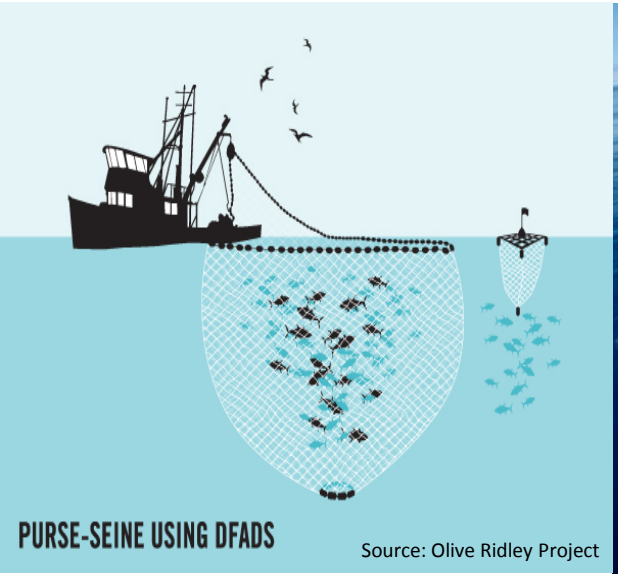
Marine pollution originating from purse seine and longline fishing vessel operations in the Western and Central Pacific Ocean, 2003-2015

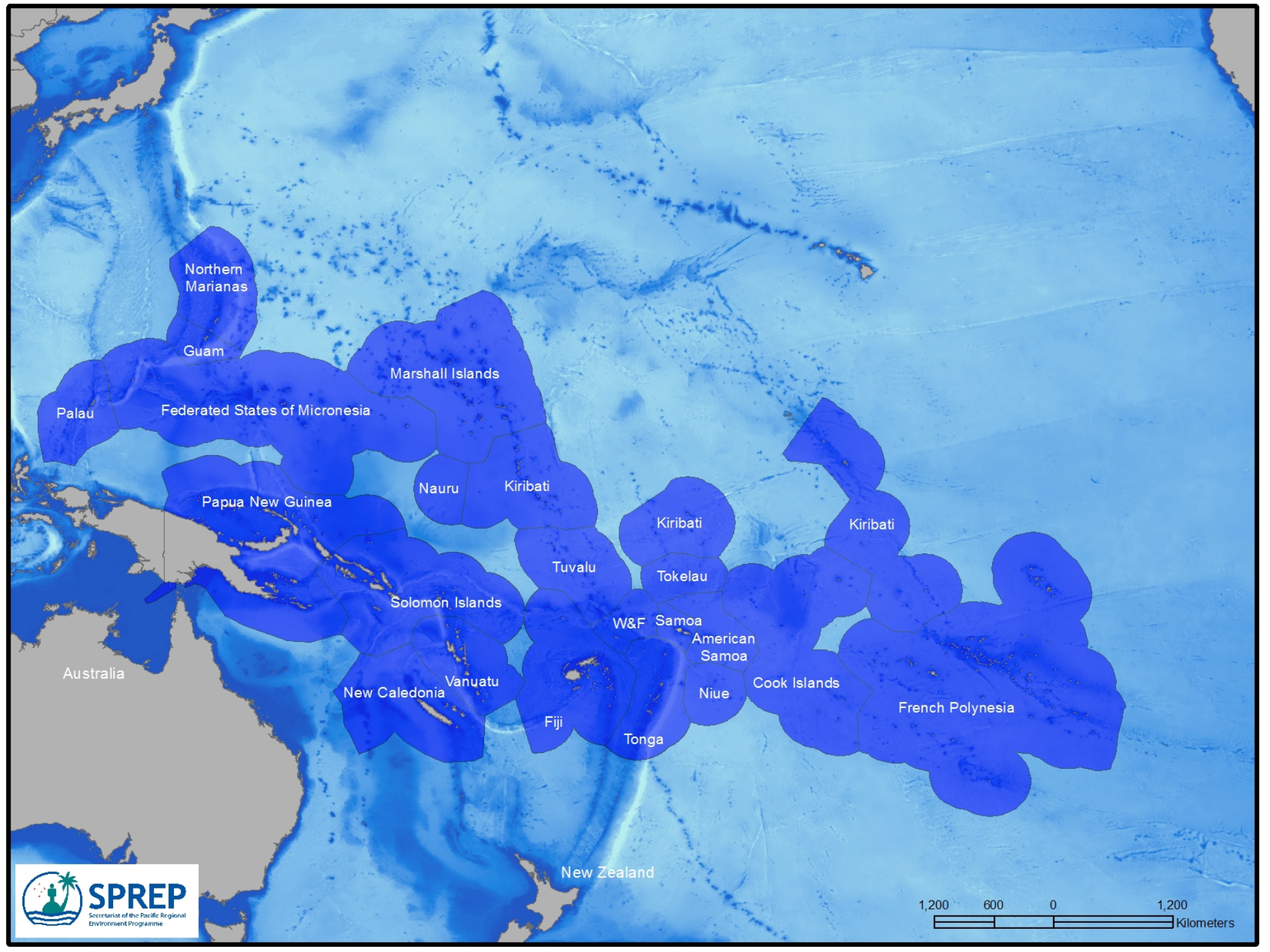


Source: Olive Ridley Project


Source: Rizkiyanto, 2011

Kelsey Richardson

Former Marine Debris Consultant, Secretariat of the Pacific Regional Environment Programme (SPREP)


