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The Pacific environment, sustaining our livelihoods and natural heritage in harmony with our cultures.



Twenty Seventh SPREP Meeting of Officials

Alofi, Niue

19 – 21 September 2016

Agenda Item 9.3.2: Marine Plastics and Debris Management

Purpose

1. To provide an update on the recent research on plastic ingestion by marine fish and seek support of the analysis recommendations.

Background

2. Discarded plastic waste is considered one of the priority marine pollution issues facing the Pacific region. This view was reinforced by the 23rd SPREP Meeting in Noumea, New Caledonia, which called on SPREP to increase its management efforts in the area of marine plastics and litter. The Secretariat has since been established as the regional node for marine litter and included marine debris as a focal area in the Integrated Regional Waste and Pollution Management Strategy 2016-2025 (Cleaner Pacific 2025).
3. At the 11th Conference of the Parties for the Noumea Convention, held in Noumea, New Caledonia in 2012, marine debris was prioritised by Members for intervention and \$UD45,000.00 was allocated from the Noumea Convention Operating Fund for this purpose to implement the following actions:
 - a. Action I: Development of a background position paper on marine plastic litter, status and recommendations for the Pacific region.
 - b. Action II: Further refinement of selected priority actions and implementation of at least two priority strategies that will result in improvements in information about, and management of marine litter in the Pacific region between 2014 and 2016.
4. In 2013 the Secretariat contracted the University of Auckland through their PhD programme to undertake work on the development and delivery of regional marine litter management services for the Pacific region. In 2014, at the 12th Conference of the Parties for the Noumea Convention, held in Majuro, Marshall Islands, Members endorsed the *Literature Review of Marine Debris Pollution Report in the Pacific*.
5. The University of Auckland has since been working on the analysis of fish gastrointestinal tract samples for the presence of marine plastics.

GEN-6 SPC/FFA Observer Report update

6. A paper on the Secretariat's analysis and summary of more than ten years of pollution incidents by fishing vessels from the SPC/FFA Regional Observer Pollution Report Form GEN-6 was presented to the SPREP Meeting last year. The report indicated that although MARPOL, the International Convention for the Prevention of Pollution from Ships, prohibits the discharge of garbage, oil and sewage, there were over 10,000 pollution incidents from Observers on board fishing vessels. It is worth noting that 71 percent of pollution incidents identified in the report are in breach of current MARPOL requirements. Analysis of the pollution incidents by flag states indicated that 71 percent of these violations were from Distant Water Fishing Nations (DWFNs) such as Taiwan, U.S.A., Korea, Philippines, Japan, and China.
7. In November 2015 the Secretariat presented the analysis report to the Heads of the Pacific Transport Officials Meeting in Fiji. The Pacific Transport Officials "endorsed and agreed to actively implement the recommendations in the Marine Pollution from Fishing Vessels GEN6 Report and coordinate with Regional Fisheries Management Organisations in the region to address pollution violations".
8. In December 2015 the Secretariat presented the issue to the meeting of the Western Central Pacific Fisheries Commission, at a sponsored side event and as a consequence, the delegation of the Republic of the Marshall Islands called on the Commission to take action to address the issue of marine debris generated by fishing vessels in the region.
9. Members are also referred to Agenda item 9.1.3 where it is noted that the Secretariat presented the issue to the meeting of the Western Central Pacific Fisheries Commission and was also represented at an Expert Consultation convened by FAO in April at their Rome headquarters, to make recommendations on the Marking of Fishing Gear.
10. In March 2016 the Secretariat presented the issue to the Asia Pacific Heads of Maritime Safety Agencies Forum in New Zealand. The APHoMSA forum "endorsed and agreed for the Secretariat to actively implement the recommendations in the Marine Pollution from Fishing Vessels GEN6 Report and coordinate with Regional Fisheries Management Organisations in the region to address pollution violations".
11. The Maritime New Zealand at the APHoMSA Forum proposed to highlight the importance of increasing global ratification and improving implementation of international standards for fishing vessels, particularly in the Asia-Pacific region through the inclusion of fishing vessels into the text of the Memorandum of Understanding on Port State Control in the Asia-Pacific Region (Tokyo MOU) and also urged for ratification and improved implementation of key international instruments on fishing vessel safety, including the 2012 Cape Town Agreement, STCW-F, and the Work in Fishing Convention (No. 188).

Plastic ingestion by fish in the South Pacific – summary of findings for Samoa

12. This research analysis forms Part One of a report that provides the first substantive, documented evidence about plastic ingestion by fish in the South Pacific. The overall report examines 881 samples of fish in three South Pacific island countries, Samoa, French Polynesia and Easter Island. At the time this paper was written only 295 (73 percent) of the Samoa sample analysis results were available. The completed report will be made available at the end of 2016 upon completion of all sample analysis from Samoa, French Polynesia and Easter Island.

