

Adriatic Dolphin Project Lošinj

VOLUNTEER INFORMATION PACK

2017



Blue World Institute

Kaštel 24, 51551 Veli Lošinj, Croatia

volunteer@blue-world.org

www.blue-world.org

Dear friend,

First of all I would like to thank you for showing interest in our work and marine wildlife. We are group of scientists working as Non-Governmental Organisation (NGO) named Blue World Institute of Marine Research and Conservation. With an aim to carry out scientific research and conservation projects and promote environmental awareness. We conduct wild bottlenose dolphin research through Adriatic Dolphin Project for 29 years. During all this years Eco-Volunteering program played an important role in prosperity of the project. With volunteers help we manage to collect scientific data during the field trips and store them in data base, especially in Summer season when the weather conditions are stable and number of observations high. The highest number of observations within the year was 122 and biggest group that we encounter was 80 individuals. All data are used for monitoring the population of this endangered species and taking measure for their protection. So, it is not hard to understand why we need your help. In return we try to make your stay the best experience ever. Not just by enabling you to observe these wild animals from close proximity but also by creating a team where you will meet people from all over the world, from different preoccupations and cultures. You will see new places and be able to explore the beauty of the island. If further text you can find more details about the Eco –Volunteering program. If you want to know more about our organisation please visit our web page <http://www.blue-world.org/>

I hope to meet you in Veli Lošinj,



Tihana Vučur, volunteer coordinator

WHAT YOU WILL FIND HERE

1. ADRIATIC DOLPHIN PROJECT	
1.1 About us	1
1.2 Study area	2
1.3 Research methods	3
1.4 Species of interest	5
1.5 Research staff	7
2. VOLUNTEERING AT ADP	
2.1 A typical day on the project	8
2.2 Accommodation	9
2.3 Food	10
2.4 Island Lošinj	10
2.5 Conditions for participation	11
3. DATES AND PRICES	12
4. HOW TO BOOK A PLACE	13
5. TRAVEL INFORMATION	
5.1 What to pack	14
5.2 Some useful information	14
5.3 How to get there	15
6. VOLUNTEERS' THOUGHTS	16

1. ADRIATIC DOLPHIN PROJECT

1.1 About us

The Blue World Institute of Marine Research and Conservation is a non-profit Non-Governmental Organisation (NGO) from Veli Lošinj, Croatia. It was set up in 1999 with the intention to carry out scientific research and conservation projects, and promote environmental awareness in the Lošinj-Cres archipelago, Croatia and Adriatic region as a whole. Continuing research initiated in 1987, the Blue World Institute carries out three major programmes: **research, conservation and education.**

The **Adriatic Dolphin Project (ADP)** is the research program of the Blue World Institute which aims to research population ecology, genetics, acoustics and habitats of bottlenose dolphins and other Cetacean species in the Adriatic Sea. It is the longest ongoing research program on bottlenose dolphins in Mediterranean. The ADP, since its start, has successfully integrated scientific research with practical conservation and education. In addition to the waters of the Cres and Lošinj archipelago, the Adriatic Dolphin Project has operated around the island of Vis since 2007 and North Dalmatia since 2013. The Adriatic Dolphin Project is now recognized worldwide, which is reflected in numerous international partners and cooperation with experts from the fields of biology, and ecology of marine mammals.



PARTNER TO:



MORE ON:

