

Marine Litter News

From East Asia Civil Forum on Marine Litter

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East Asia Civil Forum on Marine Litter

The East Asia Civil Forum on Marine Litter was established in October 2009 at the Marine Litter Summit in Shimonoseki, Japan. The Forum is composed of NGOs from Japan, South Korea, Thailand and Taiwan. We welcome more participation from other NGOs from east asian countries.

Preface

Dear readers from around the world concerned with marine litter,

From this volume, this newsletter has begun to have news from all around the world, expanded from the news from the East Asia Civil Forum. We have decided it with our awareness that we need to share all the news from around the world, as the global ocean is linked together. Thanks to contribution from China and South Africa, we could expand this newsletter as we wished.

Thus, this volume carries nine articles from five regions. Japan tells us that 2014 is the 25th anniversary of International Coastal Cleanup in Japan. Many special events including Marine Litter Summit are scheduled in Japan. And an interesting result of beached debris monitoring with abundance index is introduced. In Korea, the government launched the second basic plan to manage marine debris. And the Korean NGOs published a leaflet on marine debris impact on Black-faced Spoonbills, an internationally endangered species of birds. We are also happy to hear news from China that ten associations attended the first marine debris seminar. In Taiwan, long-term monitoring revealed that styrofoam buoys and its fragments from oyster cultivation are abundant on beaches along with plastic bags. And lastly, South Africa explains the general situation related to marine litter in the region, which is very informative.

Though the marine debris problem seems to become more serious year by year, I have become confident from this news that we, the humans, have the willingness and ability to cope with this problem.

With love,

May 2014,

Sunwook Hong (Ph.D., President of OSEAN)

ACTIVITIES

1. Celebrating the 25th anniversary of International Coastal Cleanup of Japan in 2014 (Japan)

By Ms. Kojima Azusa, ICC coordinator of Japan, director of JEAN,
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Recommended Citation:

Azusa, Kojima (2014) Celebrating the 25th anniversary of International Coastal Cleanup of Japan in 2014. Marine Litter News from East Asia Civil Forum on Marine Litter, Vol 5(1): 3.

It was in 1990 when the first ICC was held in Japan. It will be the 25th ICC this year. We would like to take the 25th anniversary as an important transition moment. JEAN is planning to enhance public relations activities. We will recruit more site captains and appeal for more volunteers. We will also shake up the trunk museum and create memorial goods for the site captains for the coming September.

In addition, we will send ICC study materials to the organizations that carry out only cleanups and will promote their participation in the ICC. We are also going to offer some ideas of awareness raising programs to the captains who have been helping us. The programs can be done in a short time during the cleanups. Hopefully, these plans will make our activities livelier this year and encourage the volunteers who may find nothing exiting about the activities after participating in it many times.

Since the Great East Japan Earthquake in 2011, there has been a concern regarding safety management during the beach cleanups. We were asked, “What if the earthquake occurs during the cleanup?” by the corporate workers who participated in our activity as volunteers. It certainly is put us into the situation to be called into the question the whole concept of risk control during the cleanup activity. (At the site where JEAN hosts cleanups as a site captain, we always tell the volunteers to stop the cleanup immediately and evacuate promptly to the higher place where they are informed in advance.)

The annual Marine Litter Summit will be held in Shonai District in Yamagata Prefecture in July, 2014. The objective of the conference this year is to share the information from the city administrators to expand effective countermeasures against the marine litter problem all over Japan. We will discuss measures in watershed areas since much of the marine litter reaches the ocean through the rivers and waterways.



Trunk museum created by JEAN



Volunteers participating ICC

ACTIVITIES

2. The Second Basic Plan to Manage Marine Debris of Korea (2014~2018) launched

By Dr. Jongmyoung Lee, Chief Science Officer, Korea Marine Litter Institute, Our Sea of East Asia Network
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Recommended Citation:

Lee, Jongmyoung (2014) The Second Basic Plan to Manage Marine Debris of Korea (2014~2018) launched. Marine Litter News from East Asia Civil Forum on Marine Litter, Vol 5(1): 4.



The 2nd Basic Plan to Manage Marine Debris of Korea (2014~2018)

The Second Basic Plan to Manage Marine Debris of Korea (2014~2018) launched with joint commitment of Ministry of Oceans and Fisheries, Ministry of Environment, and Korea Coast Guard. The plan based on the result of the research project conducted by Korea Maritime Institute (KMI) and Our Sea of East Asia Network (OSEAN). The plan aimed 1) to minimize the inflow of debris entering the sea, and strengthen the citizen oriented cleanup capacity, and 2) to establish the scientific and active policy infrastructure to manage marine debris. The strategies to achieve these goals include 1) focusing to source control of marine debris, 2) extending the citizen oriented cleanups, 3) advance in marine debris management infrastructure, and 4) providing customized outreach programs. According the plan, the Korean government will invest about USD 330M for marine debris projects over a five year span from 2014 to 2018. OSEAN contributed to the estimation of marine debris stock and flow of South Korea, and development of strategies for citizen participation and international cooperation.

Estimation of marine debris flow and stock of Korea

The information on amount of marine debris is essential for deciding management priority and evaluating its outcome. There have been few studies on the scientific estimation of the total amount of marine debris at national level. The total amount of marine debris of South Korea was estimated in terms of inflow, outflow, and stock for the Second Basic Plan to Manage Marine Debris of Korea. The amount of annual inflow was calculated with the sum of land- and ocean-based debris input. Land-based debris consisted of riverine debris in non-flood and flood seasons and debris from shoreline activities. Ocean-based debris consisted of derelict fishing gears, garbage from ships, aquaculture buoys, and debris from harbours. Annual outflow was based on the amounts of debris collected from beach, seabed, and sea surface, and generated by storm events. Stock is the total of debris on beaches, seabeds, and sea surfaces at a certain point of time. We estimated the annual inflow and outflow of marine debris in South Korea in 2012 to be 176,807 ton and 128,207 ton, respectively (natural debris from storm events). The stock was estimated to be 152,214 ton at the end of 2012.