Northern Marianas
Guam
Palau
Federated States of Micronesia
Marshall Islands
Nauru
Kiribati
Papua New Guinea
Kiribati
Kiribati
Tuvalu
Tokelau
Solomon Islands
W&F
Samoa
American Samoa
Australia
Vanuatu
New Caledonia
Niue
Cook Islands
Fiji
Tonga
French Polynesia
New Zealand
SPREP
Secretariat of the Pacific Regional Environment Programme
1,200
600
0
1,200
Kilometers

Secretariat of the Pacific Community/Pacific Islands Forum Fisheries Agency (SPC/FFA) Regional Observer Pollution Report, Form GEN-6

SPC/FFA REGIONAL OBSERVER POLLUTION REPORT — **FORM GEN-6**

REVISED MARCH 2014

OBSERVER NAME	VESSEL NAME	OBSERVER ID NUMBER	PAGE OF

- fill in one form for each pollution incident -

INCIDENT DETAILS

Ship's DATE and TIME DD	MM	YY	hh	mm	LATITUDE (dd°mm.mmm')	N / S	LONGITUDE (ddd°mm.mmm')	E / W	EEZ / HARBOUR

WIND DIRECTION	WIND SPEED	SEA CONDITIONS (C, S, M, R)	CURRENT : (knts and direction °)	OBSERVER'S VESSEL ACTIVITY

NAME OF OFFENDING VESSEL	IRCS	TYPE OF VESSEL	YOUR POSITION FROM OFFENDING VESSEL Compass Bearing	Distance (nautical miles)

WASTE DUMPED OVERBOARD

Material (Tick each box that applies)		Describe Type	Describe Quantity
Plastics			
Metals			
Waste oil			
Chemicals			
General garbage (within 12 miles of shoreline)			
describe:			

OIL SPILLAGES AND LEAKAGES

Source	Tick each box that applies	Visual Appearance / Colour	Describe Area and Quantity
Vessel Aground / Collision			
Vessel at Anchor / Berth			
Vessel Underway			
Land based source - Describe source			
Other - please specify			

Abandoned or Lost Fishing Gear

Source	Activity	Describe Gear	Estimate Quantity
Lost during fishing			
Abandoned			
Dumped			

Other comments:

Were there any stickers/ posters displayed to remind the vessel about MARPOL Regulations? Y / N

Did you take any photos? Y / N

If yes, please state the number(s) of the photo frames or files.

MARPOL Regulations - state

It is illegal for any vessel to discard any form of plastics into the sea at anytime.

It is illegal for any vessel to discard any form of oil into the sea at anytime.

It is illegal for any vessel to dump any form of rubbish into the sea within 12 nautical mile of the sea shore.

Observer Name	Put first name first, and your family name last.
Vessel Name	Record the full name of the vessel. Do not use any abbrevations.
Observer ID Number	Use the number assigned by the observer programme e.g. AA 03-01
Page of	Number all GEN-6 pages in sequence from the start until the end of the trip
Date of Incident (dd/mm/yy)	Date pollution seen in day, month and year. *Use ship's time as defined in other observer data collection forms*
Time (00.00 hrs)	Report the time using the 24hr clock.
Latitude / Longitude	Record the GPS positon of the host vessel when the pollution was first seen.
EEZ / Harbour	Record the EEZ or, for shorebase staff, mark port or Harbour name here.
Wind Direction	The prevailing wind direction. Use degree eg. 90 degrees for an east wind
Wind Speed	Record the prevailng wind speed.
Sea Conditions	C- Calm, S- Slight, M- Moderate, R - Rough.
Current (knts and direction)	If the vessel has a current meter find out what the current strength is.
Observer's vessel activity	State the host (observer's) vessel activity at the time of the pollution incident. Some activities to consider might be: fishing; transhipping; bunkering; transitting; aground.
Name of offending vessel	Make an effort to record the complete and proper name of offending vessel. Be careful not to make any spelling mistakes which may make it difficult to prosecute the vessel if the report goes through legal proceedings.
IRCS	The international callsign is marked in large letters on the side of the boat.
Type of vessel	Consider the full vessel and aircraft codes on the front of Form GEN-1.
Your positon from offending vessel.	Use the vessel compass to get direction of offending vessel from host vessel. The radar can be used to get an extact distance in nautical miles. Otherwise give best estimate and note if it is the observer's or someone else's.
WASTE DUMPED OVERBOARD	
Material	Tick each correct box to show which types of materials were dumped. Only tick two or more materials if vessel has dumped more than one material type over at the same time - e.g.: it dumped plastic and metal at 10:00hrs. If plastic was dumped at 10:00hrs and metal at 16:00hrs - record separately.
Describe type	Give as good a description as possible of the type of dumped material. E.g.: - plastic bags; bait boxes plastic strapping; bait boxes plastic bags; etc.
Describe Quantities	Give a best estimate of the amount dumped. Sometimes this will be easy - e.g., 12 metal oil drums were dumped. At other times the material might be too far away to see the amount. If it is too far away then estimate the amount as well as possible and make note that it is only a rough estimate at distance.
OIL SPILLAGES AND LEAKAGES	
Source	Tick to indicate where the spillage or leak came from
Visual Appearance / Colour	Describe the colour/ thickness/depth of the spill as well as able.
Describe Area and Quantity	Give a best estimate of the size of the spill. The boat could be a size reference - e.g.: it was 4 times bigger than the boat.
Abandoned or Lost Fishing Gear	
Lost during fishing	Lost by host vessel. Describe activity when gear lost (setting/hauling/soak)
Abandoned	For any fishing gear abandoned by another vessel and found by host vessel
Dumped	For any gear dumped by host vessel, see above.

