

Marine Litter News

From East Asia Civil Forum on Marine Litter

In this volume:

1. Highlight of International Coastal Cleanup 2013 in Korea, Taiwan, and Japan
2. The truth of caps (Taiwan)
3. Beach survey conducted on a beach of the Thai Gulf (Thailand)
4. Field survey on Tsunami debris on the west coasts of Canada and the US (Japan)
5. Styrofoam debris issues broadcasted on Korean Television (Korea)
6. 11th Marine Litter Summit in Tokyo held in November, 2013 (Japan)
7. Korea Marine Litter Institute (KMLI) founded
8. Recent outcomes of 'microplastic researches' in Korea



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 all around the world

I am happy to issue this volume of Marine Litter News from East Asia Civil Forum on Marine Litter. The Forum is composed of non-governmental organizations in Japan, South Korea, Taiwan, and Thailand. We have made efforts to solve the marine debris problem in east Asia and have been sharing such experiences through the biannual newsletters since its establishment in 2009.

This volume is summarizing activities of each member organization in 2013. Highlights of International Coastal Cleanup held in each country are introduced. JEAN in Japan conducted surveys on debris generated from the 2011 Tohoku Tsunami and held its annual summit. GFA in Thailand conducted a scientific survey on the marine debris on a beach. The seriousness of plastic bottle caps debris in Taiwan is explained in detail and the ICC is regarded as an important opportunity for environmental education with a new law. In South Korea, a non-governmental marine debris institute was established, and plastic debris and styrofoam buoy issues were broadcasted through nationwide television networks.

We hope this volume of newsletter may contribute to solving the marine debris problem and to sharing experiences on how citizens can participate.

With love,

December 2013,

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

ACTIVITIES

1. Highlight of International Coastal Cleanup 2013 in Korea, Taiwan, and Japan

The Summary of the 2013 International Coastal Cleanup (ICC) in Korea

By Sunwook Hong, Country coordinator of International Coastal Cleanup in Korea
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2013 ICC in Korea was held around the country last September and October. In this event, 8760 people all over the country were participated and they collected 107,444 litters that weighed 330 tons. They cleaned about 46 kilometers on 58 sites this year. The participants and cleanup sites in this year were slightly declined compared with those of last year but Korean International Coastal Cleanup has been growing in view of long term trend. For 13 years 60,450 participants have collected 741,638 litters that weighed 2,057 tons. They have cleaned 629 sites and 420 kilometers in total.

From the result of 2013 Korean International Coastal Cleanup, we can see that litters from daily lives and recreation comprises 54.5 % of the total. The noticeable thing from the result is that the proportion of litters related to ocean and fisheries was dropped down from 20~30 % during the last decade to 16.8% this year. Instead, the ratio of litters from land and recreation has increased and that of other regional litters was high up to 5.4 %. If the litters from ocean and fisheries decreased, it would be very hopeful news. More research and survey is needed to confirm this trend and to estimate policies related litter control.



2013 ICC sites along the coastal areas of South Korea

To understand priority items to decrease coastal litter, we picked the top items from the 2013 result. abundant item was cigarette butts comprising 19 %, followed by plastic bags (7.3%), disposable cups and plates (paper) (5.3%), plastic beverage bottles (5.1%), food wrappers (plastic) (4.2%), beverage cans (4.1%), styrofoam food containers (3.8%), glass beverage bottles (3.6%), plastic food containers (2.8%), and styrofoam floats (2.7%). These items comprised 58 % of the total. If we manage these items more thoroughly, we can decrease considerable amounts of marine litters!

ACTIVITIES

Coastal cleanup like a festival: 13th ceremony held on Dadaepo beach, Busan, Korea

By Sunwook Hong

International Coastal Cleanups in which people all over the world pick the trashes in the coastal area or beach have been proceeding actively around the world. In Korea, the 13th International Coastal Cleanup Korean ceremony was held in Dadaepo Beach, Busan on the 28th of September. The ceremony was hosted by OSEAN, which was supported by Ministry of Ocean and Fisheries. It was also patronized by Korean Marine Environment and Corporation, Busan Metropolitan City, Saha-gu Office, and Noridan. Mr. Nam Hyung-ki who is in charge of marine environment policy of Ministry of Ocean and Fisheries, Mr. Lee Kyung Hoon, Mayor of Saha-gu Office in Busan, elementary and middle school students, and many citizens were attended in this ceremony. They participated in the cleanup and enjoyed the several accompanied performances and activities as follows: the performance of repercussion instrument by Noridan, many poster exhibition in which announced marine debris harmful to marine biota, exhibition of artworks made of marine debris, activities with marine litter activity book, writing message to the ocean, making fish with discarded plastic bottles, making horn with discarded plastic pipes, participants' performance with musical instruments made of trashes by themselves, and a finale parade with all the participants.

