

ZERO PLASTIC NEWS

#4

NOVEMBER 2020

ZERO PLASTIC

WORLD NETWORK OF BIOSPHERE RESERVES



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MICRO 2020 CONFERENCE: IMPORTANT DATES

With this Zero Plastic News bulletin #4 we bid farewell to summer in the northern hemisphere. In this issue we are happy to share interesting initiatives taking place in Commander Islands, Jeju Island, Isle of Man, Karst and Reka River Basin, and Mariñas Coruñasas, all Biosphere Reserves involved in the fight against plastic pollution.

Moreover, we present a new interview section, this time sharing responses from two researchers from Japan and France, involved with Marine Sciences For Society in the study of plastic pollution. They conduct socio-economic modeling at national and global scales. From them we also have recommended literature to go deeper into the topics of their research.

Finally, we summarize the next steps of the upcoming MICRO 2020 conference, hoping it will highlight research challenges, be a platform for exchange and help US make community efforts against plastic pollution more visible. Every Biosphere Reserve is invited to participate actively in this process.

DoM Newspaper: Waste Museum's new project

“Home is the Place You Care About”. Dialogues About Waste, or in Russian “DoM” (дом in Russian is Home), is an awareness-raising newspaper of the Commander Islands Biosphere Reserve for children and their parents about what to do with waste on the Commander Islands, from children living on Bering Island.

Most of the materials are prepared by our Waste Patrol - an initiative group of schoolchildren of different ages who are concerned about the preservation of local nature.



Together with our young colleagues we used the exhibits from the Waste Museum to study how hazardous waste is and how to recycle it. The children were so carried away that we did not even notice editorial office of the newspaper being organized. However, it is not our first time - Waste Patrol itself appeared just as spontaneously!

The first issue was about waste paper, and the second is about plastics. Working on the newspaper has proven to be a fascinating awareness building tool.

Each in the editorial office has his or her own role: right now second-grader Sasha is picking up facts, fifth-grader Liza is studying the dangers of disposing of plastic bags, sixth-grader Dasha is analyzing the effectiveness of Boyan Slat's startup in cleaning up the Great Pacific Garbage Patch, eighth-grader Nastya is describing the art objects of the Waste Museum according to all the rules of cataloging, and Dominica is drawing a scheme for recycling a plastic bottle.

Our task as employees of the Awareness-Raising Department of the CINBR is to set vectors, to offer high-quality sources, to teach how to work with them, namely how to distinguish the crucial from the unimportant, and to show that complex things are not only useful, but interesting!

Even if the young people do not connect their lives with the environmental protection, they will gain teamwork skills necessary in any sphere. In addition, the work on the issue about plastic pollution resulted in the topic being studied as fully as possible in accordance with the age of everyone participating. And it is the best we wanted to achieve as teachers.

***Contributed by Irina Moskvitina
Commander Islands BR, Russia***



Jeju Mandala Project, Condolences and Blessings for the Sea



Finding pieces of plastic glistening in the sunlight while sweeping through the sand.

Eco Orot leads a project “2020 Plastic Mandala,” an environmental movement and ecological art project that collects small plastic particles from the beaches throughout Jeju to create a mandala. A Mandala, a painting in which Buddhist symbols are arranged in a symmetrical circular pattern, is widely referred to as an image that represents the cycle of nature.

Tibetan monks make elaborately patterned mandalas out of colored sand over days and weeks and dismantle them immediately once it has been completed. This process and its result symbolize the Buddhist doctrinal belief in the transitory nature of material life. The sand is collected in a jar and eventually released into natural water bodies nearby, transmitting positive energies back into the environment and sharing the blessings with the universe.



Inspired by the Tibetan Buddhist tradition, plastic mandalas, however, are made up of fine plastic particles collected from the sea.

The significant problems we face today cannot be solved by simply collecting plastic. Millions of tons of plastic enter the oceans, increasingly impacting our ecosystems, health, and economies. Picking up brightly colored solid bits of plastic of all sizes found on the beach is the process of facing the uncomfortable truth; we have produced many cheap and strong plastic products without thinking about future environmental consequences.

To change the direction of our lives, we must first face the discomfort. kneeling and bowing low to find the fragments of plastic that hide in the sand is described as “Praying for Action”. It is a ceremony to send condolences and apologies to the life of the sea. In order to share this prayer with more people, Eco Orot has recently held a series of events, “Plastic-Free Jeju,” in which visitors collected fine particles of plastic by filtering sand with a sieve, which works as a reminder of the suffering we have caused and extends a compassionate act towards it.