The strategy to promote citizen participation for reducing the marine debris

The plan suggests the strategy to promote citizen participation for reducing the marine debris. The strategy includes the projects of public relation programs, supports for coastal cleanups, target oriented education programs, and active participation to regional seas programs. We can expect campaigns with mass media and publishing of the white book on damages from marine debris in near future. International Coastal Cleanup (ICC) in Korea will be supported by the government and other entities to extend the event and host NOWPAP ICC Campaign and Workshop in 2014 and 2017.

3. A Beautiful Ocean? Oceanic Debris Art Exhibition at National Museum of Marine Science & Technology

By Mr. Yun-Chih Liao/National Museum of Marine Science & Technology
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Recommended Citation:

Liao, Yun-Chih. (2014). A Beautiful Ocean? Oceanic Debris Art Exhibition at National Museum of Marine Science & Technology. Marine Litter News from East Asia Civil Forum on Marine Litter, Vol. 5(1): 5.

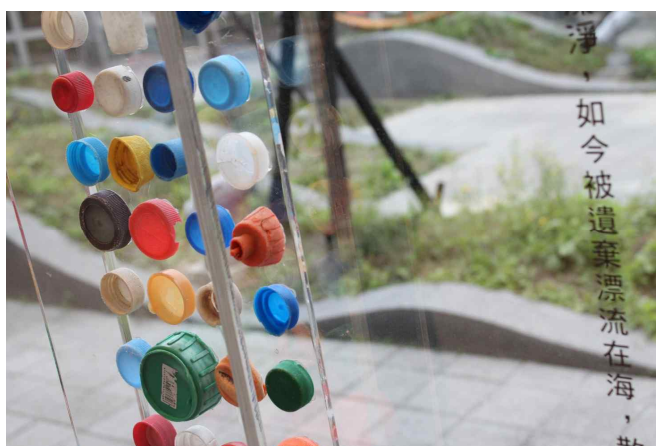


"During my voyage, I was floating and drifting by the current. When the sunlight penetrated into the water, my body shape looks like a real fish, swimming after them." (Rahic Talif, 2014)

Rahic Talif, an aboriginal artist from Hualien, eastern Taiwan. "In our traditional daily life, the ocean offers us plenty of foods and goods", he said. Debris or trash was not shown in our glossary except the word "Rakaw". It means that leaves or grass are easily burnt and fade away, the greatest difficulty is burning the shells. However, shells of great green turban, which used to be abundant along the coast, were replaced by numerous bottoms, slippers, and plastics. These can float and drift by the current for an unexpected long voyage!

For a long time of self-reflection, Rahic Talif has transferred traditional art to the global perspectives, for example, the oceanic environmental issues, by using debris and driftwood collected along the sea shore for his artistic creation.

National Museum of Marine Science & Technology is envisioned as an ideal venue for encouraging visitors to "embrace", "appreciate" and "sustain" the ocean. Our purpose for this exhibition is creating awareness in people that, the things we



"We were created to protect people and to offer people clean bottom water, then we were abandoned and scattered drifting in the ocean." (Rahic Talif, 2014)



A Beautiful Ocean? A tale for a long voyage in Oceanic Debris Art Exhibition. (Rahic Talif, 2014)

used to own were then abandoned and could be harmful to the ocean. If we don't take care of them and treat them well, the beauty of the ocean will vanish.

ACTIVITIES

4. Monitoring debris on beaches of Yamagata with Abundance Index (Japan)

By Mr. Hiroshi Kaneko, Representative Director of JEAN
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Recommended Citation:

Kaneko, Hiroshi. (2014). Monitoring debris on beaches of Yamagata with Abundance Index. Marine Litter News from East Asia Civil Forum on Marine Litter, Vol 5(1): 6.

There is an approximately 135-km-long coastline in Yamagata prefecture in the Tohoku region, NW Japan. Since 2011, we have been working on the marine litter issue by setting goals to collect marine litter more effectively.

We divide the beach into 39 areas and monitor the litters washed ashore in the 166 research points set in the areas. We employ "Index Evaluation Measurement of the scattered trash in the waterfront (for beaches)" (Fig. 1) and monitor it in the spring and fall every year.

Our short-term goal is to make the amount of litter into half in the fall after cleaning up the beaches in the spring. Taking the case of 2013 as an example, the rate of achievement to the short-term goal was about 44% of total in 17 areas out of 39 areas (Fig. 2).

It is only Yamagata prefecture that uses the monitoring system for the management of marine litter. We are hoping to grasp the actual condition of the litter in each area by introducing the system to all over Japan.



Fig. 1. Example of 'Index Evaluation Measurement of scattered trash'. Blue area of Level 1 and 4 means trash scattered on a beach. The index can be used as an alternative way to rapidly assess beach litter pollution in a wide area. Surveyors can easily assess the pollution level of a beach with the reference photos and estimate the total amount of litter.

