Amgueddfa Cymru - National Museum Wales

Preparing for the Global Citizenship Mini Challenge

national museum cardiff amgueddfa genedlaethol caerdydd

SOURCE PACK

national museum wales amgueddfa cymru

Visiting National Museum Cardiff can help you to find out more about the important issue of living sustainably and to decide which particular aspect of this issue you would like to focus on for your final Global Citizenship Challenge.

This pack provides you with an opportunity to prepare for the Global Citizenship Challenge by exploring the Impact of Human Activity on the Environment. By studying the pack and completing the activities, you can develop the skills needed to complete the challenge successfully. You will learn more about the impact of industry on Wales and the impact of litter on the world's oceans, coastline and wildlife.

The natural history gallery and art galleries at the museum will help you to explore and research these important issues. You will be able to see some of the resources in this pack for yourself and explore many other useful sources. **If you are visiting to see specific works, please check with the museum beforehand to make sure they will be on display. Galleries do sometimes change; for example, works of art are sometimes removed from display for various of reasons.**

You can carry out further research by visiting Amgueddfa Cymru's website, including the section Images of Industry. You can visit other Amgueddfa Cymru museums, especially the National Slate Museum, the National Waterfront Museum and Big Pit. The websites of each of these sites contain a wealth of resources.

ISSUE: **LIVING SUSTAINABLY**
FOCUS: **THE IMPACT OF HUMAN ACTIVITY ON THE ENVIRONMENT**

THE IMPACT OF INDUSTRY ON THE WELSH LANDSCAPE AND PEOPLE

SOURCE 1: Paintings of Margam House, Glamorgan, c.1700, attributed to the artist Thomas Smith

These two paintings show Margam House from opposite directions. Built by the Mansel family in the 16th century, it stood as one of the great houses of Glamorgan until it was demolished in the 18th century. The paintings show Margam House and gardens surrounded by the fertile landscape of Glamorgan.

OIL ON CANVAS. FROM AMGUEDDFA CYMRU COLLECTION

View of Margam House, Glamorgan, Looking North, c. 1700
Attributed to Thomas Smith (fl. 1680s-1719)
Amgueddfa Cymru
Purchased with the assistance of the Heritage Lottery Fund and the Art Fund, 2012

SOURCE 1 *continued*

OIL ON CANVAS. FROM AMGUEDDFA CYMRU COLLECTION

View of Margam House, Glamorgan, Looking South, c.1700
Attributed to Thomas Smith (fl. 1680s-1719)
Amgueddfa Cymru
Purchased with the assistance of the Heritage Lottery Fund and the Art Fund, 2012

SOURCE 2: An illustration of the iron works and town at Nant y Glo, Monmouthshire, in about 1840 by Henry Gastineau

FROM AMGUEDDFA CYMRU COLLECTION

Nant y Glo
Henry G. GASTINEAU
1820s

SOURCE 3: View of the coastline today, dominated by the Tata Steelworks, Port Talbot

CHRIS SHAW

SOURCE 4: Painting of Cardiff dock in the early 1900s by Lionel Walden

AMGUEDDFA CYMRU COLLECTION

Steel Works, Cardiff at Night
Lionel Walden
(1893-97)

