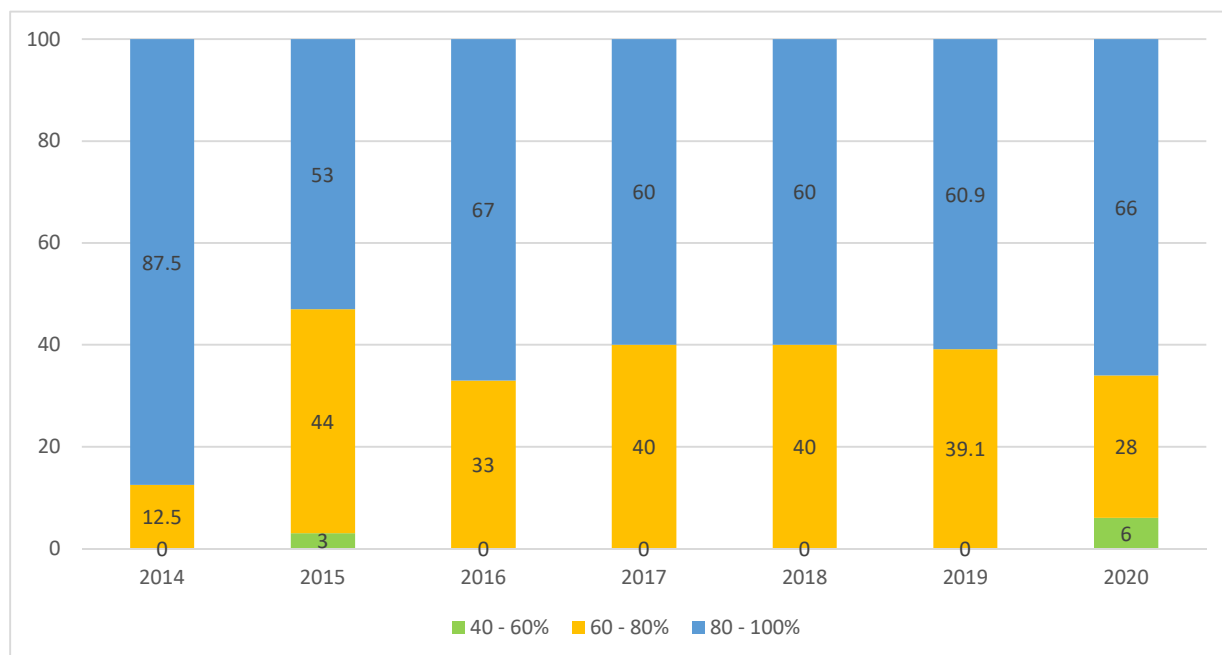


Figure 8: Overall evaluation of the volunteers in Con Dao Sea Turtles Volunteer Program (2014 - 2020)

Each year, IUCN requires volunteers to fill in an online assessment survey post-program in order to evaluate feedbacks of the sea turtle conservation program to improve the efficacy of program in the following years. Various criteria of program are reviewed separately and then combined together in overall score. Overall score is divided into 5 levels of satisfaction: Very dissatisfied (<20%), Somewhat dissatisfied (20% - 40%), Neutral (40% - 60%), Somewhat Satisfied (60% - 80%), and Very Satisfied (80% - 100%).

In case of Con Dao program, overall scores throughout the years from 2014 to 2020 (Figure 8) remains stable. Majority of volunteers (> 94%) graded level of satisfaction from Somewhat Satisfied (60 – 80%) to Very Satisfied, with an exemption in 2015 and 2020 when there were some volunteers graded Neutral (40 – 60%) level. The reason behind the Neutral level given by the volunteers is an objective ground, in fact those volunteers either worried for the negative impacts of tourists to sea turtles and environment of the islands or could not experience all sight-seeing activities during the

program. Excluding 2015, more than 60% of volunteers gave Very Satisfied level (80% - 100%) to the program in the other years. The fact that none of the volunteers rated dissatisfied levels (<40%) has proved a remarkable success of the program.

In regards to Hon Cau program, even though there was a gap in 2016 leading to the postponement of program, it continues to run effectively in the following years from 2017 to 2020. From *Figure 9*, it is clearly that except 2015 when volunteers significantly rated the program at Somewhat Satisfied level (60 – 80%) with 87%, the other years exposed an interesting infographic where Somewhat Satisfied level and Very Satisfied level are equal. In 2018, 2019 and 2020, a part of volunteers graded the program at Neutral level (40% - 60%) which are 11.2%, 4.8%, and 14.3% respectively. It is visible that the level of satisfaction of Hon Cau program is lower than that of Con Dao. To find out the answer for this lack of satisfaction, there are 3 main objective reasons as follows: Firstly, due to small quantity of sea turtles come ashore each year on Hon Cau island to lay eggs, there was very low chance of meeting sea turtles for the volunteers during the program which made them slightly disappointed; Secondly, the number of volunteers taking assessment survey is extremely lower than that of Con Dao program, which causes a bias in the assessment results; Finally, plastic waste control on the island is one of the main issues that many volunteers concern about. However, more than 85% volunteers gave Somewhat Satisfied level and beyond in overall of the program all through the years, which is a positive achievement for Hon Cau program.

