e-ISSN: 2595-5527
10.32435/envsmoke.20214336-44
Volume 4, Issue 3, 2021

SCENIC ART FOR SHARK CONSERVATION AND OCEAN HEALTH ALERT

Arte cênica em prol da conservação do tubarão e o alerta para a saúde do oceano

Karina Massei [*]; *Carlos Alberto Isaza Valencia* [2]; *Ana Carolina Assis Sampaio*[3]; Rogério dos Santos Ferreira[4]; *Christinne Costa Eloy*[5]

Abstract

This interdisciplinary research has the playful art as a tool to raise awareness about the conservation of sharks and the environmental health of the Ocean, in addition to the search for the demystification of some concepts bringing to light the biological and ecological importance that this emblematic group represents for the natural balance of the Blue Planet. In the months of June and July 2018 at the visiting aquarium in Paraíba, a space for the propagation of non-formal environmental education, it was sought through the theatrical play "Swimming in Safety, a Sea of Hope" to apply the way of doing and teaching the concepts of sustainability and environmental preservation since the choice of the team, the actors and scenographic materials. Through exploratory and participant research, photographic and video records, we investigated the reactions of the audience before, during and after the play. The evaluation process was permanent in order to make constant improvements. The play tried to highlight not only information about the characteristics and importance of preserving sharks, but also the main threats such as the practice of finning, which through a plot between the pirate and the shark and the echinoderms, it was possible to explain the defence systems that each being has, all of which are important, showing that sharks are worth much more alive than dead. The expertise and performance of artistic activities such as juggling, magic and balance contributed to the success of the play. The results prove that this type of multidisciplinary experience, which promotes learning through enchantment, should be encouraged because it will certainly constitute a basis for future attitudes, especially in children, since they will feel encouraged to protect nature, according to the premises of the Decade of Oceanic Science and Ecological Restoration.

1Post-doctoral student at the Ecology and Environmental Monitoring Program of the Federal University of Paraíba (PPGEMA/UFPB). Ph.D. in Environmental Sciences, UFPB. President of InPact – Research and Action Institute
*karina.massei@inpact.org.br

2Master in Development and Environment (PRODEMA/UFPB).
*carlos0isaza@gmail.com

3 Master's student in Administration (UFPE).
*ana.sampaio@ufpe.br

4 PhD in Geography (Federal University of Paraiba). Specialist in Environmental Policies (lEEB). Master in Environmental Management (PRODEMA/UFPB).
*rogerioferreira.ambiental@live.com

5 PhD student in Science Communication at the University of Porto. Professor of Zoology, Federal Institute of Paraíba, Brazil.christinne.eloy@ifpb.edu.br

Keywords: Scenic art. Shark conservation. Ocean environmental health.

Resumo

Essa pesquisa de caráter interdisciplinar tem a arte lúdica como ferramenta de sensibilização sobre a conservação dos tubarões e da saúde ambiental do Oceano, além da busca pela dismistificação de alguns conceitos trazendo à luz a importância biológica e ecológica que este grupo emblemático representa para o equilíbrio natural do planeta Azul. Nos meses de junho e julho de 2018 no aquário de visitação na Paraíba, espaço de propagação da educação ambiental não-formal, buscou-se por meio da peça teatral “Nadar em Segurança, um Mar de Esperança” aplicar a maneira de fazer e ensinar os conceitos de sustentabilidade e preservação ambiental desde a escolha da equipe, dos atores e materiais cenográficos. Através da pesquisa de caráter exploratório e participante, registros fotográficos e de vídeos, investigou-se as reações do público antes, durante e após a realização da peça. O processo de avaliação foi permanente para a realização de melhorias constantes. A peça tratou de ressaltar não só a informação sobre as características e importância de preservar os tubarões, mas as principais ameaças como a prática do finning, que através de um trama com entre o pirata e o tubarão e os equinodermos, foi possível explicar sobre os sistemas de defesa de que cada ser possui, sendo todos importantes, demonstrando que os tubarões valem muito mais vivos do que mortos. A expertise e performance das atividades artísticas como os malabares, a mágica e o equilíbrio, contribuiram para o sucesso da peça. Os resultados comprovam que este tipo de experiência de caráter multidisciplnar e que fomente o aprendizado através do encantamento, deve ser incentivada pois seguramente constituirá uma base para atitudes futuras, principalmente em crianças, uma vez que se sentem encorajados a proteger a natureza, conforme as premissas da Década da Ciência Oceânica e da Restauração Ecológica.