Among marine debris which were gathered on the day, cigarette butts were 2,760, comprising 44% of all debris. 222 of plastic bags, 161 of packaging bands, 139 of plastic cups and 126 of paper cups were also collected. Thus all of the debris from daily lives and recreation comprised 47%. Although the beach had been cleaned routinely, many trashed still remained on the beach, and even a small trash could kill marine lives.

You can save a creature by picking a trash. More important thing is making a habit to pick a trash on your daily lives. The ceremony was fun and meaningful event to conserve the ocean.



Snap shots of the ceremony held in Dadaepo beach, Busan, Korea



Governmental officers who are responsible for marine environment policy in Korea are picking trash and recording the data card.



Young participants are making sound with DIY horns

Coastal cleanup: citizen participation and environmental education in Taiwan

By Chieh-Shen Hu Civic Education Coordinator in The Society of Wilderness, Taiwan
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Since 2008, The Society of Wilderness started coastal cleanup with a simple idea in mind: 「Do something good for the earth」, and joined the International Coastal Cleanup (ICC) in 2010. Now we regularly launch 20~25 cleanups in September and October every year with the support of volunteers in 11 chapters and attract over 5000~8000 participants from about hundred different organizations.

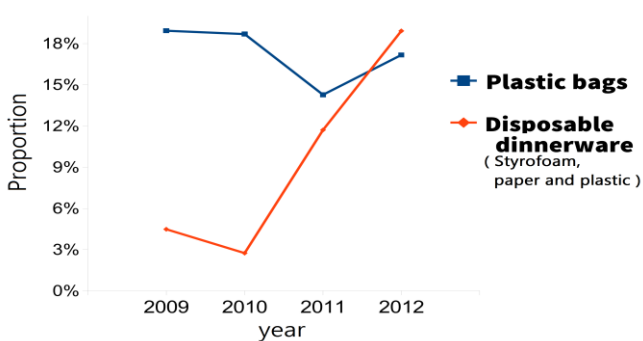
Due to the legislation of Environmental Education Act and the importance of Corporate Social Responsibility (CSR) coastal cleanup gradually has been taken seriously. More and more schools, enterprises and people are looking for a green activity. Relatively simple but sweaty and meaningful activity with a high carrying capacity but lower environmental impact, we thought coastal cleanup would be an ideal activity for environmental education.

In order to promote education on marine debris issues, we developed different lesson plans like DIY, storytelling, film and field games for all ages. Through well trained volunteers, participants received different levels of information about the issue which in turn enabled them to question on their life style.

This issue cannot be solved through simple cleanup alone. We summed up the data of trash collected during the events and analyzed the composition and trend. We learned plastic/petroleum products was the most frequent material found (82.5%) and a rapid increase of disposable dinnerware may be caused by popular eating customs such as night market and food-to-go. The statistics used has also been an effective tool for the public and the government. Recently we cooperated with artists, animators(*), scientists, museums and beach administration to curate two successful educational exhibitions.

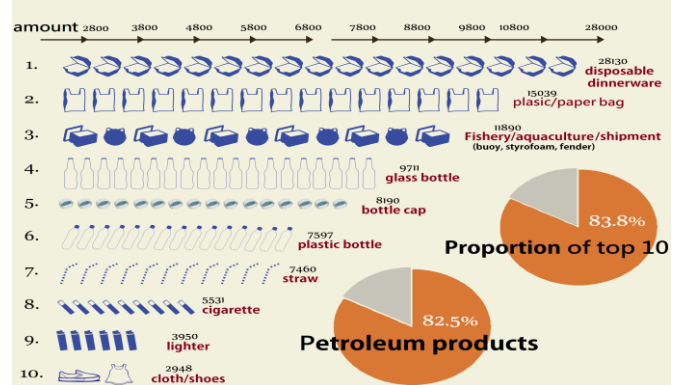
*This animation can be seen on http://youtu.be/I1_zqTWWRVQ

Compare : 2009 - 2012 top 1 marine debris



The most abundant item of marine debris has changed from plastic bags to disposable dinnerware

TOP 10 of 2012's cleanups



Top 10 of our 25 cleanups in 2012

ACTIVITIES



Educational show 「Love Your Ocean Home」 was held at a national museum. We decorated the marine pollution section with a rainbow made by 6000 or more lighters collected at 2012 cleanups



Another show 「Ocean Passenger Leaves a Message On the North Coast」 was collaborate with the administration of a famous beach and held at the visitor center.