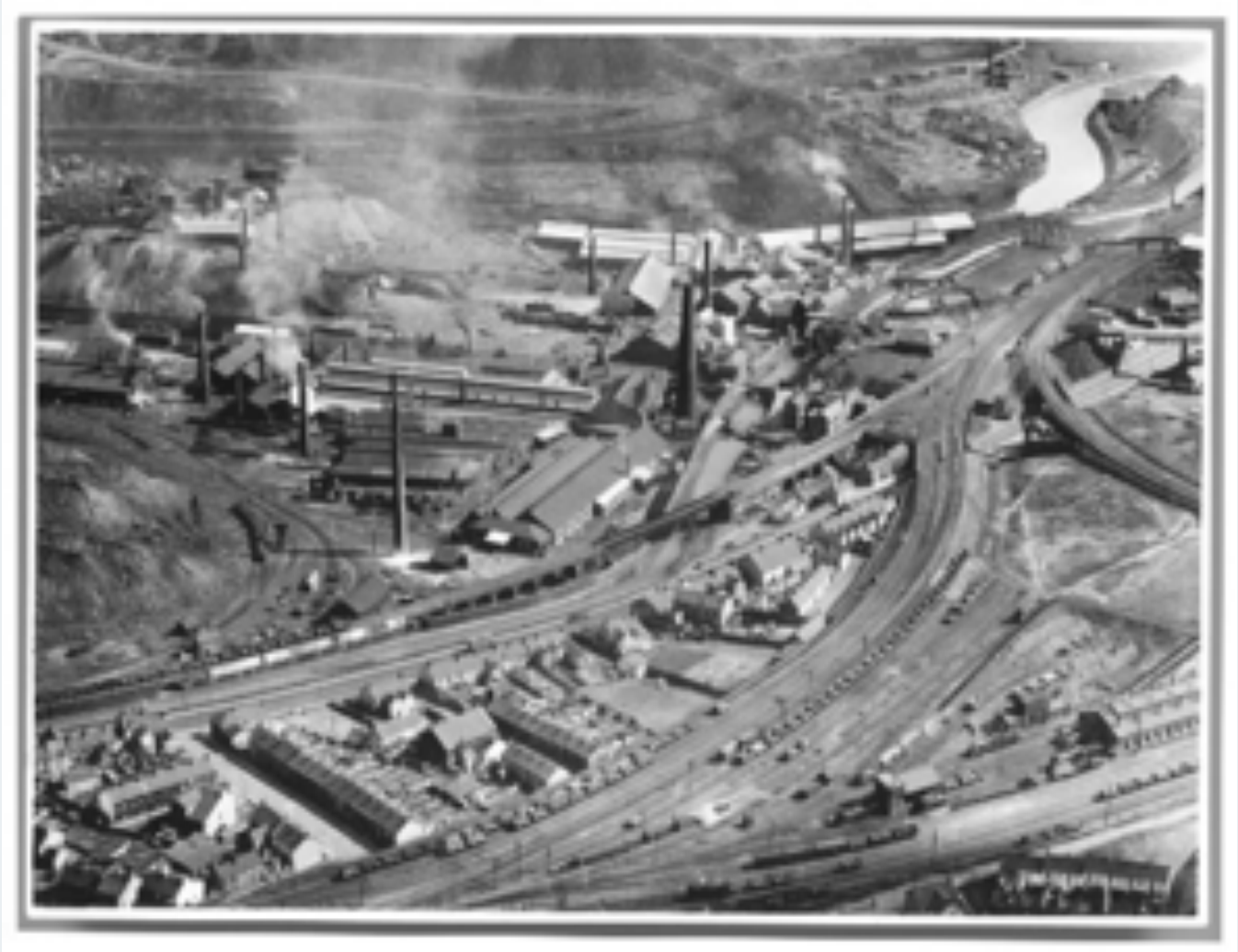
Cardiff Dock was a very busy industrial port at this time, handling millions of tons of coal a year. The population of Cardiff was continuing to rise and in 1909 the world's first million-pound cheque was signed at the nearby Coal Exchange.

SOURCE 5: Painting of Cardiff steel works at night by Lionel Walden c.1900

AMGUEDDFA CYMRU COLLECTION

Entrance to Cardiff Docks, evening
Lionel Walden

SOURCE 6: Photograph of Swansea around 1900, showing the copper works and impact of industrialisation. Swansea was known as 'Copperopolis' by the time this photograph was taken



THE IMPACT OF LITTER ON THE WORLD'S OCEANS, COASTLINE AND WILDLIFE

Litter in the world's oceans comes from many sources, including containers that fall off ships during storms, trash that washes off city streets into rivers that lead into the sea, and waste from landfills that blows into streams or directly into the ocean. Once in the ocean, this debris may degrade slowly and persist for years, travelling the currents, accumulating in large patches and washing up on beaches. Ocean and coastal litter damage the environment and endanger wildlife. One estimate suggests that around 100,000 marine mammals and sea turtles worldwide are reported to die each year due to entanglement or ingestion of plastic.

SOURCE 1: The Harlech leatherback turtle, on display at National Museum Cardiff

The leatherback turtle on display at National Museum Cardiff was washed ashore on Harlech beach, Gwynedd, in September 1988. The turtle had migrated to Welsh waters from South America.

Sadly, the turtle had drowned after being trapped by fishing lines. It was approximately 100 years old when it died. The turtle attracted worldwide attention as it was the largest and heaviest turtle ever recorded, measuring almost 3m (9ft) in length and weighing 914 kilos (2,016 pounds). It was found stranded with plastic bags in its stomach. Plastics are a man-made material, do not biodegrade (or take a very long time to biodegrade) and are hazardous to marine wildlife.

