

The STINAPA Bonaire Junior Ranger Program

A detailed program overview



NATURE
IS OUR
LIVELIHOOD



“ When the youth are given more opportunities to have a meaningful experience outdoors, they will be more likely to value nature, engage with it, and feel empowered to do something about it. ”

- Nature Conservancy survey results – 2011

The STINAPA Bonaire Junior Ranger Program

Detailed Program Overview
STINAPA Bonaire, 2018.

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Summary

The Junior Ranger Program is an out-of-school nature education program run by STINAPA to help teenagers develop knowledge and understanding of nature and to create teenage role models who develop leadership skills, critical thinking and problem solving. They are educated about nature and the environmental problems on the island of Bonaire. The Junior Ranger Program is a complete package of nature education activities where teenagers come in contact with nature and learn by doing through activities that take place within nature conservation programs on Bonaire.

Any of Bonaire's youth between the ages of 13 and 21 can join the Junior Ranger Program. The Junior Rangers are involved for years and they move up in rank every year. The motivator to join the program is that they have the opportunity to become PADI certified scuba divers. In addition, there is a yearly graduation ceremony where new Junior Rangers are brought into the program and everyone else moves up in rank. All are recognized for their achievements over the past year, for the classes they have attended and the certifications they have earned.

The program consists of the following levels:

1. Aspirant
2. Cadet
3. Trooper
4. Deputy
5. Captain
6. Commander

When beginning the program, Junior Rangers learn the basics about Bonaire's nature and the environment. During this first year, they have to show their commitment to the program. After successful completion, they move into the next level and can start their open water dive course as Cadets. They then move through the five levels becoming more advanced in their diving, environmental, and leadership skills. They are becoming role models for the group.

The Junior Ranger Program runs throughout the school year. The Junior Rangers meet after school one day a week for educational activities and on Saturday mornings for environmentally focused recreational activities. During educational activities the group is divided. Since the Aspirants need to gain their general knowledge about the different topics in their first year, they meet at a separate time. Cadets through Commanders are educated together and topics are presented in a circular way throughout the years and levels. This group can join classes and programs given by local and international research and education organisations, such as Teens4Oceans and CIEE. They participate in dive classes and specialty courses as well as classes focusing on skills training.

During Saturday's outdoor activity, the group is mixed and interaction between Junior Rangers of all different levels and ages takes place. The whole group of Junior Rangers is divided into subgroups that work on different topics and activities both in the water and on land. Examples of Junior Ranger activities include beach cleanups, lora counting, coral restoration, practice dives, reforestation, painting rocks as warning signs, fish surveys, and so on. The scheduled activities are in line with the needs of the community and the island.





1.1 STINAPA and the Junior Ranger Program

The Junior Ranger Program of Bonaire was established by STINAPA and has been in existence since 2010. STINAPA (Stichting Nationale Parken Bonaire) is a non-governmental, not for profit foundation commissioned by the island government to manage the two protected areas of Bonaire: the Bonaire National Marine Park (BNMP) and the Washington Slagbaai National Park (WSNP).

As the island developed and the population increased, the conflicts between development and conservation have also increased. The worldwide effects of pollution and climate change also impact the island and its ability to maintain its conservation ideals. Education and information are important tools for the conservation of Bonaire's nature, along with management of protected areas, law enforcement and biological research. The support of the local population is important for nature and environmental policy. Support will be given when the population becomes aware of the environment. Awareness can be reached by means of education and information. Therefore, STINAPA has on staff an Education Coordinator working on the development and execution of three types of activities (*see next page*).

1.2 The Junior Ranger Program manual

The STINAPA Junior Ranger Program of Bonaire was created to motivate children to care about nature and have a positive attitude towards conservation, as well as creating a pool of local youth who might potentially become future marine or terrestrial park rangers. An after school program was developed and the first Junior Rangers entered the program in 2010. As with any new program for teens, there were ups and downs and the program remained small for several years. Over time the program has grown and has a high success rate.

The STINAPA Junior Ranger Program of Bonaire has been a success and proven itself as a way of educating island youth to become aware of the nature on their island and the need to conserve it. It has been recognized by other islands and larger groups within the Caribbean. Replication of the program has been encouraged, as well as expansion of the program on Bonaire. Before, there were program descriptions, but no manual that described what is done and how it is done. In order to expand the program on Bonaire and to replicate it on other islands in the Caribbean, the program must be standardized. For this reason, this manual has been written.

Activities of STINAPA's Education Program:

Classroom activities

Classroom activities and field activities are incorporated into the curriculum of all primary schools and are focused on students from the 1st to the 8th grade. During the first part of the school year, classroom presentations are given and field activities take place during the second part of the school year.

Field activities

All primary schools on Bonaire are invited to participate in field activities organized from January through June. During these activities, children are in contact with nature. They learn about the rules and regulations of the BNMP; types of fauna and flora; the importance of keeping beaches free of litter; the importance of coral reefs; which animals are protected by law and why; sea and shore bird species and what their migratory habits are.

After school activities

Snorkel program

Age group: 9 to 12 years. Each year approximately 100 children can join the snorkel program. The program lasts for four weeks. After theoretical lectures, children can snorkel and identify some of the marine species they learned about.

Sharks of Bonaire

Age group: 13 to 16 years. An advanced version of the snorkel program is the Sharks of Bonaire program. It provides information about coral reefs, and about the importance of conservation and sustainable development.

Junior Ranger Program

Age group: 13 to 21 years.







2

*The Junior
Ranger Program*

2.1 Mission, Vision, Objectives

This program focuses on the future. The Junior Rangers are educated about nature and the environmental problems on the island of Bonaire. Furthermore, they are educated on endangered species, protected areas and invasive species. The Junior Ranger Program is a complete package of nature education activities where teenagers come in contact with nature and learn by doing through activities that take place within nature conservation programs on Bonaire. They assist marine biologists with queen conch monitoring and tagging activities in mangrove areas. They also help clearing the channels in Lac Bay for hydrological purposes and are taught along the way the importance of fresh water in the bay. The Junior Rangers are involved in sea grass bed research and they participate in clean-ups to maintain areas free of debris. Other projects include Coral Reef Restoration, bee keeping and reforestation all over Bonaire, especially in the National Park.



The Mission, Vision and Objectives of the Junior Ranger Program of STINAPA are as follows:

Mission

To develop in the young people of Bonaire an appreciation for nature and the environment.

Vision

A program of out-of-school nature education run by STINAPA to help teenagers develop knowledge and understanding of nature and to create teenage role models who develop leadership skills combined with critical thinking and problem solving.

Long-term objective

To develop Bonaire's youth who are well educated about the nature of the island into young adults who are capable of advocating for the island's nature as STINAPA Rangers, employees of the dive industry or nature conservation organizations, government employees and/or informed and concerned citizens who have learned from the Junior Ranger Program the importance of nature conservation



Specific objectives

- To create awareness about nature and environmental issues.
- To create leadership and the ability to do live presentations about the important issues of nature protection.
- To develop an understanding of the human impacts on threatened and endemic plants, animals and their habitats, and threats to Protected Areas (PAs).
- To build a sense of responsibility for conservation and a sense of making a meaningful contribution to conservation.
- To develop an understanding of how conservation is managed, to provide exposure to the professions working in PAs and to generate an understanding of everyone's responsibility for nature.
- To develop field skills and opportunities for participation in conservation and monitoring activities.
- To develop leadership and mentoring skills so that participants can take a leading role in content creation for the program and the implementation of activities.

Design principles

- Call on peer pressure to encourage youth to spend time outdoors (the program needs to be cool and not feel academic - it is not school).
- Give a progressively older feel to the program via gradually more significant activities and more advanced skills (use technology to explore nature, link with popular culture for delivery of program).
- Build on their growing sense of social responsibility to introduce the concept of taking action and encourage a sense of stewardship for nature.
- Use their sense of adventure and interest in exploration to navigate local ecosystems (Harness kids' fascination with maps and pathways to encourage discovery and related skills development).

2.2 Program Concept

Youth involved

Any of Bonaire's youth between the ages of 13 and 21 can join the Junior Ranger Program. The youth involved have an interest in nature.

Currently the program has about 30 active members. Because the program advocates school work coming first, some members become inactive for a time as their school work dictates.



Why would teens join such a program?

The motivator is - if they stick with the program for a year, they have the opportunity to become PADI certified scuba divers and they can move up the ranks in scuba diving from obtaining their open water certification to becoming a dive master. In addition, there is a yearly graduation where they receive certificates for their achievements.

Program levels

When starting the program, Junior Rangers spend 10 months as an Aspirant learning the basics about Bonaire and the environment. During this time, they have to show their commitment to the program. By the end of those 10 months, they have been presented with an overview of all of Bonaire's nature and have developed a basic understanding of the nature both on land and underwater.

After successful completion, they move into the next level and they can start their open water dive course as Cadets. They then move through five levels (see figure 1) becoming more advanced in their diving, environmental, and leadership skills. They are becoming role models for the group.

This hierarchical approach is one of the elements of the program. It is an incentive for the Junior Rangers to continue with the program, since new opportunities and responsibilities arise when moving to a next level.

The Junior Rangers learn what is expected from them when they move up in rank. For example, when a Cadet is becoming a Trooper, they are expected to take care of the new Cadets like they were included in the group by the previous Troopers. They learn to support and motivate each other.

Junior Rangers can continue with the program until age 21, assisting STINAPA Rangers and other conservation groups on the island. The Junior Rangers are involved for years. The continuity of the program is important to ensure teenagers have a commitment to nature.



Figure 1 – The levels of the Junior Ranger Program



Year



Aspirant

Cadet

Trooper

Deputy

Captain

Commander





Graduation

Each year there is a graduation ceremony where new Junior Rangers are brought into the program and everyone else moves up in rank. All are recognized for their achievements over the past year, for the classes they have attended and the certifications they have earned.

Awards are also based on what is needed within the group and for individual participants, e.g. who needs a boost for something. Dive certificates are given at the completion of a dive course and these certifications are again recognized at the graduation ceremony.

Specialty awards can be given: bird expert, trees and planting expert, media expert, coral and fish expert, cave and bat expert, shark expert, turtle expert, etc. They can become an expert by participating in specific courses and activities if/when the opportunities arise. The ceremony provides an opportunity for other Junior Rangers to become motivated. "I want to do that as well!"