Purse Seine Pollution Incidents in Pacific Countries' and Territories' Exclusive Economic Zones (EEZs),* 2003 – 2015

Exclusive Economic Zones (EEZs)*	Reported Incidents	Percent of Total Incidents
Papua New Guinea	4706	44%
Kiribati	1393	13%
Federated States of Micronesia	1237	12%
Solomon Islands	706	7%
Marshall Islands	656	6%
Nauru	629	6%
International Waters	*454*	*4%*
Tuvalu	286	3%
Fiji	138	1%
Palau	75	<1%
Vanuatu	56	<1%
Japan	53	<1%
Cook Islands	52	<1%
Tokelau	51	<1%
American Samoa	30	<1%
Samoa	15	<1%
Northern Mariana Islands, Tonga, Indonesia, Guam, French Polynesia, Howland and Baker Islands (USA), Philippines, Wallis and Futuna, Jarvis Island (USA), Palmyra Atoll (USA)	<15 each, 76 total	<1%
Total	**10613**	**100%**

Data overwhelmingly biased to purse seine fishery (98% of the total reported pollution incidents)

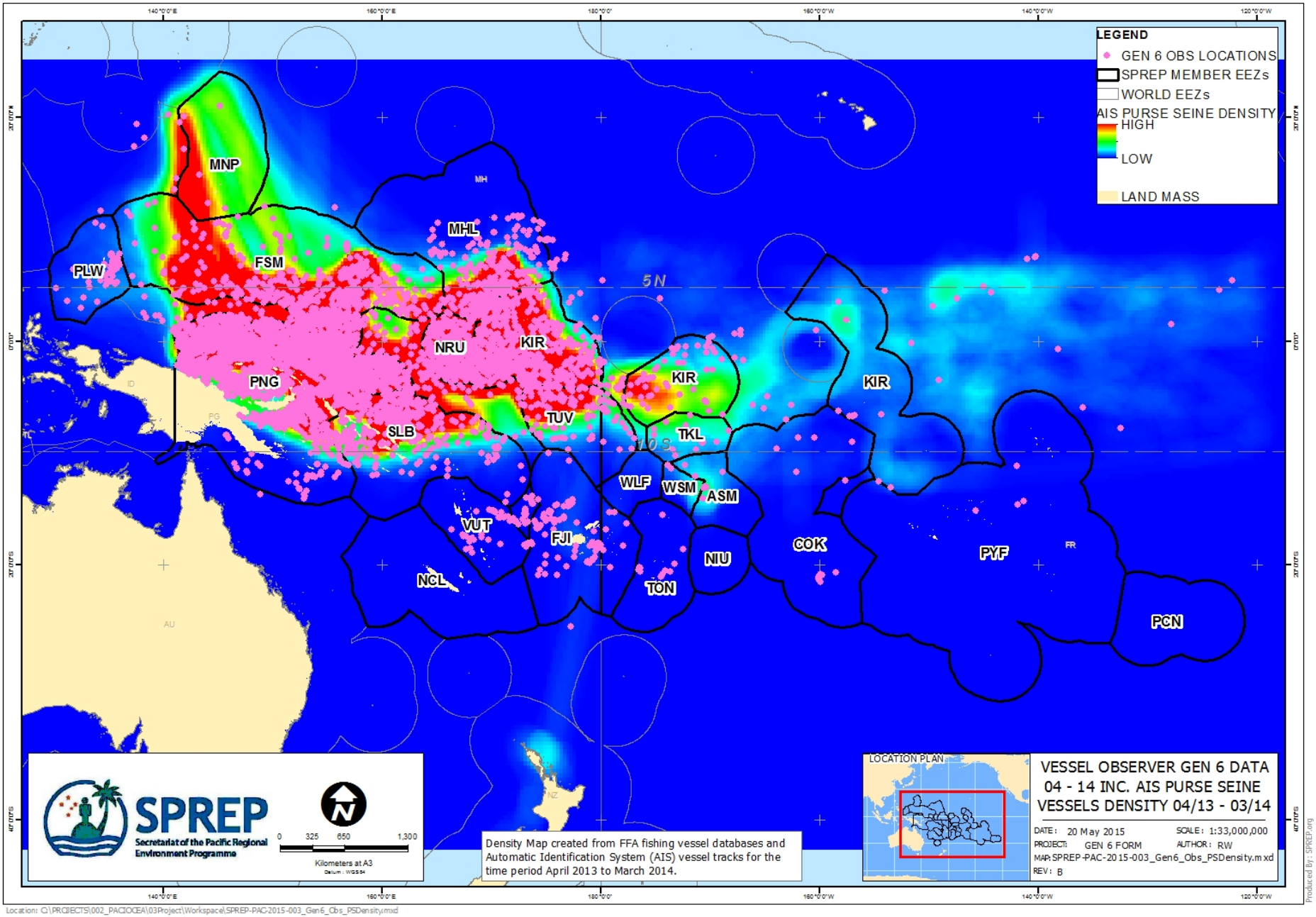
Purse Seine Summary

- **10,613 total purse seine pollution incidents**
- Observer Coverage: 5-8% prior to 2009, 20% 2009, **100% 2010-present**
- 334 active purse seine vessels, 2014

Longline Summary

- 214 total longline pollution incidents
- Observer Coverage: 5% 2012-present
- 2,800 active longline vessels, 2014

**While not an EEZ, International Waters was included for comparison purposes. Pollution events in international waters have the potential to end up in bordering EEZs.*



