



TRACKING MARINE LITTER

In this activity, learners use diagrams, local and global maps in order to illustrate the point that marine litter items continue “travelling” from place to place, creating a problem of global dimensions, with no borders.

SUBJECTS

Geography, Arts, Social Studies

LEARNERS' AGE

10-15 yrs or younger

DURATION

60 minutes

OBJECTIVES

- To track possible routes of marine litter both land and sea-based.
- To track possible destinations of marine litter (e.g. garbage islands, etc.).
- To understand that marine litter is a global issue, beyond borders and that it “travels” continuously.

INTERNET SOURCES

Lost at Sea / The trail of Moby Duck: www.independent.co.uk/environment/nature/lost-at-sea-on-the-trail-of-mobyduck-2226788.html

Friendly Floatees: http://en.wikipedia.org/wiki/Friendly_Floatees

The Amazing Journey of Plastic Bags: www.youtube.com/watch?v=JVO5LBLTNRM

Ducks on the go / Where did they go? [www.epa.gov/owow/oceans/debris/toolkit/files/DucksInTheFlow_sm\[11\]_merged508.pdf](http://www.epa.gov/owow/oceans/debris/toolkit/files/DucksInTheFlow_sm[11]_merged508.pdf)

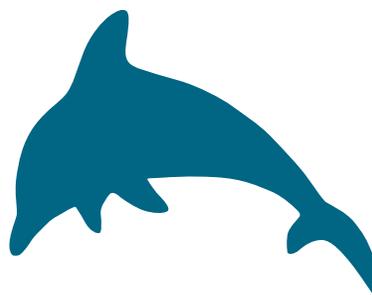
SECTION **A**

GETTING TO KNOW
MARINE LITTER



**KNOW
FEEL
ACT!**

to Stop Marine Litter



Various land and sea-based activities can result in litter entering marine environments either directly into the sea and on coasts or indirectly through rivers, sewage outlets, storm water outflows, currents, wind or even tides. Marine litter can originate from one or more sources. It can come from point or diffuse sources.

While marine litter can accumulate near its source, it can also travel substantial distances ending up far away from its original entry point. It is important to recognise that marine litter's source, drift and effect is influenced by a range of factors including rainfall, river transport, water currents, wind and geomorphology, and by its resilience and persistence.

Marine litter can be found throughout the entire marine environment; from coastal areas to mid-oceans and from the sea surface to the seabed. Local, national and international surveys are conducted frequently to assess quantity, composition and, wherever possible, sources of marine litter found along shorelines. However, long-term, wide scale surveys on marine litter in surface water, on the seabed or circulating in the water column are rarely conducted. Obviously, it is more difficult to monitor litter accumulated on the seabed and in the water column than it is on beaches.

The Journey of 29,000 Rubber Ducks

In 1992, a shipping container with 29,000 plastic bath toys was lost in the middle of the Pacific Ocean on its way from Hong Kong to the United States. At the time, no one could have guessed that those same toys would still be floating in the world's oceans 20 years later.

Since the accident, the yellow ducks have bobbed halfway around the world. Some have washed up on the shores of Hawaii, Alaska, South America, Australia and the Pacific Northwest; others have been found frozen in the Arctic ice. Still others have somehow made their way as far as Scotland and Newfoundland in the Atlantic.

Surface and deep currents in the oceans

Surface ocean currents are mostly caused by the wind as it moves over the water. They travel over long distances, and their circular pattern is further aided by the Coriolis force (the apparent deflection of movement due to the rotation of the earth around itself). In the northern hemisphere, they move clockwise and in the southern they spin counterclockwise. Deep ocean currents are found in depths below 400 meters. They are larger and slower than surface currents and mainly created by density differences in the water.