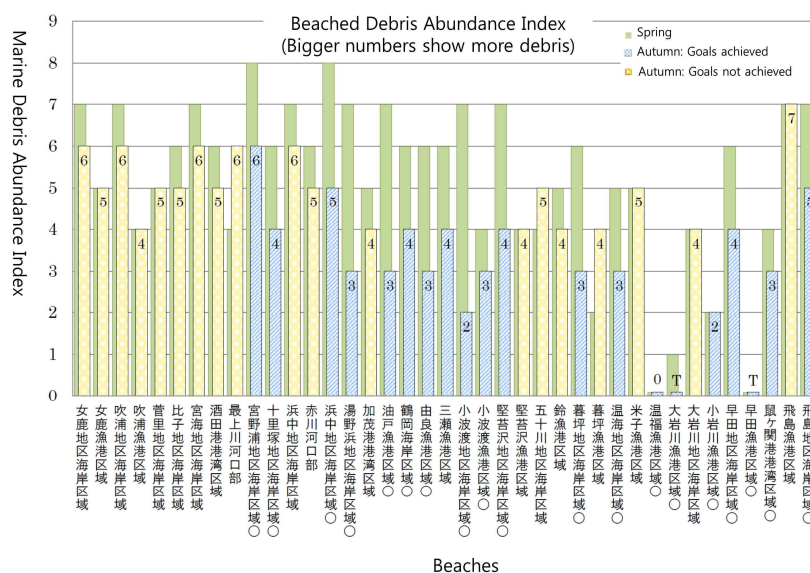


Fig. 2. Result of Index Evaluation Measurement of the scattered trash in the waterfront (for beaches), Yamagata prefecture, NW Japan in 2012. Circles on the x axis mean the areas which achieved their short-term goals set using Index.

5. Ten Associations Were Invited To Attend the First ‘China's Marine Protection’ NGO Seminar (China)

By Mr. Yonglong Liu, Consultant at Shanghai Yinglv NPO Development Center
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Recommended Citation:

Liu, Yonglong. (2014) Ten Associations Were Invited To Attend the First ‘China's Marine Protection’ NGO Seminar. Marine Litter News from East Asia Civil Forum on Marine Litter, Vol 5(1): 7-8.

The First Chinese Marine Environment Protection NGO Forum of the Control of Marine Litter Pollution’ was held on August 24th ,2013 in the conference room of the first floor,Building 1,No.2277, south Pudong road, Shanghai; hosted by Chinese Research Academy of Environmental Sciences, the Department of Water Environment, undertook by Shanghai Rendu Ocean NPO Development Center. It also gained great support from NOWPAP, NPO Development Center Shanghai (Yinglv), Youth development service center and Youth home public service support center of Podong district in Shanghai, and so on. Ten NGOs which have taken part in marine environment from Hainan, Guangzhou, Fujian, Shanghai, Liaoning and other coastal cities attended the meeting.

At the beginning of the meeting,there was an official business launch for Shanghai Rendu Ocean NPO Development Center. Then the use of the Honolulu Strategy (by NGO of Chinese marine environment) and some questions about anticipating in protecting marine were discussed. Dr. Chenhao of Chinese Research Academy of Environmental Sciences gave a report of the Honolulu Strategy first,then after the introduction of GPML made by the volunteers of Rendu, all the members started a discussion of how to join the GPML and how to contribute to it. In the third part of the forum, Dr. Zhang Haoqi was invited to make a recommendation of the monitoring system of State Oceanic Department, and the representatives talked over the Standardization of methods of monitoring of marine litter and data report in groups. We also talked about how to communicate ,statistic sharing and joint action on marine litter food of Chinese environmental protective NGO, and how to build a Mechanism of Action or a platform to make a deep discussion.



An official business launch for Shanghai Rendu Ocean NPO Development Center



Dr. Chen Hao of Chinese Research Academy of Environmental Sciences, the Department of Water Environment is giving a report

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Picture of Ma Tiannan, the director-general and the volunteer of Rendu in front of the poster



Representatives of NGO from the coastal cities all over our country are discussing about the topic in group at the meeting

At a whole-day forum, the host arranged a special movie for the participants-《Build the image of marine》.It was a documentary of amazing recent condition of marine pollution which has already been translated in Chinese. It described the effect of human activities on the ocean in various sights, especially the relationship between litter and plastic things made by human beings with the great disaster suffered by the marine creatures.

Although the protection of the ocean still remains a daunting task ,we wish that after the first meeting of Chinese marine protection NGO, we can lift the curtain on the joint action of protection. We will try our best for a better ocean environment in the future.



On-site meeting

6. 'How to use the result of Korea National Marine Debris Monitoring' discussed at Marine Litter Forum 2014

By Dr. Sunwook Hong, President of OSEAN
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Recommended Citation:

Hong, S., (2014). 'How to use the result of Korea National Marine Debris Monitoring' discussed at Marine Litter Forum 2014. Marine Litter News from East Asia Civil Forum on Marine Litter, Vol. 5(1): 9-10.



Participants in the Marine Litter Forum held in Feb. 7, 2014

International trend of beach debris monitoring and data use of Korea Marine Debris Monitoring Program (KNMDMP) were discussed in the Marine Litter Forum 2014, an annual event of OSEAN. The forum was held on February 7, 2014 in Tongyeong City, SE Korea.

Dr. Jongmyoung Lee of OSEAN introduced the global trend to mitigate marine debris problems and cases of regional beach debris monitoring by citizens in the U.S., England, and North Sea. He also presented the efforts to standardize monitoring methods to make data more useful and comparable, such as UNEP/IOC guidelines (Cheshire et al., 2009), NOAA of the U.S. (Lippiatt et al., 2013), and AMETEC protocol in Asia (Jang, 2013).



Dr. Jongmyoung Lee (left) and Dr. Sunwook Hong presenting in the Marine Litter Forum held in Feb. 7, 2014

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I presented the assessment of marine debris pollution based on the first two year results of KNMDMP (Hong, 2013) and showed what we, OSEAN, have been doing based on the KNMDMP result. We have combated styrofoam buoy debris used for marine aquaculture which was recognized as the most serious item in Korea. I also suggested building a quantitative goal for policy using marine debris index and to evaluate outcome of policy measures through long term monitoring.

KNMDMP was started in 2008 with the support of Ministry of Ocean and Fisheries and Korea Marine Environment Management Corporation. Annually, NGO leaders and over 1000 volunteers have participated in the surveys. Comprehensive analysis of 6-year results and its implication for governmental policies will be researched this year. Forty NGO leaders and managers of KNMDMP as well as students in the forum actively discussed the problems to be improved; such as communication, NGOs' expertise on monitoring, and integrated program management. Artworks of Jung-Ah Kim, art director of OSEAN were also exhibited.