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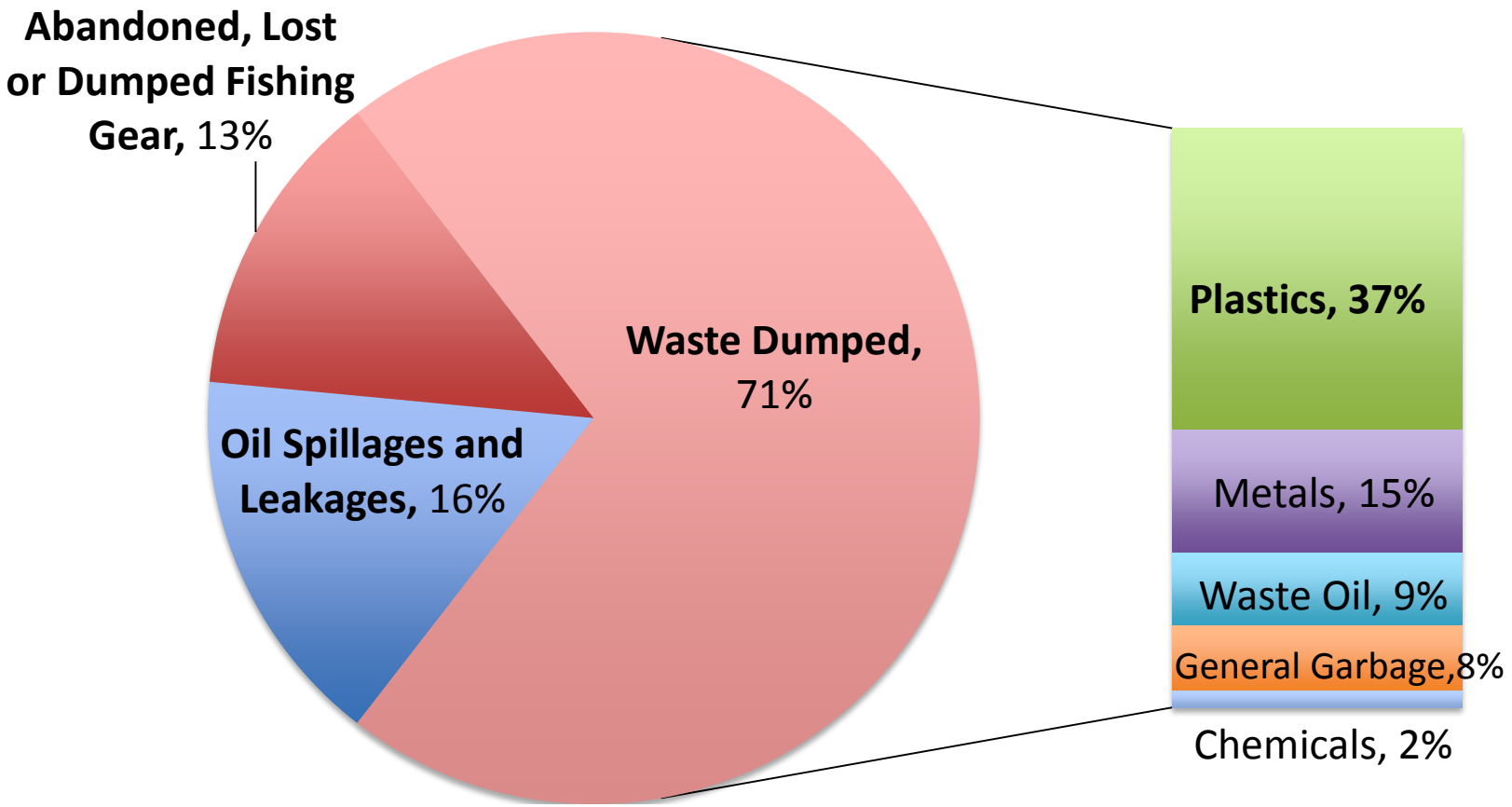
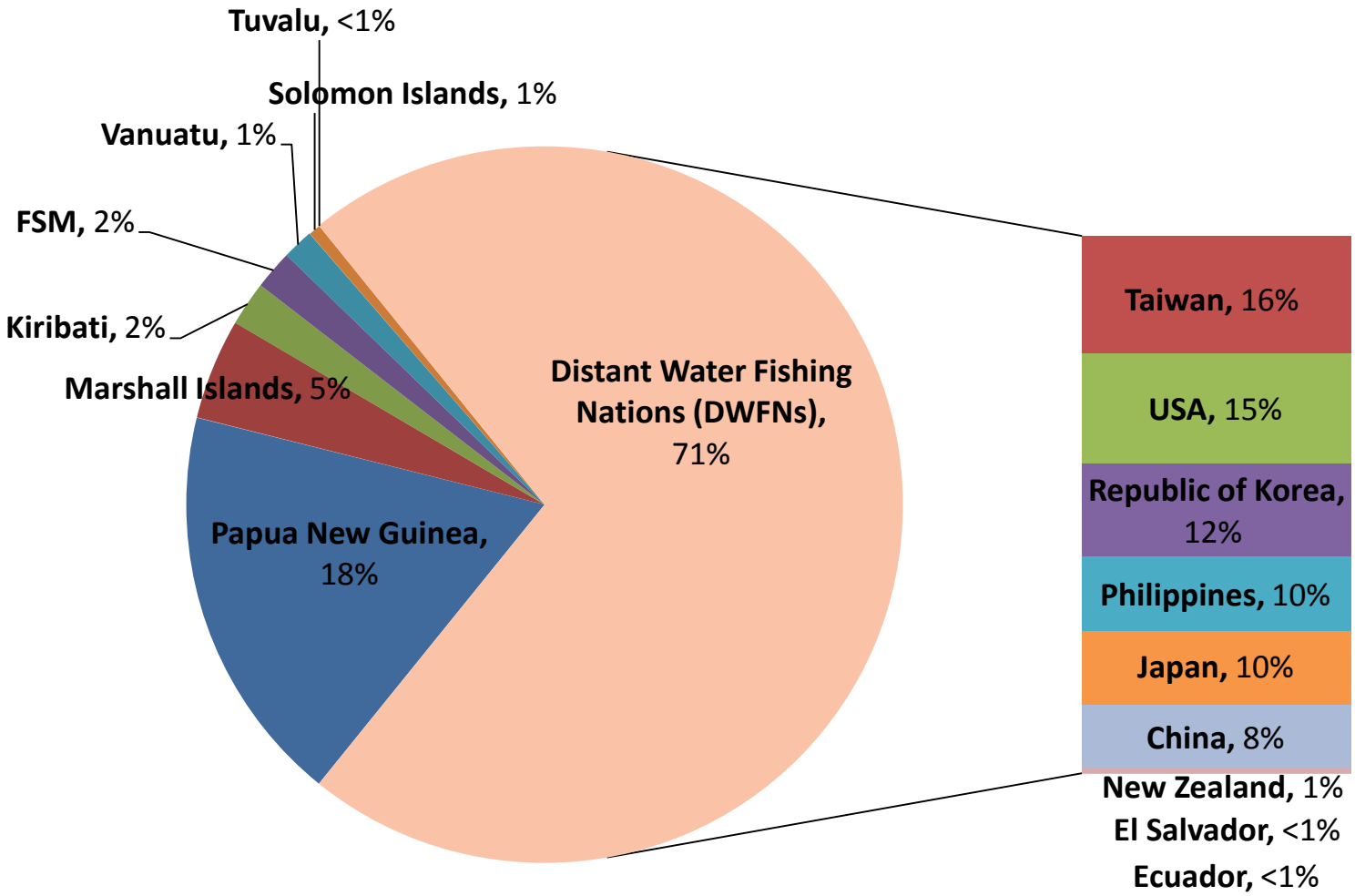
Purse Seine Pollution Incidents by Pollution Type, 2003-2015



Percent Purse Seine Pollution Incidents by Flag States, 2003-2015



Why does this matter?