Contributed by Kwang Sub Jang, Jeju BR, Rep. of Korea

Reducing plastic use and becoming healthier in the Škocjan Caves Park's Network of Schools

The Waterschool Project

The project started in Vienna in 2016. In 2020 almost 80% of the Viennese schools are Waterschools. Encouraged by this great success, the Austrian project coordinators decided to share their practice with other European countries via an Erasmus+ project with the same title.

The schools who decide to become Waterschools have two main goals: increasing children's drinking of tap water, and reducing plastic waste.

Partners from Bulgaria, Czech Republic, Germany, Italy, Slovenia and United Kingdom developed a platform with online learning courses and materials for educators, with the basic steps of implementing tap water drinking in schools and kindergartens at an EU-level.

Three schools from the Škocjan Caves Park's Network of Schools were the first to join the project in Slovenia in 2019. For a good start pupils were given special bottles by the Škocjan Caves Park Public Service Agency.

Why to become a Waterschool?

Drinking tap water at school contributes to children's health and raises their awareness about the sustainable use of water and the environment. Drinking enough water instead of soft drinks protects against obesity and cavities. Good hydration assists attentiveness and the capacity for learning. But despite this, a large number of children do not drink enough water. One role of educators in the program is to encourage students to regularly drink from their own bottles.

Results of the first Waterschools

Children loved to cooperate and teachers implemented the project easily. Parents supported the project and want us to continue. Family members also drank more tap water and were more aware about plastic pollution. Children almost did not carry plastic bottles in school from home anymore and schools stopped using plastic cups.

Changing the habits of children means changing the habits of their families today, and the habits of the world in the future. This year we will continue. How about you?



Photo: Košana Primary School, Karst Biosphere Reserve Slovenia (Katja Čekada)

<http://www.waterschools.eu/>

*Contributed by Tanja Bordon
Karst and Reka River Basin BR, Slovenia*

Tackling Britain's Plastic Beaches, a documentary by a student journalist in the Isle of Man

Katie Garrett, of Onchan, has made a powerful documentary about marine plastic pollution for her final-year project at Leeds Beckett University. Katie has been studying journalism and is pursuing a career as a broadcast journalist. Instead of a dissertation, she was required to submit a practical piece of work and chose to make the 15-minute documentary, *Tackling Britain's Plastic Beaches*.

Katie says her choice of topic was heavily influenced by the fact she is from a UNESCO Biosphere that boasts clean beaches. We asked her about her project, how she overcame Covid-19 restrictions to complete it – and about how the Isle of Man's cross-community efforts to reduce marine plastic inspired her.

She features the pioneering work of two Isle of Man clean-up charities, Beach Buddies Isle of Man and 3 Pieces of Plastic, and interviews their founders, Bill Dale BEM and Richard MacNee. She also joins a beach clean with the Marine Conservation Society in Scarborough, North Yorkshire.

Katie says: 'On the Isle of Man we are just a small island and a little bit of plastic – you can't miss it. So seeing and hearing how important it is for Bill and Richard, and the changes they have made over the years, was just incredibly inspiring. I think you can see in the Isle of Man how clean our beaches are. We are incredibly lucky.' And she adds: 'We need to keep the discussion about plastic pollution in the news because it is as important as ever.' Watch Katie's full interview with us [here](#).



Photo: Katie Garret

Contributed by Jo Overty, Isle of Man BR

Zero plastic along the St James' Way

In “Mariñas Coruñesas e Terras do Mandeo” Biosphere Reserve, the LIFE Project “Water-Way” has been carried out since 2018, and it aims to guarantee the health of the water supply to pilgrims who make one of the “Camino de Santiago / Ways to Santiago de Compostela”, the way known as English Way.

The LIFE Project focuses on recovering the natural water sources and adapting them for human consumption. The objective is providing potable water for pilgrims. The natural water sources are affected by different problems making the water unfit for direct consumption.

This Cultural Route, declared by the Council of Europe, owes its name to pilgrims from Ireland, Great Britain and elsewhere in Northern Europe who docked at the ports of A Coruña and Ferrol to make the pilgrimage to reach the capital of Galicia.

The main English Way is 143 km long and in 2017, more than 11,000 pilgrims used this pilgrimage route, according to official data.

Underlying this problem is increasing plastic waste due to increasing consumption of bottled water by pilgrims. It is estimated that during that year, the water consumed by pilgrims on the English Way was more than 226,000 bottles of bottled water, generating 129 tons of CO₂ during this period, which is equivalent to more than 1 million km traveled by car.

The adoption of a reusable container for water consumption along the Camino de Santiago instead of using plastic bottles entails an attempt to minimize ecological impact. This impact is caused by the energy consumed and CO₂ emissions in the manufacture of the plastic itself and the packaging, as well as by the problems these single-use containers generate once they are discarded as waste.