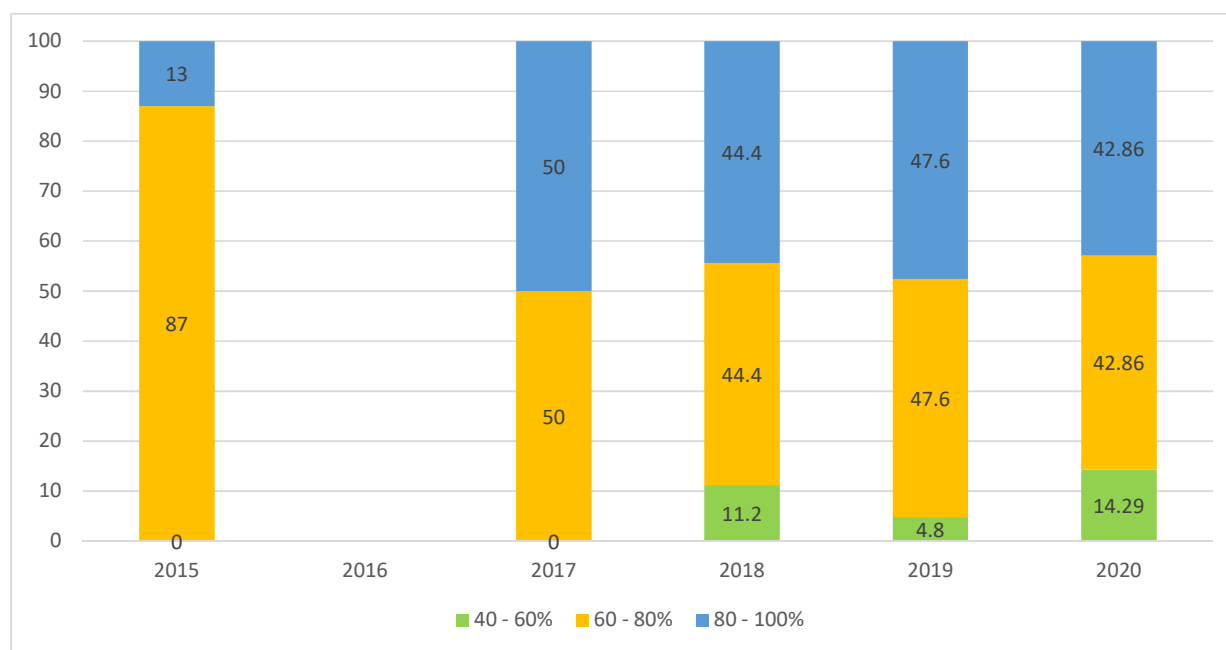


Figure 9: Overall evaluation of the volunteers in Hon Cau Sea Turtles Volunteer Program (2014 - 2020)

Unfortunately, due to lack of data and survey results, it is impossible to conduct investigation on the satisfaction of sea turtle volunteer program in Nui Chua National Park.

However, in order to summarize overall evaluation of volunteer for entire sea turtle conservation volunteer program in all 3 pilot sites (Con Dao National Park, Hon Cau Marine Protected Area, and Nui Chua National Park), IUCN conducted a survey for alumni volunteers of our program from 2014 to 2020. At the end of our survey, there are totally **57 alumni volunteers** accepted to participate into the survey. The total number of volunteers throughout 3 sites from 2014 to 2020 is **472**, it means the number of volunteers taking surveys accounting for 12.1% of total volunteers in 7 years.

Regarding to overall evaluation of volunteers in 3 program sites from 2014 to 2020, The program has successfully achieved praiseworthy outputs: the proportion of Very Satisfied level (80 – 100%), Somewhat Satisfied (60 – 80%) and Neutral (40 – 60%) are 68.4%, 29.8%, and 1.8% respectively (*Figure 10*). Particularly, none of volunteers (0%) rated sea turtle conservation volunteer program under Neutral level. The only one volunteer taking the survey (1.8%) gave Neutral level of satisfaction is due to dissatisfaction of tourist activities on Con Dao areas which could probably affect sea turtle conservation efforts in Con Dao.

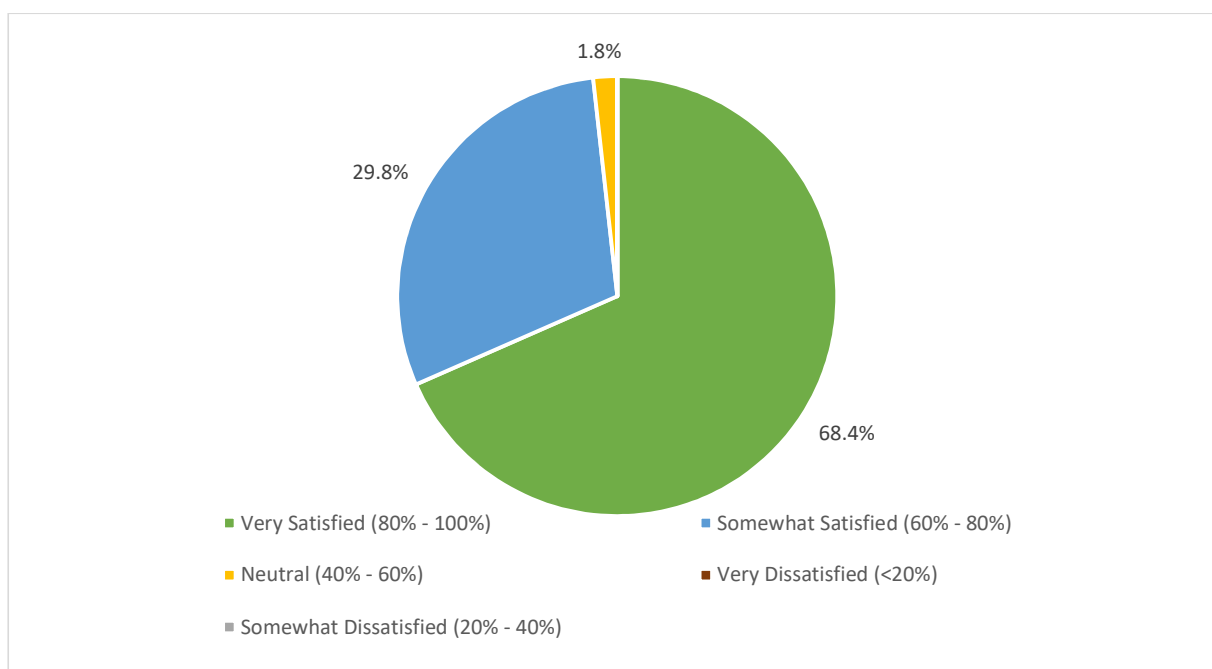


Figure 10: Overall evaluation of sea turtle conservation volunteer program in 3 study sites (2014 - 2020)

To figure it out separate divisions of program, several criteria was listed in the 7-year survey and provided for volunteers to give scores ranging from 1 (Very Dissatisfied) to 5 (Very Satisfied). The final results of those criteria average scores are summarized below in *Figure 11*.