Result of 2013 International Coastal Cleanup (ICC) in Japan

By Dr. Shigeru Fujieda, Professor of Kagoshima University and board member of JEAN
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In the 2013 ICC in Japan, a total of 4,661 people participated from Hokkaido in the north to Kagoshima in the south, and 122,333 pieces (1.4 tons) of litter was collected from 83 sites (18.9 km) of coast (49), riverbank and lakeshore (25), and underwater (9). The total area cleaned was 76,5000 m² (length, 18.9km).

Japan ICC data card was reviewed in this year, and the number of trash items surveyed was decreased from 64 to 45 items. Top 3 items (total 27.7%) in the 2013 was the fragments that the size is over 2.5mm. We express our gratitude to all of the participants.

Table 1 Top12 items of the 2013 ICC in Japan

- 1 Hard plastic pieces (over 2.5mm) 18,228 (14.9%)
- 2 Filmy plastic pieces (over 2.5mm) 14,996 (12.3%)
- 3 Formed plastic pieces (over 2.5mm) 12,863 (10.5%)
- 4 Cigarette butts 9,820 (8.0%)
- 5 Plastic bottles (drink) 6,659 (5.4%)
- 6 Plastic bottle caps 5,079 (4.2%)
- 7 Food wrappers and bags 5,000 (4.1%)
- 8 Plastic food containers 4,577 (3.7%)
- 9 Plastic short pipes (1.5cm oyster farming) 4,207 (3.4%)
- 10 Grass pieces (over 2.5mm) 3,819 (3.1%)
- 11 Cans (drink) 3,385 (2.8%)
- 12 Grass bottles (drink) 3,039 (2.5%)

2. The Truth of Caps

By Han-Yun, Lee
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Recommended Citation:

Lee, Han-Yun (2013) The truth of caps. *Marine Litter News from East Asia Civil Forum on Marine Litter*, Vol 4(2): 7-8

What truth are we trying to tell?

Every year, over a trillion of bottled water is produced around the world; which means, over a trillion caps are produced as well. As to Taiwan, 28 billions of bottled waters are used per year. According to EPAEY (Environmental Protection Administration Executive Yuan), over 95% of bottled waters are recycled; however, half of them are without caps. If the 14 billion caps are just left somewhere outside, they will be probably washed to everywhere maybe in the sewers or in the river, and finally to the sea. These appalling numbers are just telling us a truth; that is, these tiny, colorful and plastic products are causing an environmental crisis.



Plastic bottles and caps washed ashore

In accordance with a report of ICC (International Coastal Cleanup) Taiwan in 2012, the number of caps is ranked top 5 on the list of the marine waste. There is no doubt that those dumped caps have been a troublesome problem worldwide. What's more, it is because caps are so tiny that they will be often ingested by marine animals who can hardly distinguish if those caps are prey.



Bottle caps and other plastic fragments caused the death of an albatross chick (©Steven Siegel/Marine Photo Bank)

Dr. Cheng from NTOU (National Taiwan Ocean University), who has been conducting long-term research of sea turtles, stated that among those dead sea turtles in Taiwan, over 30% of them are found caps, plastic bags and other plastic products in stomach. A famous ecological photographer, Chris Jordan, shocked everyone by giving his latest documentary film and a series of pictures, "Midway." He described how those gooney birds on the Midway Island are affected by the marine waste and how they actually died of the caps and plastic products in their stomachs.

Caps are easily gained, but also ignored. We rarely notice that this tiny thing will show up in the ocean, on the beach and just everywhere. We rarely realize that this colorful thing will be so attractive to the gooney birds, the sea turtles and other marine creatures. It can just be hardly imagined that you step into a convenient store as usual, pick a beautiful colored bottled water and buy because it's so hot outside, then throw it to a trash can after finished, and it just show up on a beach in the other side of earth.

ACTIVITIES

Uncovering the truth that we need to know.