Palavras chaves: Arte cênica. Conservação dos tubarões. Saúde ambiental do Oceano.

Received: 15 Oct. 2021
Accepted: 16 Nov. 2021
Published: 30 Dec. 2021

1 Introduction

Environmental health dialogues among the various sciences that involve the promotion and maintenance of life considering the context of the environment, whether local or even in a broader sense, such as in global terms.

In this sense, the Ocean is a continuous body of salt water that covers more than 70% of the Earth's surface. Geobiological studies indicate that life began in the Ocean, and to this day, this immense body of water remains home to most of Earth's plants and animals - from tiny single-celled organisms to blue whales, the largest living animal on the planet (PERPETUAL PLANET, 2018).

The ecosystem goods and services that the ocean provides are essential to the planet and directly and indirectly benefit all species, including humans, examples of these being: climate stability, biodiversity, food security, alternative energy, biotechnology and leisure (SOURCES; LEOPOLDI, 2021).

In the specific case of sharks, one of the most emblematic groups of the Ocean by Man, for being animals considered "ferocious predators, human eaters" provide an essential service for the maintenance of the marine ecological balance, since they occupy the top of the food web, performing the population control of their usual prey, besides providing natural selection by preying on the slowest and weakest animals (SZPILMAN, 2004).

Due to the biological and ecological characteristics that this functional group presents, studies indicate that it is this dangerous predator that has much more to fear in relation to human activity, after all, its survival is becoming more and more precarious, being shark species threatened worldwide due to the combination of intense commercial fishing, sport hunting and climate changes. Thus, measures for the rational exploitation of this resource are necessary in order to avoid the collapse and extinction of shark species (AZEVEDO, 2001).

2 Context

In this section we present a brief account of the relevance of information in society that underpins our approach and research paths.

2.1 Sharks: valuable ferocious predators, the human-eating villains

Sharks, rays and chimaeras make up the group of elasmobranchs, are represented by about 1100 species worldwide, of which 185 are found in Brazil. These K-strategic animals, are characterized by slow growth, late sexual maturity and low reproductive rate (LOPES ET AL., 2016), which makes them a group in a state of attention to preserve.

Added to this, predatory fishing to obtain shark fins "known as "finning" has been occurring for millennia, progressively, steadily and silently throughout the East, by the belief that fin soup is an aphrodisiac and symbol of power (offered at formal banquets of the elite). This expression "finning" means the action of capturing the shark, cutting the fins and then discarding the animal alive in the ocean, which without mobility, suffers by slowly dying (HERNANDEZ ET AL., 2010).

As of the 70's, the sensationalist exhibition "Jaws" arising from the movie industry, configured the sharks as human-eating villains, generating hatred, fear and panic in people, resulting in the desire for the complete extermination of these animals (SZPILMAN, 2005).

Pointed as growing exponentially in recent decades, anthropic actions such as pollution, accidental capture, degradation of nurseries and overfishing are threats to sharks, which may lead them to extinction if effective measures are not taken urgently (DIVE FOR SHARK, 2021).

When it comes to trajectories of change linked to anthropic interventions in the environment, the economics of nature has emerged in recent decades, as an instrument that attempts to estimate an economic value or, in other words, assign a monetary value - pricing - the resources of the environment (COSTANZA, 2000), through indicators and standards established by the goods and services provided by nature, such as the value of biodiversity, benefits or opportunities for recreation and scenic beauty.

This systematization effort led to several studies, being shown by Peschak (2013), that a live shark - with an average life expectancy of up to 15 years -, can generate a revenue of 13 thousand dollars per year with nature observation tourism, strengthening

the local economy, while a dead shark is worth about 50 dollars.