Artworks of Jung-Ah Kim (right) on marine litter issue were exhibited

References

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- Lippiatt, S., Opfer, S., Arthur, C., 2013. Recommendations for monitoring debris trends in the marine environment, NOAA Technical Memorandum NOS-OR&R-46.

7. A leaflet and a video on marine debris impact on Black-faced Spoonbill, an endangered species of bird, published in Korea

By Dr. Yong Chang Jang , Researcher at Our Sea of East Asia Network
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Recommended Citation:

Jang, Yong Chang. (2014) A leaflet and a video on marine debris impact on Black-faced Spoonbill, an endangered species of bird, published in Korea. Marine Litter News from East Asia Civil Forum on Marine Litter, Vol 5(1): 11.

A leaflet and a on marine debris impact on Black-faced Spoonbill was published in May, 2014 in South Korea. Our Sea of East Asia Network prepared this leaflet and the video with Water Birds Network Korea and Design SI company. The pdf file of the leaflet (Lee et al., 2014), published with Korean and English together, can be downloaded (<http://cafe.naver.com/osean/1403>) without login. And the video can be viewed on Youtube.

(<http://www.youtube.com/watch?v=jh7ns2TjP6Y>)

The Black-faced Spoonbill, *Platalea minor*, is an international endangered species whose population is less than 3,000 (Birdlife International, 2014). It breeds mainly in small uninhabited islets of the western coasts of South Korea, with only a small population breeding in the other areas of China, North Korea, and Russia (Birdlife International, 2014). So, the sound environment in the breeding areas in South Korea is a crucial factor affecting its population.

We have come to know that marine debris is a big threat to this endangered species of bird when we surveyed the marine debris impact on wildlife in Korea from 2012 to 2013. It led us to cooperate with Dr. Kisup Lee, the representative of Waterbird

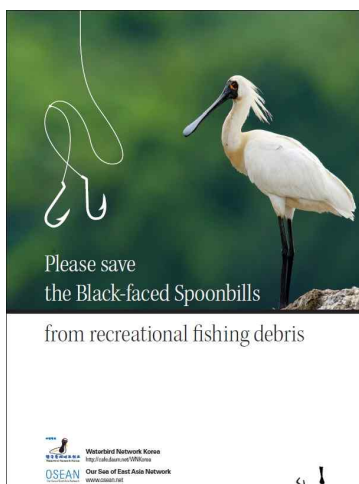
Network Korea, who has been monitoring the breeding condition of this bird for a long time. He agreed with us that Korean people should pay lot of attention to the damage from marine debris, especially the sports fishing debris. As the Spoonbill collect fishes in shallow waters by shaking its bills, the risk is very high that this bird can be entangled with buoyant debris, he explained. And as lots of leisure fishers left fishing debris, there are lots of fishing hooks and lines left on shallow waters, where the Spoonbill usually collect food.

The publication of this leaflet and this video is only a part of our efforts to reduce impact of marine debris on marine wildlife. As the conference on the Convention on the Biological Diversity (CBD) will be held in 2014 in Korea, we will do our best to make more people know the impact of marine debris on wildlife. We will try to persuade the government to establish and implement proper regulation on littering related with sports fishing activities.

We truly appreciate Ms. Jeongwon Park, who produced the video, and many photographers including Prof. Nam Jun Jee for providing the source files of the video and pictures.



Ms. Jeongwon Park



Leaflet published by Waterbird Network Korea and OSEAN

<References>

- BirdLife International (2014) Species factsheet: *Platalea minor*. Downloaded from <http://www.birdlife.org> on 26/03/2014.
- Lee, Kisup, Hong, Sunwook, Si, Jihoon, Jang, Yong Chang, Lee, Jongmyoung (2014) Please save the Black-faced Spoonbills from recreational fishing debris. Waterbird Network Korea, OSEAN, Si Design, 12pp.

RESEARCHES

8. Long-term monitoring of marine debris in Tainan region: results and future expectations

By Mr. Chao Rui Guang , researcher in Tainan Community University
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Recommended Citation:

Guang, Chao Rui. (2014). Long-term monitoring of marine debris in Tainan region: results and future expectations . Marine Litter News from East Asia Civil Forum on Marine Litter, Vol 5(1): 12-15.

Tainan Community University (TCU) is located in Tainan, one of the countries along the western coastline of Taiwan. Almost nine years into the long-term monitoring of marine debris since its initial establishment in October 2005, TCU has been gathering information about the composition and origin of the omnipresent marine debris scattered along the coastline. By elucidating this information, TCU strive to resort to citizens' actions and urge the government to ratify comprehensive plans and policies to address the issue of marine litters.

Throughout these years, styrofoam and disposable products represent an enormous amount of marine debris. The former originate mainly from oyster aquaculture further offshore, while the latter include drinking cups, straws, bottle caps and glass bottles etc. Plastic bags on the other hand, are increasing in amount in recent years, and are the major contributor to marine debris in most months of the year. They are locally produced in Taiwan and are washed ashore or brought in via the rivers.

Data shows that from 2008 onwards, the amount of beach trash has increased considerably during the typhoon season between June and November, with more plastic fragments and plastic pellets found on the beach. After a typhoon, any beach above the high water mark would be seen covered with miscellaneous plastic fragments (Fig. 2) and look like a dumping ground (Fig.1).