The “The Truth of Caps” is an exhibition of telling what really happened to our environment by revealing the truth of the dumped caps. During the period of exhibition, we displayed five installation art works, and a series of pictures, films, and speech about marine waste. The exhibition was held by TEIA (Taiwan Environmental Information Association). However, we gathered university students as volunteers to establish a cap workshop and create these five installation art works. It took four months for us to finish them all from cleaning up the beaches, gathering and sorting out the marine waste, organizing the caps to finally put them into pieces. Our notions are, firstly, the convenient and industrialized living model is the main reason why there are so many dumped bottled drinks and caps worldwide, which also are damaging the environment. Secondly, recycling is definitely not the perfect solution of environmental protection. Therefore, we appeal to the consumers to stop buying bottled drinks and think twice before purchasing.



University students collecting bottle caps



One of the artworks made of bottle caps through the 4-month program

Through these works, we would like to express the ideas that this tiny round thing can do such harm to the animals, the environment and of course, ourselves. We shouldn't underestimate their power, but really take it serious. Also, recycling is not the only antidote for reducing the amount of waste. Stop buying and Start changing. The consumers have the rights to choose. So, let's make a better choice.



A plastic drinking bottle suspended in the exhibition, 'The Truth of Caps'

3. Beach survey conducted on a beach of the Thai Gulf

By Ms. Kanyarat Kosavisutte, Secretary of Green Fins Association
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Recommended Citation:

Kosavisutte, Kanyarat (2013) Beach survey conducted on a beach of the Thai Gulf. *Marine Litter News from East Asia Civil Forum on Marine Litter*, Vol. 4(2): 9-10

During the AMETEC (APEC Marine Environmental Training and Education Center, www.ametec.org) training workshop held in July 11~21, 2013, all the participants were recommended to survey each country's beach by using the protocol tested at the workshop. Upon returning to Phuket, I have shared my experience with my colleagues at the DMCR (Department of Marine and Coastal Resources).

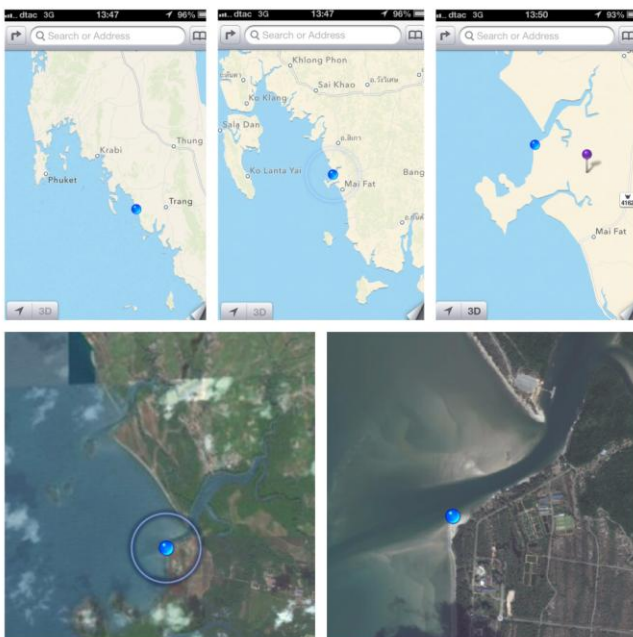
DMCR organized a workshop for volunteers to conduct the survey in the Andaman coast and the Thai Gulf so that we can have the data for Thailand. Ms. Boonjongrak, a professor of the Department of Environment, Rajamangala University of Technology Srivijaya in Trang joined this activity.

She will take the full responsibility going forward. Her fellows and students used to join the ICC events I organized in 2009 and 2010. This year, they successfully did their beach cleanup where 150 students and 5 faculties joined and will continue their ICC cleanup yearly as well.



Guiding the methodology of survey at the beach

On the 16th November 2013, we conducted the first survey at the beach of the Thai Gulf. Firstly I briefed the data filling method to the first year students who volunteered to collect data.



The location of survey site in the Thai Gulf

ACTIVITIES

We finished the two rolls of quadrates and six transects on the vegetation and strand line quickly because most of the trash were blown over the vegetation line. While we were waiting for the low tide to work on the last quadrate roll, I noticed beach erosion. I opened my smart phone and google map to locate the position. It was clear to me why we have this erosion. It's because we are so close to the estuary.



University students participating the survey



Soft plastic containers we found

The amount of the trash was not as much as we expected. It would have been much more if we conducted earlier in October. The debris we collected was not various so we were certain about the data filling except some cases. A plastic cup container and pieces of cookie containers were not matched to the categories of the protocol.