It is also important to include in the benefits of the project the reduction of the carbon footprint generated by the transport and distribution of bottled water, which, in the vast majority of cases, travels vast distances using means of transport and fuels that also cause significant environmental impacts.

More info: <https://lifewaterwayeng.wordpress.com/>

***Contributed by Jorge Blanco
Mariñas Coruñesas e Terras do Mandeo BR, Spain***

Interview with Takuro Uehara and Mateo Cordier

Takuro and Mateo, researchers from Japan and France respectively, have worked for the past five years to understand the main drivers of plastic pollution at regional and global scales. Currently they are trying to adapt their model to small islands such as Lanzarote and Menorca as pilot sites.

1. What does the work you do to fight plastic pollution entail?

We develop ecological-economic models at national and global scales to understand social, economic, educational, and governance trends that are responsible for plastic production and consumption, their transformation into plastic waste, and how they are discarded into the ecosystem. Understanding these trends allows us to identify global strategies toward marine plastic pollution reduction.

2. In the data you have looked at from the Biosphere Reserves of Lanzarote and Menorca, what has caught your attention?

The work is still in progress. Data need to be transformed to be able to enter them in the ecological-economic model. The work has partially been done but is not completed yet. Thus, we can say that applying the ecological-economic model to subnational areas requires additional work, which makes the process a bit slower and more complex but not impossible. What we expect from the data is that once they are entered in the model, they should show the same profile as most small islands in the world: high levels of plastic waste discarded per capita (due to international tourism) but offset by relatively good waste management systems reducing plastic waste discarded into the terrestrial ecosystem and the ocean. If this is not the case, two possibilities will have to be analysed: either the model should be improved or it would show that Lanzarote and Menorca are unique and different compared to other small islands.

3. How should we approach the complexity of plastic pollution and its impacts on Biosphere Reserves?

Our approach consists of developing global ecological-economic modeling. Such models provide quite general information and are not detailed enough to design solutions in a precise and accurate way. This is one limit. But on the other side, this is precisely their advantage: such macroeconomic-modeling approaches allow us to investigate multiple solutions, not only ocean clean up. With our modeling approach, we can also analyse the effect of education, lobby-control, corruption-control, economic growth slowdown, urbanization slowdown, or demographic solutions, for example.

All these solutions are preventive measures that aim at avoiding plastic pollution reaching the ecosystem instead of cleaning the ecosystem once it is polluted. Thus, any tool or methodological approach that provides a broad perspective of the plastic issue can help to understand the complexity of plastic pollution, its causes and its impacts on the ecosystem (Biosphere Reserves included) as well as the multiple solutions that should be considered.

For sure, modeling approaches are quantitative, and there remain many quantifiable components that are not included in the model because the data have not been collected, or would be too difficult to collect.

There is also a lot of useful information that is not quantifiable. Such qualitative information must be used and analysed because it may help supplement the limited information provided by quantitative models. Hence, qualitative approaches are also required to provide a broad understanding of the complex issue of plastic pollution of ecosystems. Sometimes, the qualitative information may also help to better interpret the results provided by quantitative models and to be more aware of their limits.

4. Do you believe it is possible to educate society about the characteristics of plastic pollution's complexity that, for example, reveal the flows and dispersal of plastics and their effects on the planet?

The scientific literature on education and ecological behaviours shows that theoretical lectures at primary school, high school or university may have positive impacts in some countries. But what has a greater impact on improving ecological behaviours is, in addition to theoretical lectures, taking primary and high school students to the field, offering them activities in nature to favor direct connection with the ecosystem. This has proved to be effective in changing mentalities, according to some studies.

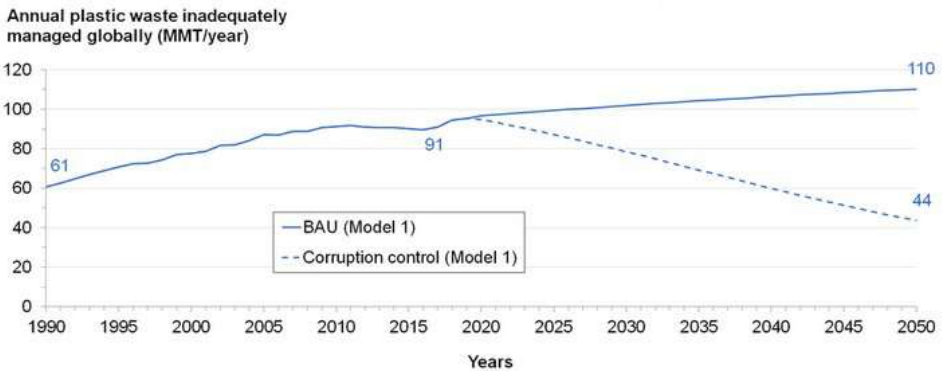


Figure: Corruption control policies succeed to reduce globally inadequately managed plastic waste discarded by the world population annually (Cordier et al., 2020).