- Illegal
- Issue of fishing boat ***compliance*** to already existing domestic and international legislation

Photo: NOAA Marine Debris Program

Photo: Chris Jordan,

Photo: NOAA Fisheries

Photo: Michael Pitts/naturepl.com

Source: GBRMPA, 2016

Number of vessels active in the Western and Central Pacific Fisheries Commission (WCPFC) Statistical Area, 2004 - 2014

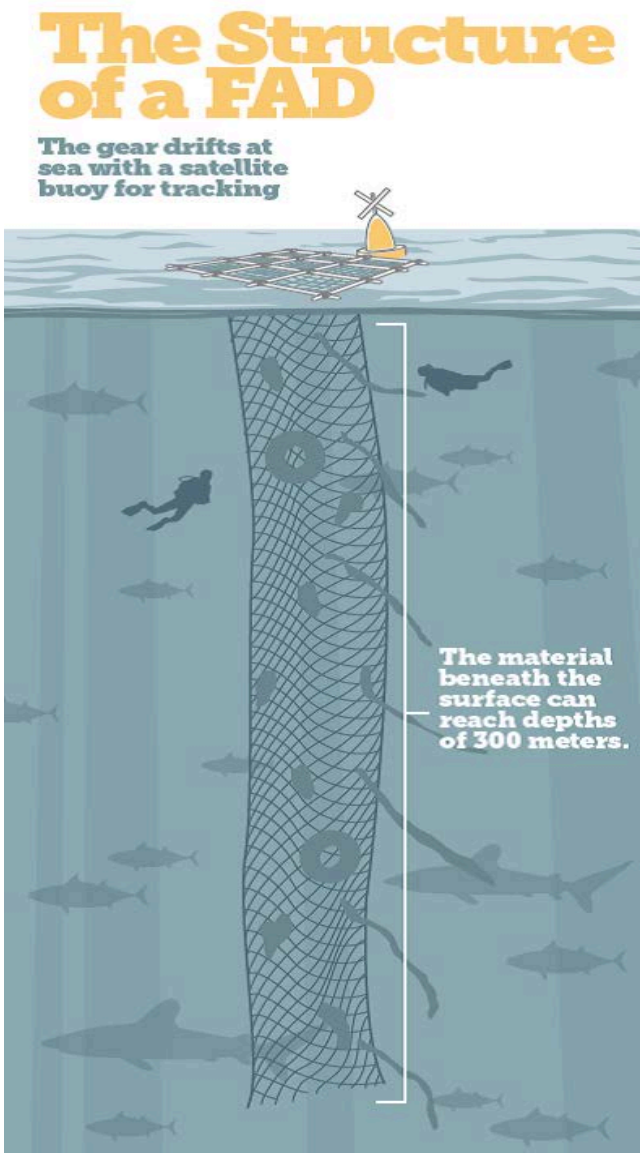
Year	Vessels Active			
	Longline	*Pole-and-Line*	***Purse Seine***	*Total*
2004	3,121	203	255	3,579
2005	3,088	199	259	3,546
2006	2,961	184	251	3,396
2007	2,640	169	279	3,088
2008	2,514	151	291	2,956
2009	2,432	150	302	2,884
2010	2,582	147	316	3,045
2011	2,774	149	318	3,241
2012	2,636	142	325	3,103
2013	2,753	131	337	3,221
2014	**2,800**	127	**344**	3,271

Source: WCPFC Tuna Fishery Yearbook 2014

Additional Concern over FADs as Marine Debris

What is a FAD? (from The Pew Charitable Trusts): "A *fish aggregating device* is an artificial object, anchored or **drifting** in the open ocean to attract fish.