This is surely an exercise to start with and it would be really worth if we have more experiences. Most of the volunteers are aware of the problem and responsible for their trash so that it will not end up in the sea.



Forty participants of the survey

4. Field survey on Tsunami debris on the west coasts of Canada and the US

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

Kaneko, Hiroshi (2013) Field survey on Tsunami debris on the west coasts of Canada and the US, *Marine Litter News from East Asia Civil Forum on Marine Litter*, Vol. 4(2): 11-12

Large amounts of marine debris was brought about by 2011 Tohoku tsunami in Japan (Mori et al., 2011). JEAN has been conducting surveys on tsunami driftage since 2012 with the support of the Japanese Ministry of Environment. For this year's survey, we visited the west coast areas of Canada and the United States in September to investigate the current status of tsunami driftage. Following is a report of the survey trips findings.

In Canada, we first visited the Vancouver Aquarium (the Vancouver Aquarium Marine Science Centre) which hosts the Great Canadian Shoreline Cleanup. The Vancouver Aquarium is operated by an environmental non-governmental organization and is a center for marine research, conservation and marine animal rehabilitation. It also offers educational programs.

We discovered that in British Columbia, tsunami driftage is found on many islands including Vancouver Island. We visited Wouwer Island, one of many uninhabited islands off Vancouver Island. We took the ferry from Vancouver city to the Vancouver Island, took a car from the harbor to the Ucluelet city for 6 hours, and again took a motored gum boat from Ucluelet city to Wouwer Island for 20 minutes. Upon arrival, large amount of driftwood with plastic garbage was found on the shores. Other drifted items such as styrofoam floats used for aquaculture and parts of building insulation made of polyurethane foams were found.

Mr. Pete Clarkson, a park ranger of the Pacific Rim National Park in Ucluelet city, guided us around the island. He said that he found wooden housing pillars, which appeared to be a part of Japanese buildings. These housing pillars found on the coast are currently being stored at a storage area on Vancouver Island. According to Mr. Clarkson, fishing equipments and sports balls have been found on the shores of Vancouver Island from the previous year, but the arrival of housing pillars only began in this spring. "When I saw these pillars, I was reminded of the scale of the disaster and was once again saddened by the tragedy", he commented. There are talks about building a tsunami memorial monument in the town of Ucluelet using these pillars.

For the latter half of our survey trip, we visited the northern coast of Washington State, which is on the northwestern coast of the US. Here, we visited various organizations related to marine debris.

The first organization that we visited was Washington CoastSaver, an NGO engaged in cleaning up the Washington's Pacific Coast. In 2013, CoastSaver began to expand the ICC events to the northern coastal areas of Washington State. Before 2013, ICC was limited to the southern coastal areas. The reason is because most northern coastal areas are either part of the national park or the Indian reservation that restricts access. There was also an issue of lack of funding. Mr. Jon Schdmit who heads the organization informed us that residents from the indigenous peoples' reservation participated in the clean-up with the local residents.

ACTIVITIES

Secondly, we met some people conducting the beach surveys once a month. This is carried out as a part of NOAA (National Oceanic and Atmospheric Administration)'s marine debris program. Most of the participants are retired residents. They work passionately under the NOAA regional coordinators who survey the beaches for marine birds and marine debris including tsunami driftage.

Thirdly, we met Mr. Ken Campbell, who is the regional representative of Surfrider Foundation of Northern Washington. He told us about the kayak expedition. He and his crew of the Ikkatsu Project, which he also leads, took around the northern coast of Washington to check on the status of marine debris.

In conclusion, using the findings from the survey trip, JEAN plans to host a photo panel exhibition regarding the tsunami driftage issue for the public next year. We will also be sharing our report on the general marine debris problem as well.



Survey trip on Wouwer island



Discussions at city of Ucluelet, Vancouver island

5. Styrofoam debris issues broadcasted on Korean Television

By Dr. Yong Chang Jang, researcher at Korea Marine Litter Institute, OSEAN
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Recommended Citation:

Jang, Yong Chang. (2013) Styrofoam debris issues broadcasted on Television. Marine Litter News from East Asia Civil Forum on Marine Litter, Vol 4(2): 13-14

It is documented in scientific journals that styrofoam buoys for aquaculture is making serious problems in Korean sea (Lee et al., 2013). But, the styrofoam marine debris problem is not well known to the public. By the influence from media, Korean people seems to know more about the pacific garbage patches than Korea's own problem of styrofoam buoy debris.