13. Marine plastic debris was found in 10.5 percent to 31.8 percent of samples. With respect to a habitat, plastic ingestion was the most frequent in yellowfin tuna (*Thunnus albacares*) and ambon emperor (*Lethrinus amboinensis*). With respect to the trophic level, greater ingestion rates were found in carnivorous predators than in herbivorous fish. Plastic debris recovered from the guts was all of microscopic sizes, usually less than 1 mm in length.
14. Table 1 lists all species with their location, sample size, biological measurements, ingestion rates and plastic load.

Table 1. List of species collected.

Species	Sample size (N, #)	Av. total length (cm) \pm SE	Av. weight (g) \pm SE	Ingestion rates (%)	Samples analysed (N, #)	Samples with plastics (N, #)
<i>Thunnus albacares</i>	31	78.0 \pm 2.0	6210.3 \pm 450.0	31.8	22	7
<i>Lethrinus amboinensis</i>	32	37.5 \pm 1.2	632.0 \pm 62.2	30.4	23	7
<i>Katsuwonus pelamis</i>	34	70.2 \pm 1.4	6055.6 \pm 387.6	23.8	21	5
<i>Lutjanus gibbus</i>	32	32.2 \pm 1.1	485.0 \pm 50.3	23.1	26	6
<i>Naso unicornis</i>	32	26.3 \pm 1.7	404.7 \pm 84.1	22.7	22	5
<i>Naso lituratus</i>	30	24.7 \pm 1.0	244.7 \pm 19.7	20.0	20	4
<i>Scarus oviceps</i>	47	25.3 \pm 0.4	237.2 \pm 13.7	19.4	36	7
<i>Lethrinus obsoletus</i>	31	26.9 \pm 0.3	244.0 \pm 9.7	19.2	26	5
<i>Scarus niger</i>	31	25.3 \pm 0.6	337.6 \pm 21.7	19.1	21	4
<i>Ctenochaetus striatus</i>	38	22.0 \pm 0.23	181.9 \pm 6.2	17.2	29	5
<i>Acanthurus lineatus</i>	37	22.6 \pm 0.33	163.1 \pm 6.1	16.7	30	5
<i>Siganus punctatus</i>	31	21.4 \pm 0.6	170.7 \pm 11.6	10.5	19	2

Summary of report recommendations

15. Recommendations are summarized below, and reflect and expand upon these three key areas. They are designed for a variety of stakeholders such as national environment ministries, government leaders, policy makers, academics, private sector, intergovernmental organizations such as SPREP and SPC, regional fisheries managers, and national maritime and port authorities.

The following recommendations are to:

- Continue the ongoing modelling, monitoring and investigation of fates and effects of marine debris to identify sources of both local accumulation points and far-field dispersal pathways of marine debris from potentially significant source points including fishing vessels;
- Investigate further marine debris impacts, and monitoring of micro plastic ingestion in most common fish species stomachs and commercial fish species for persistent organic pollutants; and
- Support the development of a Marine Debris and Plastics Action Plan to implement marine debris management practices, enhance community based removal programmes and implementation of the Pacific Regional Port Reception Facilities Plan.

Recommendation

16. The Meeting is invited to:

- **note** the progress of the analysis of plastics ingestion by fish in the South Pacific. The report will be made available at the end of 2016 upon completion of all sample analysis from Samoa, French Polynesia and Easter Island;
- **note** the progress on raising the issue and coordination with Regional Fisheries Management Organisations (RFMOs) in the region to address pollution violations from distant water fishing nations (DWFNs);
- work with SPREP to **encourage** and **lobby** the relevant member country departments to support the inclusion of fishing vessels into the text of the Memorandum of Understanding on Port State Control in the Asia-Pacific Region (Tokyo MOU) and urged for ratification and improved implementation of key international instruments on fishing vessel safety, including the 2012 Cape Town Agreement, STCW-F, and the Work in Fishing Convention (No. 188);
- **support** the ongoing modelling, monitoring and investigation of fates and effects of marine debris to identify sources of both local accumulation points and far-field dispersal pathways of marine debris from potentially significant source points including fishing vessels;
- **endorse** the Secretariats efforts establish itself as the regional node for marine litter to investigate further marine debris impacts, and monitoring of micro plastic ingestion in most common fish species stomachs and commercial fish species for persistent organic pollutants; and
- **endorse** and **support** the development of a Marine Debris and Plastics Action Plan to implement marine debris management practices, enhance community based removal programmes and implementation of the Pacific Regional Port Reception Facilities Plan.

Annex 1: Plastic Ingestion by Fish in the South Pacific – Samoa Results

2 September, 2016