AMGUEDDFA CYMRU

SOURCE 2: Photographs of coastal litter

WIKIMEDIA AUTHOR: NESNAD

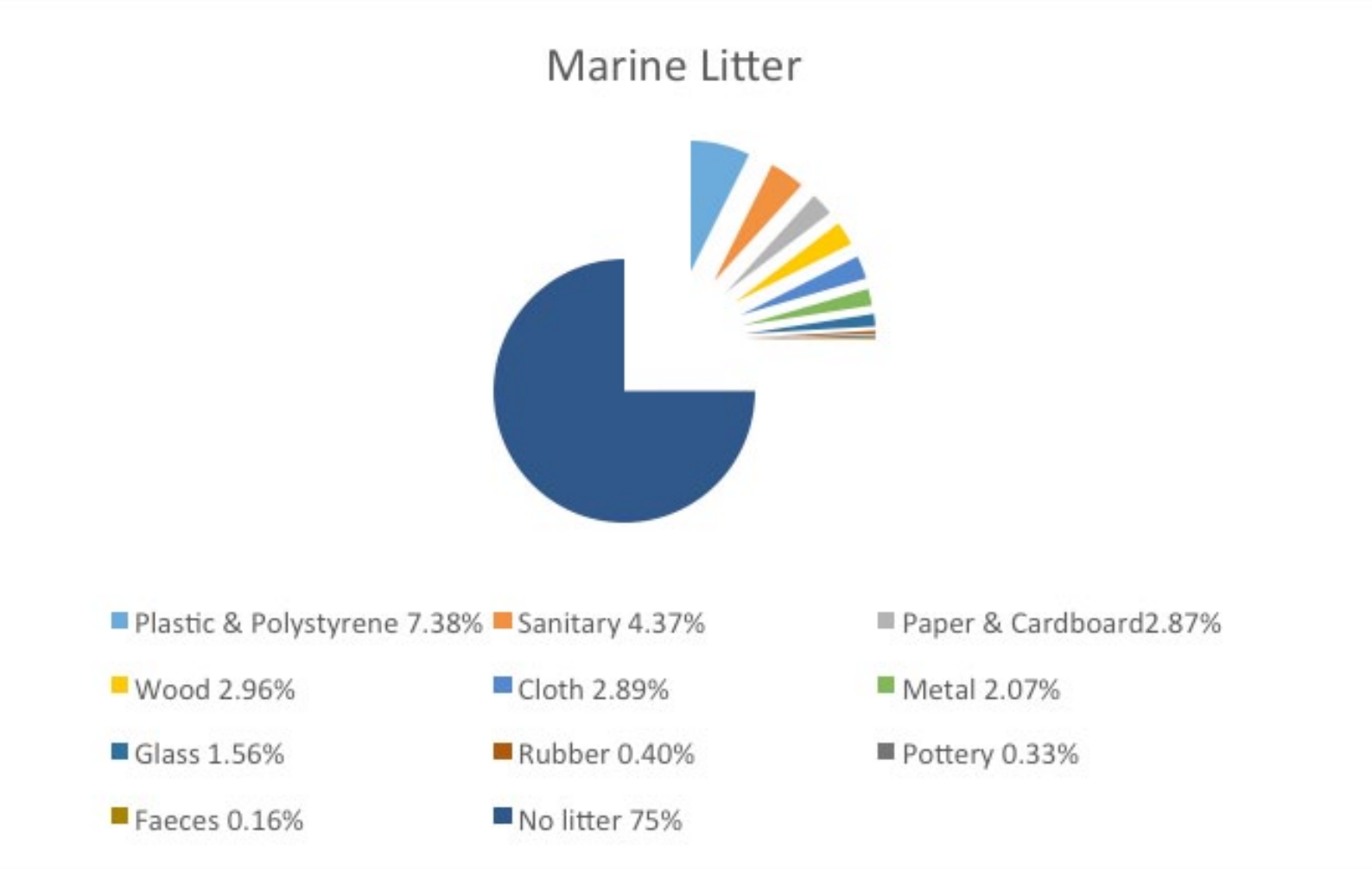
A coastline in the Philippines

SOURCE 2 *continued*

BOB JONES

Litter on Welsh beach

SOURCE 3: Proportion of marine litter on beaches according to a scientific study by the OSPAR Commission, 2007



(FROM THE OSPAR COMMISSION, 2007)

OSPAR is the mechanism by which 15 Governments & the EU cooperate to protect the marine environment of the North-East Atlantic.