Hint!

The hierarchical approach and a yearly graduation ceremony are incentives to continue with the program.



2.3 Program Format and Structure

The Junior Ranger Program runs throughout the school year. There are no activities scheduled during school vacations. The Junior Rangers meet after school one day a week for educational activities and on Saturday mornings for environmentally focused, recreational activities. The weekly schedule of the Junior Ranger Program of Bonaire is shown in Table 1. Different topics are presented at the educational activities. The program is a combination of practical activities and learning activities. After school activities need to be fun and interactive since they already went to school the same day.

During educational activities, the group is divided. Since the Aspirants need to gain their general knowledge about the different topics in their first year, they meet at a separate time. They need to have this basic level to continue with the more advanced materials covered within the regular program. Cadets through Commanders are educated together. During Saturday's recreational activity, the group is mixed and interaction between Junior Rangers of all different levels and ages takes place. In this way the Aspirants are involved with the older Junior Rangers and they can experience what is coming in the next levels. The whole group of Junior Rangers is divided into subgroups that work on different topics and activities both in the water and on land (see chapter 3.3 for examples of activities).

Section 6.4 describes in detail how the activities are scheduled.

Table 1 – The weekly schedule of the Junior Ranger Program of Bonaire

When	What	Who
Tuesday afternoon (from 3-5PM)	Educational activity	Junior Rangers – a mixed group from Cadets to Commanders
Wednesday afternoon (from 3-5PM)	Educational activity	Aspirants
Saturday morning (from 9-12)	Environmentally focused recreational activity	Both Aspirants and Junior Rangers of all levels



Hint!

After school activities need to be fun and interactive since the teenagers already went to school the same day.



Principle!

The STINAPA Junior Ranger Program is...
 ... based on experiential, practical, fun and inspirational activities.
 ... a connection between protected areas and "local" young people.

The Junior Ranger Program...
 ... aspires to high environmental standards.





3

Program Content and Activities

3.1 Educational activities – Aspirants

When first entering the program, the Junior Ranger Aspirants receive a 10 month course. Program topics are presented in such a way that these new Junior Rangers have a thorough understanding of Bonaire’s environment prior to becoming full-fledged Junior Rangers and PADI certified scuba divers. See appendix I for an example of a detailed schedule for the Aspirants. The Junior Ranger Aspirants might be taught by the Education Coordinator or volunteers, who have a basic level of knowledge about the specific topic.

A Snorkel Certification Course geared towards teaching snorkeling skills and understanding the marine environment has been developed for the Junior Ranger Aspirants. During this course they learn, and are tested on, identification of 50 fish species (Appendix II shows the course outline). After successfully completing this course, Aspirations will be given their Snorkel Certification and REEF Level 2 Certificate.

The following are possible topics that could be presented throughout the first year:

Appendix III shows possible sources that could be used to develop the content of these lectures.

- Mother Earth – Basic geology, biology and ecology.
- What is Nature and Environment?
- History of the National Parks – General information about Bonaire’s parks and meet with the chief rangers
- Fish ID course
- Coral ID course
- Plant ID course
- Bird ID course
- Key species – Bats, sharks, migratory birds, coral reefs, sea turtles.
- Habitat and endangered species.
- Snorkeling
- Communication (verbal)



Hint!

Present the topics in such a way that the Junior Ranger Aspirants have a basic level of knowledge before they move up in rank.



3.2 Educational activities – Cadet to Commander

Educational activities for the next levels take place in mixed groups. All levels from Cadet and higher are taught together. This way interaction takes place between students of different levels. However, they are assigned to subgroups, since different educational activities are planned at the same time. The structure of these activities is circular, which means that repetition occurs. Because the topics are taught by different lecturers each time and within varied groups of Junior Rangers, the content and discussion about the same topic differs and new things can be learned every time.

The Junior Rangers are assigned to a specific lecture or activity based on what they need. This might occur when a Junior Ranger has missed a previous lecture about a certain topic or when a Junior Ranger needs more training on a specific topic.

For example, it is possible that a Captain is assigned to a lecture about a certain topic for the third time, so that he/she can develop his/her knowledge about this topic, since the content can differ or it is given by a different lecturer. They can also develop their leadership skills by interacting and helping a Cadet who takes the class for the first time.



Hint!

Present the topics in a circular way throughout the years and levels.

Education for Cadets through Commanders is given by experts in the specific field. These courses include the following topics:

- *Classes developed by CIEE (see appendix IV for descriptions of these courses)*
 - › Fish Anatomy
 - › Coral Reef Invertebrates
 - › Microscopes and Microfauna
 - › Community Ecology on Coral Reefs
 - › Invasive Species
 - › Coral Reef Conservation
- *Teens4Oceans*
 - › Teens4Oceans is optional for the Junior Rangers. They can choose to join Teens4Oceans and make a commitment with this group. The Junior Rangers of Bonaire are one of the Teens4Oceans student chapters. By means of experiential learning, scientific research and innovative technologies, the participants of the Teens4Oceans group can make an impact in their own communities and the marine environment. In 2017 the Junior Rangers worked on and installed an electrified reef (electric coral nursery) in the marine park of Bonaire. See appendix V for a description of the Teens4Oceans chapter on Bonaire and the electrified reef project the Junior Rangers are working on.
- *Dive classes and specialty courses (See section 3.2.2).*
- *Skills training (See next section).*





Figure 2 - Posters to announce the schedule of educational activities

Invertebrates
3.15 pm @ Clee with prof. Neetje, Tanisha, Brandon, Rodion, Alexis, Senna, Sharlino, Lars, Kelly, Jonathan, Rayen Pat & Bruce

Teens4Ocean
3.15 pm @ Clee patio Or Harbor Village With Chris & Suzi Julia, Aiesha, Tom, Sebastiaan, Marein, Elohim, Alyssa, Oscar Joshua, Jarno

Openwater
3.15 pm @ DCNA upstairs With Sue Elijah, Saffras and Judarli

TEENS4OCEANS

Openwater course
With Sue @ DCNA upstairs
3.15 pm for: Neetje – Tanisha Brandon – Alexes Rodion

Bee preps.
With Sabine @ DCNA upstairs
3.15 pm for: Elohim – Aiesha

LIONFISH
With Fadilah @ Clee
3.15 pm for: Jonathan – Elijah Judarly – Saffras Kelly – Marein Lars – Sharlino Tom - Rayen

Teens4Ocean
With Suzi /Chris @ DCNA downst.
3.15 pm for: Alyssa – Oscar Sebastiaan Julia – Jarno Joshua - Ryan

Life is a moving, breathing thing. We have to be willing to constantly evolve. Perfection is constant transformation.

JUNIOR RANGER
N.M.E
STINAPA BONAIRE

Cressi
Basic tech course
By Theo Knevel
With volunteers Marcel & Diana @ VIP 3.15 to 5 pm Who? Sharlino, Lars, Marein, Sebastiaan Senna

PEAK PERFORMANCE BUOYANCY
Specialty Course
PADI
With leader instructor Kevin; Tanisha, Neetje, Brandon, Rodion, Alexis, Jonathan

Public Speaking
By Jane Disko
With volunteers Suzi / Chris/Pat @ DCNA 3.15 to 5 pm Who? Rayen – Joshua – Aiesha – Julia – Jarno – Tom Elohim – Oscar – Alyssa – Kelly

Without oceans life on earth can not exist

Microscopes
With Fadilah
3.15 pm @ Clee Neetje, Alexis, Rodion, Brandon, Tanisha, Elijah, Judarly, Saffras Kelly, Senna

Underwater Navigator
With Kevin
3 pm @ DCNA Alyssa, Marien, Sharlino Lars and Elohim

Exam OW
With Sue
3 pm @ VIP Jonathan - Niyandrew

Teens4Ocean
With Chris and Suzi
3.15 pm @ DCNA Oscar, Sebastiaan, Julia, Joshua, Ryan, Tom, Jarno, Aiesha



3.2.1 Skills Training

As the older Junior Rangers move through the program, the need to assist them in the development of public speaking and advocate skills has become apparent. Periodically, a training that focuses on this topic is scheduled. In addition, they are developing these skills during discussions and activities.

Currently, the Junior Rangers are trained in the following skills throughout the year:

- *Leadership skills*
 - › The program helps teens to develop their communication and planning skills; their sense of responsibility and the skills needed to work in a team. This is consistently encouraged through announcements, briefings, participating in activities, working in different/mixed groups and by lectures focused on specific skills. These lectures are dependent on the needs of the group. When patterns and group dynamics are observed that indicate improvement is needed in this area, a lecture/activity will be organized and scheduled.

- *Public speaking*
 - › During this training, Junior Rangers experience how it feels to give presentations for a group of people; learn how they can be in control of these feelings and what is important when giving a good presentation. These trainings include topics such as posture, articulation and public speaking.

- *Computer skills*
 - › Computer skills is a follow up to “public speaking”. Junior Rangers learn how to prepare a good PowerPoint presentation and they are provided with more tips for developing and giving presentations.

- *Debating skills*
 - › During this training Junior Rangers learn how to prepare for a debate and how to debate. During each year, a debate is organized in which the Junior Rangers discuss a topic related to nature and the environment. (See figure 3). The Junior Rangers receive feedback from a jury consisting of professionals knowledgeable in the specific topic. Since they have to do research on the topic to prepare for the debate, they develop both their communication skills and their knowledge.



Hint!

Provide leadership opportunities for youth by increasing their responsibilities.

Organize the available expertise to provide lectures and training regarding specific skills.



Figure 3 - Poster to announce the yearly debate





3.2.2 Dive Training

As noted previously, the Junior Rangers learn to dive after they have successfully completed their first year. In their first year as Aspirants, they gain a basic understanding about the marine environment before they learn how to dive. There are different phases in their dive-training schedule, as shown in Figure 4. Appendix VI shows ‘the Junior Ranger Open Water dive class procedures’ that the Junior Rangers receive before starting the course.