In 2013, fortunately, styrofoam debris issues were made into television documentary film. Education Broadcasting System (EBS, www.ebs.co.kr) made a series of documentary film, 'Plastic Human Being' and broadcasted them on their program of 'The only one Earth' in October 2013. Taegu Broadcasting Company (TBC, www.tbc.co.kr) made a documentary film, 'The White Demon' and broadcasted on October 31, 2013.

The EBS documentary, 'Plastic Human Being' focused on the problem of plastic. But, while interviewing for the program, Dr. Sunwook Hong, the representative of OSEAN, emphasized that the biggest amount of beached debris comes from styrofoam buoys.

The TBC documentary, "The White Demon" focused on the problems of styrofoam. By interviewing various experts from Korea, Japan, and the US, this documentary well summarized the problem of styrofoam debris and the alternative materials. Ecovative, a company which makes plastic from mushroom, was firstly introduced to Korea by this program. According to this documentary, the buoys made of mushroom can sustain for about six months in the marine environment. If this product can endure longer, perhaps it can replace the styrofoam buoys. I hope the research on fungi plastic (Bayer and McIntyre, 2011; Schiffman, 2013) will further progress.



Dr. Sunwook Hong, representative of OSEAN, emphasized that styrofoam buoy is the number one problem in Korea on the interview for the EBS documentary film on Plastic Marine Debris.



The TBC documentary film, 'The White Demon' focused on the problems of styrofoam debris.

ACTIVITIES

These television programs may have great influence on the public awareness of the styrofoam debris problem. I and members of OSEAN appreciate the television companies for making and broadcasting these programs.



Buoys made from mushroom by Ecovative Design company was introduced by the TBC documentary film, "White Demon" on the problem of styrofoam debris.

<References>

Bayer, E., and G. McIntyre. (2011). "Method for producing rapidly renewable chitinous material using fungal fruiting bodies and product made thereby." U.S. Patent No. 8,001,719. 23 Aug. 2011.

Lee, J., Hong, S., Song, Y. K., Hong, S. H., Jang, Y. C., Jang, M., ... & Shim, W. J. (2013). Relationships among the abundances of plastic debris in different size classes on beaches in South Korea. *Marine pollution bulletin*.

Schiffman, R. (2013). Packing materials grown from mushrooms. *New Scientist*, 218(2921), 29.

6. 11th Marine Litter Summit in Tokyo held in November, 2013

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

Kaneko, Hiroshi (2013) 11th Marine Litter Summit in Tokyo held in November, 2013. *Marine Litter News from East Asia Civil Forum on Marine Litter*, Vol. 4(2): 15

Our 11th Marine Litter Summit was held in Tokyo on November 20 and 21, 2013. Three themes were focused; the first was on the tsunami driftage survey findings from the North American coasts, and second was on international cooperation to tackle the issues of marine debris and third, on the Japanese marine litter law.

We had a special guest speaker from Ocean Conservancy, Mr. Nicholas Mallos who is in charge of tsunami debris and actively works on the issue by surveying the beaches all over the US. In the past, he has participated in the local survey trips with JEAN in the state of Oregon and Hawaii.

The 12th Marine Litter Summit is scheduled to be held in Sakata city of Yamagata prefecture in July, 2014. JEAN will share measures to tackle the domestic marine litter issues and in particular, we will address the river litter issue and discuss how to decrease the amount of waste that ends up in the rivers which makes its way to the ocean. As guest speakers, we plan to invite members from OSEAN to address the river waste management in Korea.



12th Marine Litter Summit held in Tokyo, November 2013



Mr. Mallos (Ocean Conservancy, U.S.) giving a presentation

ACTIVITIES

7. Korea Marine Litter Institute (KMLI) founded

By Sunwook Hong, President of OSEAN
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Recommended Citation:

Hong, Sunwook (2013) Korea Marine Litter Institute (KMLI) founded. *Marine Litter News from East Asia Civil Forum on Marine Litter*, Vol 4(2): 16

A research organization, Korea Marine Litter Institute (KMLI) dedicated to the research of marine litter problem and solution in the East Asian region was established by Our Sea of East Asia Network (OSEAN) in August, 2013. Three activists of OSEAN got Ph.D degrees in Administration and Ecological Engineering this year: A Study on the Rationality of the Decision-making of the Marine Debris Policy by Dr. Yong Chang Jang (Gyeongnam University); Assessment of marine debris pollution and emergency evaluation of its management measures in Korea by Dr. Sunwook Hong (Pukyong National University, PNU); Relationship among size groups of plastic beach debris as a tool to assess microplastic pollution in Korea by Dr. Jongmyoung Lee (PNU).