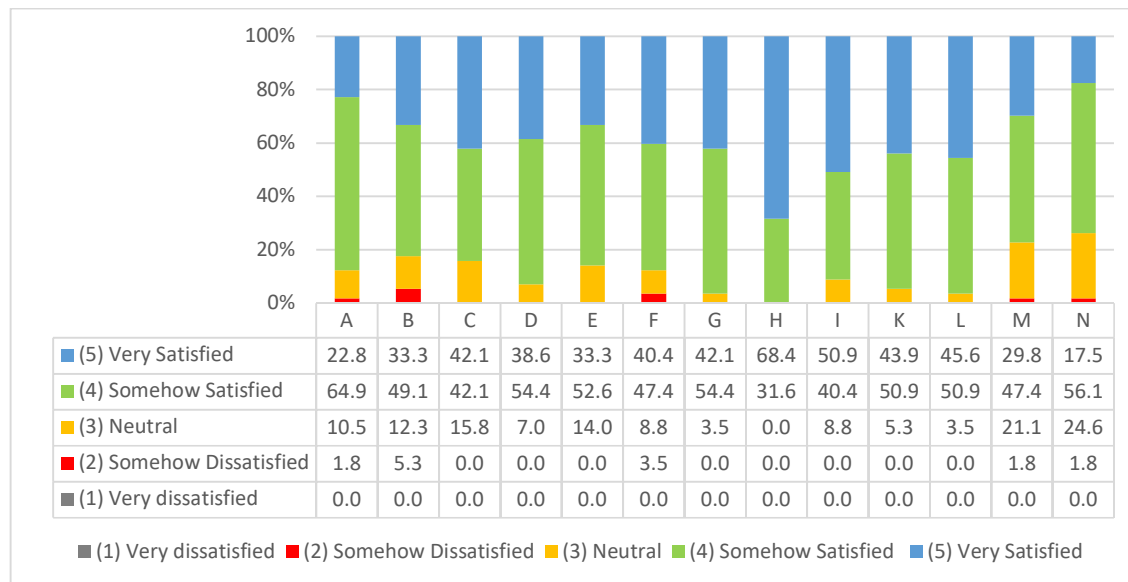


Figure 11: Criteria-based evaluation of sea turtle conservation volunteer program in 3 study sites (2014 - 2020)

Glossary (Figure 11)

A – Application process

B – Provided information prior program

C – Volunteer costs for program

D – Length of program

E – Facilities and amenities at the volunteer sites

F – Conservation works at the volunteer sites

G – Assigned tasks during the program

H – Supports of Park rangers and officers at the volunteer sites

I – Logistics preparation (Transportation, room and board)

K – Knowledge and skills learnt after the program

L – Interaction between volunteers in the program

M – Volunteer connection post-program

N – Post-program community activities taken by volunteers

There are only 2 criteria approached more than 50% of Very Satisfied level (5): Supports of Park rangers and officers at the volunteer sites (68.4%); and Logistics preparation (50.9%). Basically, 6 out of 13 criteria have got combined proportion of Somewhat Satisfied level (4) and Very Satisfied level

(5) passing over 90%: D, G, H, I, K, L (in glossary). The rest criteria recorded less than 90% of upper-Neutral satisfaction level, which include Application process (87.7%), Provided information prior program (82.5%), Volunteer costs for program (84.2%), Facilities and amenities at the volunteer sites (86%), Conservation works at the volunteer sites (87.7%), Volunteer connection post-program (77.2%), Post-program community activities taken by volunteers (73.7%). Exceptionally, the following criteria have attained Somewhat Dissatisfied level (2): Application process (1.8%), Provided information prior program (5.3%), Conservation works at the volunteer sites (3.5%), Volunteer connection post program (1.8%), Post-program community activities taken by volunteers (1.8%).

Principally, the volunteers explained for their low level of satisfaction as below reasons:

- In term of criterion (A): Several changes, withdrawals of volunteers after result publication affect the organization of volunteer teams and logistical preparation. The selection process remains uncertainty and emotional based. Remarkably, in one of the years, Organizer Committee announced the selection results before the application deadline, which should be manipulated in the next years to avoid confusion between applicants.
- In term of criterion (B): Some information provided to volunteers is in rush and ambiguous prior program starting, which makes some volunteers being unable to prepare enough necessities for the volunteer trip.
- In term of criterion (F): Most volunteers complain about garbage issues (specifically plastic wastes) at the volunteer sites which affect the sea turtles and marine environment. Furthermore, tourist activities also leave concerns in each volunteer on the sustainability of this activity and its potential risks on sea turtles. Finally, it is recommended that practical skills should be listed and described in details in the training session for volunteers before going to the field because recently, training still focuses on theoretical information of sea turtles and volunteer program
- In term of criterion (M): Due to personal works and lack of follow-up activities, many volunteer groups tend to lose connection after the volunteer program. Some volunteers would like to have more alumni meetings for volunteers after the program.
- In term of criterion (N): A part from the inevitable consequence of losing volunteer group connection as in the criterion M, a lot of volunteers did not accomplish commitments as in registration form to support for sea turtle and marine conservation throughout communication and community activities.

In respects to reasons to join in the program (*Figure 12*), proportion of volunteers is measured separately for different motives, in which if all volunteers taking survey chose a motive, that purpose

would gain maximum 100%. In reality, the leading motivation to participate in sea turtle volunteer program is engaging in sea turtle conservation works (98.2%). It is followed by discovering the nature intention (91.2%) and understanding deeper the situation of sea turtles, marine and nature conservation in Vietnam (89.5%). The least concerned rationale to participate in program is belong to other personal aims (12.3%) and receiving volunteer certificate from IUCN (10.5%). Indeed, this figure has shown a significant concern of publics for nature conservation and sea turtle protection issues when looking for our program.