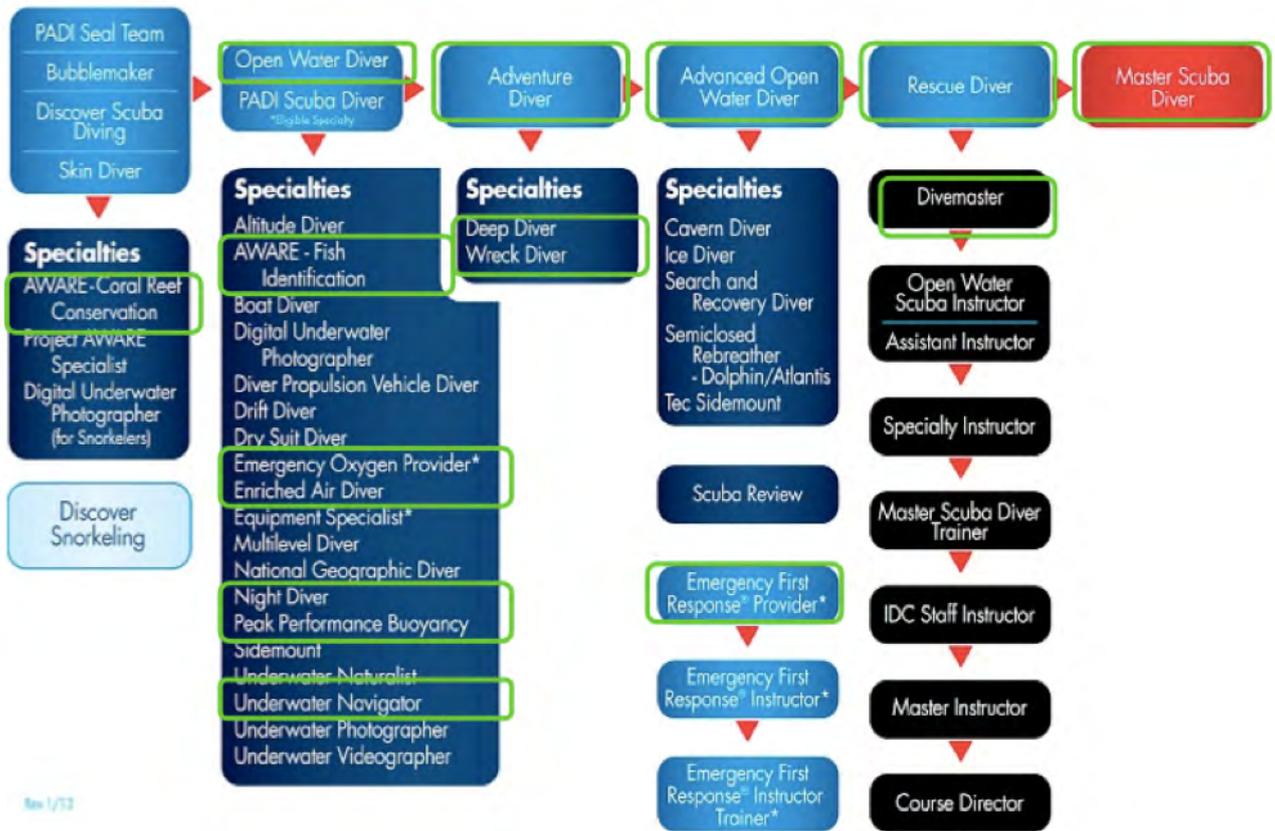
All Junior Rangers start with a PADI Open Water Dive course, followed by several specialty courses to become a PADI Adventure Diver and then a PADI Advanced Open Water Diver. They can choose to continue and become a Rescue Diver. For Junior Rangers who remain in the program after age 18, they can also do Dive Master training. To become a Dive Master, they need to have 50 logged dives and have finished five specialty courses.

Figure 5 shows which specialty courses of the PADI Dive education structure are included in the Junior Ranger dive training program.

Figure 4 - Phases dive training Junior Rangers

Phase 1 - PADI OPEN WATER DIVER	
Phase 2 - PADI ADVENTURE DIVER	<ul style="list-style-type: none"> • Specialty - Coral Reef Conservation • Specialty - Peak Performance Buoyancy • Specialty - Fish Identification • Specialty - Underwater Navigator • Specialty - Night Diver
Phase 3 - PADI ADVANCED OPEN WATER DIVER	<ul style="list-style-type: none"> • Specialty - Nitrox Diver • Specialty - Deep Diver (Age Restricted) • Specialty - Wreck Diver (Age Restricted) • Distinctive Specialty - Lionfish Hunter (Age Restricted)
Phase 4 - PADE RESCUE DIVER	<ul style="list-style-type: none"> • Specialty - Emergency Oxygen Provider • Emergency First Reponse
Phase 5 - PADI MASTER SCUBA DIVER	

Figure 5 - PADI Dive education courses included in the Junior Ranger dive training program



The goal is to keep every Junior Ranger involved with a formal dive training course at least two or three times per year. A spreadsheet with all the courses is used to schedule the Junior Rangers in the diving courses.

In general, the Advanced Open Water level can be achieved in 2,5 years. This depends upon their participation in specific courses and when those courses can be scheduled. There are some age restrictions that must be considered. For example, you have to be 15 years old for the deep and wreck specialties, and 16 years old for the lionfish hunter specialty.

Practice dives are scheduled on Saturdays so that the Junior Rangers increase their dive skills as well as gain confidence and increased comfort. Fish and coral identification can also be practiced during these dives.



3.3 Environmentally focused recreational activities

As explained, once a week the whole group of Junior Rangers participates in outdoor, environmentally focused, recreational activities. Different activities take place. Some Junior Rangers dive as part of their specialty dive courses and others participate in the various nature activities that occur on the island (See posters).

Nature activities depend upon what is scheduled on the island, in line with the needs of the community and what the community organizes. Examples of nature activities include beach cleanups, Lora (local endangered parrots) counting, coral restoration, painting rocks as warning signs and assisting other educational groups. On some Saturdays only one activity is planned for the whole group. This is important to foster unity.

Before an activity starts, a briefing is given that includes what the activity entails and why the activity is important. For example, before a beach cleanup starts, the Junior Rangers are told why waste has high negative consequences and they are motivated to take action for a cleaner environment.



Hint!

Be aware of and participate in programs and activities occurring on the island.



STINAPA
NATIONAL PARKS FOUNDATION

GOASTAL CLEANUP

HOBEN NOS TA KONTA KUBO!

Date: 04 March, Saturday
Bring hat, booties and water bottle

Place: LAGOEN
"Adopted Beach"

Time: 8.30 @ Wilhelmina Park
Catch the BUS!

SAVE OUR PLANET

Yuda protehá nos naturalesa i medio ambiente

ciec
research station
bonaire

SELIBON
San Kuido Bonairu

SAVE OUR SHARKS

TEENS 4 OCEANS

Figure 6 - Posters to announce the schedule of outdoor activities (continues on next page)





Eradicate Lionfish Tool
Lecture & Dive with
Tal Bixby (inventor ELF)
8.30 am VIP – WHO?
Joshua (no dive)
Aiesha (LF) – Julia (LF) – Jarno (LF)
– Tom (LF) – Ryan (LF no dive)
Spotters:
Sharlino – Lars
Marcel

Prices day for Fish id snorkel
With Tracy / Pat / Bruce
@ Te Amo Beach
10 am to 12 noon – WHO?
Rosa – Marv – Guillaume
Dani – Daan - Rianna

Practice Dive & find seahorse
With Suzi / Scott / Aja
@ Cha cha cha
10 to 12 noon – WHO?
Bonnie – Kelly
Abby – Alyssa
Senna – Neetje
Jonathan - Tanisha

Teens4ocean
Dive with Chris
9.30 am @ Harbor
Village
WHO?
Sebastiaan – Oscar
Marein – Elohim
Ivan

Openwater course
Dive 4 with Sue/ Diana
Rayen
8.45 am @ VIP
WHO?
Eiljah – Saffras - Judarli



PADI OPEN WATER DIVER
www.padi.com
Openwater Diver
With Sue @ VIP 8.45
Eiljah, Saffras, Judarli
With Ryan & Rayen

JUNIOR RANGER STINAPA BONAIRE

i'm a NITROX diver
With Kevin @ VIP 8.45
Senna, Sebastiaan,
Alyssa

Practice Dive @ Sunset Beach
With Suzi and Tracy/ Wijnand
Suzi: Tracy
Neetje & Tanisha Abby - Bonnie
Rodion & Brandon Jonathan - Elohim

SNORKEL @ LAC
With Pat & Bruce
9 am @ Wilhelmina Park
Marein, Oscar, Sharlino
Lars, Joshua, Niyandrew
Giulluame, Rianna, Daan
Dani, Marv

CORAL RESTORATION FOUNDATION BONAIRE
@Buddy Dive 9 am
Julia, Aiesha,
Tom, Jarno

NUMBER: _____
TELEFON: _____

LEVEL-UP
Yena bo number / telefon i entrega esaki
prame ku 5 di februari 2017. STINAPA BONAIRE 8444



Quarterly Dive Clean up
Meet 9 am at Yellow Submarine

Team A Chris / Ryan
Elohim – Kelly
Alyssa – Wijnand

Team B Suzi / Niyandrew
Senna -Oscar
Sharlino - Lars

Team C
Scott – Joshua
Tom – Aiesha

Team D
Martin - Jarno
Sebastiaan-
Marcel

Bring TAG + cards + logbook

Openwater course
With Sue / Rayen
@ VIP 8.45 am
Judarli – Elijha and Saffras

Coral Conservation PADI course
With Kevin
@ VIP 8.45 am
Tanisha, Neetje, Brandon, Rodion,
Jonathan, Alexis

Edu-park maintenance
With Tracy, Bruce, Pat, Sabine
9 to 11.30 am

Fee - Marv – Daan – Dani - Bonnie –
Rianna - Marein
AND anyone who can NOT dive but can
Help teamwork or coordinate

JUNIOR RANGER STINAPA BONAIRE

debris free Bonaire





3.4 Opportunities and personal interest

The Junior Rangers develop skills, knowledge and understanding from the initial program and by practicing. They are also directed according to the interests they show in their courses and the role they want to have in the group. These new skills can be used in meaningful and real situations as they act as leaders and as nature ambassadors.

Courses and opportunities are offered to all Junior Rangers. When they ask to join a specific program, it is ensured they become part of that group. At the same time, Junior Rangers are not pushed to do something they do not want to do. Not all Junior Rangers want to be a Dive Master or a lionfish hunter and they do not have to be. This way they can develop expertise in topics according to their own interests.