SOURCE 4: Extracts from a press release by the World Wildlife Fund (WWF), 15 September, 2015

A new WWF report reveals an alarming decline in marine biodiversity over the last few decades. According to WWF's Living Blue Planet Report, populations of marine vertebrates (mammals, birds, reptiles, amphibians, fish etc.) have declined by 49% between 1970 and 2012, with some fish species declining by almost 75%.

SOURCE 5: Extracts from an article on the website oceanhealthindex.org 22 August 2013

The article was written by the scientific expert Dr Richard Thompson of the School of Marine Science and Engineering, at Plymouth University.

PLASTIC ENTANGLEMENTS INCREASE 40% FOR MARINE ANIMALS

Plastic debris is unsightly; it damages fisheries and tourism, kills and injures a wide range of marine life and can represent a threat to human health.

Fatal entanglement in and ingestion of marine debris by marine animals has increased by 40% in the last decade impacting 46,000 animals and 663 species.

Entanglement in and ingestion of marine debris can be fatal and are also likely to have a range of consequences, such as compromising the ability to capture and digest food, sense hunger, escape from predators, and reproduce, as well as decreasing body condition and impairing locomotion.

SOURCE 5 *continued*

All known species of sea turtles, about half of all species of marine mammals, and one-fifth of all species of sea birds are affected by entanglement or ingestion of marine debris.

The frequency of impacts varies according to the type of debris; but over 80% of the impacts were associated with plastic debris while paper, glass and metal accounted for less than 2%. About 15% of the species affected are on the IUCN Red (endangered species) List. 36% of the commercially important fish sampled in the English Channel (Whiting, Blue whiting, Atlantic horse mackerel, Poor Cod, John Dory, Red Gurnard, Dragonet, Redband Fish, Solenette, Thick-Back Sole) had eaten plastic.

GETTY IMAGES MOMENT OPEN JOHN DICKSON

Society benefits enormously from the use of plastics in packaging for food, drinks and other products; in the construction of strong, durable, light-weight components for cars and airplanes that save fuel; and in medical equipment and supplies. But in all of these cases the benefit to society has no direct relationship with the accumulation of debris in our oceans.

We could eliminate the debris with no detriment to the benefit, and doing that is within our grasp---and our self interest. Both in business and ocean stewardship this is an area where we can definitely do better. Doing so would benefit us as well as marine wildlife.

To see the full text **www.oceanhealthindex.org/news/Death_By_Plastic**

SOURCE 6: Extracts from an article by Laura Parker, National Geographic magazine online, 11 January 2015