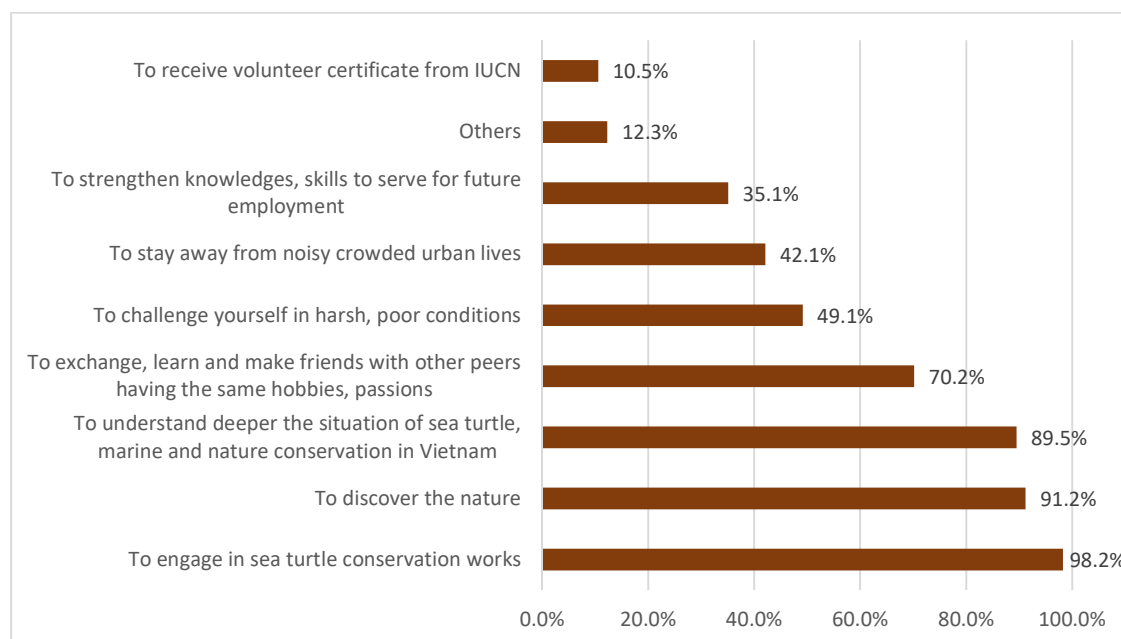


Figure 12: Reasons to join in sea turtle conservation volunteer program in 3 study sites (2014 - 2020)

In purpose of measuring involvement effects and tasks' distribution between volunteer groups and individuals, volunteers were asked to select lists of activities which they finished during the volunteer period. The results are presented in the *Figure 13* below. Each volunteer task is assessed individually on the proportion of volunteers involving in that task. If all volunteers taking survey took part in a task, it would be illuminated as 100%. In reality, there is only one activity that all volunteers (100%) claimed that they carried out during the program, and that is trash pick-up and cleaning along the volunteer sites. In the second place, 96.5% volunteers attended trainings on sea turtle information and rescue skills. The third place is shared by 2 activities with the same rate (93%): Patrolling around nesting sites and Guarding nesting beaches. The works directly with sea turtles reached from 70% to 75% due to unavailability of sea turtles and hatchlings in some volunteer phases or some years when number of sea turtle laying eggs is low. There are some activities which are less common based on decision of each volunteer group or only available in some areas or in some volunteer phases: Repairing and decorating facilities (64.9%); Swimming and snorkeling (63.2%); Cleaning breached coral beaches

(54.4%); Setting billboards on sea turtle conservation and environmental protection (47.7%); Teaching English for Park rangers (7%), and Others (5.3%).

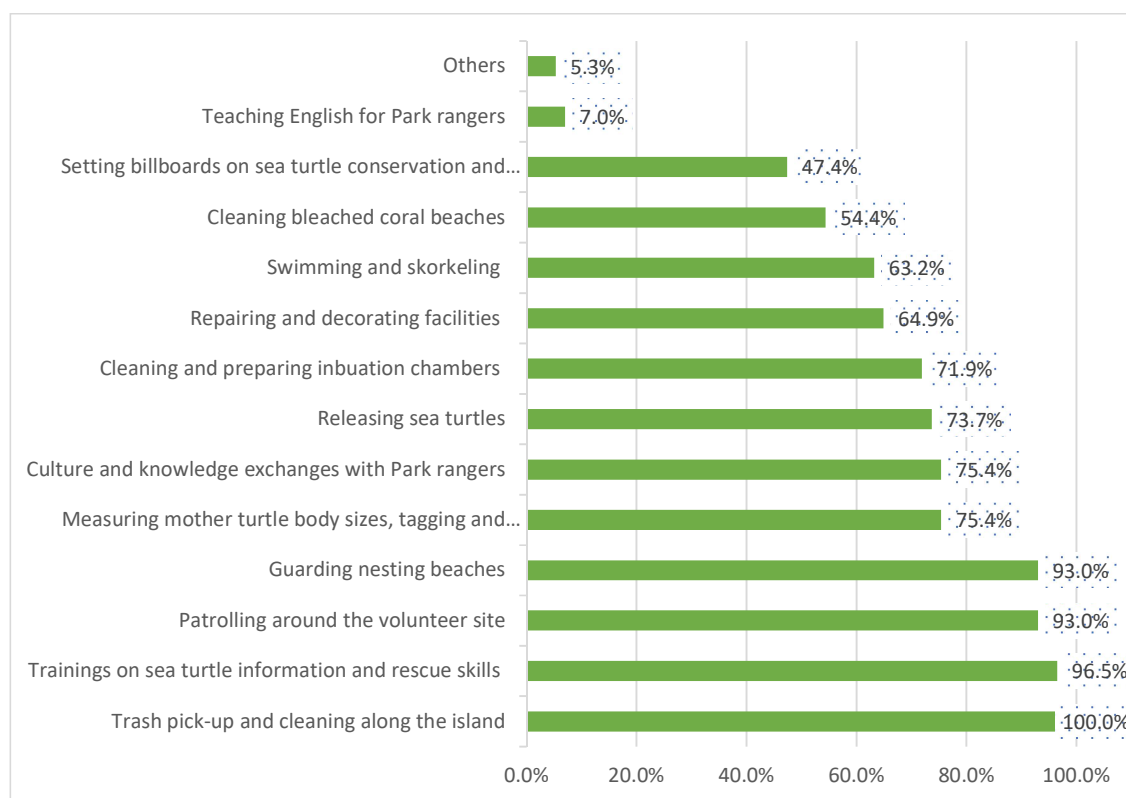


Figure 13: Volunteer activities during sea turtle conservation program in 3 study sites (2014 - 2020)

In respect to the execution of volunteers' commitments after program, the survey conducted a research on the prevalence of activities post-program to illustrate spread of sea turtle conservation message within community. Survey upshot is delineated in the *Figure 14*. Solely one activity is popular throughout volunteers taking the survey and that is also the only one activity which more than 50% volunteers have done, that is posting pictures, stories in the program on personal pages, vlogs or groups on social media (96.4%). There are some other less common activities taken by volunteers in between 40% – 50%: Sharing information about program on mass media such as news, TV channels,... (48.2%); Montage of videos, short movies in sea turtle conservation volunteer program and conservation activities (42.9%); Financial and technical supports, fundraising for sea turtle and marine conservation program (41.1%). Least common activities include: Organize workshops, webinars, classes to share information about sea turtles, marine conservation (23.2%); Build up community projects/campaigns on sea turtles, marine and nature conservation (14.3%); Create fan page, blogs on sea turtle conservation (8.9%) and other activities (12.3%). Apparently, we could see that more than half of total volunteers taking survey just using personal social media page to spread sea turtle

conservation and nature protection messages to the publics, which is easiest tool but have small-scale impacts on changing behaviors of human beings on the conservation issues. Other realistic activities such as fundraising, creating media products should be encouraged to increase the values of program bringing to community. There should be more follow-up activities to motivate volunteers creating a bigger contribution for sea turtle conservation and marine protection.