Other skills can be learned during the activities, e.g. video or photography skills. This is dependent on the opportunities that come up to practice new skills. This is also dependent on the skills of volunteers, e.g. a volunteer advanced in photography can help the Junior Rangers to practice those skills.

The development of the teen is central to the Junior Ranger Program and is dependent on what they need. During the yearly graduation ceremony, they can achieve specialty awards: bird expert, trees and planting expert, media expert, coral and fish expert, cave and bat expert, shark expert, turtle expert, etc.



Hint!

Allow the Junior Rangers to develop knowledge and skills according to their personal interests.

Offer new experiences and opportunities for skills enhancement.



4

Norms and Discipline

4.1 Attendance

Track who is attending what educational and recreational activities and note the personal development of each individual Junior Ranger. This provides an overview of the needs of individuals and the group. In some cases, the group can be split up into those who need a bit more practice on a certain topic. This keeps other Junior Rangers from being bored. Teens can be awarded as “Rookie of the year” for most attendance while an Aspirant.



Hint!

Track the attendance and development of the Junior Rangers.

The Education Coordinator assigns Junior Rangers to specific lessons and topics. There are eight organized activities a month and they have to attend four activities to continue in the program. Of course there are exceptions to this four times a month attendance obligation.

- School comes first is an important principle of the program.
- Personal circumstances.
- At 21 years of age, Commanders are encouraged to do volunteer work with the program. Junior Rangers younger than 21 years who have passed all program levels and are certified Commanders can still join the activities of the program on a voluntary basis. The four times attendance obligation does not apply for them.
- Junior Rangers who are going abroad for a certain period of time (e.g. to study) are always welcome to join the program again or assist during activities when they return to the island.

Aspirants who did not succeed their first year, but who are motivated to try it again, are given the opportunity to start their Aspirant year for a second time. It could be that this teen was not ready for the program when he or she started for the first time. Rejoining the program will be discussed with their parents.



Principle!

School comes first!



The program helps teens to develop their communication and planning skills. For example, they must be timely in notifying the group when they cannot attend an activity and the reason why. They must also learn to contact the group in time when they need transportation to get to a planned activity.

It is important to motivate and communicate with the parents of the Junior Rangers, since parents and teens must manage time for the program together. They need to understand the importance of the program and its activities in order to motivate their children to participate. Most parents are interested in the program since their teens are participating. Some parents join activities at times and some others are volunteering. Section 6.5 describes how communication with parents is taking place.



Hint!

Motivate parents about the importance of their teens attending the activities of the Junior Ranger Program.

4.2 *Basic norms*

The Junior Rangers have to adhere to basic manners and norms. As stated in the previous section, they must announce when they cannot attend activities. They learn to be grateful for the courses, dive gear and other learning opportunities that are part of the program.

The Junior Rangers learn to have respect for nature, the volunteers and for each other. They learn to listen to and respect the ideas and opinions of their fellow Junior Rangers. They also learn teamwork and to help each other, not only when diving together, but also when group efforts make a difference, for example during a coastal cleanup. Appendix VII shows the protocol for unacceptable behaviour.

The Junior Rangers are nature ambassadors and role models for the island. Therefore, they need to behave appropriately. It is important to remind them about the role they have as a Junior Ranger. "Remember! You are a Commander." "You are a Nature Ambassador for the island of Bonaire." "You are a role model for Aspirant Junior Rangers".





5

Outreach
and Interaction



5.1 Junior Rangers Explore

The Junior Ranger Program of Bonaire is producing radio spots and video clips to broadcast on the local television and radio stations called Junior Rangers Explore. These informational television and radio spots are produced in order to spread the good work of the Junior Rangers, in particular their behavior and growing knowledge about our natural environment. These spots will reach the general Bonaire population and aim to positively influence audience behavior.

Each episode will feature two Junior Rangers who explore a certain topic. Topics discussed are climate change, coral reefs, coral bleaching, no fishing zones, sustainable living, reforestation, invasive species, sharks, parrotfish, migratory birds, bats, and lobsters. Additionally, the video clips will feature an “expert”, a fisherman, a teacher, a marine biologist, a business owner, etc., who will provide the information the Junior Rangers are seeking. Through their exploration, they will discover and learn many things about nature and the environment on Bonaire and the public will discover these things with them.

About 4 episodes are produced each year. The episodes are short: the video clips are about 5–10 minutes each and the radio spots about 1,5 minute each. The radio spots are produced in both English and Papiamentu, and broadcast on different radio stations five times a day. The radio spots rotate and are timed so that certain topics are broadcast depending on the season and what is occurring on the island. For example, the radio spot about lobsters is broadcast during the lobster season that starts in November.

The episodes are produced by STINAPA, but the Junior Rangers are fully involved in deciding the various topics which makes the process an intense learning experience for them. The dialogue is written as a dialogue or as “Did you know...?” Each episode will include an “action” element, where the Junior Rangers point out what we as viewers can do to improve our environment (such as waste separation, recycling and so on). It is also explained why conservation of certain species is important and why it is important to behave in a certain way. The Junior Rangers Explore radio and video spots send out a message to care about the environment and about the importance of conservation.

Throughout the making of these programs, the Junior Rangers are trained in leadership and presentation skills. A new generation of individuals with these skills and experiences now have the tools to responsibly manage our environment in the future.

- **STINAPA Junior Rangers Explore: Coral reefs** (<https://vimeo.com/137720394>)
- **STINAPA Junior Rangers Explore: Sea turtles** (<https://vimeo.com/137683616>)
- **STINAPA Junior Rangers Explore: Bats** (<https://vimeo.com/137683613>)
- **STINAPA Junior Rangers Explore: Migratory birds** (<https://vimeo.com/137683615>)
- **STINAPA Junior Rangers Explore: Sharks & Ecocide** (<https://vimeo.com/226472202>)



Hint!

Engage kids with the community through presentations to the community and visitors.



5.2 Exchange and Interaction

Groups of teenagers (e.g. high school students, undergraduates) visit the island on a yearly basis and general or group meetings with the Junior Rangers are often organized. A presentation about the program is given by the Education Coordinator together with the Junior Rangers. The Junior Rangers are often providing presentations about specific topics.

There are opportunities to meet other youth working on projects related to the environment and marine ecosystems by participating in summer programs and internships at CIEE. Every year about four scholarships were offered to the Junior Rangers and sponsored by CIEE.

This interaction with other organizations and teenagers from different places is important for several reasons: to involve others and to share knowledge and information; to show the key aspects of the Junior Ranger Program of Bonaire; to show the importance of environmental education and of having nature ambassadors. The Junior Rangers convey a message to the visitors regarding the importance of the marine park.

When the Junior Ranger Program is implemented on other islands in the Caribbean, the ultimate goal is to organize exchange programs. Junior Rangers are nature ambassadors and should reach out to each other. In this way Junior Rangers can inspire each other, learn from each other, and gain knowledge and experience in other nature areas besides Bonaire. It allows the teenagers to develop their social, communication and leadership skills.



Hint!

Engage kids with other teenagers.





Principle!

The Junior Ranger Program aims to promote international exchange, to develop positive, cooperative and social skills, and to encourage the active citizenship of young people.





6
*Program
Management*

6.1 Application procedure

The program begins once a year at the start of the school year. Usually in June, when the school year ends, the graduation ceremony of the Junior Rangers takes place and the new Aspirants are brought into the program. Most teens are recruited and join the program between the ages of 12 and 13. They are recruited or request membership during the year and their names are placed on the “Aspirant List”. They are invited to attend the ceremony to be welcomed as new Aspirants.

Junior Rangers do not have to pay any fees when they join the program. This way, costs cannot be a disincentive to participate and the program is accessible for all children.

When the program started in 2010, students were recruited via Jong Bonaire because the Junior Ranger Program is an after school program. But as the program developed over the years, students also began applying via word of mouth. Jong Bonaire is still being informed when new participants can apply, but, in addition, parents and other teens themselves are asking to participate.



Hint!

Access the teens in the way that is a good access point for your specific situation - schools, after school care organizations, and so on.

Provide access to the program independent of socio-economic status and in a non-discriminatory way.

Only 15 students a year can join the Junior Ranger Program of Bonaire as new Aspirants. They do not have to possess certain abilities or a certain level of knowledge. The first 10 teens applying can join the program and then the program is full. We have found that if the group size of new participants is bigger than 10, it is at the expense of program quality. Attention to the learning process of each individual participant is reduced and it is more difficult for the group to bond. Also it is less feasible for logistical reasons, e.g. transport. It is a high priority to balance the group size with the capacities of the program.

When applying for the program they have to sign the liability form (See appendix VIII).



Hint!

Balance the group size with the capacities available.

Grow casually. Make sure the program is stable before further expanding the program.

6.2 Organizational Roles and Capacities

The Junior Ranger Program is organized and coordinated by the STINAPA Education Coordinator along with the assistance of volunteers, multiple dive shops and local nature conservation programs.

The STINAPA Communications Coordinator and the Education and Communications Assistant work with the program in administration, organization of events (e.g. the graduation ceremony), and in communication by transferring information about the Junior Ranger Program to STINAPA and in public relations.



Hint!

When starting the program, decide on the distribution of tasks among staff members.

Volunteers and the support of various nature conservation organizations and dive shops is key to the program's success. Therefore, it is important to build on and maintain a close connection with organizations and volunteers by outreach and networking where and whenever possible. Personal interaction and an active approach is the key. Be aware of the opportunities for collaboration or even a single lecture. Ask them for the possibilities!



Hint!

Outreach and network with local organizations and potential volunteers where and whenever possible.



Local organizations

The Junior Ranger Program has a direct link with several organizations on Bonaire where the Junior Rangers receive courses, workshops and lectures presented by the experts working within the different organizations. See Appendix IX for a list of local organizations involved in the program. When implementing the Junior Ranger Program, it is highly recommended to collaborate with organizations located on the island.

- *Nature organizations*

- › The Junior Rangers of Bonaire are involved with the conservation efforts of every nature organization on the island. As a result they have a good overview of Bonaire's nature and the work of these nature organizations. At the same time, the Junior Rangers are carrying out environmentally focused activities and conservation practices. They are giving something back to the island and nature conservation while helping the local organizations.

- *Dive shops*

- › Volunteers and stakeholders on Bonaire sponsor the PADI certification program for the Junior Rangers. In addition, several dive shops sponsor diving practice by donating air, dive and snorkeling gear.



Hint!