www.blue-world.org

 <https://web.facebook.com/blueworldinstitute/>

1. ADRIATIC DOLPHIN PROJECT

1.2 Study area

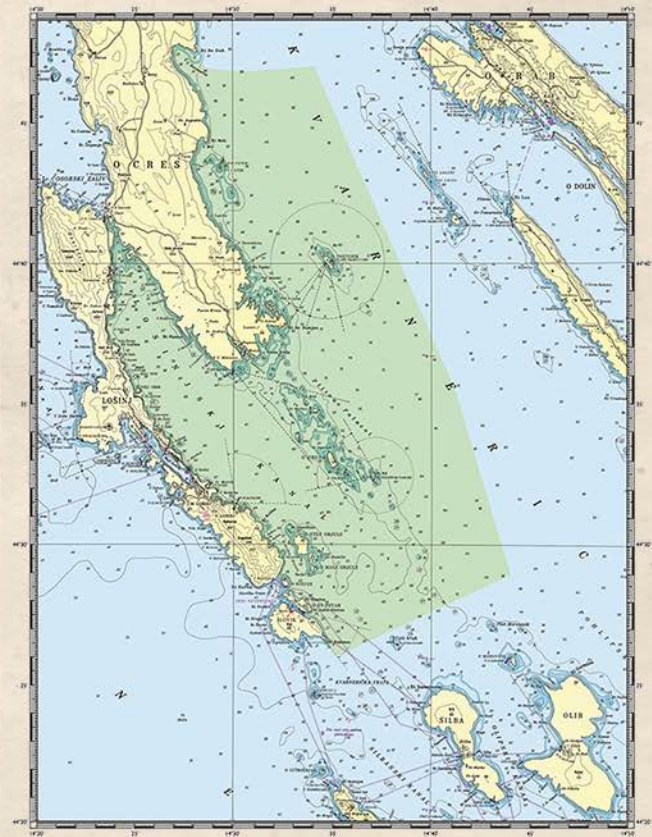
Country: Croatia

Region: Primorsko-goranska County

County administration: Rijeka

The Adriatic Sea is a long extension of the Mediterranean Sea connected through the narrow Otranto Strait. The basin is 200 km wide and 800 km in length covering approximately 162,000 km².

The main field base of Adriatic Dolphin Project is situated on the island Lošinj covering a study area in the North Adriatic from Istria to the Sea of Vir. The value of the area is not just due to presence of bottlenose dolphin community but also because of the rich submarine life, historical artefacts, bird nesting sites and marine turtle foraging grounds.



1. ADRIATIC DOLPHIN PROJECT

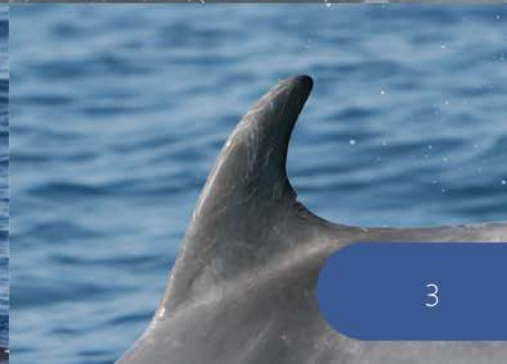
1.3 Research



Research focuses bottlenose dolphins and other large marine vertebrates (mostly Cetaceans, sea turtles and cartilaginous fish) with an aim to contribute to their conservation and the protection of the marine environment. Results of research are translated into activities to raise public awareness and education. Our offices and field activities are based on the Adriatic islands, showing our support to sustainable development of local, insular communities through cooperation and an interdisciplinary approach to conservation.

Visual surveys – A method used during navigation in search of cetaceans and other marine vertebrates. When species of interest are spotted everyone on the board gets instructions from the researchers and data collection begins. During the sighting, the boat is driven on a minimum speed, following the code of conduct in order to minimize disturbance to the animals.

Photo-Identification - During an encounter with dolphins, researchers photograph cuts and scars on the dorsal fins of dolphins. These scars occur naturally during the interactions and are unique to each dolphin, like a fingerprint. The "capture" of these fins on photograph provides an indirect non-invasive method to record the presence of the dolphin in a sighting. Data obtained using this method creates a detailed picture of the state of dolphins and their use of habitat. Identified individuals are followed for many years, which enables us to assess the birth and mortality rates of the dolphins, as well as their social relations.



Bio Acoustics - The abundance of the Cres-Lošinj dolphin population showed a significant decline of over 30% between 1995 and 2003. This decrease was suggested to be related to human induced environmental modifications. Level of sea ambient noise has an impact on bottlenose dolphins because they rely on hearing to monitor the environment and use sound to communicate, navigate and forage. The aim of this research was to assess the relationship between underwater noise, boat traffic and the seasonal spatial variation of the distribution of bottlenose dolphins. Data were collected using a hydrophone on ten acoustic stations. Multi-annual monitoring for a period of almost five years has gathered enough information about the impact of sound pollution on the habitat use of dolphins. The results highlight areas within Cres-Lošinj archipelago where human pressures may have become incompatible with dolphin welfare particular in summer tourist season.