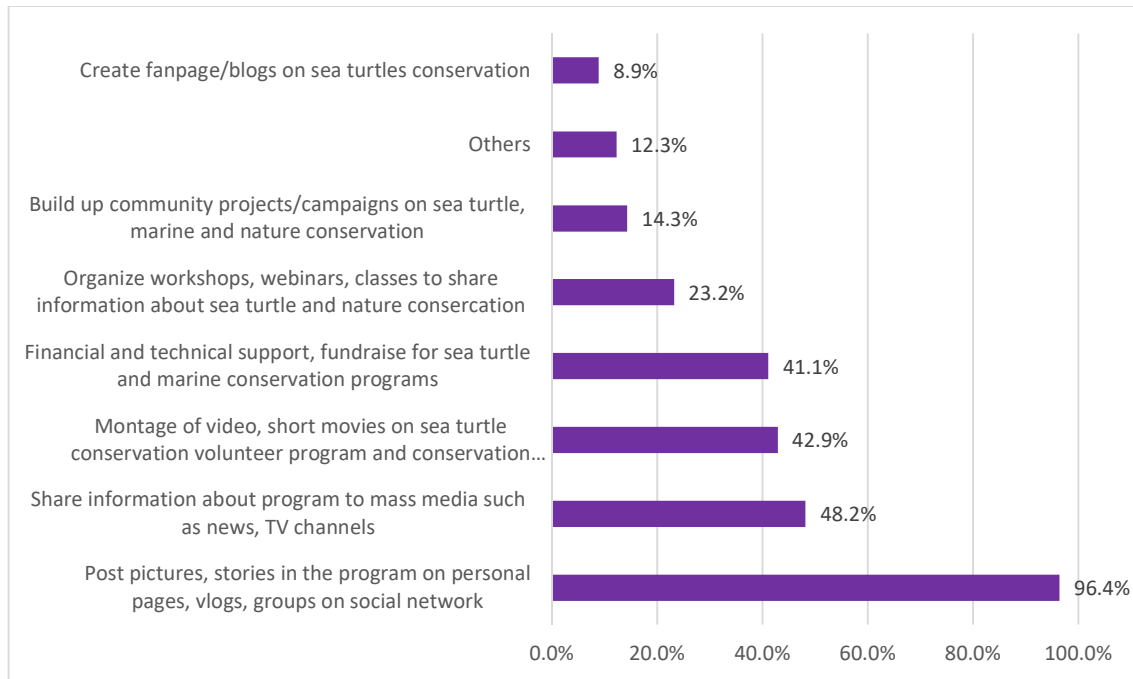


Figure 14: Volunteer activities post-sea-turtles-conservation program in 3 study sites (2014 - 2020)

d) Post-program achievements

Since 2014, thousands of media products, news, events, videos, projects and campaigns have been produced by alumni volunteers of sea turtle conservation program. Conservation messages have been delivered by different tools from social media (Facebook, Instagram, etc), webpages (Blogs, news, YouTube, etc.) to on-site projects and community activities. Some of them raised impression and left imprints in society, which notably contribute to the conservation efforts of sea turtles and marine environment. In this section, a chain of highlighted products, events in all 3 volunteer sites (Con Dao NP, Hon Cau MPA, and Nui Chua NP) throughout the years will be recapitulated and presented.

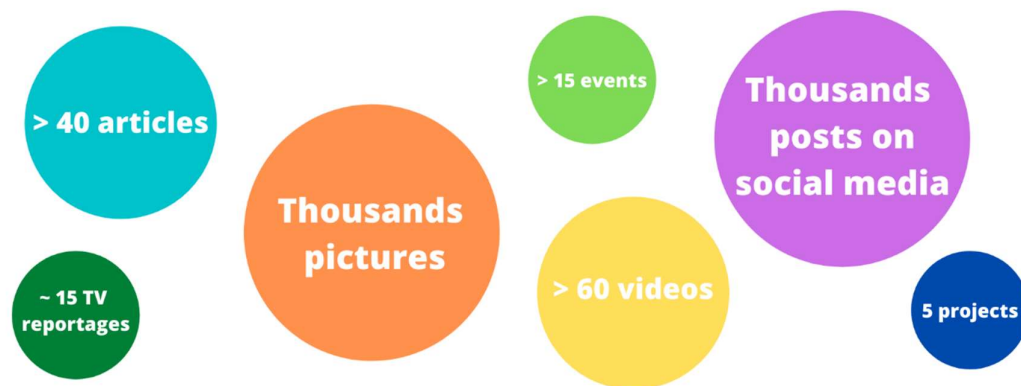


Figure 15: Volunteer post-program achievements

❖ 2014:

- Establishing Facebook page: “Sea Turtle Conservation – Volunteer community”;
- Sea turtle talk show in “Drink and Talk” English club;
- Sea turtle talk show in “Vietnamese community in Stuttgart city – Germany” meeting;
- Youtube video: “Report on Con Dao sea turtle conservation volunteer program – 2014”, (<https://www.youtube.com/watch?v=zwx6cPgqinU>)



❖ 2015

- Talk show: “Marine environment and endangered sea creatures in Vietnam waters”, co-organized with Vietdivers and XoneFM.

- Facebook page: Sea Turtles in Vietnam (<https://www.facebook.com/vietnamseaturtle> - more than 2400 page likes).

- Zing news: “Sea turtles nesting season in Con Dao National Park”, (<https://zingnews.vn/mua-rua-bien-de-trung-tren-vuon-quoc-gia-con-dao-post556608.html>)

- Thanh Nien news: “All night rescue sea turtles laying eggs”, (<https://thanhnien.vn/doi-song/trang-dem-cuu-ho-rua-bien-de-trung-584031.html>)



Các bạn tình nguyện viên sẽ thực hiện việc kiểm tra số lượng trứng, có đến 149 trứng trong ổ này.