Work together with local partners and use the strengths of these other organizations.

Volunteers

As the program has expanded, the need for volunteers has also expanded. Coordination of these volunteers is needed so that the program can expand and thrive by adding new learning opportunities for the Junior Rangers as they occur. The volunteers of the Junior Ranger Program on Bonaire are working on and fulfilling the following tasks:

- › Logistics, administration, graphics and writing
- › Film and photography / developing documentaries
- › Supervision during in-class activities of the Junior Rangers Aspirants
- › Supervision during in-class activities of the Junior Rangers Cadets to Commander
- › Supervision during outdoor recreational activities
- › Providing dive training
- › Providing dive practice
- › Teens4Oceans
- › Lecturers and guest lecturers



One volunteer per eight students could be used as a standard. However, in practice this number also depends on the availability of volunteers. Volunteers are assigned to a certain activity based on their availability; where supervision is needed; the interests of volunteers; and the contacts volunteers have. The collaboration between the Education Coordinator and volunteers is constantly evolving based on experience and program needs. Section 6.5 describes how communication with the volunteers takes place.

Volunteers help with the program based on their own motivation, which might differ among the volunteers. Some volunteers are parents of Junior Rangers and others desire to work with children. Being a volunteer for the program is a good opportunity to learn more about nature and to work towards a sustainable future together with the teens. Volunteers might get the opportunity to participate in courses and advance their diving skills and certification. However, this is not advertised when looking for volunteers, since you do not want volunteers to take advantage. Their main motivation needs to be to help with the program and to work with the Junior Rangers.



Hint!

Learn how to coordinate and communicate with volunteers.

Appreciate and recognize volunteers regularly for the work they do.

It is important that volunteers be dedicated to the program. They need to make valid time commitments to the program as activities need to be organized. Also, volunteers need to have a set of skills that are appropriate for working with teens. They need to have a feeling for teens and for the group as a whole.

Safety is of high priority. Make sure that volunteers are safe drivers when assigning them to transport duties. It is a plus when volunteers have a first aid certificate or training. They need to act as role models for the group.

Showing appreciation is important to keep volunteers motivated. This can be done by mentioning them in Facebook posts or public relations messages or by organizing activities for them such as a barbeque. Volunteers are also recognized during the graduation ceremony with an award.



Hint!

Ensure positive learning experiences for the kids by building positive relationships with volunteers and experts as role models.

Give volunteers permission to correct and instruct teens on their behavior.



6.3 Organization and implementation procedures

The Education Coordinator regularly schedules educational and recreational activities in up to five sites at a time during the Saturday's environmentally focused recreational activities. Coordination, supervision and logistics are part of each activity.

Coordination

The Education Coordinator is responsible for the coordination of activities, including planning, organizing, staffing and directing. The main tasks are:

- Planning the activities for specific locations and times (See Section 6.4).
- Assigning the Junior Rangers and volunteers to the different activities.
- Communicating these plans to both the Junior Rangers and volunteers.
- Coordination and supervision during the activities.

Supervision

During activities, supervision is done by the Education Coordinator and the volunteers who are present. They are responsible for the group and coordinating whatever is happening. The tasks of supervision include overseeing the activity, giving instructions, guiding Junior Rangers when needed and helping them to develop their skills and understanding.

Logistics

The Junior Ranger Program of Bonaire relies on parents for transport, to bring and pick up their teens when activities are planned. The Junior Rangers have to communicate when they need a ride to go to an activity. They can come together with other Junior Rangers or the Education Coordinator gives them a ride. After an activity, the Education Coordinator and volunteers make sure that all Junior Rangers have a ride home. During Saturday activities, a bus might be hired to take a big group to the location of the activity. In this case, the Junior Rangers and volunteers are meeting at a central meeting point.

The location for activities needs to be arranged. For educational activities, a big room in which lecturers can be given is needed. If possible, the location for educational activities should be central because of transportation.

6.4 Scheduling the activities

The planning of activities of the Junior Ranger Program of Bonaire is done by the Education Coordinator and is divided in four stages:

Per year

A list with educational and recreational topics is made for the upcoming year.

Per four months

How these topics are scheduled depends on the availability of volunteers and instructors. For example, it could be that some people providing courses or lectures/ readings are only on the island once a year for only two weeks. An overview of available volunteers and related topics is made every four months. However, this schedule is flexible and can be changed.

Per month

A more precise schedule is made every month, including the lectures and activities that are taking place.

Per week

The final schedule is made per week. This schedule includes the activity, the location, time, attending volunteers and which Junior Rangers are assigned to which activity.

Flexibility is an important principle of the program, since things can change daily. There is a schedule that includes the activities that are taking place and which courses/topics are given when, but when circumstances change or when new opportunities arise this needs to be adapted.



Hint!

Be flexible and add activities as new things occur on the island.

Take school schedules and vacations into account when scheduling the educational after-school activities of the Junior Ranger Program.

Schedule activities which need a longer block of time on the weekend.

In some cases, the schedule is made together with volunteers. Two examples:

- *The dive instructors providing the dive courses create the dive schedule, which they then coordinate with the Education Coordinator, who knows what is going on and what the teens need.*
- CIEE develops the topics and class descriptions for classes they can provide. CIEE and the Education Coordinator plan together when CIEE can give a lecture and when it is possible for the Junior Rangers attend.



6.5 Communication

- *with local organizations*

- › Personal interaction is the most important and successful way to communicate with local organizations. Visiting the organizations helps to build a relationship and to maintain a close connection.
- › As the local organizations are volunteering for the program, the ways of communicating with volunteers also apply to them.

- *with volunteers*

Communication with volunteers takes place in as many different ways as possible:

- › A WhatsApp group for the program's leaders allows announcements to be made and questions can be raised. All volunteers are added to the general Facebook page and the WhatsApp group.
- › The Education Coordinator plans individual meetings with volunteers to discuss the program more in-depth. Also, the volunteer can suggest a meeting with the Education Coordinator when needed. Group meetings with all volunteers can be planned periodically.
- › There is also contact with the volunteers before, during and after the activities.

- *with parents*

- › A yearly meeting is organized with parents. Different topics are discussed during this meeting. Parents are informed about the program and diving, and questions can be raised.
- › Parents are added to the Junior Ranger WhatsApp group and Facebook page. This way they have access to information and schedules. They can also contact the Education Coordinator via WhatsApp or phone.
- › There is also personal contact with parents as they bring to or pick up teens from activities.
- › Parents less actively involved are contacted in person in certain situations. For example, when their child is not attending activities or always coming late. It is important to contact the parents, to visit them and to talk with them individually.



- *with the Junior Rangers*

As shown in section 3 and 6.4, several activities are scheduled during the week. Obviously, it is crucial to communicate the schedule to the Junior Rangers.

- › As shown in chapter 3, posters are designed for the days in which activities are planned. These posters are posted on the Facebook page and in the WhatsApp group. It is also important to make sure that everyone receives the information, since some people are not on Facebook or using WhatsApp, for example by contacting parents.
- › The WhatsApp group is used to inform the Junior Rangers about the schedule and for the Education Coordinator and volunteers post other notifications. Also, the Junior Rangers can raise questions on WhatsApp group and can inform the group when they cannot attend an activity.
- › The Facebook page is also used to inform the Junior Rangers about the schedule and to post other notifications and announcements. In addition, informative videos regarding the environment and pictures of the activities are shared. When the pictures of the activities are shared, the Junior Rangers are supported and praised for their commitment and contribution.
- › During and after the activities, there is time for (personal) conversations with the Junior Rangers.



Hint!

Make use of social media. Make sure everyone receives shared information. Present the schedule in an attractive manner, e.g. posters with pictures.

Language

It is important to consider language when communicating with the Junior Rangers, both during the activities and via social media. The common language chosen for the Junior Ranger Program of Bonaire is English. During the first year, PowerPoint presentations might be in Papiamentu, but the spoken language is English. After the first year, both the PowerPoint presentations and the spoken language are in English. English has been chosen for several reasons. Some Junior Rangers are most comfortable in speaking Papiamentu, some in Dutch and others in English. However, English is a common language for everyone to understand. Furthermore, it is important to develop English language skills for the future when they may wish to continue their studies in relation to the environment, nature conservation, marine biology, etc. Another reason is that most volunteers are native English speakers and educational presentations are given in English.



Hint!

Consider the language of communication.



6.6 Equipment and Logistical needs

Equipment needs

- Dive courses
- Dive equipment
- Snorkel equipment
- Research equipment (e.g. microscopes, binoculars)
- Lecture equipment (e.g. beamer, computer)
- Extra: Virtual Reality Kit

Logistical needs

- Transportation
- Lecture room
- Storage
- Uniform (e.g. t-shirts)
- Drinks and snacks
- Certificates
- Small rewards / prizes