2.2 Playful art as a tool for raising awareness

Through playful activities such as theatre or artistic presentations, it is possible to provoke reflections on the ideas that are being transmitted, it can facilitate the teaching process and make learning pleasurable, preserving the fundamental features to the pedagogical practice (ANTUNES, 2014). The mentioned author highlights the importance of stimulating the imagination in the learning process, since it involves both your reasoning and your conscience, generating spaces for reflection.

Explaining this concept from the perspective of another author (DE ARAÚJO; JÚNIOR, 2007), the theatre has the ability to create spaces related to environmental education, covering spiritual and physical aspects of each individual, because this type of performances, developed in a critical way, have the ability to insert themselves in socio-political and environmental contexts (DE ARAÚJO; JÚNIOR, 2007), working reality in a dialogical and dialectical way. Besides being transformative, by allowing the human being to transport himself in what is being presented, giving him the possibility to see himself before the reality of the facts, it can be a revolutionary instrument (SITTA; POTRICH, 2005).

Aiming to achieve the goal of generating the creation of knowledge, promote reflection and generate social awareness, it is necessary that the artistic piece presented, is built in such a way that the transmission of the message reaches the audience in the most direct and simple way possible (LUMMERTZ; FISCHER, 2017). Thus, the relevant content on environmental education should be in harmony with the performing arts, creating a space for interdisciplinarity towards the convergence of various perspectives of knowledge.

Along this argumentative line, the circus arts, represented in artistic activities such as juggling, magic, balancing and clowning, have the potential to transmit social content of public interest (SOARES, 2018).

From this perspective and based on the facts presented above, this study sought to demystify the image of sharks that hangs in the imagination of society as "villains that eat humans" and inform about the importance of these cartilaginous beings for the ecological balance of the ocean, through the artistic play (scenic art) integrated with the environmental theme. As well as to demonstrate that even in a short space of time, it is possible to sensitize adults and children contributing to the formation of individual opinion, before the need of the collective protect the species and the environment as a whole.

3 Materials and methods

The methodology used was exploratory and participant research. Data collection took place before, during and after each artistic piece, through analysis of photographic and video records, in addition to local experience, which were recorded reactions, comments and positive and negative aspects as a form of evaluation by the search for continuous improvement (Figure 1).

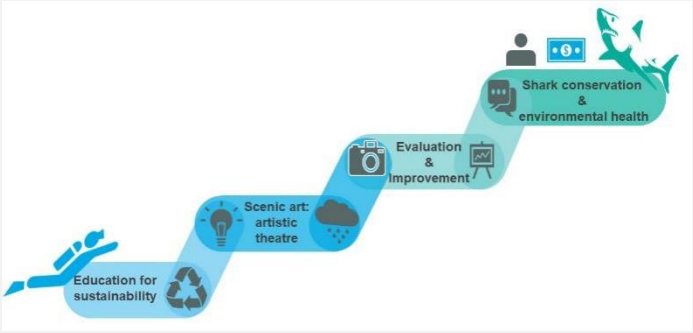

Figure 1. Infographic on the methodology used. 2021.

The project was carried out at Aquário Paraíba, during the months of June and July 2018, in the recreation area and the auditorium. This private enterprise, was opened in January 2016, incorporating from the beginning, the principles of education for sustainability (MASSEI et al., 2016). In July, educational institutions are in recess (school holidays), being adapted a differentiated programming in the aquarium. This winter period in Brazil, is characterized by torrential rains, thus increasing the demand for covered spaces by the Paraiban society and tourists in general (Figure 1).

The choice of theatre, among the scenic arts, was made because it was considered a novelty for the

space, and a beautiful opportunity to gather the community with a fun purpose of entertainment and environmental awareness. The sketch of the play was idealized by the marine biologist and environmental educator - director of the zoological area of the aquarium - and by the marketing director. Both experts in recreational and didactic activities in entertainment spaces, such as the aquarium, having experience in the confection of some thematic materials.

As this is a pilot project with conservation precepts in a space that has as its pillar the education for sustainability, the scenographic production was made of reusable or recycled materials to raise awareness of the spectator with respect to the theme of solid waste (rubbish), but also of the team itself, reinforcing the participation of the technical team and actors/artists towards a new way of thinking the ocean environment (Figure 2).