- VGP news: “Rescue, release 150,000 sea turtle hatchlings to the sea”, (<http://baochinhphu.vn/Doi-song/Cuu-ho-tha-150000-rua-con-ve-bien/232184.vgp>)

- Giao Duc – Ho Chi Minh city news: “Sea turtle conservation”, (<https://www.giaoduc.edu.vn/bao-ton-rua-bien.htm>)

- Hasapa blog: “Hon Cau – What to do out of working time”, (<http://www.hasapa.com/?p=6588>)

- YouTube videos:

- “Sea Turtle Conservation 2015”, (https://www.youtube.com/watch?v=klSryi_F7PI)
- “Baby turtles happy to coming home”, (https://www.youtube.com/watch?v=7asQ_HG6Wbg&feature=youtu.be)
- ”How the baby turtles climb up the sand hole”, (<https://www.youtube.com/watch?v=42wvJknmUwU&feature=youtu.be>)
- “30 clips about sea turtles in Vietnam”, (<https://www.youtube.com/watch?v=XU2os8BQ5UU&feature=youtu.be>)



❖ 2016

- Tuổi trẻ news: “Sea turtle conservation”



- Infonet news: “Con Dao in nesting season of sea turtles”, (<https://infonet.vietnamnet.vn/chuyen-la/con-dao-mua-rua-len-de-trung-188574.html>).

- Vietnamplus news: “Sea turtles – brave ‘warriors’ in Con Dao”, (<http://www.vietnamplus.vn/photo-rua-bien-nhung-chien-binh-dung-cam-o-vung-con-dao/402943.vnp>)

- Songmoi news: “Story of baby turtles in nesting season in Con Dao”, (<http://songmoi.vn/chuyen-cua-rua-con-ve-mua-sinh-san-tai-con-dao-67238.html>)

- Dan Tri news: “Green sea turtles – Little ‘backpackers’ in the middle of the ocean”, (<https://dantri.com.vn/nhip-song-tre/rua-xanh-nhung-phuot-thu-nho-be-giua-long-dai-duong-20160915143712942.htm>)

- YouTube videos:

➤ “Sea turtles conservation volunteer program 2016”, (<https://www.youtube.com/watch?v=1JHId32GS8M>)

➤ “Con Dao and waste issues”, (<https://www.youtube.com/watch?v=YIq5Ujaw4Rk>)

- “Bay Canh Park ranger station – Con Dao”,
(<https://www.youtube.com/watch?v=mZ8rgYLODA8>)

❖ **2017:**

- An Ninh TV report: “The ‘midwives’ of sea turtles”, (<http://www.antv.gov.vn/video/chan-dung-cuoc-song/nhung-ba-do-cua-rua-bien-135478.html>)
- VTV2: “Global visa – Midwives of green sea turtles”,
(<http://vtv.vn/video/visa-toan-cau-nhung-ba-do-cua-rua-xanh-249128.htm>)
- Thanh Nien news: “All night rescue sea turtles lay eggs”,
(<https://thanhnien.vn/doi-song/trang-dem-cuu-ho-rua-bien-de-trung-584031.html>)
- Workshop and wall drawings in Ho Chi Minh city: “Ocean warriors”,
(<https://www.facebook.com/groups/557105371033183/permalink/1439163112827400/>)
- VIFA news: “‘Deliver’ for sea turtles in Con Dao”, (<http://baovemoitruong.org.vn/de-cho-rua-bien-tai-con-dao/>)
- Nong Thon Viet Journal: “Sea turtle conservation volunteer program 2017”,
(<http://nongthonviet.com.vn/thi-truong/co-hoi-su-kien/201705/chuong-trinh-tinh-nguyen-vien-bao-ton-rua-bien-tai-con-dao-2017-703046/>)
- Ky nang song Club: “Sea turtle volunteer program in Con Dao National Park”,
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e) Untold stories

Even though the duration of volunteer program is limited, it still leaves in the heart and mind of those people who involved in the program from the volunteers to park rangers and organizers unforgettable memories. Each of them has distinctive experiences and personal narratives about sea turtles, joint activities and conservation works on program locations. Typically, some volunteers had participated in sea turtle conservation volunteer program for more than 1 times, which is a positive signal for the values that program brings back to society and potentials for sustainability of program in long term. This report summarizes some of the representative moments and concerns of volunteer as well as park rangers for the program.

• Volunteer stories:



“... Personally, I really like volunteer sideline activities. From looking for firewood, ripping for cooking, to sharing of work, life and emotion... Somewhat it helps young people to understand better their lifestyle and future orientation... Besides, discovery activities are also interesting. There were not only sea turtles, but also *Cardisoma carnifex* crab, monkey, lizard, snakes, ... together they are living in

that environment. Finding is learning a new thing. ... After volunteer phases, I have new friends, new networking with other organizations. I am so excited when sometimes we contact each other to talk about our daily lives, animal conservation, ecosystem protection works”. – sharing from Mr. Cao Manh Tuan, a reporter and also volunteer of Con Dao sea turtle volunteer program in 2016 and Hon Cau sea turtle program in 2017.

Ms. Luong Thi Hai Luyen – a reporter in VTC10 channel expressed her feelings during volunteer time in Con Dao (2018): “The most memorable things and they should be considered the most when

preparing for the sea turtle conservation volunteer program on Bay Canh island (Con Dao), is preparation for patrolling overnight, delivering for sea turtles with park rangers. You need a healthy body, equip yourself with torch, raincoat to ensure in case of bad weather conditions and absolutely learn how to patrol in the darkness. But it genuinely was amazing and unforgettable



experience in your life, especially when you dig the nest to collect sea turtle eggs and bringing them back to hatchery for incubation. And last but not least wonderful thing was releasing hatchlings back to the sea, where a survival journey begins with challenges but full of hope”.



Mr. Tran Le Kien was our volunteer in sea turtle program in Hon Cau (2015) and Con Dao (2016), recently is an office worker in a business enterprise, recalled his moments in the program: “Every occasion engaging in volunteer program was awesome periods as for me and my companions. It is unique and unforgettable experiences for each individual, but the way of sharing it to publics was mostly the same and making it less interesting.

However, there are some outstanding people with excellent writing capacity (Ex, Ha SAPA), but not everybody could have this ability. Therefore, I would like to tell to other volunteers to not put too much pressure on yourselves when sharing your stories. Because you could choose other ways to deliver your message to society such as pictures, music, movies, drawings, ... to tell your stories. And of course, the most important thing is enjoying your volunteer time”.