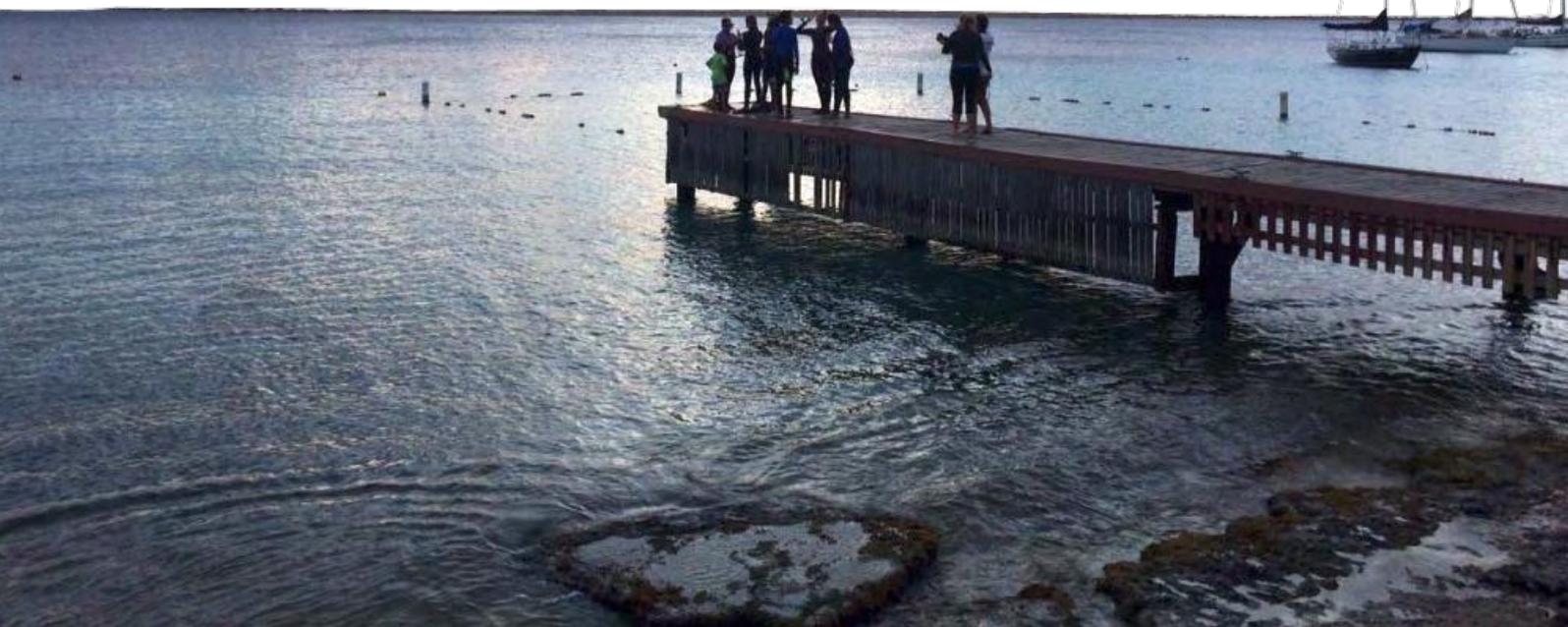


Program
Evaluation

To measure the performance of the Junior Ranger Program, key performance indicators are proposed. It is difficult to measure the long-term effects of the program as a change of attitudes and behavior. Therefore, the proposed indicators are related to management success and some qualitative feedback from the participants. It is recommended to reflect on the key performance indicators in the annual report of the NME department of STINAPA.

Key performance indicators:

- Attendance rate for lectures and activities.
- Number of participants in the different levels of the Junior Ranger Program.
- Dropout rate of Junior Rangers after the first year.
- The diversity of activities where the Junior Rangers are engaged in.
- Number of staff and volunteers contributing to the Junior Ranger Program.
- Number of hours worked on the Junior Ranger Program by staff and by volunteers.
- Funds directly spent on the Junior Ranger Program.
- Success stories and qualitative feedback from the Junior Rangers.



References

- *DCNA (2012). Wild4Life Detailed Programme Overview.*
 - › The Wild4Life Detailed Programme Overview (DCNA, 2012) describes several environmental education programs on four islands in the Caribbean (Bonaire, Saba, St Eustatius and St. Maarten). Some aspects of the Wild4Life document are used for this manual, as it also provides an overview of the Junior Ranger Program. However, this manual focuses and describes the Junior Ranger Program more in-depth and in detail.
- *T4O (2017). Teens4Oceans Bonaire*
 - › Available at <https://teens4oceans.org/bonaire/>





Appendix I – Schedule Junior Rangers Aspirants

<i>Date:</i>	<i>Time:</i>	<i>Place:</i>	<i>Contact person</i>	<i>Activity</i>	<i>Present:</i>
23 Aug	Intro 1 JR	DCNA	Desiree	Presentation/lecture	
30 Aug	Intro 2 JR	DCNA	Desiree	“	
09 sept	Skill snorkel	Yellow sub	Tracy		
13 Sept	Top 10 fish	DCNA	Desiree /Tracy		
16 Sept	1 st snorkel	Cha cha cha	Desiree	Presentation + quiz	
	2 nd snorkel	Te amo beach			
14 Sept	Coral Reef 2	DCNA	Desiree	Presentation + film	
17 Sept	Coastal clean up	Playa grandi Morotin	Desiree/Charlotte	Field trip	
21 Sept	FISH ID 1 st	DCNA	Kim / Tracey		
24 Sept	3 rd snorkel session	Sunset beach	Kim /Tracey		
28 Sept	FISH ID 2 nd	DCNA	Kim / Tracey		
01 Oct	4 rd snorkel session	Lac Cai	Kim / Tracey		
05 Oct	Fish ID 3 rd	DCNA	Kim / Tracey		
08 Oct	5 th snorkel session	Salt Peer	Kim / Tracey		
19 Oct	Wetlands 1 – re	DCNA	Desiree/ Tracey		
22 Oct	Kayak – re	Mangrove Center	Tracey / Luigi		
26 Oct	Wetlands 2 – re	DCNA	Desiree / Tracey	Lecture – field trip	
29 Oct	Night snorkel	Yellow sub	Desiree / Tracey	Suzi	
02 Nov	Fish ID reef.org	DCNA	Pat / Kim / Suzi		
05 Nov	Coastal Clean up				
09 Nov	Migratory birds – re Fish id reef.org +pres.	DCNA	Desiree / Caren		
12 Nov	Tree Planting fase 1 fieldwork		Desiree		
16 Nov	Trees & Plants presen- tation		Desiree		
19 Nov	DEBATE	Habitat Aquarius meeting room			
23 Nov	Bees presentation				
26 Nov	Bee Oasis field work		Sabine/ Johan		
30 Nov	Bats presentation	DCNA	Desiree		
03 Dec	Caves field activity				
07 Dec	Deforestation	DCNA	Desiree/ Lauren		
10 Dec	Fish id top 10	Survey in water			
14 Dec	Fish id top 10	Insert survey DCNA	Desiree / Lauren		
17 Dec	Reforestation field	Washington park	Echo		
19 to 22 Dec	Slagbaai JR Camp				
11 Jan '17	Plate tectonics + meeting				
14 Jan '17	Fraters park clean up				
18 Jan '17	Rocks				



	7 th snorkel session				
15 Feb '17	Fish id class				
18 Feb '17	8 th snorkel session				
22 Feb '17	Fish id exam				
01 Mar '17	Biodiversity				
08 Mar '17	Overfishing				
	Invasive species				
15 Mar '17	Wetlands 1				
	Kayak				
05 Apr '17	Wetlands 2				
12 Apr '17	Echo Foundation				
26 Apr '17	Fish ID last				
10 May '17	Conch presentation		Diana		
17 May '17	Global Warming				
24 May '17	Coral ID				
31 May '17	Coral ID				
07 Jun '17	Sharks				
14 Jun '17					
20 Jun Tuesday	Merging GM				
23 June '17	Graduation Ceremony				



Appendix II – Course outline Snorkel Certification Course

The Snorkel Certification Course is designed to be presented in two blocks:

BLOCK 1

Day 1 – Wednesday

- Gear Day and gear orientation
 - Introduction to snorkel equipment
 - Rules and Safety – skills learned also apply to diving
 - Mask – must fit with no leaks, why a mask and not goggles?
 - Fins – open foot and open heel
 - Snorkel – mouthpiece and valve, place on left side of mask
 - Exposure suits – why do we wear them? Skins, long and shorty wetsuits
 - Snorkeling is fun and you learn all about the animals around you and their environment
 - Selecting all needed gear and checking for proper fit
-

Day 2 – Saturday

- Discussion of current, wind and waves
 - Looking out for underwater hazards – scorpionfish, jellyfish, pika, fire coral and all coral, sea urchins and lion fish
 - Snorkel signs
 - Entry methods – walk in, step in when on a boat, jumping in
 - Clearing the mask – popping method and expansion
 - Proper kicking technique
 - Putting on equipment correctly and checking for fit
 - Snorkel Practice in groups – three volunteers needed to evaluate each person's skills, give individual attention as needed for equipment adjustment and swimming/snorkel skills, and allow those with good equipment fit to snorkel and enjoy
-

Day 3 – Wednesday

- Introduction to Reef, expectations for Level 2 Fish ID and use of slates
 - Introduction to Fish ID and the top 10 fish
-

Day 4 – Saturday

- Skill Practice and fish ID
- Those with good snorkel skills will snorkel with their buddies doing fish ID with a volunteer
- Those needing additional help will continue to work on skills individually with two volunteers



Day 5 – Wednesday

- Coral Reef Educational Presentation Part 1
-

Day 6 – Saturday

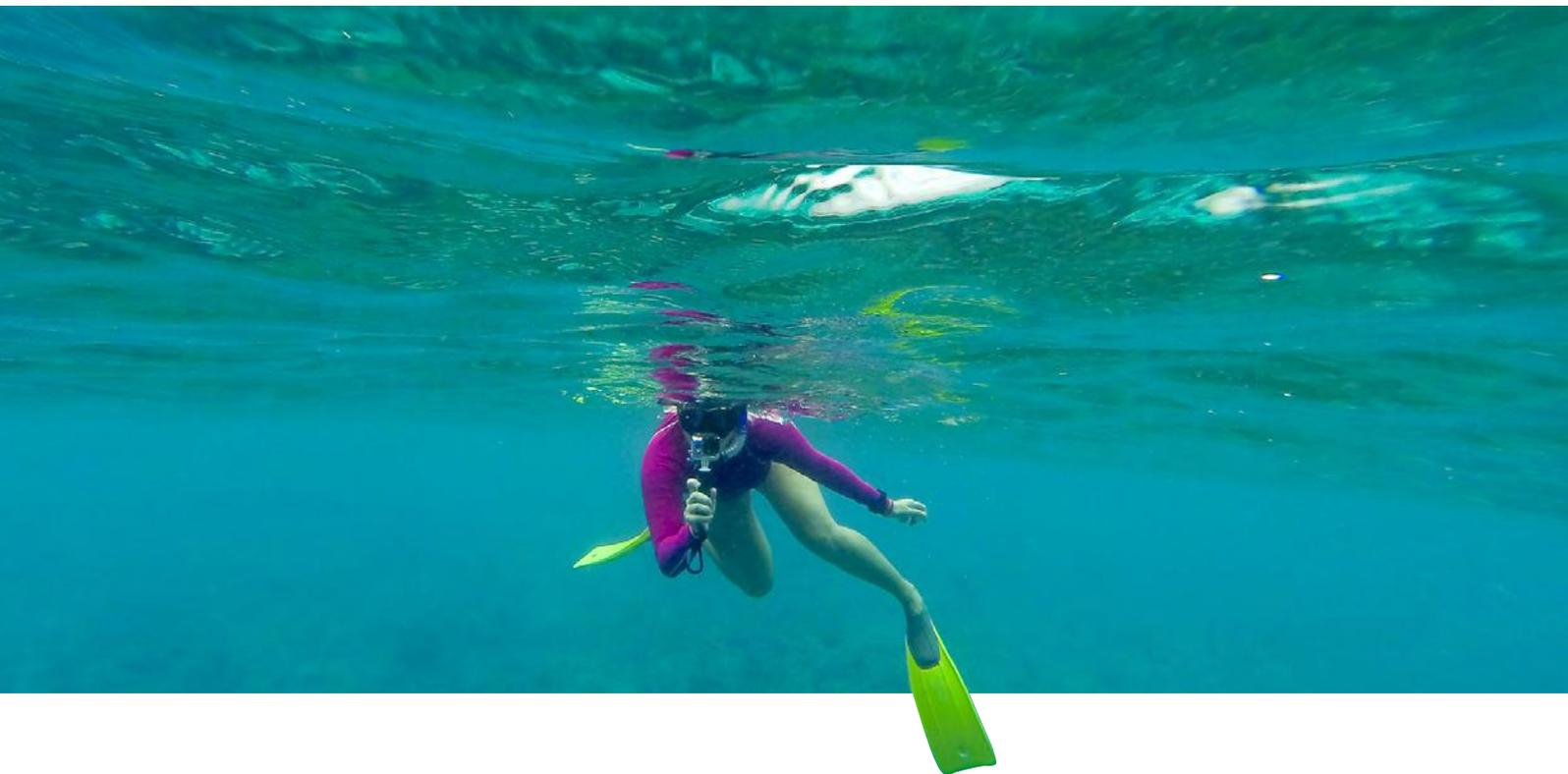
- Snorkeling and introduction to fish slates
 - Continue with fish ID
 - Apply coral reef information from class to what they are seeing
-