Figure 2. Scenographic production made of reusable or recycled materials.

The technical team was composed of 8 people from the aquarium with different expertises but that complemented each other, counting with the 3 external artists/actors. These artists were already known for different reasons, being invited to integrate the production process of the play. In the case of the character Tubi (representing the group of sharks), the invitation went to the main presenter of a TV show at the Federal University of Paraíba, called Escafandro Mágico (Magic Scuba), who performed part of it at the aquarium, and was readily available to support the execution of the play. It was also invited a university couple that exercised artistic activities at the traffic lights of João Pessoa, due to the acting and performance in highlight, besides being a way to help them because both were newcomers in the State, being one of them a foreigner, from Colombia, who fitted perfectly in the role of the pirate.

Entitled "Tubi & Cia contra Jack Spirro", the play featured the characters: Jack Espirro (pirate), Tubi (shark), Star and Ouro (representing the “Cia” group of echinoderms through the female presence).

Figure 3. Material made to explain the cruelty of the cruel practice of "Finning”.

The play covered not only information about the biological and ecological characteristics of sharks (cartilaginous fish, sharp teeth in rows that always grow, swimming, etc.), but also about anthropic threats - through different situations with the pirate (the practice of finning (Figure 3), pollution, deforestation, overfishing and climate change) and how all animals are important to maintain the

balance of the ocean - considering Star and Ouro's defenses to defend Tubi.

Figure 4. Shark dance finalising the artistic and environmental piece.

At the end, they showed what each one can do bringing the reflection that everyone is responsible. And at the end everyone danced (Figure 4).

After the presentations, there were dialogues, questions and comments from the audience (Figure 5).

Figure 5. Moment of reflection and conversation with the public.

The expertise and performance of artistic activities such as juggling, magic, balance, among others, contributed to the success of the play (Figure 6).

Figure 6. Senic art – magic and balance – of the watter bottle and glass by Jack Spirro

The production of the costumes, the scenography in general (lighting, sound system, special effects, etc.) and the technical rehearsals followed an organization based on a strict schedule, being carried out the production of materials and rehearsals during the day in the auditorium (without public access) and after working hours in the recreation area.

Due to the formatting of the play and the juggling performance (e.g.: the hedgehog using the knives as if they were the spines to defend himself and protect the shark against the pirate), it was decided to perform the play in the recreation area (wider area and higher height).

Figure 7. Announcement of the attraction on the aquarium's social networks and website.

The play took place on Saturdays in July, at 3.30 p.m. and lasted an average of 30 minutes (Figure 7).

4 Results and Discussions

The artistic play had an approximate number of 50 people watching each play, totaling an audience of 200 people, with different ages, ranging from 3 years old to the elderly. The audience was mixed, both in gender and representation (teachers, students, businessmen, scientists, sportsmen, retired people, among others) and in nationality, with an average of 70% from the North East region, with 40% born in Paraíba. The others (27%) represent other regions of Brazil and 3% foreign public.

About the artistic play and the reactions of the public

The play met both pedagogical and logistical issues. The research showed that through the artistic play, even in a short space of time, passing on the correct information, with the appropriate performance, with appropriate music and lighting, it was possible to verify that the participants assimilated the information. It was observed enchantment, amusement and manifestation of emotions in several moments on the part of the audience, who even shouted to help protect the Tubi.

The children's knowledge about sharks, especially the children's, surprised everyone in the team, as the parents explained that their curiosity about these animals arose from the children themselves at home. It is possible to suggest, based on family narratives and the team's experience in the aquarium circuit, that the children's search for dinosaurs, in this case, megalodon (the largest existing shark in prestine eras) brings a sense of curiosity and a little fear. Due to the availability of books, electronic games and dolls on the market, access to information is faster, encouraging other classmates to join the same search. Many families went to visit the aquarium to meet a child's request. In the case of the girls, the enchantment was shown by the seahorses and, for both genders, by the sea turtles.