In order to ensure the continuous operation of long-term monitoring of marine debris, we have established an association where we raise public awareness and encourage their participation. Besides giving talks in schools and different communities to elucidate the current status of marine litter issues and recommended actions, we also integrate with service learning activities in schools, in order to get more teachers and students involved. Instead of



Fig. 1. The beach is fully covered with rubbish and looks like a dumping ground after a typhoon



Fig. 2. Miscellaneous plastic fragments are often washed ashore after a typhoon. This is a common scene on any beach above the high water mark

clearing up marine litter, we strongly advocate the concept of reducing the source of waste in the first place. In TCU, we have the opportunity to discuss with many teachers, who help integrate and promote this concept in their teachings and activity programs. Actions taken include: avoiding disposable tableware and using reusable ones instead, recycling reusable materials, repairing old

clothing and goods, creating art works from used glass bottles, and actively promoting this concept to others etc. (Fig. 3).



Fig. 3. Love the earth bring your own reusable drinking bottles and shopping bags. Would you like to do the same?

If you have been to Taiwan, you would probably not fail to notice the plentiful street shops entirely devoted to selling mixed beverages such as the well-known bubble tea and other fruit-flavored or tea-based drinks. It is a deeply rooted street food culture here and we understand that under certain circumstances, it is not always easy to completely avoid disposable tableware such as paper cups. But what we citizens could do (and did!), was to urge our government to ratify plans to improve the situation. EPA of Taiwan decided to adopt this strategy after having secured public support according to opinion poll; they have pushed forward a regulation on 1st May, 2011, where the public could enjoy a 10% discount in any beverage shop if they use their own drinking containers instead. Secondly, minimizing the diversity of such waste materials would greatly improve the cost-effectiveness of the recycling operation. Given the relatively more harmful properties of Styrofoam (polystyrene), Tainan city, which was the first and the only local government, has thus completely banned the use of Styrofoam cups within the region, taking effect from January 2013.

In terms of the expandable polystyrene (EPS) foams used by the fisheries and aquaculture industries, monitoring data reveal that all of them arguably originate from the oyster cultivation further



Fig. 4. Tens of thousands of EPS foam blocks were washed ashore on Tainan coastline in late May, 2010



Fig. 5. Despite the recycling of EPS foam blocks, the enormous amount of their small fragments still cover the beach. 20th April, 2014.

offshore. Oyster cultivation usually starts in late September each year, and they are harvested in March the year after. Each oyster float uses around 15 huge EPS foams as floating aids, and more than 12,000 oyster floats would be seen across the sea at its peak. The EPS foams are then causally discarded into the sea once the cultivation season is over. Actually there is a regulation about oyster aquaculture first formulated by Tainan government since 1st July 2004, but was never properly executed. The regulation was revised on 5th August 2008, but its implementation remained problematic. In May 2010, tens of thousands of huge EPS foams were washed ashore and covered the beaches in Tainan (Fig. 4). The severity of the problem was demonstrated to the Tainan city government, based on long-term monitoring data and photos evidence, with further pressure exerted through media exposure. In a search of a solution to the problem, the current mayor of Tainan city summoned a

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conference with NGO bodies and oyster farmers on 1st June, 2011. The city government has earnestly encouraged oyster farmers to handle these EPS foams more responsibly through recycling. Progress throughout the last three years has been gradual but slow, as fragments of EPS foams are still covering the beaches (Fig. 5) and used oyster floats are piling up and incinerated directly (Fig. 6).



Fig. 6. Stacks of recycled oyster floats are piled up on the beach and incinerated directly. 20th April, 2014

We do hope that the Tainan city government would manage the waste products from oyster cultivation more rigorously, where oyster floats and huge EPS foams are distinctly separated before recycling. EPS foams should be further selected manually, so that the ones that are not recyclable (due to overly complex composition) can be assembled and incinerated altogether. While this can help tackle the problem of huge EPS foams, that of fragmented EPS foams remains unsolved. The alternative, therefore, is to replace EPS foams with good quality plastics for floating buoys, as they do not break down into small fragments as easily.

The practice of oyster cultivation in Tainan imposes very little impact on its surrounding environment, and represents a traditional culture that many locals depend on for their livelihood. The artificial structure of oyster sheds also maintains biodiversity by providing substrate for many marine organisms such as marine gastropod and shellfish (Fig. 7). These organisms, on the other hand, could potentially remove a substantial amount of carbon dioxide from the atmosphere by carbon sequestration. Tainan city has won the first prize (southern area) of low carbon city selection program held by

the Environmental Protection Agency in Taiwan. To further establish itself as a low carbon city, we suggest that Tainan takes advantage of what the oyster cultivation can offer and make it one of its own distinguishing features. For example, used oyster sheds with marine life attached can be secured and made into an artificial floating island. When the amount of attached marine organisms grows to a certain extent and the bamboo starts to crack, this artificial island will sink to the seabed and gradually become a biological platform for marine diversity. Given the enormous amount of on-going oyster cultivation, this proposal would not only greatly reduce marine litter, but also benefit the community by potentially creating marine resources and removing carbon dioxide from the atmosphere. If necessary, scientific research and experiments can be conducted to testify its feasibility. In any case, it can only be a better option than to stay idle with the current situation. We will continue our effort, and hope that we will all find a better solution for our environment through experience sharing.



Fig 7. Oysters floats provide a special substrate for marine organisms

References:

- 1) Preliminary study on the effect of oyster cultivation on water purification and carbon sequestration. (National Cheng Kung University, Taiwan).
→ One study shows that an individual oyster shell has a growth rate of 0.3g/day. It is roughly estimated that a surface area of 1m² can store 0.78kg of carbon dioxide per day.

<http://www.tsoe.org.tw/downloads/thesis/2010D9.pdf>

2) Ecosystem services of oysters (Fisheries Research Institute, COA, Taiwan)

→ Oyster reefs may provide coastal protection by reducing erosion from sea level rise, heavy rain and storm, and waves and currents. Moreover, oyster reefs provide nurseries and habitats for juveniles and other organisms. They also attract shoals of fishes that are economically valuable. Stretching between Lukang and the mouth of Jhushuei River, the oyster farms in the southwestern coast of Taiwan attract numbers of fish and crabs such as black sea-bream, spotted scad, red sea-bream, yellow tail, snappers, giant mud crab, which enrich this area with marine resources and create spot for leisure fishing.