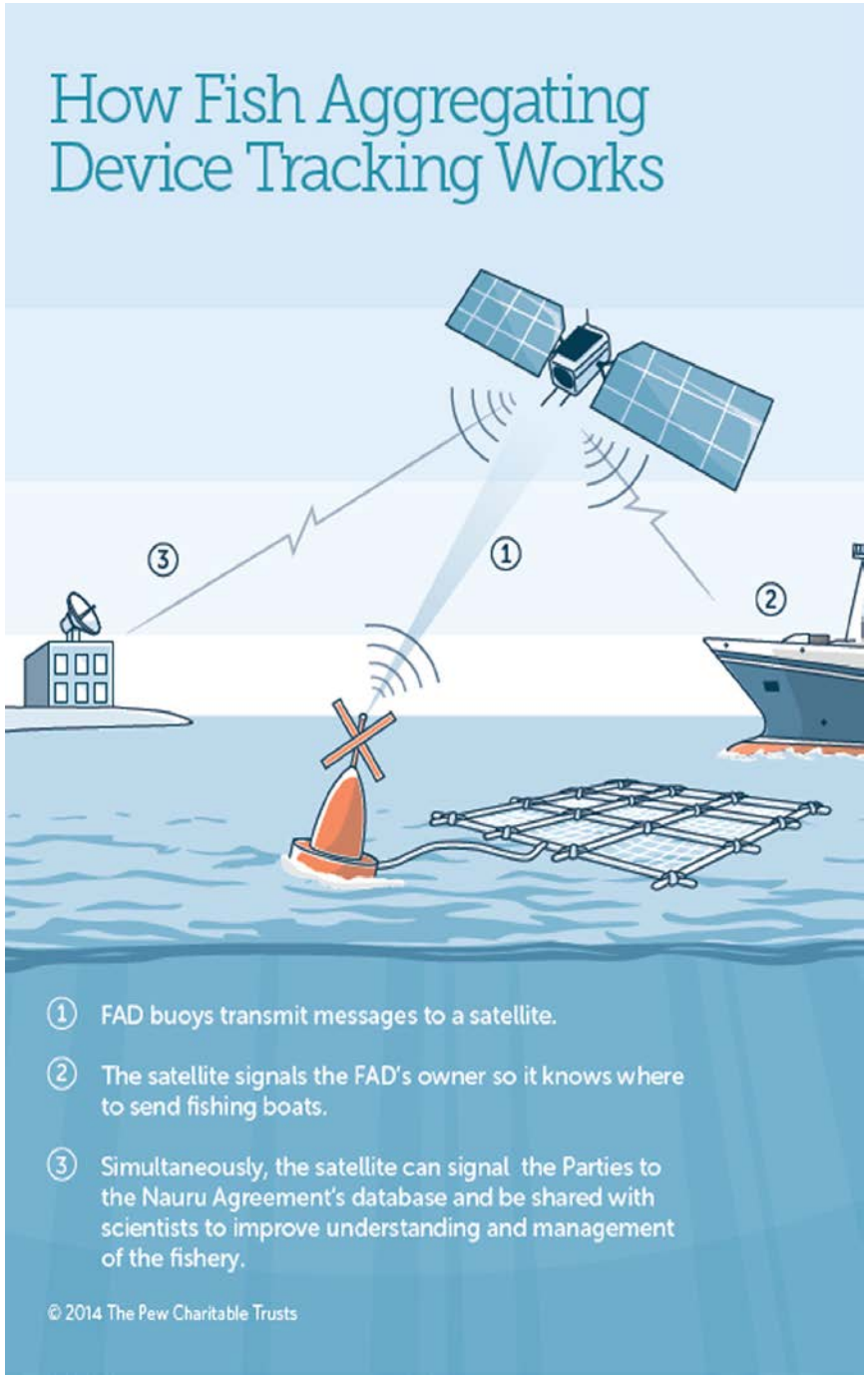
- Drifting FADs float with the current collecting fish as they move across the ocean."
- Common style: "composed of a surface float...; a satellite tracking buoy; and subsurface netting, which can stretch from 10 meters to 300 meters below the surface, to attract fish."
- Source: The Pew Charitable Trusts, http://www.pewtrusts.org/en/imported-old/other-resources/2013/06/26/fads-time-to-slow-the-trend



Source: The Pew Charitable Trusts, 2013

Examples of Observer Comments:

- “TOWBOAT CREW JUST FOLLOWED MASTERS DIRECTION TO RETRIEVE ONLY BEACON AND LEAVE THE OLD FAD BEHIND.”
- “THE FAD DUMPE[d] BELONGS TO F/V ---- AS CAPTAIN REQUEST ONLY IRIS BUOY RETRIEVE ONBOARD.”
- “fad abandoned after retrieving buoy- crew retrieved two buoys deployed with fad yesterday and abandoned the fad”
- “TWO GPS BUOYS THAT WERE RETRIEVED FROM ANOTHER VESSEL FAD WERE BROKEN INTO PIECES AND DUMPED OVERBOARD.”
- “VESSEL FOUND SONAR BUOY THAT WAS DEPLOYED ON A FAD. BUOY WAS CUT LOOSE AND THE FAD WAS MISSING. SOME OTHER VESSEL CUT LOOSE THE SONAR BUOY AND DROPPED IT SOMEWHERE AND THE FAD WAS MISSING.”



More Examples of Observer Comments:

- "FAD WAS RETREIVED AND HALF OF THE SUSPENDED NETTING- CUT AND DUMPED OVERBOARD- ALONG WITH THE NORMAL FAD, APROX. 50 X 1-5M NETTING AND ATTACHEMENTS"
- "NETTING HANGING UNDERNEATH FAD, 210 FATHOMS OF NET"
- "DUMPING OF SUSPENDED FAD MATERIAL WITHOUT THE MAIN FLOATING DEVICE. I REFER THIS AS BREACH MARPOL REGULATION SINCE ALL THE ATTACHED MATERIAL THAT IS FOR FAD WAS DUMPED OVERBOARD. LENGTH OF NET ABOUT 20 FATHOMS WITH ALL THE PLASTIC AND METAL (CABLE) ATTACHMENT"
- "FAD FOUND BELONGS TO HOST VESSEL WAS DUMPED TO SEA DUE TO THE CONDITION OF FAD WAS NOT GOOD."
- "THESE TWO FAD WERE DEPLOY AS TRASH. NO BUOYS WERE ATTACH TO IT"