It was possible to demystify the image of sharks as evil, check their understanding of what finning is and the current threats. It was observed that they understand that a shark is worth much more alive than dead. But the fear that hovers in the imagination of society, especially among the adult audience, has shown that besides the need for access to correct information through the media, there must be proper management of natural resources and mitigate further damage that harms the health of the ocean. This is because a large part of the audience belonged to the northeastern region of Brazil and had some knowledge of shark attacks on the beaches of Pernambuco - a state that borders Paraíba - came to the team seeking to interact and tell some stories, the following excerpts were evidenced:

Former slaughterhouse in the estuary of Pernambuco

I know of reports of people who lost relatives to attacks in the 60s and 70s due to a slaughterhouse that operated clandestinely in the estuary and dumped animal remains there. And at the time nobody knew that sharks entered the river to reproduce. There was a priest who even said that they were the monsters of the river.

Explanation: Pernambuco has the highest number of cases registered by the State Committee for Monitoring Incidents with Sharks (CEMIT). There are several hypotheses raised by specialists (ad memorian Prof. Fabio Hanzin, Otto Teixeira and Prof. Dr. Eduardo Nogueira). Fabio Hanzin, Otto Gadig, Ricardo Rosa) that justify the increase in

these incidences over the years, as there have been reports since the 1950s: either by the population increase of the region, resulting in dumping of organic waste into the sea, by the increase of indiscriminate shrimp fishing, favourable underwater topography of the region, characterised by a deep channel adjacent to the beach, the construction of Suape Port, destruction of vast areas of mangrove and landfill, This may have led to the displacement of the bumphead shark females for breeding to the estuary of the Jaboatão River, which flows exactly into the beaches of the Metropolitan Region of Recife (Paiva, Candeias, Piedade, Boa Viagem and Pina) where most of the attacks occur, in addition to climatic changes.

Watermelon smell in the water

Here in Paraíba we also have sharks, but they are further away from the coast. I participated in a whale hunt from Costinha in Lucena/PB and we knew that when we smelled watermelon in the air it was because there were sharks nearby.

Explanation: Whale hunting in Paraíba was a profitable and export-oriented activity developed between 1911 and 1986 in the Costinha district, municipality of Lucena, by Copesbra. It lasted until 1987, the year in which President José Sarney sanctioned Federal Law 7.643, prohibiting the slaughter and molestation of cetaceans in Brazilian jurisdictional waters. The characteristic smell of watermelon in the middle of the sea being associated with the presence of sharks is part of several reports from fishermen who experienced the hunt at the time. However, the presence of sharks was due to the fact that when they shot the dart at the whales, it caused all the bleeding to start, bringing the sharks closer.

Due to the fact that the public stayed in the area trying to talk and interact with the team, causing an additional attribute on the hours of the aquarium staff, it was decided to end the piece explaining about some attitudes that can ensure the survival of bathers, as reported by One Ocean Organization (2021):

1. People need to take responsibility that when entering the sea, they are coming into contact with a wild environment, where various groups of animals have differentiated characteristics to protect and feed themselves.
2. Sharks do not generally like physical contact. The shark is not a people eater, but a biter. Due to the lack of food, it may be looking for other types of prey and mistaking man for one of them.
3. Surf, swim, dive and enjoy the sea with a partner whenever possible. People who do not survive attacks are often alone. Having someone in the water helping you can save lives.
4. Avoid entering the water, with objects that reflect light, as the shark can assimilate like scales from prey.
5. If you can sense the presence and anticipate a shark attack, you should look to hit the temple, eyes or gills as these are very sensitive areas.
6. In the event of a bite, try not to move away, holding it to minimise its influence and the amount of flesh it is able to remove with its sharp, serrated teeth.
7. Do your best to keep the heart rate down, because adrenaline usually helps with bleeding.
8. After the attack/interaction, you should quickly apply a tourniquet above the bite. Keep warm to avoid shocks. Ask someone to call the emergency medical services.

Shark products in pharmaceuticals

The use of shark products such as oil and cartilage also undermines the preservation of these animals, and in this case, it is the pharmaceutical industry that is behind it.