Day 7 – Wednesday

- Coral Reef Presentation Part 2
-

Day 8 – Saturday

- Introduction to Buoyancy
- Use of fish slates
- Continue fish ID and coral reef observation



BLOCK 2

Day 1 – Wednesday

- Signing up for REEF and learning how to fill out a survey
 - Divide into groups so that each group can accomplish the above
-

Day 2 – Saturday

- Snorkel with slates for Fish ID
 - Homework – fill out your first Reef Survey
-

Day 3 – Wednesday

- Introduction to the 50 Fish
-

Day 4 – Saturday

- Snorkel with slates looking for the 50 fish
 - Homework – fill second survey so you are prepared to take Reef Level 2 Test
-

Day 5 – Wednesday

- Continue with 50 fish and play FISHO
-

Day 6 – Saturday

- Mangrove Snorkel
-

Day 7 – Wednesday

- Fish ID Practice Test



Day 8 – Saturday

- Night Snorkel if all have passed the practice test
 - Otherwise snorkel with slates
-

Day 9 – Wednesday

- Retest if needed
- Assistance in studying and support during the testing will be given to any aspirant needing it



Appendix III – Resources for developing content

- <http://oceanexplorer.noaa.gov/edu/learning/welcome.html>
- <http://oceanexplorer.noaa.gov/edu/welcome.html#educ>
- Coral reefs
 - › <http://reefcheck.org>
 - › http://coralreef.noaa.gov/education/educators/resourccd/guides/resources/aware_g.pdf
 - › <http://oceanservice.noaa.gov/education/lessons/coralbleach.html>
 - › <https://www.nrdc.org/stories/what-you-need-know-about-ocean-acidification>
- Invasive species:
 - › http://oceanservice.noaa.gov/education/lessons/alien_invasion.html
 - › <http://ocean.si.edu/ocean-news/5-invasive-species-you-should-know>
- Climate
 - › <http://climateteens.nasa.gov>
 - › <http://oceanexplorer.noaa.gov/edu/curriculum/section9.pdf>
 - › <http://oceanexplorer.noaa.gov/edu/learning/player/lesson14.html>
- <https://training.fws.gov/resources/course-resources/es-slideshow/index.html>
- <http://duurzaamheidpodocent.kennisnet.nl>
- <http://www.pbs.org/kqed/oceanadventures/educators/oceancareers/>
- http://www.wearefuterra.com/wp-content/uploads/2015/10/Branding_Biodiversity.pdf
- How to use marine radio:
 - › <http://boatsafe.com/nauticalknowhow/radio.htm>
 - › <http://www.seakayak.ws/kayak/kayak.nsf/1/55C2AC6DE56618898525735500740A6E>
 - › <http://oceanexplorer.noaa.gov/edu/curriculum/section2.pdf>
 - › http://coral.org/resources/guides_best_practices/for_everyone



Appendix IV – Syllabus classes CIEE

Fish Anatomy

Duration: 2 days

Description: Students will learn about the internal and external anatomy of fishes with an emphasis on how the form (shape and design) of features of fish fit the functions of that form. During the first week, students will explore the external anatomy of fishes starting with the shape and coloration of the body and fins of fishes. They next learn about more specific external structures such as the mouth, scales, and lateral line. During the second week, students will learn about the internal anatomy of fishes including gills, bones, muscles, swim bladders, and digestive tracts.

Learning Style: During both weeks, students will learn through interactive powerpoint presentations that are augmented with dissections of lionfish. The course will culminate with a trivia game for students to show off the knowledge they gained and a presentation of their certificates of Junior Ichthyologist.

To Bring: Both days will be in the lab so everyone will need closed-toed shoes. We will be working with lionfish with their spines intact, thus everyone should bring lots of caution.

Coral Reef Invertebrates

Duration: 2 days

Description: The Junior Rangers are clearly well versed with the fishes of the reef. However, they may be less knowledgeable of the diversity of invertebrates that occur on the reef. During this module, students will learn about the diversity of invertebrate phyla on Bonaire’s coral reefs and then go on a snorkeling scavenger hunt to try to find as many different phyla as possible.

Learning Style: The first week will include an interactive lecture on coral reef phyla and a couple activities to increase retention of the materials. The first activity will be coral reef phyla bingo. The second is “sculptionary” during which teams have to sculpt various marine organisms out of playdoh. During the second week students and staff will go on a snorkeling trip and students will attempt to find as many different examples of each phyla as possible (bring towels, masks, and snorkels!). A prize will go to the winner. The module will culminate with a presentation of certificates of Junior Invertebrate Zoologist.

To Bring: During the first day, we will be in the lab so everyone will need closed-toed shoes. During the second day, we will be snorkeling and everyone should bring a towel, fins, snorkel/mask, wetsuit (if wanted), and a bathing suit. Junior Rangers and leaders can use the CIEE bathrooms to change if needed. During the second day, we would prefer that everyone leave their belongings on the back porch of CIEE so that everyone doesn’t need to go inside after the snorkel and bring in lots of water with them.



Microscopes and Microfauna

Duration: 2 days

Description: During this lesson, students will learn about the anatomy and history of microscopes and about the microfauna that occur in the plankton and in the benthos. During the first week we will first learn how to collect plankton using a plankton net, how to use a Van Veen Grab Sampler to collect sediment to examine benthic organisms. Finally, students will learn about the anatomy and history of microscopes and get some practice with them. During the second week, students will learn about the major groups of organisms found in the plankton and in the benthos. They will then look at their samples under microscopes and make comparisons of planktonic and benthic fauna.

Learning Style: The module will consist of a field trip to the yellow submarine dock and hands on experience using collection techniques. This will compliment interactive lectures on benthic and planktonic micro fauna and a scavenger hunt to find the largest number of different marine organisms. The course will culminate with a prize for the student who found the most species and a presentation of certificates of Junior Benthic and Plankton Ecologist.

To Bring: Both days will be in the lab so everyone will need close-toed shoes.

Community Ecology on Coral Reefs

Duration: 2 days

Description: Community Ecology is the study of the interactions that occur between organisms, such as predation, parasitism, competition, and mutualism/symbiosis. During this module, students will learn about these different interactions and then get in the water to look for them.

Learning Style: The module will include an interactive lecture on community ecology on coral reefs and a snorkeling scavenger hunt to find as many different interactions as possible (bring towels, masks, and snorkels!). A prize will go to the person or team that finds the most interactions. The module will culminate with a presentation of certificates of Junior Community Ecologist.

To Bring: During the first day, we will be in the lab so everyone will need closed-toes shoes. During the second day, we will be snorkeling and everyone should bring a towel, fins, snorkel/mask, wetsuit (if wanted), and a bathing suit. Junior Rangers and leaders can use the CIEE bathrooms to change if needed. During the second day, we would prefer that everyone leave their belongings on the back porch of CIEE so that everyone doesn't need to go inside after the snorkel and bring in lots of water with them.



Invasive Species

Duration: 1 day

Description: The Junior Rangers are no doubt very well versed with lionfish and the lionfish invasion. However, they may be less knowledgeable about some of the research that has gone into learning about the lionfish invasion and other marine invasions. During this module, students will learn that there are a lot more invasive species than lionfish, what research has been done on lionfish and other invaders, why invasions happen, and what can be done to prevent invasions or to mitigate their effects.

Learning Style: This module will consist of an interactive lecture and activities to increase information retention. The module will culminate with a presentation of certificates of Junior Invasion Biologist.

To Bring: This lesson will be in the lab so everyone will need closed-toes shoes.

Coral Reef Conservation

Duration: 1 day

Description: There is unfortunately a very large number of threats facing coral reefs: climate change, ocean acidification, nutrient pollution, overfishing and destructive fishing practices, and recreational SCUBA diver impacts. During this activity, students will learn about these various threats and what can be done to conserve corals. We ran a similar activity before on ocean acidification and climate change with Tjerk in his classroom, and it might be nice to do the same with this activity if possible.

Learning Style: This module will include an interactive powerpoint lecture augmented with various activities. In one activity, students will learn how carbon dioxide from their breath increases the acidity of seawater. In another activity, students will see first hand that acidified water will dissolve the skeletons of hard marine organisms. In one last activity students will play "Coral Reef Conservation Jenga" during which students add blocks if they pull "coral reef threat" cards and add blocks if they pull "coral reef conservation" cards. The module will end with a presentation for certificates of Junior Conservation Biologist.

To Bring: This lesson will be in the lab so everyone will need closed-toed shoes.