Ocean Trash: 5.25 Trillion Pieces and Counting, but Big Questions Remain

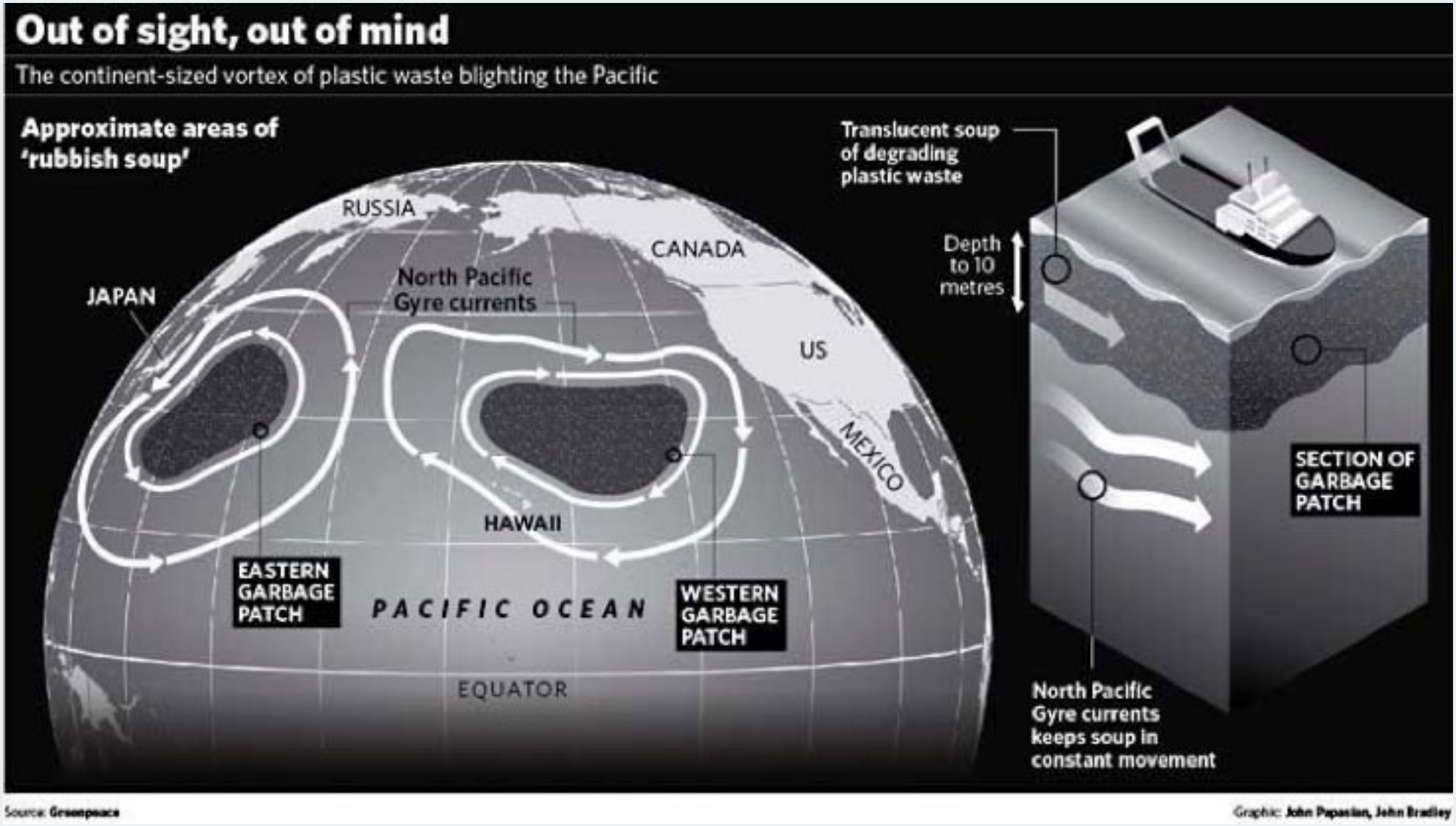
Plastic, plastic, everywhere: The world's oceans are full of discarded trash that degrades and sinks, or drifts. The numbers are staggering: There are 5.25 trillion pieces of plastic debris in the ocean. Of that mass, 269,000 tons float on the surface, while some four billion plastic microfibers per square kilometre litter the deep sea. Scientists call these statistics the "wow factor" of ocean trash.
Until scientists learn more about where ocean trash is, how densely plastic accumulates in different ocean ecosystems, and how it degrades, they can't really calculate the damage it's causing. Ocean trash is counted in three ways: through beach surveys, computer models based on samples collected at sea, and estimates of the amount of trash entering the oceans.

The process of collecting and counting is meticulous, time-consuming work. It took Marcus Eriksen, co-founder of the 5 Gyres Institute, more than four years, using samples gathered from 24 survey trips, to come up with his estimate that 5.25 trillion pieces of debris float on the surface. In the course of his expeditions, Eriksen collected everything from plastic candy wrappers to giant balls of fish netting. One massive ball of netting contained 89 different kinds of net and line, all wrapped around a tiny, two-inch-high teddy bear.

Another way of coming up with the numbers is to make crude guesses based on manufacturing statistic. Says Jenna Jambeck, a University of Georgia environmental engineer who is completing a worldwide calculation of garbage collected in coastal countries: "If you have 200 million tons produced every year, researchers will arbitrarily estimate that 10 percent goes into the oceans."

To see the full text **news.nationalgeographic.com/news/2015/01/150109-oceans-plastic-sea-trash-science-marine-debris/**

SOURCE 7: The Great Pacific Ocean Garbage Patch
Infographic from the Independent online, 23 October 2011



SOURCE 7 *continued*

Extracts from a report about the Great Pacific Garbage Patch, written by Richard Grant, Telegraph online, 24 April 2009

Way out in the Pacific Ocean an enormous, accidental monument to modern society has formed. Invisible to satellites, poorly understood by scientists and perhaps twice the size of France, the Great Pacific Garbage Patch is a kind of marine soup whose main ingredient is floating plastic debris. It was discovered in 1997 by a Californian sailor, named Charles Moore, who was heading home with his crew from a sailing race in Hawaii.