<http://www.tfrin.gov.tw/friweb/frienews/enews0065/s1.html>

2013~2014 Top 4 items of Tainan Community University Long term marine debris monitoring

Date	Top1	Top2	Top3	Top4
2013/01	Plastic bags	Straws、Stirrers	Plastic fragment	Fireworks
2013/02	Plastic bags	Fireworks	Plastic fragment	Straws、Stirrers
2013/03	Plastic bags	Plastic fragment	Styrofoam	Fireworks
2013/04	Styrofoam	Plastic bags	Straws、Stirrers	Plastic fragment
2013/05	Styrofoam	Plastic fragment	Plastic bottles	Straws、Stirrers
2013/06	Plastic bags	Styrofoam	Plastic fragment	Straws、Stirrers
2013/07	Plastic bags	Straws、Stirrers	Plastic fragment	Fireworks
2013/08	Plastic bags	Straws、Stirrers	food containers	Beverage Cups (Plastic)
2013/09	Plastic bags	Caps & Lids	Straws、Stirrers	Beverage Cups (Plastic)
2013/10	Plastic bags	Plastic fragment	Styrofoam	Beverage Cups (Plastic)
2013/11	Plastic bags	Straws、Stirrers	Beverage Cups (Plastic)	Plastic fragment
2013/12	Plastic bags	Plastic fragment	Straws、Stirrers	Caps & Lids
2014/01	Plastic bags	Straws、Stirrers	Plastic fragment	Fireworks
2014/02	Plastic fragment	Plastic bags	Straws、Stirrers	Fireworks
2014/03	Plastic bags	Plastic fragment	Styrofoam	Straws、Stirrers
2014/04	Styrofoam	Plastic bags	Strings and ropes	Straws、Stirrers

LETTER FROM AFRICA

9. Marine Debris in Africa

By Mr. John Kieser, Environmental Manager at Plastics South Africa
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Recommended Citation:

Kieser, John. (2014). Long Marine Debris in Africa. *Marine Litter News from East Asia Civil Forum on Marine Litter*, Vol 5(1): 16-18.

● BACKGROUND

The economies of most African countries are growing at escalating levels and linked to a growing population, the continent has entered the 21st century with gusto. Unfortunately with this growth, African countries are starting to face the same environmental degradation as witnessed in the developed countries. In light of this growth, Africa is still combating diseases, poverty, poor governance and environmental degradation as its natural resources are mined and harvested, mainly for export. With this in mind the issue of marine pollution is not seen as a priority by African countries.

At international meetings where the issue of marine debris is addressed it is clear that Africa and other developing countries are not represented.

For instance, at the 5th Marine Debris Conference in 2012 where the Honolulu Commitment was formulated, 440 delegates were present of which only 5 were from Africa.

Many examples can be given but another that the author was involved in was the International Whaling Commission workshop in 2013 to look into the impact of marine debris on cetacea.

South Africa was the only country present from Africa. As with all international conferences, deliberations were done in a developed economy context and it took firm negotiations to let the team realise that recommendations made are unachievable in Africa with its economic and development backlog.

● First African Summit on Marine Debris.

In 2013 South Africa, with the support of UNEP and the South African Government hosted the first African Summit on the issue of

Marine Debris. 12 African countries were represented and one of the goals was to establish an African Network on the issue of Marine Debris.

At the 2nd Global Conference on Land Ocean Connections in Jamaica the establishment of a Southern African Network would be more realistic. South Africa due to historical reasons does not have strong links with African countries although the relationship with Africa has changed since the first democratic elections in 1994.

There is though a stronger link between neighbouring countries through the Southern African Development Community (SADEC).

Southern Africa is the southernmost region of the African continent and consists of South Africa, Namibia, Angola, Democratic Republic of Congo, Mozambique, Tanzania and Madagascar and borders the Atlantic and Indian Oceans.

Southern Africa has 28 212 km of coastline and with the islands in the Indian, Atlantic and Southern Atlantic Oceans, the sub area can play an important role in reducing the amount of manmade material finding its way to the sea.

● Marine Debris research and mitigating actions in South Africa.

Limited research is being funded on the issue of marine debris in South Africa as there is a larger focus on the question of chemical pollution in South African Waters by government entities.

The plastics industry in South Africa via Plastics SA is running various projects to address the issue of marine debris. The most important work being done is to increase recycling of the material and establishing new products to be made from the recycle. Only

by increasing the amount of material produced with a longer life from recycled source and by adding value to material for collection would the material hopefully be less discarded.

From 19 years of coastal cleanup data, Plastics SA is addressing the issue of the material predominantly recorded. Most of these projects are dedicated to the material with the highest count on the coastline and to address the reasons for them finding their way into the environment.

On a general survey of South African Beaches you would usually find the following material as shown in the chart. This obviously has regional differences.