Behaviour - Previous studies have already pointed directly to numerous recreational vessels as major factor influencing different aspect of dolphin wellbeing. The primary goal was to examine to what extent boat traffic influences the behavior of this population and to define a code of conduct for vessels during dolphin encounters. Sampling method was focal group sampling and ten mutually exclusive behavioral states were defined. The results shown that 90% of encounters were with recreational boats and 92% of them invoked negative response. In the presence of boats, dolphins decrease feeding and resting behavior and increase traveling behavior. They also form tight groups and perform longer dives.



1. ADRIATIC DOLPHIN PROJECT

1.4 Species of interest

Research focuses on large marine vertebrates (mostly Cetaceans, sea turtles and cartilaginous fish) with an aim to contribute to their and marine environment protection and conservation. In the northern and central Adriatic the bottlenose dolphin is the only cetacean species with permanent and stable population and our systematic boat surveys are aimed at this species. However, other species may occur in the region, giving us opportunity to collect data about the visiting species. Besides cetaceans, the crew of the Adriatic Dolphin Project is also involved in work on research and conservation of loggerhead turtles in the Adriatic.

Bottlenose dolphin (*Tursiops truncatus*)

The bottlenose dolphin is one of the most widely distributed species in the Mediterranean. Data from research in North Adriatic for 2011 suggest that the local population counts 184 resident individuals, present all year round in the study area. Their distribution changes depending on the season, likely due to the shift in prey distribution. Based on this research, the study area was proclaimed as part of Croatian National Ecological Network and a Site of Conservation Interest of the European Union NATURA 2000 network.

In 2010 and 2013, the BWI carried out aerial surveys of the complete Adriatic Sea. These surveys confirmed that the common bottlenose dolphin is the most widely distributed cetacean species in the Adriatic Sea with an abundance estimated to be around 10,000 individuals in throughout the basin.





Striped dolphin (*Stenella coeruleoalba*) - The striped dolphin is considered to be the most abundant cetacean species in the Mediterranean Sea, this also appears to be the case for the Adriatic Sea. However, they are only regularly sighted in the southern part of the basin where they may occur in large herds of some hundreds of individuals, in the northern Adriatic Sea they are occasionally seen, but in smaller groups from one to three individuals. Using data from aerial surveys, the abundance is estimated to be around 20,000 individuals throughout the whole Adriatic Sea.



Common dolphin (*Delphinus delphis*) - The common dolphin has experienced a generalized and major decline in the Mediterranean region over the last 30–40 years. Today is considered regionally extinct in the Adriatic Sea. Over the last three decades, sightings in the Northern Adriatic Sea have been very rare, mostly by animals visiting from the Mediterranean Sea. The last sighting in the Cres-Lošinj research area was in 1997. During the aerial surveys not one specimen was recorded.



Fin whale (*Balaenoptera physalus*) - is found in the Mediterranean Sea deep waters. In the Adriatic most records rely on strandings and sightings of stray individuals in north and central part of the basin. A few sightings occur in the central Adriatic, probably due to prey distribution. Recent research indicates that fin whales regularly enter the southern and central Adriatic Sea, and that abundance probably depends on the abundance of krill. During the aerial survey, only one individual was observed.



Loggerhead turtle (*Caretta caretta*) - The Loggerhead sea turtle is most abundant turtle in the Mediterranean Sea. The Northern and Central Adriatic represent one of the two largest neritic habitats shared by juvenile and adult animals originating from Greece and Turkey. Based on data from aerial surveys the abundance is estimated on around 80,000 individuals in the whole Adriatic Sea.