Explanation: In fact, we and other environmentalists are trying to understand to what extent the demand for shark cartilage and shark liver is not increasing shark catches on an illegal market. This is because shark livers produce a natural oil called squalene, an ingredient used in the production of flu vaccines, increasing a patient's immune response, according to laboratory studies. Shark cartilage is rich in proteins, mucopolysaccharides, as well as mineral substances (phosphorus and calcium) and has been used by people with some type of chronic disease, including various forms of cancer, as well as helping to improve bone and joint health, reducing pain and inflammation. Recent studies show that some substances and mini-antibodies can cure Parkinson's and pulmonary fibrosis (LESLIE, 2018). In this sense, we can see the importance in developing conservation strategies so that we can use products from sharks, ensuring their preservation.

The protection for sharks that save human lives

In the case of elasmobranchs (sharks, rays and chimaeras), projects aimed at research and conservation of endangered animals have been essential for the dissemination of information and

implementation of activities that seek the protection of these species. There are several study and research groups in higher education institutions in Brazil and abroad focused on this theme along the coast.
Moreover, according to the search carried out, several countries have already started some years ago to institute laws and plans to combat the fin trade. However, the control of this practice is a very difficult task, as it involves social, economic, and ethical factors (AZEVEDO, 2001).
Among the countries, Brazil stands out, which through Ibama Ordinance No. 121/1998 prohibits the discarding at sea of shark carcasses from which the fins have been removed and only allows the transport on board or landing of fins in a proportion equivalent to the weight of the retained or landed carcasses. In late 2012, the Interministerial Normative Instruction was published jointly with the Ministry of the Environment prohibiting in Brazil the fishing of sharks and rays only for the fin trade (IBDMAR, 2017).
In 2010, the United States passed a law requiring that all sharks legally caught in US waters must be landed with their fins intact and in body. The same year, the State of Hawaii passed a law prohibiting the possession, sale, trade and distribution of shark fins. A year later, the States of California, Washington, passed the same law. In the same year 2011, the government of the Bahamas, Honduras, Maldives and Palau, passed a similar law.
In 2014, the practice of finning was banned in New Zealand.
In 2017, Air China banned the transport of shark fins on its planes. The NGO WildAid has been pressuring Hong Kong to end this trade. This way, the large consumer market for fins in China is losing ground. Non-governmental organizations have been fighting against this terrible fishing (ESCAMASTORE, 2021).

5 Final Considerations

The research met the objectives, either by the role of informing the public, through the artistic play (scenic art) about the importance of these cartilaginous beings for the ecological balance of the ocean, as well as, it was possible to verify that even in a short space of time, there was a general awareness (elderly, adults, youth and children) contributing to the formation of individual opinion (elderly, adults and young people), before the need of the collective protect the species and the environment as a whole.

This type of positive experience and awareness that occurs in spaces that apply non-formal education should be encouraged because it will surely form a basis for future attitudes, especially in children, since they feel encouraged to protect nature, building knowledge as a basis for future attitudes.

Although there are conservation projects and policies for sharks, one of the great challenges for Sustainability in the broadest sense is to promote animal production, ensuring animal health and public health, in harmony and interdependence with the health of the Environment where Man is inserted.

Fisheries-related institutions should provide policies that reduce social inequality. In general, people should learn to coexist with sharks and other beings existing in nature, respecting them and having an attitude of co-responsibility, and exercising citizenship through citizen science because, as Turra (2021) states, "The search for sustainability in the ocean involves three key elements: sustainable production, equitable prosperity (shared distribution of resources) and effective protection", being premises of the Decade of the Ocean and the Decade of Ecological Restoration.

ACKNOWLEDGEMENT

We thank the whole technical team of “Aquário Paraíba”, which readily adapted and made itself available for the realization of the activity.

REFERENCES

ANTUNES, F. M. **Arte lúdica como ferramenta didática na educação ambiental.** 2014.

AZEVEDO, V.G. **A prática do “finning” na pesca de tubarões.** Anais da XIV Semana Nacional de Oceanografia – Oceanografia e Sociedade: um desafio à teoria e à prática, Rio Grande, RS, Brasil 07 – 13 de outubro de 2001. Centro Acadêmico Livre de Oceanologia – CALO. 2001.