“When we were on the patrol around the island, Uncle Bang has told many stories about Hon Cau and conservation activities in this protected area. One of the most memorable stories is the first time when the officers of Hon Cau protected area started with sea turtle conservation project. At that time, they had never done any job with sea turtle, everybody was new on that field. One day, there was a female sea turtle crawling up to lay eggs. Uncle Bang and another officer were so nervous, keeping silence until the mother had come back to the sea. They started digging up the nest and moving the nest to a safer place for incubation. They were waiting for a long-time day and night observing the nest

and pray for the successful hatching. The most emotional moment was when first sea turtle hatchlings emerged from the nest and tried to reach the sea. At that time, they realized that they had succeeded in saving the sea turtles with hatching rate reached 80%.” – Nguyen Son Tra, alumni volunteer in Hon Cau program (2019) and university student pursuing wildlife management bachelor’s degree.



- **Park Rangers:**



Mr. Nguyen Cong Ly – Head of Bay Canh ranger station (Con Dao) confessed some stories and issues throughout 4 years working with volunteers in IUCN sea turtle conservation program since 2017:” In overall, the volunteers have supported significantly for limited ranger workforce in peak season of sea turtle laying, the collaboration between

volunteers and rangers are mostly advantageous. However, there is gap between theories that volunteers have gained and practices at the volunteer sites, so some volunteers are still bewildered when beginning their works. During the volunteer time, there are so many memories between parks rangers. Volunteers actively participated in several tasks such as pick-up of wastes along the shores, patrolling to wait for sea turtle laying, collecting eggs and transferring to incubation hatchery, guiding tourists when watching sea turtles laying and releasing, and releasing sea turtles to the sea. Typically, he so admired that many volunteers were dared to clean the hatched chambers of sea turtles with extremely stinky smell, but they were still willing to do those works which some of them had never done before. Although staying for solely 10 days, they still leave behind many messages to tourists and other volunteer groups coming to Con Dao via decorative products such as billboards, drawings in regards to sea turtle conservation and marine protection.

He also gave some suggestion for program improvement in the following years: 1) Increasing number of phases but not so many volunteers for each phase. For examples, there should be 8 to 10 volunteers each phase for Bay Canh station, and around 10 phases a year; 2) Updating practical information during the volunteer time in Con Dao for volunteers: How to mark the nest? When to measure mother turtle's body sizes? How to dig the nest? How to excavate chambers to relocate the nests? Etc. He hope that this volunteer program will be maintained in long-term to facilitate for conservation works and park rangers in Con Dao National Park and further to educate and spread conservation messages to community.”

9. Lesson learn

After 7 years since inauguration of volunteer program, the organizers recorded several feedbacks from volunteers. There are a lot of positive responses for the purposes of program and experiences that volunteers gained during the volunteer time. However, obviously there are remaining obstacles needed to be solved to enhance the effectiveness of program as well as ameliorate actual situations in regards to conservation activities and environment issues in national parks and marine protected area. In this chapter of 7-year report, summarization of advantages and disadvantages of volunteer program accompanied with recommendation for amelioration will be discussed.

a) Strengths

In overall, sea turtle conservation program has successfully brought urban citizens to the nature and in exchange for labor works during peak season of nesting sea turtles in our pilot sites. The program has helped spreading the message of sea turtle conservation and marine habitat protection and bring the nature closer to communities in Vietnam. The program fundamentally does not have any serious problem, execution steps were taken smoothly with active contribution of all parties. To break down different aspects of program, the following table will interpret advantages of program based on each criterion.

Criteria	Strengths
Organization process	<ul style="list-style-type: none">- Quick and on-time response from organizers;- Thoughtful enthusiastic staffs;- Clear and detailed information is provided;- Sea turtle information related test combined with application is useful.
Raising awareness and sea turtles rescue training	<ul style="list-style-type: none">- Complete overview information is provided;
Sea turtle conservation activities	<ul style="list-style-type: none">- Conservation works in ranger stations are executed strictly and responsibly.
Logistical preparation	<ul style="list-style-type: none">- Safety of volunteers is priority;

during the program	- Rangers are thoughtful and enthusiastic in supporting volunteers during the program;
Interactions within volunteer group	- Majority of volunteers in groups are nice, sociable and friendly; - Good connection through social media.
Supporting park rangers in the field	- Nice, responsible, patient, and smart.
Information and materials provided before program	- Informative and detailed.

b) Weaknesses and suggested solutions

Basically, there were few existing difficulties and shortcomings particularly related to the volunteer program and generally to actual situations on program locations. Some common problems and separated issues in connection with each volunteer sites, specifically in Con Dao NP and Hon Cau MPA, along with suggested ideas to solve those matters are mentioned below.

• General problems:

Problem	Potential solutions
- The selection and control process encountered obstacles in the last-minute cancellation of volunteers;	- Early notification of logistical information for volunteers to prepare and book the tickets to volunteer sites. Shorten the deadlines to submit necessary documents to have enough time for recruitment of new volunteers in case of withdrawals occurred.
- Unclear training and information for volunteers before starting of the program.	- Online training (Webinar + Q&A) for volunteers before joining the program.
- Lack of information about IUCN.	- Projecting IUCN introduction video at the beginning of training or sent via email before the beginning of program.

- Shortages of a common platform on knowledge, information of program, and ideas of past volunteer groups to think and rethink about ideas to help the volunteer program sites and other communication works.	- Building an online database for current and future volunteers to access and find out information of the program as well as failures and achievements of past volunteer groups to learn from the past and rethink of better ideas to facilitate program.
- Late update of logistical information.	- Early update (2 – 3 weeks before program)
- Lack of employees from IUCN to monitor the program.	- Hiring part-time volunteer officers to support program.
- Information security	Hiding unnecessary personal information of volunteers in sending emails or materials.
- Practices are far from theoretical trainings.	- Adding practical information into training presentation (information selected from park rangers).
- Lack of official form for volunteers to update of outcomes during the program.	- Updating information related to program in the notebook of IUCN (Information about activities during the program, blank table for volunteer to fill in when working about ID of mother sea turtles, number of eggs, number of hatched baby turtles by work day, etc.);
- Hygiene during egg collection and nest removing after hatch.	- Wearing medical gloves: + Protection of workers' health. + Increasing hatching rate.