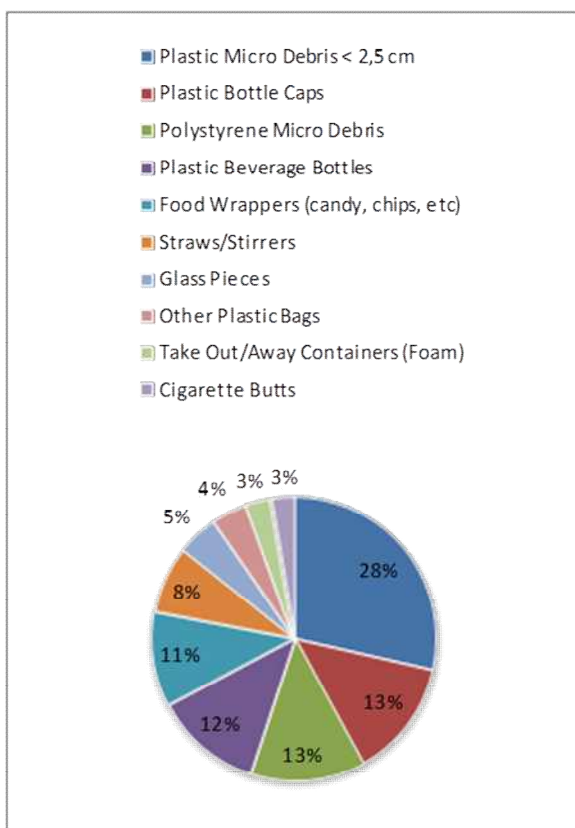


Figure 1. Chart showing the top ten items found on a typical South African Beach.

1. The plastic item found the most on most beaches, especially urban environments is micro plastics (28%). Not much can be done about this issue due to the size of the material. The plastics industry used to be a great source of the material due to improper management of the pellets and granulated material and the plastics industry has placed measures in place to reduce the amount of this material finding its way into the environment. Independent research in South Africa as well as research in the Northern Hemisphere has shown a global decrease in the material. Unfortunately the larger plastic material in the sea is breaking up and this is fuelling the micro debris pool. Another action that was started in 2013 is to sweep heavily polluted beaches in winter conditions when the sand load on the beaches is reduced. Item number three on the list is micro expanded polystyrene material and via the Polystyrene Packaging Council there is various efforts to recycle the material or use contaminated (fast food containers) material in cement blocks. This increase of recycling is linked to item number nine of take away containers (3%) that the fast food industry depends on. There has been a slow movement away from the main stream fast food outlets but many still depend on it as a container for take away food.
2. At number two is, Bottle caps (13%) from mainly soft drink bottles and is the macro material primarily recorded and collected in coastal cleanups. This material is linked to the 4th item on the list – that of plastics bottles (12%), mainly bottles made from Polyethylene Terephthalate (PET).
3. Design of the caps have lead to an increase of recycling so that only one polymer is used in its making and the breaking and attachment of “safety rings” have led to less of this material finding its way into the environment with a decrease in entanglement from this source. With the start of the various polymer groups to increase recycling of the various polymers has led to an increase of the recycling of this material. While PETCO has increased the recycling of PET, POLYCO is focusing on the increase of recycling of Polypropylene (PP).
4. Item number five is packaging material from the confectionary industry (11%). There is steady increase of smaller pieces of food wrappers and crisp packets in the environment and hopefully with our partners we can raise the issue of not

LETTER FROM AFRICA

littering in South Africa.

5. Number six on the list (8%) is an area of concern (plastics sticks and straws) as there is no recycling program for straws and plastics sticks from ear buds and to lesser degree, lollipops. The presence of plastic sticks from ear buds is particularly visible on certain beaches as it enters the environment due to the overburdened infrastructure (sewerage plants) not able to capture them. We have approached one of the biggest ear bud manufacturers in South Africa requesting them to put a message on packaging and holding a media drive asking consumers not to throw the material down toilets. So far they have not been cooperative and are some of the aquariums think of starting a program similar to the “Beat the Bead” program that stopped the usage of micro beads in the soap industry. This is one of the problems regarding material such as this. If someone else can be blamed for its presence in the environment, the industry is not very willing to assist. The “Beat the Bead” was in a way easier as the manufacturers could not blame anyone except themselves for allowing the material that could not be trapped to enter the environment. This is also a case for the material to be made from bio plastics.
6. Glass pieces (5%) on South African beaches are the only non plastic item and its presence on the Top Five list is only due to the increased focus on micro debris. The recycling of glass is very well managed in South Africa. Many of these pieces are as with plastic pellets found on the coast from earlier periods when there was not such a focus on proper stewardship of the material through good waste management and recycling.
7. Since the implementation of a levy for consumers on the usage of plastic bags there has been a decline in its presence (4% at present) but in non coastal areas there has been a slow increase in its visibility as consumers became familiar to the paying of the levy. POLYCO is supporting the increase of collection of the material for recycling.
8. At number 10 (3%) is the global problem of cigarette filters. Although a plastic, it is not being recycled and we are trying to increase the awareness of proper disposal of the material with our partners.

None of this material is a real entanglement material and we started in 2012 with the placement of fishing line retrieval bins on the South African Coastline, especially at popular fishing areas. Fishing line used to be under the top ten materials but due to a decrease in fishing activities in South Africa due to increased protection of the fishing resources and a decrease in fishing stocks which led to less anglers and fishers.

Another item, although not being an entanglement hazard, was the presence of light sticks used in the Large Pelagic Industry (Tuna, Swordfish and Shark) found in increasing numbers on the coast. As the fish resources became more difficult to target due to its scarcity, the technology to catch the animals also increased and the light sticks serves as an added attraction to the bait for the target fish. The industry is not very big in South Africa and we started collecting the material from the harbours where the vessels discharged their catch for recycling. An added bonus was that the vessels started bringing back their monofilament line for recycling which was of better quality than the material retrieved from the fish line bins.

The industry has also taken the bold step to support research in the presence of plastics in some species of fish starting with inshore shark species by an independent research team.

Plastics SA has also formed a Scientific and Technical Advisory Panel to ensure that the plastics industry does give meaning to its commitment done at the 5th Marine Debris Conference with the other Plastics Industry partners internationally.

Plastics SA and its partners will be hosting the **2nd African Marine Debris Summit in Cape Town from the 4th to the 6th of June 2015.**

If anyone would like to have more information on the conference please contact the convener,

John Kieser at john.kieser@plasticssa.co.za

NOTICE

SAVE THE DATES!