1. ADRIATIC DOLPHIN PROJECT

1.4 Staff



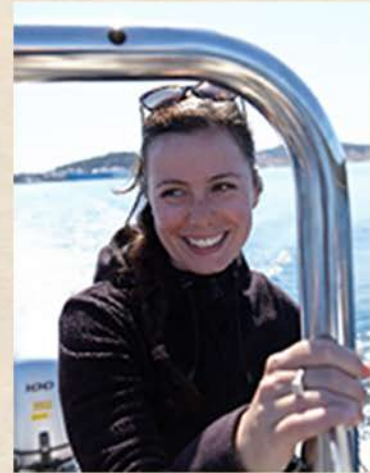
Nikolina Rako Gospić (Croatia)

ADP Scientific Program Director
Ph.D. University of Split, Croatia
M.Sc. University of Trieste, Italy



Marko Radulović (Croatia)

ADP Researcher
M.Sc. University of Dusseldorf, Germany



Tihana Vučur (Croatia)

ADP Researcher
M.Sc. University of Zagreb, Croatia

2. VOLUNTEERING AT ADP

2.1 A typical day on the project

Well, first of all, there is no typical day. Schedule may vary depending on the sea state, weather conditions and research priorities. It is important that you are flexible and bear in mind that dolphins are wild animals and work with them is not 100% predictable.

Day 1 - Arrival day, no boat surveys are conducted. You use this day to relax after the trip, to get familiar with the house, beaches and the town. In the evening researcher prepare the dinner during which short introduction of the program and people involved will be done.

Day 2 to Day10 - If the weather conditions are stable, you help researchers to board the boat in order to conduct visual monitoring during the navigation surveys. Sometimes the dolphins are located within a few minutes; however, it could take several hours, so you must be patient. Even when dolphins are not seen, the boat ride offers you an excellent opportunity to study the coastline, enjoy the sight of seabirds and, if you like, question the researchers. The moment the dolphins are sighted, everyone on board has a specific task to fulfil. A researcher will take photos for the photo-identification. Your task as project participant is to record data; the time, the number and breakdown of animals, their behavioral activity, surfacing and their names as the researcher calls them out. Working hours when on the sea depends of area that needs to be covered.

If the sea is not calm or researchers have other priorities, the team remains at the Lošinj Marine Education Centre in Veli Lošinj (LMEC). You help enter data and daily lectures are offered on various aspects of cetacean biology or the marine environment. We also expected from you to assist in educational activities of the LMEC. Duties may include helping out the staff and students, taking visitors around the Centre and explaining exhibits. Working hours when in the base are usually from 10 am until 16 pm.

In free time you may visit the island, enjoy the beauty of discovering new paths and beaches for swimming and snorkeling in the crystal clean sea. Sunday is designated as a free day.

Day 11 - Departure day, there is no fixed time for you to leave the house, no boat surveys are conducted on that day.

The atmosphere at the project is informal and relaxed and we will try to fulfil everyone's preferences. However, we are not a professional tourist organization and researchers are not tour leaders.



2. VOLUNTEERING AT ADP

2.2 Accommodation

You will be hosted in Mali Lošinj. The house provides a bedroom for interns, two for volunteers, two bathrooms, kitchen, lounge, and a terrace. A single room is not available. Beds, sheets and blankets are provided. There is a washing machine in the house and you can use it. Everybody at the project is expected to do his or her share in the household. The daily household duties include cooking, dishwashing and general housekeeping. All participants alternate in housekeeping and cooking shifts. There is no smoking within the accommodation.

The project is also advertised in many countries, so it is possible that your colleagues are from different European countries or even further.

The house has Wi-Fi and a computer is available in office in Veli Lošinj. You can use it any time during the opening hours. In addition, some bars and restaurants in Mali and Veli Lošinj offer Wi-Fi access for their guests.



Location of the house in Mali Lošinj



2. VOLUNTEERING AT ADP

2.3 Food

Shared tasks will include meal planning and preparation. Please bring with you some recipes if you are not familiar with cooking. There are some local restaurants where you may choose to eat dinner, at your own expense. Shopping is done by project staff members. Alcoholic beverages are available on your own expense.