On the basis of various experiences as an NGO, the experts of KMLI would play an important role to activate communication and sharing among civil societies, researchers, and decision makers on the marine litter issue. Since 2009, OSEAN has implemented many research projects such as establishment of national marine litter management plan, the distribution and source of foreign litter drifted ashore, development of educational materials for elementary school teachers and fishermen, the microplastic distribution on beaches and relationship among different size groups, improvement in recycling of derelict Styrofoam buoys, and economic impact of land-based litter, etc after its establishment. KMLI is going to undertake the researches. OSEAN will conduct the nonprofit activities such as International Coastal Cleanup, survey on impact of marine litter on wildlife through citizen science, education and public relations, and international cooperation.

8. Recent outcomes of ‘microplastic researches’ in Korea

By Dr. Jongmyoung Lee, Chief science officer of Marine Litter Research Institute, OSEAN
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Recommended Citation:

Lee, Jongmyoung (2013) Recent outcomes of ‘microplastic researches’ in Korea. *Marine Litter News from East Asia Civil Forum on Marine Litter, Vol 4(2): 17-18*

Microplastic is an emerging marine environmental pollution issue. It can transfer chemical pollutants from marine environment to biota and, consequently, pose threat on health of wild life and human. Researches on distribution and effects of microplastic have been conducted by Korea Institute of Ocean Science and Technology (KIOST) with the project “A study on microplastic pollution in the coastal environments” since 2012. Our Sea of East Asia Network (OSEAN) is committing to beach plastic surveys in this project. Here, I introduce main contents of two recent publications on the survey results.

Relationships among the abundances of plastic debris in different size classes on beaches in South Korea
(<http://dx.doi.org/10.1016/j.marpolbul.2013.08.013>)

Microplastic survey requires much more efforts and resources than large plastic debris survey. In this study, correlations among micro- (1–5 mm), meso- (5–25 mm), and macro- (>25 mm) plastic debris on beaches were tested on the beaches near the Nakdong River Estuary, SE Korea. Average number of microplastics was over ten thousands per square meter while mesoplastics was about 200 and macroplastics was only one. Most of the microplastics were fragments of Styrofoam buoys from adjacent oyster culture facilities. The abundance of microplastics was strongly correlated with the abundance of mesoplastics, but not with macroplastics. So they concluded that mesoplastic surveys could be used to identify microplastic hot spots.

Cross-sectional distribution of small plastic debris on Heungnam beach, South Korea

Research highlights (<http://dx.doi.org/10.1007/s12601-013-0019-9>)

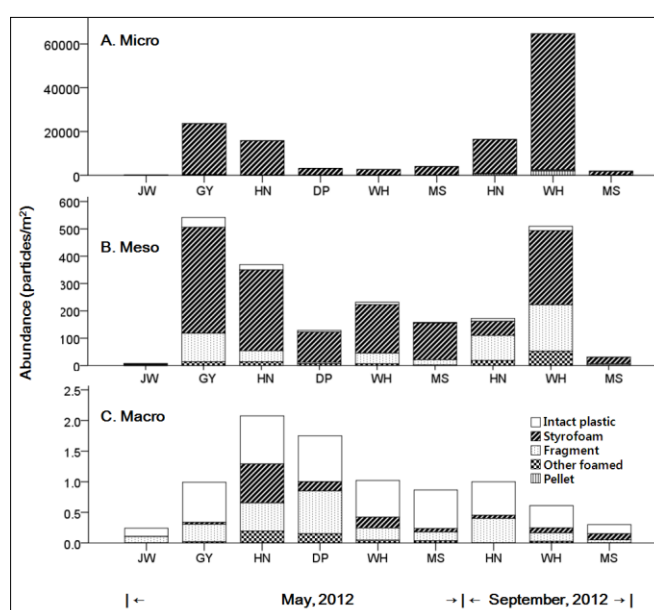


Figure 1. Abundance and composition of plastic debris on beaches by size category: (a) large microplastics (1–5 mm), (b) mesoplastics (5–25 mm), and (c) macroplastics (>25 mm). JW=Jinwoo, GY=Guyeong, HN=Heungman, DP=Deokpo, WH=Wahyeon, and MS=Myeongsa (6 beaches of Geoje Island, SE Korea)

Microplastic surveys have been usually conducted on a strandline of beaches. Thus information about cross-sectional distribution of small plastic debris on beaches is rare. In this study, small plastic debris on the high-strand and the cross-sectional lines was monitored in Heungnam beach, South Korea. The mean abundances of small plastics were about a thousand particles per square meter at the high strandline and about 500 at the cross-section perpendicular to the shoreline. They found out that the cross-sectional distribution of small plastics showed marked patchiness. The abundance of small plastic debris was relatively high compared to other regions. Fragmented expanded polystyrene spherules from aquaculture buoys were predominant on this beach.