- July 1 ~ 7, 2014 (Geoje, South Korea)
AMETEC Training Workshop on Marine Debris II: Micro-debris
▷ For more information, please contact Dr. Sang Hee Hong, shhong@kiost.ac, Dr. Yong Chang Jang, loveseakorea@empas.com
- July 7, 2014 (Busan, South Korea)
International Symposium on Source, Fate and Effects of Microplastics in the Marine Environment
▷ For more information, please contact Dr. Won Joon Shim, wjshim@kiost.ac
- July 24~26, 2014 (Sakata, Japan)
The 12th Marine Litter Summit
▷ For more information, please contact Ms. Yoshiko Ohkura, y_ohkura@jean.jp
- August 23~25, 2014 (Pingtung, Taiwan)
2014 Clean Ocean Youth Movement
▷ For more information, please contact Ms. Chun-Chi Wu, cwu@wilderness.org.tw
- September 25~26, 2014 (Boryeong, South Korea)
 1. NOWPAP Marine litter workshop and beach cleanup
▷ For more information, please contact Dr. Sang Jin Lee, sangjin.lee@nowpap.org
Mr. Ho Jeong Choi, hjchoi@koem.or.kr
 2. Ceremony of ICC 2014
▷ For more information, please contact Dr. Jongmyoung Lee, loveseakorea@empas.com
- October 23, 2014 (Yeosu, South Korea)
- A session : Marine debris in the Ocean: Sources, transport, fate and effects of macro- and micro-plastics (PICES 2014 Annual Meeting)
▷ For more information, please contact Dr. Won Joon Shim, wjshim@kiost.ac
- June 4~6, 2015 (Cape Town, South Africa)
The 2nd African Marine Debris Summit
▷ For more information, please contact Mr. John Kieser, john.kieser@plasticssa.co.za

Guidelines for Authors

Dear authors of 'Marine Litter News from East Asia Civil Forum on Marine Litter,'

Thank you for preparing your valuable manuscript for our journal. We welcome articles regarding researches, education, policies, and any other activities on marine litter issues from the globe. To make your article more easily understandable to readers around the world, please pay attention to the following guidelines.

1. Composition of Articles

(1) Title

- Please make it concise and understandable.
- Including the name of the relevant country is recommended.

(2) Name of the author

- The author should be natural persons even when writing articles representing organizations.
- Name of organization, author's position, and email address should be included

(3) Figure, Map, or Table

- Figures, maps, or tables are recommended to be included in articles.
- Especially maps showing the geographical context of the article is strongly recommended.
- Each figure, map, and table should have captions explaining the figures, maps, and tables.

(4) References

- Referencing other texts for explaining the situation is recommended.
- All the lists of documents referenced needs to be included.

2. Submission, Acceptance, and Edition

- Anybody from around the world can submit the articles via email (loveseakorea@empas.com).
- As the journal is published at the end of May and November, draft articles need to be submitted by the end of April and October.
- All the articles which have basic quality will be accepted.
- The editor may ask some revision of the draft to make the article more easily understandable to readers.

3. Publication fee

- There is no publication fee to be paid by authors to us or by us to authors.

Thank you for your cooperation,

Sunwook Hong, the editor.



What is East Asia Civil Forum on Marine Litter?

East Asia Civil Forum on Marine Litter is a network established in 2009, made of NGO groups dedicated to protection of marine environment from marine litter in east Asia countries.

Network member groups are:

Japan: Japan Environmental Action Network (JEAN)

South Korea: Our Sea of East Asia Network (OSEAN)

Thailand: Green Fins Association (GFA)

Taiwan: Taiwan Ocean Cleanup Alliance (TOCA)

To the readers,

East Asian countries are connected to each other environmentally, geographically, historically, or culturally through shared regional seas. The East Asian region is one of the most dynamic economic centers with some of the busiest shipping lanes in the world. With the spread of mass production and consumption over the last decades came the huge increase in solid waste generation. There are, however, not enough waste treatment facilities and management measures, which makes the region vulnerable to marine debris pollution.

Entering the seas in large amounts, floating debris has become a source of concerns and conflicts among some neighboring countries. This transboundary environmental problem requires concerted efforts of all the relevant stakeholders beyond sectoral and political boundaries. In this regard, OSEAN (Our Sea of East Asia Network) and JEAN (Japan Environmental Action Network), the marine debris NGOs in Korea and Japan, have shared a vision in which people in the East Asia could act together as one community in protecting our precious marine ecosystems. We believe that NGOs in the East Asian countries have an important role in sharing experiences and acting together to address the marine debris issue in the region from the bottom up.

The city governments of Shimonoseki and Nagato, and JEAN co-organized ‘2009 Marine Litter Summit - Shimonoseki•Nagato Meeting’ on October 16-18, 2009, in Shimonoseki, Japan. OSEAN suggested in the meeting to start

an ‘East Asian Civil Forum on Marine Litter’ through which relevant NGOs and organizations in the East Asia could share experiences and information and work together on the marine debris problems. OSEAN and JEAN have reached a consensus to launch the forum and publish biannual newsletters. So we have launched the East Asian Civil Forum on Marine Litter and we are delivering marine debris news from member countries via e-mail to people who are concerned with this problem on local, national, and regional levels. In late 2012 now, we have four members above. We hope that the forum could provide a venue for all of us to share our vision, experiences, and creative actions.

This is the first effort to link the East Asian people beyond geographical and language barriers to a common goal of protecting our seas from marine debris pollution. NGOs and organizations that have interests and passion to make our seas clean and healthy are more than welcome to join us. For more information, you can contact us at loveseakorea@empas.com. Please let us know if you have any problem in receiving the newsletter. These articles are also available online at <http://cafe.naver.com/osean>.

Secretariat,

Sunwook Hong (OSEAN) and Kojima Azusa (JEAN)

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