Worldwide, according to the United Nations Environment Programme, plastic is killing a million seabirds a year, and 100,000 marine mammals and turtles. It kills by entanglement, most commonly in discarded synthetic fishing lines and nets. It kills by choking throats and gullets and clogging up digestive tracts, leading to fatal constipation. Bottle caps, pocket combs, cigarette lighters, cotton bud shafts, toothbrushes, toys, syringes and plastic shopping bags are routinely found in the stomachs of dead seabirds and turtles.

Single-use plastic bags first appeared in the US in 1957 and in British supermarkets in the late 1960s; worldwide there are more than a trillion manufactured every year, although the upward trend is now levelling off and falling in many countries, including Britain. We reduced our plastic bag use by 26 per cent last year, to 9.9 billion. Bottled water entered the mass market in the mid-1980s. Global consumption is now 200 billion litres a year and only one in five of those plastic bottles is recycled. The total global production of plastic, which was five million tons in the 1950s, is expected to hit 260 million tons this year.

Look around you. Start counting things made of plastic and don't forget your buttons, the stretch in your underwear, the little caps on the end of your shoelaces.

The benefits of plastic, most of which relate to convenience, consumer choice and profit, have been phenomenal. But except for the small percentage that has been incinerated, every single molecule of plastic that has ever been manufactured is still somewhere in the environment, and some 100 million tons of it are floating in the oceans.

To see the full text **www.telegraph.co.uk/news/earth/environment/5208645/Drowning-in-plastic-The-Great-Pacific-Garbage-Patch-is-twice-the-size-of-France.html**

SOURCE 8: Summary of recommendations on tackling marine litter in a report by the United Nations Environment Programme (2009)

- Marine litter is a global problem and actions to rescue the environment should be developed by all countries
- Governments should introduce policies and pass laws to deal with litter and make sure their citizens obey them
- Business interests, from large international companies to small scale local businesses should be encouraged to avoid littering the beaches, coastline and oceans
- Countries should raise awareness and ensure their citizens are educated about the problem of marine litter
- More money should be spent by all countries for the management of marine litter
- Countries should support the efforts of the United Nations to work on the marine litter problem
- The United Nations and all governments should work in close cooperation with experts in the scientific community and universities who understand the problem
- Governments need to elevate the significance of marine litter as a national priority and set up a responsible government authority for the management of marine litter issues

SOURCE 9: Extracts from a BBC Wales online report, 27 March 2014

‘Shocking tide of litter’ on beaches in Wales says MCS

Litter on beaches in Wales is continuing to rise sharply, a survey by the Marine Conservation Society (MCS) has suggested. Over 30,000 items littered 25 beaches on the one weekend surveyed – almost double the UK average. The MCS said the “shocking tide of litter” threatened visitors’ safety.

But fellow campaign group Keep Wales Tidy claimed the findings were not a true reflection of the state of the nation’s beaches.

Volunteers for the MCS, which has been cleaning up beaches for 20 years, spent a weekend last September collecting litter on different beaches around Wales. They found more than 4,400 items of rubbish for every kilometre surveyed, a figure which the group said was far worse than the UK average.

The worst beach was Freshwater West in Pembrokeshire, where more than 7,000 pieces of litter were collected. On Ogmore beach in the Vale of Glamorgan, volunteers even found half a TV among the debris.

808 MĀLAMA PONO

Plastic fragments were the top finds once again - tiny pieces which have possibly been at sea for decades before finally washing up on a Welsh shore. MCS Wales programme manager Gill Bell said: “It’s coming in from the sea, being blown from the land or simply being dumped and dropped. After 20 years of campaigning it’s disheartening that in 2013 we are seeing worse litter levels in Wales than ever before.”

The society said that in June it would be launching a marine litter action network to try to change behaviour in a variety of areas.

SOURCE 9 *continued*

But Keep Wales Tidy called the survey misleading and unbalanced, saying it was based on one weekend's litter picking outside the tourist season and only covered 25 out of the 150 beaches in Wales.

The charity said there was a strong likelihood that weather conditions would have had a major impact on this kind of snapshot survey. It said if the surveys were on north-facing, completely tidal beaches, they would have shown there was not a litter problem.

Keep Wales Tidy chief executive Lesley Jones said: "We are very disappointed with the approach that MCS have taken with their beach survey and we think that the findings are inaccurate and misleading.

"As an environmental charity in Wales, we are obviously not complacent and recognise litter ending up on our beaches that has been washed up from the sea, washed down our rivers or left on the beach is an issue that needs to be tackled, and we are tackling it.

"We do need to challenge people, but sensationalised blanket statements which do not reflect the reality of the situation is not the way to do it."