COSTANZA, R. Social goals and the valuation of ecosystem services. **Ecosystems,** v. 3, p. 4-10, 2000.

DE ARAÚJO, A. F.; JÚNIOR, V. P. Teatro e educação ambiental: um estudo sobre ambiente, expressão estética e emancipação. **REMEA-Revista Eletrônica do Mestrado em Educação Ambiental**, vol. 18. 2007.

DIVE FOR SHARK. Disponível em: https://diversforsharks.com.br/pt/ativismo/o-que-e-finning-e-como-voce-pode-ajudar-a-combate-lo. Acesso em 15 dez. 2021.

ESCAMASTORE. Disponível em: https://escamastore.com.br/shark-finning-barbarie-contra-os-tubaroes. Acesso em 17 dez. 2021.

Fontes, L.; Leopoldi, G. Disponível em: https://www.ecodebate.com.br/2021/03/22/servicos-ecossistemicos-dos-oceanos-sao-essenciais-para-o-planeta-e-a-humanidade. Acesso em 13 dez. 2021.

Hernández S., C. Gallardo-Escárete., J. Álvarez-Borrego., M. T. González. and P. A. Haye. A multidisciplinary approach to identify pelagic shark fins by molecular, morphometric and digital correlation data. **Hidrobiológica**. 20 (1): 71-80. 2010.

IBDMAR, Brazilian Institute for the Law of the Sea (BILOS). Disponível em: http://www.ibdmar.org/2017/01/comercio-de-barbatanas-de-tubarao-se-torna-crime-em-rhode-island. Acesso em: 21 dez. 2021.

LESLIE, M. Mini-antibodies discovered in sharks and camels could lead to drugs for cancer and other diseases. Disponível em: https://www.science.org/content/article/mini-antibodies-discovered-sharks-and-camels-could-lead-drugs-cancer-and-other-diseases. Acesso em 23 dez. 2021.

LOPES, E.Q.; MELO, L.F.; BRUNO, C.E.M.; AMORIM, A.F. 2016. Biologia, ecologia, identificação e conservação das espécies elasmobrânquios (tubarões e raias) de litoral de Peruíbe – SP. **Revista Ceciliana,** Dez 8(2): 1-68, 2016. ISSN 2175-7224.

LUMMERTZ, T. B.; FISCHER, M. L. O Teatro como ferramenta de promoção de Educação Ambiental. **Revista Brasileira de Educação Ambiental (RevBEA)**, vol. 12, no 5, p. 56-72. 2017.

MASSEI, K., LOPES, E. C., FERREIRA, R. O aquário com o instrumento educativo: uma proposta pedagógica para o Aquário Paraíba. **39º Congresso da Sociedade de Zoológicos e Aquários do Brasil (SZB).** Foz do Iguaçu (PR). 2015.

ONE OCEAN ORGANIZATION. Disponível em: https://oceanramsey.org. Acesso em 12 dez. 2021.

PERPETUAL PLANET. Tudo o que você precisa saber sobre os oceanos. **Redação National Geographic.** Disponível em: https://www.nationalgeographicbrasil.com/perpetual-planet/2018/06/tudo-o-que-voce-precisa-saber-sobre-os-oceanos. Acesso em 18 dez. 2021.

PESCHAK, Thomas. **Sharks and People: Exploring Our Relationship with the Most Feared Fish in the Sea.** Chicago: The University of Chicago Press, 2013.

SITTA, Marli; POTRICH, Cilene. **Teatro: espaço de educação, tempo para a sensibilidade.** Passo Fundo: UPF. 2005.

SOARES, A. S. C., et al. **Diálogos entre circo, educação e saúde no contexto do programa mais educação**. 2018.

SZPILMAN, Marcelo. **Tubarões no Brasil: Guia prático de identificação.** Rio de Janeiro: Aqualittera e Mauad Editora, 2004.

SZPILMAN, M. Quanto tempo ainda resta? **Revista do Protuba**. 1(1): 15, 2005.

TURRA, Alexandre. Disponível em: https://ciclovivo.com.br/planeta/meio-ambiente/agua-planeta-90-oceano-misterio. Acesso em: 23 dez. 2021.