RESEARCH

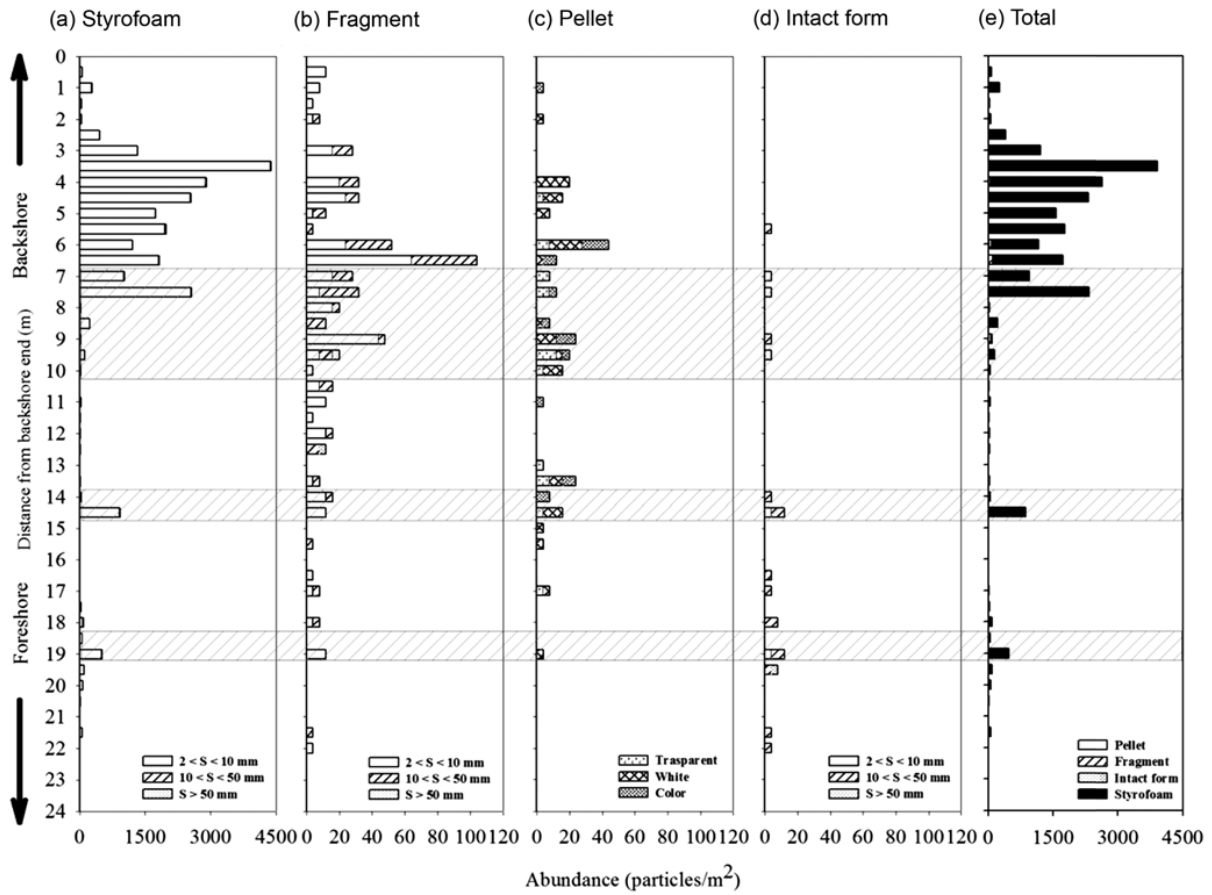


Figure 2. Cross-sectional distributions of (a) styrofoam, (b) fragments, (c) pellets, (d) intact forms, and (e) total (sum of styrofoam, fragment, pellet, and intact forms) on the beach. S = size. The shaded area indicates the approximate high strandline



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 loveaseakorea@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,

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