2.4 Island Lošinj

The coastline of Lošinj is extremely diverse; it consists of many large and small bays and underwater caves. The office is located in the old village of Veli Lošinj (3 km distant from Mali Lošinj – the biggest island town in Croatia) on the sheltered east coast of the island. There are more than 95 species of fish found in the waters around the island, and other top predators such as tuna, sharks and swordfish regularly visit this area. The marine environment around Lošinj is one of the cleanest parts of the Northern Adriatic Sea with underwater visibility consistently over twenty meters. We encourage you to explore the island and take advantage of the untouched natural environment that surrounds you.



2. VOLUNTEERING AT ADP

2.5 Conditions for participation

People participating in this project should match the following requirements:

- In good physical condition, to be steady on the legs and able to swim;
- Able to tolerate hot weather and long periods on the boat under the sun;
- Speak English;
- Over 18 years old;
- Read the application form, accept the conditions and sign the declaration;
- Be aware that the project director or project manager has the right of expelling you from the field base, in case your behaviour and attitude may obstruct the normal research activities.



3. DATES AND PRICES

All volunteer stages begin on Mondays and end on Fridays (12 days). Eco-volunteers should organize their travel to arrive in Veli Lošinj during Monday and leave during Friday. There are five places available in each stage.

Stage	Arrival date	Departure date	Price (EUR)	Discount price (EUR)
1	1 May -	12 May	880	800
2	15 May -	26 May	880	800
3	29 May -	9 June	880	800
4	12 June -	23 June	910	830
5	26 June -	7 July	910	830
6	10 July -	21 July	940	860
7	24 July -	4 August	940	860
8	7 August -	18 August	940	860
9	28 August -	8 September	910	830
10	11 September -	22 September	880	800

Who can get discount price?

Students - The project offers discount prices on all stages for university students. Proof of enrolment will be required.

Returning Volunteers - For those of you coming again we offer a loyalty discount. We know who you are so no proof required.

Croatian Citizens - Blue World Institute gives accommodation grant for local students in order to encourage Croatians to work with us. Croatian identity card and residence will be required.

Block Bookings - If a group of 5 books a stage, one place is free

Two stages Bookings - If you decide to spend 4 weeks with us, you will get the discount price

What is included in the price?

- In house food and beverages (breakfast, lunch and dinner) for the duration of the stage except for the evening dinner on last Thursday (usually pizza or pasta) at the restaurant in town
- Accommodation
- Lectures by researchers
- Scientific supervision during the research
- Internet access at LMEC
- Certificate of attendance to the Adriatic Dolphin Project

What is not included in price?

- Extra food and beverages consumed in restaurants and bars
- Travel expenses
- Alcoholic drinks
- Personal expenses (e.g. telephone)
- Tourist Tax (about €14) to be paid to the Tourist Agency in Veli Lošinj
- Insurance (We recommend you to take travel health insurance)

What is the money used for?

Blue World Institute is non for profit organisation so your participation help us cover part of the costs of bottlenose dolphin research and conservation activities we are undertaking on Lošinj



4. HOW TO BOOK A PLACE

If you are interested in this eco-volunteering program and want to take part in it, these are the necessary steps to book a place:

1. Contact us

You can inquire about further details and the available dates by contacting us by e-mail: volunteer@blue-world.org or by phone: +385 51 604 666.

2. Fill out the application forms

Download the application forms or request them by e-mail. The forms contain Application Form, Membership request and Disclaimer Declaration. You can fill them out on the computer or print them and fill them out in handwriting.

3. Book a place

To book a place send us filled out application forms via e-mail or fax: +385 51 604 668. When we receive the forms we will keep a place for you for two weeks. Within these two weeks a minimum of 50% of the fee needs to be paid. Otherwise, we will make your place available to others. If you are making a late booking you can arrange payment directly with the project leader (tihana.vucur@blue-world.org)

4. Payment

You can make payment via bank transfer or Paypal.

Details for bank transfer are:

Zagrebačka banka
Ilica 241
10000 Zagreb
SWIFT/BIC: ZABHR2X
IBAN: HR0923600001101307847

Paypal payments details:

For payments via Paypal, please send the required amount to this address:

info@blue-world.org



5. How can you cancel?

In order to cancel your booking you need to contact volunteering coordinator minimum 30-days before arrival to be entitled to a reimbursement equal to 80% of the course participation fee

6. Arrival

Once application forms and payment are received by us you will get a confirmation e-mail. Please, contact the research crew directly to arrange your arrival or get more advice on how to arrive.