• **Con Dao National Park:**

Problem	Potential Solutions
- Volunteer distribution to small islands	- Send email for island distribution requests to volunteers (following the rule: first come first serve

	and do not guarantee about the island requested). Taking into consideration before arrangement.
- No backup plan in case of weather disturbances.	- Backup plan need to be provided in notification of the program in case volunteers have to come back early or could not go to distributed islands to prepare room and board in the main island;
- Low hatching rate in some incubation chambers and reutilization of chambers in short time with dense consistency.	- Expanding incubation ground and generating solutions for incubation chamber treatment (Chloride treatment, sunlight exposing, abandoned gaps, sand replace) after used and building hygiene standards for rangers to follow.
- Huge number of tourists in Bay Canh island.	- Increasing the price of visiting nesting areas to see mother turtles laying or hatchlings releasing. (Consulting with higher-level leaders)
- Many tourists do not follow regulations when visiting sea turtles in Bay Canh Island.	- Creating and showing sea turtle handling and releasing instruction videos imperatively before entering nesting and releasing areas. - Training for tour guides. - Touching sea turtles is not allowed as for non-duty persons. - Minimizing waiting time for tourists to increase survival rate of hatchlings. Based on number of tickets sold in Con Son island before departure, a part of hatchlings can be stored to wait for the tourists until 8 AM (requiring tourists to come on-time, otherwise turtles will be released without exception and reimbursement), the rest of hatchlings not serving tourism purposes should be released early in the morning;

<p>- Wastes from tourism activities</p>	<ul style="list-style-type: none"> - Banning tourists to bring single-use plastics to nesting islands from departure pier. - Providing 2 services: Leasing with deposits or selling multiple-use cotton bags and refillable bottles for tourists to bring to nesting islands. Tourists have to bring the bags and bottles back to Con Son island after the trip. - Water purifiers should be placed in public places on small islands for tourists to refill recycle bottles. - Collecting and delivering inorganic wastes after used back to Con Son island after the trip. - Minimizing single-use plastic products selling on those nesting islands, especially Bay Canh island. - Organize waste pick-up activities for tourists.
<p>- So many tourists visiting Lady Van fane on Hon Cau island, Con Dao for worship:</p> <p>+ Disturbance</p> <p>+ Wastes</p>	<ul style="list-style-type: none"> - Limiting number of tourists. - Prohibiting worship items made from plastics.
<p>- Household wastes on Con Son and other islands.</p>	<ul style="list-style-type: none"> - Minimizing utilization of single-use plastics. - Community-based programs (Changing behaviors). - Encouraging and promoting green staying facilities (Less plastic, less waste).
<p>- Garbage disposal</p>	<ul style="list-style-type: none"> - Building disposal facilities using new environment-friendly technologies.
<p>- Private ownership of Con Dao's islands.</p>	<ul style="list-style-type: none"> - Reinforcing official authorities to avoid private ownership of areas belong to NP.

- **Hon Cau Marine Protected Area:**

Problems	Potential solutions
<ul style="list-style-type: none"> - Spontaneous tourism activities. + Plastic wastes. + Disturbance of nesting areas. + Destroying the coral reefs. 	<ul style="list-style-type: none"> - Putting tourism under control of MPA officers. - Training for tour guides before the trips. - Limiting plastic waste amounts of tourists visiting the island. - Increasing power of MPA officers in inducing punishments to tourists or tourism companies not following regulation of MPA.
<ul style="list-style-type: none"> - Wastes on the island and along the beaches 	<ul style="list-style-type: none"> - Minimizing utilization. - Collection, reuse and recycle. - Transport to mainland. (Costly)
<ul style="list-style-type: none"> - Fishing boats encroach MPA: + Destroy the coral reefs. + Threatening sea turtles. 	<ul style="list-style-type: none"> - Empowering MPA officers to induce penalty to violated vehicles. - Improving equipment (drones, canoes) for MPA to do monitoring.

- **Recommendation for follow-up activities:**

- Hiring volunteers who are journalists, youtubers, other public influencers to participate program in the upcoming years to increase purview of program.

- IUCN stimulates follow-up activities via challenges or campaigns.

- Building an alumni network with administration team to organize alumni events and facilitate follow up activities of network members.

- Alumni meetings should be organized before new volunteer phases to help old volunteers share experiences to new volunteers. The meeting should be held once or twice a year in 3 regions (North – Hanoi city, Central – Danang city, South – Ho Chi Minh city).

10. Finances

Total budget for this volunteer program are not high average of 100,000,000 million VND for Con Dao NP, and 30,000,000 VND for Hon Cau MPA each year to cover mainly training cost, fuel and boat transportation from Con Son island to small islands (Con Dao) and from mainland to the Hon Cau Island (Hon Cau MPA); T-shirt/Jackets, notebooks and one night hotel for Volunteer in Con Dao NP;

Volunteer have to cover their transportation cost to and from their home, Public and travel insurance; Food expenses during volunteer time; Other personal spending.

Con Dao NP and Hon Cau MPA support the facilities for training and sleeping at volunteer sites.

❖ Potentials for financial plan in long-term (with suggestions from volunteers):

- Self – finance: According to IUCN 7-year survey, **88% of volunteers** taking survey is willing to pay full cost for volunteer program without financial supports from IUCN, Con Dao National Park and Hon Cau Marine Protected Area.
- Private enterprises/businesses (Donation, producer responsibility);
- Crowdfunding on social media;
- Fundraising through selling products (water bottles, t-shirts, notebooks, crafts, etc.) or souvenirs with sea turtle images;
- Utilize the influence of invited KOLs to program to increase the scale of fundraising activities;
- Contact with digital e-wallet or mobile payment companies to build up fundraising programs by taking a part of transaction fees (Ex: Momo E-wallet is applying saving pig feature to save money from customer transaction fees for donation to vulnerable children in Vietnam).
- Adding a conservation fee into the tickets sold for tourists coming to Con Dao, especially to protected areas.

11. Human resources

The operation of sea turtle conservation volunteer program would not be successful without dedicated contribution of key staffs and collaborators from IUCN, Con Dao National Park, Hon Cau Marine Protected Area, Nui Chua National Park, Bai Tu Long National Park, Ly Son Marine Protected Area, Cu Lao Cham Marine Protected Area, and Con Co Marine Protected Area.

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Acknowledgement

IUCN appreciates great contributions of the following partners for the implementation of Marine Turtle Conservation Volunteer program:

Donor

- United States Fish and Wildlife Service (USFWS)

Major partners

- Con Dao National Park
- Hon Cau Marine Protected Area
- Nui Chua National Park

Other partners

- Bai Tu Long National Park
- Ly Son Marine Protected Area
- Cu Lao Cham Marine Protected Area
- Con Co Marine Protected Area



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