Appendix V – Teens4Oceans

In 2015, the Teens4Oceans chapter on Bonaire was formed by the Dive Manager of Harbour Village, Chris Ball, along with the Junior Ranger Program of Bonaire. The Junior Ranger Program has a partnership with the Teens4Oceans group from Gulliver Schools in Miami. To bring these groups together, an experimental project was designed which focused on learning more about the local coral reefs on Bonaire. It took about two years to receive the required permits and permissions from the local governing bodies and in February 2017, the first phase of the project was deployed (T4O, 2017).

The electrified reef project on Bonaire

Coral restoration has been one of the key aspects of marine sciences for years now. The electrified reef technology was developed by Professor Wolf Hilbertz and Dr Tom Goreau. This restoration technique has been used at numerous sites around the world. However, there is little data to support the method since it has never been properly studied. Therefore, one of the goals of the Teens4Oceans project on Bonaire is to produce a long term set of useful data by using underwater cameras, a set of voltage and water quality sensors, and students and scientists alike. A plan has been developed to test the method in a cohesive and scientific way to improve our understanding in how to protect the marine ecosystems (T4O, 2017).

How the electrified reef method works

Corals, like many marine invertebrates, build their skeletons out of calcium carbonate. This energy intensive process is done by pulling calcium and carbonate ions from the ocean and secreting them as a skeleton. In a similar fashion, an electrolysis reaction accomplishes the same feat. Electrolysis is basically the idea that direct electrical current can facilitate a chemical reaction that would otherwise not happen. Teens4Oceans decided to see if using this concept would also facilitate coral growth (T4O, 2017).

What we did

Our team of young Teens4Oceans students built two metal domes out of re-bar, a control dome and a powered dome, and sank them in the ocean. Once underwater, a negative wire is attached to one metal dome. This makes the dome a cathode. Then the anode, or positive, is placed inside the metal dome and power is established. Instantly, tiny little bubbles appear in the structure and days later the rebar becomes coated in a layer of calcium carbonate making it appear white. The comparison to the control dome is a stark difference as the control dome appeared as rusted metal (T4O, 2017).

The project can be followed on both the 360 and static ocean cameras to observe the contrast between the two experimental domes. The electric dome has already turned white and it is only a matter of time before life begins to settle in and on the new habitat. The other consequence of this project will be the increased habitat for fish. The structures actually act as fish aggregation devices, or FADs. We are curious to see whether fish will inhabit one structure over the other and why. Numerous other questions could be raised and researched (T4O, 2017).

It is not possible to immediately place corals on the structure, but in the next couple of weeks that process will start. Our hope is that corals on the electrified reef will grow much faster than those on the control. But, simple visual observation is not enough to prove the method works. Therefore, a set of data probes and electrical measurement equipment is installed. It is also possible to record pH, temperature, salinity, dissolved oxygen and Oxidative Redox Potential. Teens4Oceans is allowing to share data with STINAPA and other research agencies. For our students and the scientists working on this project, this will help to find out the truth about electrified reefs (T4O, 2017).



Appendix VI – Open water dive class procedures

Congratulations! Your hard work as a Junior Ranger Aspirant has paid off... You have been given the opportunity to achieve your PADI Open Water Diver Certification!

This opportunity is a privilege and with that privilege comes some responsibilities, including some procedures that you must follow.

1. Prior to the first classroom session there is paperwork that must be completed by you and your parents. The instructions for this paperwork is in your Open Water Package.
2. You **must** come to all scheduled classes - It is required that all of the classroom sessions and water sessions are completed in order. You cannot miss a class session and then continue on the following week with the next one. The classroom sessions and dives have to be done in the proper order (1, 2, 3, etc) and cannot be mixed up.
3. You **must** come prepared to all of the classroom sessions – Before each classroom session you must have the chapter in your book read and have answered all of the knowledge review questions at the end of the chapter. The Open Water manual is a workbook... write the answers to the questions in the book. Failure to come to class prepared will mean you cannot continue with the training. Not having your homework completed is a sign that you are not ready to become a SCUBA Diver as you are not willing to do the work that is necessary to achieve your certification.
4. You **must** show up on time for your classes. There is a lot of information to be covered and skills to learn. We must start on time to get it all done. Also, it is not fair and it is inconsiderate to those who show up on time to be kept waiting.
5. If something serious or important comes up and you are unable to attend class you need to notify your instructor as soon as possible. Do not wait until the scheduled class time to tell them.
6. If you get sick notify your instructor immediately. Unless it is something very serious you can still attend classroom sessions. For the in-water sessions the instructor will deal with it on an individual basis if the need arises.

For anything to do with your classes is it important that you contact the instructor directly:
Your instructor is Sue O’Brien – contact her on Whatsapp or phone – 599-701-0181
or by FaceBook message.

**PLEASE SHARE THIS INFORMATION WITH YOUR PARENTS SO THAT THEY
ARE ALSO AWARE OF WHAT IS EXPECTED OF YOU!**



Appendix VII – Protocol for dealing with “Unacceptable Behavior”

Occasion

When youngsters do not adhere to the program schedule, rules and basic norms on a regular basis or in extreme cases, it may be that the youngster needs to be removed from the program.

When unacceptable behavior occurs, the course of action is as follows:

Principles

- *Work with the youngster to find ways to change his/her behavior.*
- *Continue to treat the youngster with respect.*
- *Avoid sanctions where possible.*

Course of action for unacceptable behavior

1. Approaching and reporting

When a youngster does not adhere to the program rules and norms, the group leader of that moment approaches the youngster to address his/her behavior. The leader reports the situation to the NME coordinator.

2. Making agreements

The NME coordinator or designee approaches the youngster and asks what happened as well as the reason for his/her behavior. The coordinator or designee talks with the youngster to determine how repetition of the misbehavior can be prevented in the future and makes new behavioral agreements with the youngster.

3. Approaching the youngster

If no improvement occurs, the NME or designee will approach the youngster again and make new behavioral agreements with him/her. The NME coordinator or designee will also discuss the situation with the parents.

4. Decision making process for removal

If the youngster keeps ignoring the agreements made, the NME coordinator can decide to remove the youngster from the program.

5. Ending the program

If it turns out that there is no other possibility other than removing the youngster from the program, the NME coordinator or designee visits the youngster and his/her parents to inform them.

6. Reporting

The situation is reported and saved.



Course of action for extreme unacceptable behavior

1. Examining the behavior and approaching the youngster

If the group leader feels the behavior of the youngster is serious and unacceptable, he/she reports it to the NME coordinator.

2. Decision making process for removal

The NME coordinator or designee examines the situation, the reason for and the behavior of the youngster and decides the same day, or the day after, the form and duration of the suspension. The NME coordinator or designee visits the youngster and the parents to inform them about the situation and the suspension.



Appendix VIII – Liability form

THE STINAPA BONAIRE JUNIOR RANGER PROGRAM

LIABILITY WAIVER

I acknowledge that this OUTDOOR program is at times a test of a person's physical and mental limits and carries with it the potential for injury during activities (diving, hiking, snorkeling, etc.) and personal property loss. The risks include, but are not limited to: actions of other people including, but not limited to, participants, volunteers, spectators, coaches, staff officials, event monitors and/or producers of the event; lack of hydration, weather, and/or other natural conditions. I hereby assume all of the risks of participating in this program.

I certify that I am physically fit, have sufficient motivation for participation in this program and have not been advised otherwise by a qualified medical person.

I acknowledge that this Accident Waiver and Release of Liability (AWRL) form will be used by STINAPA and volunteers of the program for activities in which I may participate and it will govern my actions and responsibilities at any event.

In consideration of my application and permitting me to participate in this program, I hereby take action for myself, my executors, administrators, heirs, next of kin, successors, and assigns as follows: (A) Waive, release, and discharge from any and all liability for my death, disability personal injury, property damage, property theft or actions of any kind which may hereafter accrue to me or this program, each Junior Ranger, their directors, officers, employees, volunteers, representatives and agents, the and program volunteers, (B) indemnify and hold harmless all entities or persons mentioned in this paragraph from any and all liabilities or claims made by other individuals or entities as a result of my actions during this program.

I hereby consent to receive medical treatment that may be deemed advisable in the event of injury, accident, and/or illness during any program event.

I understand that in this program or related activities I may be photographed. I agree to allow my photo, video, or film likeness to be used for any legitimate purpose by the program holders, producers, sponsors, organizers, and/or assigns.

This AWRL shall be construed broadly to provide a release and waiver to the maximum extent permissible under the applicable law.

I hereby certify that I have read this document and I understand its content.

Print Name of Parents: _____

Print Name of Junior Ranger: _____ Age: _____

Parent Signatures: _____

Junior Ranger Signature: _____ Date: _____



Appendix IX – List of local organizations involved in the Junior Ranger Program of Bonaire

Dive shops

Buddy Dive – sponsors diving practice.

Dive Friends – sponsors diving practice.

Flamingo Dive – sponsors diving practice.

Harbour Village – Teens4Oceans and sponsors diving practice.

VIP diving – sponsors the Junior Ranger PADI certification program and graduation ceremony.

Nature Conservation programs and organizations

CIEE Bonaire (semester abroad program and research laboratory) – developed plankton, lionfish dissection, fish anatomy and reef ecology courses to understand that everything needs everything else in order for humans to survive.

Coral Restoration Foundation Bonaire – the Junior Rangers learn how to become volunteers for this specific program that helps to increase the coral population.

DCNA – Communication and outreach.

Echo Foundation – protecting the Lora parrot on Bonaire, a protected species. The Junior Rangers help with tree planting activities.

Klein Bonaire Reforestation project – the youth in the program are committed to plant trees and help in watering the new plants in this reforestation project.

Lion Fish Hunter group – the older Junior Rangers are trained to be lion fish hunters and are certified by the National Marine Park to protect the coral reef surrounding the island while hunting lionfish.

Mangrove Info Center – sponsors kayak tours for NME.

Sea Turtle Conservation Bonaire – sea turtles need protection from poachers as well as other threats such as plastic waste in the ocean, fishing lines that the turtles get tangled in resulting in death by drowning. (Project of WWF)

Other

Cressi – Sponsors technical Cressi courses and dive equipment donations.

Jong Bonaire – Junior Rangers can apply for the Junior Ranger Program via Jong Bonaire.

OLB – The public entity (OLB) of Bonaire subsidizes NME.

Woodwind – snorkel tours to practice Fish ID with the Junior Rangers.