5. TRAVEL INFORMATION

5.1 What to pack

Please, try to bring no more than one large bag and a backpack as space is limited in our flat during the summer. Take your usual summer clothes. Bear in mind that there will be a washing machine at your disposal. Summers in Croatia are hot and the sun is strong. However, there can be chilli days, especially at sea. Take into consideration the month you are coming to Croatia and check online for weather conditions



Therefore, we strongly suggest that you also bring:

- Sunscreen (SPF 50+), sunglasses and hat
- Light windproof jacket
- Long sleeves shirt and a pair of jeans trousers

Other things we suggest you take:

- Swimming and snorkelling gear
- Laptop, camera
- Beach towels
- Insect repellent spray or lotion
- Ear plugs for light sleepers
- Some cooking recipes

Documents and insurance

Croatia is an EU country so EU citizens need only a valid ID card. For other countries please check your requirements, but we are suggesting you to take your VALID passport. We recommend that you provide yourself with travel insurance (most important could be medical).

5.2 Some useful information

Official language is Croatian, but almost everybody can speak at least basic English. Young people generally speak English well, while many also speak German and Italian. You can expect that English will be spoken among all team members.

Croatia is an EU country and one of the most important tourist destination of the Mediterranean. It is generally a very safe place for tourists and crime rate is very low.

Croatian currency is Kuna (KN). 1 EUR is around 7.6 KN; 1 USD is around 6.5 KN.

Time zone in Croatia is +1UTC; +2UTC in summer

Power standard is 220V/50Hz and you will need power plug for for a Schuko socket (CEE 7/3)



5.3 Getting there

Arrival and departure

It is not possible to arrive at the research station earlier than the start date of the period or stay longer. In case you travel to Lošinj earlier you are requested to arrange for your own accommodation. Please contact the field base the day or two before you are due to arrive to confirm your mode of transport and time of arrival, so that a member of the crew can meet you.

The information given here was correct at time publishing. Please check timetables, connections and routes personally. You will have to make your own travel-arrangements.



By bus

Autotrans is the bus company that drives to Lošinj. On following web page you can check departing cities, time and prices: www.autotrans.hr/en-us/home. Info. tel. +385 (0)51 660 660.. Members of the team can welcome you on a bus station and give you a lift to accommodation.



By plane

There are cheap flights to Pula, Rijeka, Split, Zadar and Zagreb in Croatia, and Venice and Trieste in Italy. For timetables of flights, you can check Croatia Airlines (www.croatiaairlines.hr), Ryanair (www.ryanair.com), GO (www.go-fly.com), Wizz Air (www.wizzair.com). There are also airlines flying from Germany, including www.airberlin.com and www.germanwings.com.



By boat

Everyday there is catamaran from Rijeka to Mali Lošinj at around 14:30 pm, please visit web page for further information www.krilo.hr/en/sailing_schedule.html. You can reach Mali Lošinj also from Zadar by ferry, for more information check: www.jadrolinija.hr/en/. If you are arriving with boat or catamaran, please let us know and we will organize that somebody picks you up.



By car

If you prefer to travel by car, you can drive to Brestova (close to Opatija) if coming from Italy/Slovenia directions, or to Valbiska (Krk Island) if coming from Zagreb direction, where you can get a small ferry that will bring you on the island of Cres from which driving you can reach Lošinj. Please contact us through email for the ferry schedules or check yourself on www.jadrolinija.hr/en/ under sailing schedule and then District of Rijeka.



By train

There are trains from most of the major cities of continental Europe to Zagreb, Rijeka or Trieste. Please enquire at your departure point. The train station in Rijeka is 200m west of the bus station.

6. VOLUNTEERS' THOUGHTS

„As our time here comes to an end I find myself wishing that the time didn't go by so quickly. I wish that I could stay longer and learn more about all of the work and research that occurs at the ADP. Seeing the dolphins was a great pleasure, yet a greater pleasure was helping with the research, I truly hope that we were of some assistance. The main goal for our time here was to enjoy learning something new, this objective was surely completed, thank you very much for this opportunity.“
from Sam and Sarah McDeid, USA, July 2009.