Mateo and Takuro’s five top references related to plastic pollution:

Kaza, S., Yao, L., Bhada-Tata, P., Van Woerden, F. (2018) *What a waste 2.0: a global snapshot of solid waste management to 2050*. Urban Development Series, World Bank publications, Washington, DC.

Kiessling, T., Salas, S. Mutafoglu, K., Thiel, M. (2017) *Who cares about dirty beaches? Evaluating environmental awareness and action on coastal litter in Chile*. *Ocean & Coastal Management* 137, 82-95.

Otto, S., Pensini, P. (2017) *Nature-based environmental education of children: Environmental knowledge and connectedness to nature, together, are related to ecological behaviour*. *Global Environmental Change* 47, 88-94.

Candau, F., Dienesch, E. (2017) *Pollution haven and corruption paradise*. *Journal of environmental economics and management* 85, 171-192.

Eckelman, M. J., Ashton, W., Arakaki, Y., Hanaki, K., Nagashima, S., Malone Lee, L. C. (2014) *Island waste management systems: Statistics, challenges, and opportunities for applied industrial ecology*. *Journal of industrial ecology* 18 (2), 306-317.

Spotlight

The **MICRO 2020** international conference will take place from 23-27 November 2020, and for the first time it will be online-based. This biennial conference is organized through the collaboration between the Lanzarote and Menorca BRs with the Marine Science For Society researchers' network.

Our paper “**Zero Plastic : joining efforts to fight plastic pollution in island and coastal Biosphere Reserves**” by We All :) explains how coastal and island Biosphere Reserves make visible the complex issue of plastic pollution. Plastic in our rivers and shores represents a serious symptom of larger problems; these sites serve as warning systems illuminating the limits of the planet. The working group experience echos Ostrom’s call for policentric governance: Biosphere Reserves working with different social groups, organized or not, across scales and arrangements. The world's remote coasts and rivers indicate our plastic-based civilization is out of balance with the biosphere, but we find hope in efforts to learn from the past and experiment in the present for a plastic pollution-free future.



MICRO2020
INTERNATIONAL CONFERENCE
23-27 NOVEMBER 2020 LANZAROTE AND BEYOND*
FATE AND IMPACTS OF MICROPLASTICS: KNOWLEDGE AND RESPONSIBILITIES

The image features a graphic for the MICRO2020 International Conference. On the left, the text reads "MICRO2020 INTERNATIONAL CONFERENCE" in large, bold, blue and black letters, followed by "23-27 NOVEMBER 2020 LANZAROTE AND BEYOND*" in smaller black text. Below this is the subtitle "FATE AND IMPACTS OF MICROPLASTICS: KNOWLEDGE AND RESPONSIBILITIES" in blue. To the right of the text is a photograph of a pile of microplastic pollution, including a red plastic lid, a blue plastic fork, a green plastic cap, and a yellow plastic slice, all mixed with a large amount of small, dark brown granules representing microplastics.

More news very soon!

**THAT'S ALL FOR NOW FROM THE
ZERO PLASTIC NEWS #4
NOVEMBER 2020**

Growing from the Zero Plastic campaign in Lanzarote, which has been ongoing since 2009, the “Zero Plastic” working group was launched in May 2018 by Marine Sciences For Society at the annual meeting for the World Network of Island and Coastal Biosphere Reserves in Menorca. The Zero Plastic working group is an alliance between the the World Network of Island and Coastal Biosphere Reserves and the Marine Sciences For Society researcher’s network. Biosphere Reserves, researchers and the society as a whole sharing efforts to eradicate plastic pollution.

The Zero Plastic Working Group members include the following Biosphere Reserves: Archipelago Sea Area, Blekinge Archipelago, Cat Ba Archipelago, Commander Islands, Fuerteventura, Gran Canaria, Islands of Iroise sea, Isle of Man, Jeju, Karst and Reka River Basin, La Hotte, Lanzarote, Mariñas Coruñas e Terras do Mandeo, Menorca, Ometepe, Palawan, Península de Guanahacabibes, Terres de l’Ebre and Urdaibai.

If your Biosphere Reserve would like to become involved in the Zero Plastic Working Group, please contact Us at: zero.plastic@islandbiosphere.org

To learn more and watch as We evolve, visit our website: <http://zeroplastic.islandbiosphere.org>

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