Source: The Pew Charitable Trusts, 2014

Photo: Alex Hoffard

Recommendations

- **Increase observer coverage** for longline fishing vessels
- **Reporting of pollution incidents** to coastal, port and flag states; the Noumea Convention; and the IMO's Global Integrated Shipping Information System (GISIS)
- **Need for better enforcement**
- **Outreach and Compliance Assistance Programme** to inform ship masters, mariners, and ports about the proper manner for disposal of all garbage, wastes and pollution types generated onboard fishing vessels
- **Invest in expanded capacity of port waste reception facilities**

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Need for Collaboration Across Diversity of Stakeholders

- **SPREP member countries; coastal, port and flag states**
- **Regional Fisheries Management Organisations** including the Western and Central Pacific Fisheries Commission (WCPFC), and advisory bodies such as the Pacific Islands Foreign Fisheries Agency (FFA)

  - information shared as a paper at WCPFC's Scientific Committee and Technical Compliance Committee meetings in 2015, and as a side event at the 12th Regular Session of the Commission
- **Maritime Safety and Transport Authorities** - information shared at the 2015 Pacific Regional Transport Ministers' Meeting
- Other **regional organisations** including the Pacific Community (SPC) and the Pacific Islands Forum Secretariat (PIFS)
- **Non-governmental organisations** and partnerships such as Birdlife International, The Pew Charitable Trusts
- New Zealand recently shared this work at **the 17th Session of the Asia Pacific Heads of Maritime and Safety Agencies**, where it recommended support for a proposal to include fishing vessels in the MOU on Port State Control in the Asia-Pacific Region, or Tokyo MOU

Sources: FFA, 2008


Sources: FFA, 2008


Source: SPC, 2012


Sources: FFA, 2008

References

- Baske, A. (2013). *Marine Debris*. [Photograph]. Retrieved from http://www.pewtrusts.org/en/imported-old/other-resources/2013/06/26/fads-time-to-slow-the-trend
- Chape, Stuart. *Cruise ship Apia harbour, Upolu Samoa*. [Photograph]. Retrieved from https://imo.amsa.gov.au/secure/circulars/mepc/859.pdf
- GBRMPA. (2016). *Don't Let Your Litter Bug Our Reef*. [Graphic]. Retrieved from http://www.gbrmpa.gov.au/managing-the-reef/threats-to-the-reef/marine-debris
- Hofford, A. (2014). *A Portrait of the Western Pacific Ocean – Industrial Fishing and Natural History*. [Photograph]. Retrieved from http://www.alexhoffordphotography.com/node/2396
- Jordan, C. *Midway: Message from the Gyre*. [Photograph]. Retrieved from http://www.chrisjordan.com/gallery/midway/#CF000313%2018x24
- NOAA Fisheries. *Green sea turtle (Chelonia mydas) entangled in a large seine or trawl net*. [Photograph]. Retrieved from https://pifsc-www.irc.noaa.gov/cred/entanglement.php
- NOAA Marine Debris Program. *Marine debris can be a navigational hazard*. [Photograph]. Retrieved from https://marinedebris.noaa.gov/discover-issue/impacts
- Olive Ridley Project. *Purse Seine*. [Infographic]. Retrieved from http://oliveridleyproject.org/what-are-ghost-nets/fishing-techniques/
- Pacific Islands Forum Fisheries Agency (FFA). *(2008). FFA Observer Program*. [Photographs]. Retrieved from http://www.ffa.int/observers
- Pitts, M. (2001). [Photograph]. Retrieved from http://www.hakaimagazine.com/article-long/ghosts-fishers-past
- Rizkiyanto, F. (2011). *What Lies Under*. [Artwork]. Retrieved from http://ferdi-rizkiyanto.blogspot.com/2011/06/what-lies-under.html
- SPC. (2012). *Pacific Islands Regional Fisheries Observer*. [Photograph]. Retrieved from http://www.spc.int/oceanfish/en/ofpsection/fisheries-monitoring/observers
- The Pew Charitable Trusts. (2014). *How Fish Aggregating Device Tracking Works*. [Infographic]. Retrieved from file:///Users/carlrichardson/Downloads/TUNAFADTrackingPNAFactsheetSept2014%20(2).pdf
- The Pew Charitable Trusts. *FADS: Time to Slow the Trend*. June 26, 2013. Global Tuna Conservation. Retrieved from http://www.pewtrusts.org/en/imported-old/other-resources/2013/06/26/fads-time-to-slow-the-trend
- The Pew Charitable Trusts. (2014). *Satellite Tracking Technology to Keep Tabs on Tuna Fishing*. Global Tuna Conservation. [Photograph]. Retrieved from http://www.pewtrusts.org/en/about/news-room/press-releases/2014/04/29/satellite-technology-to-keep-tabs-on-tuna-fishing
- The Pew Charitable Trusts. (2013). *The Structure of a FAD*. [Infographic]. Retrieved from http://www.pewtrusts.org/en/multimedia/data-visualizations/2013/proliferating-use-of-fish-aggregating-devices