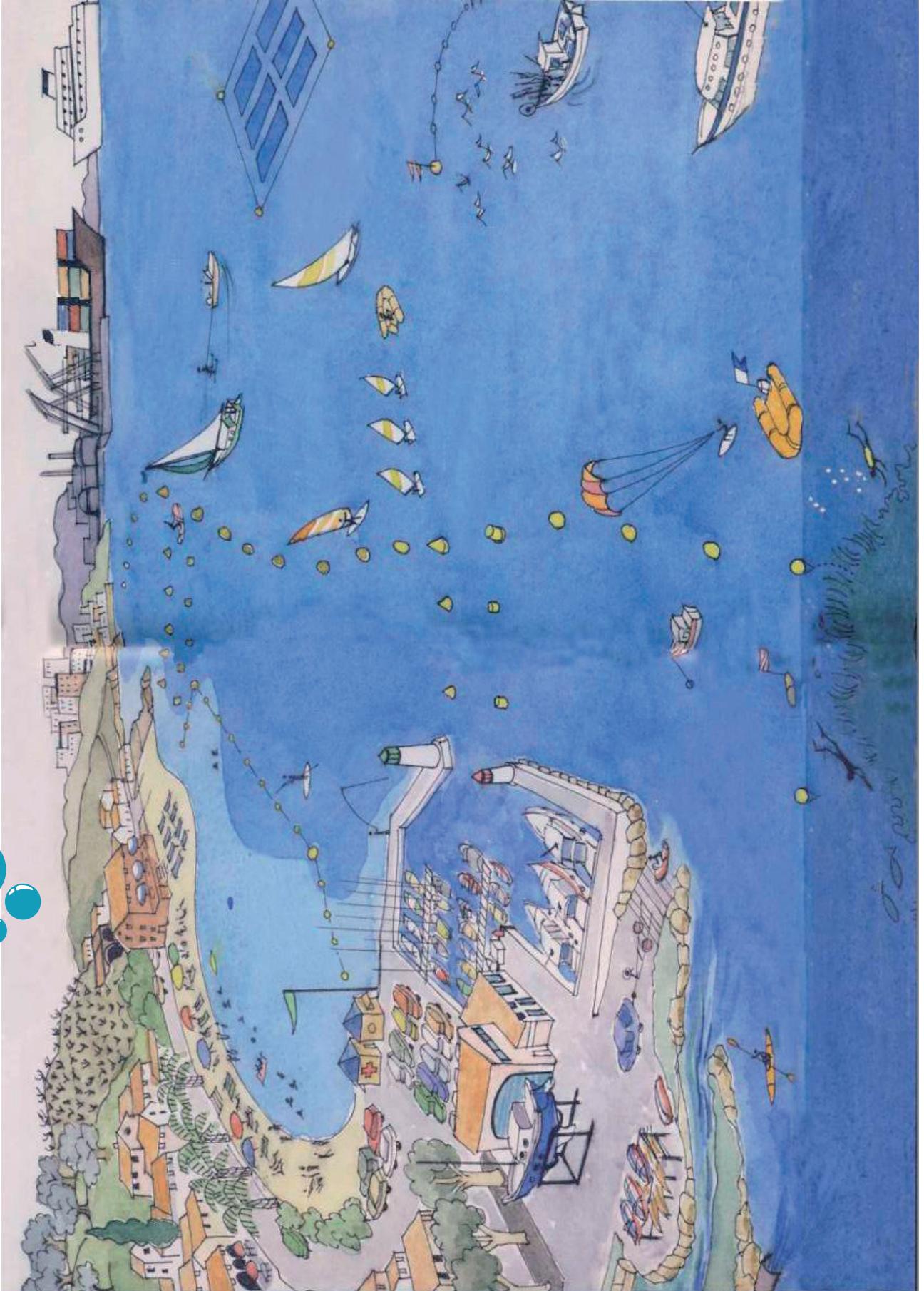


Diagram of a fictional coastal town

© "Cap sur la Gestion du littoral"/Réseau mer en Provence-Alpes-Côte d'Azur





Material and Equipment

A world map and/or a globe

Instructions step by step

Start a class discussion on how the very nature of a litter item can reveal its source. For example, what is the most probable source of objects like fishing nets, sun-block dispensers, cotton bud sticks, fertiliser containers, etc.?

TASK A

Learners look at the diagram on the previous page depicting a fictional coastal town. They identify how many different entry points there are for litter to enter the marine environment (pollution hotspots) and distinguish between land and sea based sources. How far could some of these sources be from the coast itself?

TASK B

Learners print or draw a picture of a coast that is close to where they live. They must make sure it is large enough to include any nearby stream or river inputs/outputs, etc. and try to identify possible “pollution hotspots” in their area.

TASK C

The story about the lost rubber ducks is read aloud. Using a globe or a world map, learners show all the places where the lost rubber ducks have been found over a period of 20 years. What can be assumed about their journey?

Close the activity by discussing how all these litter items could have been prevented from being generated in the first place.

Extension Activity

Learners watch the film (3:59 minutes) “The Amazing Journey of Plastic Bags” narrated by Jeremy Irons (www.youtube.com/watch?v=JVO5LBLTNRM). They then compose a poem or song or a comic strip about the travels of a piece of litter - a plastic bag, a rubber duck or another “protagonist”. The point of origin, journey, and where the item ends up should all be included in the lyrics / story.