„Thank you so much for the wonderful experience here in Veli. It will always be a place I remember fondly... from watching the world cup at Beny's to searching for the mythical Sun Fish to being on Croatian TV. Veli has been a relaxing paradise after all the hustle of travelling. I have been able to see about 70 dolphins in their natural habitat and help with some scientific research, which has been thrilling. But I think the best thing about Veli is the incredible people I have met since I have been here. Thank you everyone and I hope to hear from all of you soon.“
from Steven Mattice, San Francisco. July 2010.

This volunteering trip is literally the best one I've ever had. The days I spent on the island were indelible. I got to get close with dolphins in a natural habitat scenario on a speedboat for the first time when they came close to the boat. Before getting to the sea for field observations, I was educated about the research project and the guidelines regarding field observations. As a science student, I found this field-research exposure very rewarding for my future studies. The accommodation's brilliant! It's clean and tidy (with excellent view). It's an awesome experience to live with scientists and interns from different countries. The staff was very friendly and helpful. I've made some really great friends there. Personally, as a youngster from Hong Kong, which is a crowded and busy city filled with skyscrapers, the trip was a perfect opportunity for me to relax a bit and get away from the hustle and bustle for some days on that relaxing and gorgeous island. I wish I could stay longer.... The awesomeness of the trip is simply beyond description! I can't wait to take part in the program again!“ **from Matthew Tung, Hong Kong. June 2012.**

“In early summer 2014 I had the special opportunity to join in both volunteer-programs of ADP Losinj and North Dalmatia within just two weeks. There you are – maybe after a long journey – on this northern Croatian island arriving at the picturesque harbour town Veli Losinj, being picked up by delightful team members of Blue World. They, of course, are not your personal tour guides for a leisurely all-inclusive vacation, but part of the scientific staff taking care of about everything from research, general maintenance etc. to supervising volunteers and interns during their stage with the project. About how and where you get involved as a volunteer you find detailed descriptions on their informative homepage, but I lack a proper way to convey the over-all experience: e.g. the educational introduction into the project (especially on fieldwork and collecting & evaluating data), memorable terrace-talks at the station after sundown, and most of all being out on the water (weather permitting) surrounded by beautiful natural scenery in search of dolphins - hopefully with numerous (always carefully proceeded) encounters, which vary widely but are just breathtaking each time !! Whereas what can be easily said is that everybody at Blue World - from management to the education desk team - is doing an exceptional job with immense personal effort, highly professional and motivated and yet decidedly friendly and helpful – which is especially true for our volunteer mentors at the time, Tihana and Jure. Thank you so much!“
from Jens Ruggaber, Schömberg. June 2014

"Time runs fast, especially during the brightest moments - these two weeks that I spent volunteering with Blue World run like a one day full of impressions and moments to remember.

On a beautiful Losinj I've got some unforgettable memories of seeing dolphins very close, gained new skills, meet great people. As for future marine biologist, the opportunity to observe dolphins and then do some analyzing, helped me to see different sides of scientific work. The other thing I'm very glad about - I had a chance to communicate with professionals in marine science.

Another important part was the way of life in the house. The atmosphere was very warm and friendly, all daily duties as cooking and cleaning were shared and done with pleasure and fun and I also learned some new recipes. I'm sure photos from our stay speak for themselves.

The island is beautiful, views are gorgeous. I spent a great time having a long walks near the coast and enjoying the sea. It's difficult to find the right words for all enjoyable moments that I had, I would just say: it was absolutely beautiful time that I will remember fondly. I'm very grateful to the Blue World team, interns and volunteers with whom I spent these days!"

From Anastasiia Barilo, Russia. June 2015

"Fantastic organization! We participated in the Blue World volunteering program for 2 weeks this summer and highly recommend it. Everything from the moment we arrived was well organized and on-point. We learned so much thanks to the generous and knowledgeable staff."

From Michael Cerrone, USA. July 2016