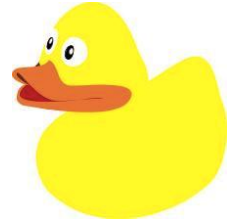


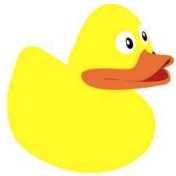
## Duck Dispersal & Gyres - Teacher Notes

We get most of our information on ocean currents from satellites that are costly to build, launch and operate. NOAA and NASA satellites provide data on sea level altimetry, surface vector winds and sea surface temperature. Sometimes luck can provide a less high-tech. solution – thousands of yellow plastic ducks.

In January 1992, a ship carrying plastic toys was travelling from Hong Kong to the USA. It lost one of its containers overboard. When the container broke up, 28,000 plastic toys were loosed into the center of the Pacific Ocean. There were red beavers, green frogs, blue turtles and yellow ducks. Since then the bath toys have been carried away by surface currents and used by scientists to plot the direction and speed of these currents. They have travelled north along the Alaskan coast, been frozen in Arctic ice and even continued to float southward passing Greenland to enter the North Atlantic. Ducks have also washed up in Indonesia, and on the east coast of Australia.



Exposure to sunshine has bleached the ducks and turtles white within a few years.



Volunteers gave their time to help map the location and progress of the ducks. They even landed on remote Arctic islands to clean up duck debris from the beach.

Information gained gave accurate readings for strength and direction of surface currents. In particular it gave detailed data on the North Pacific Gyre. Gyres are vortexes of currents that collect and retain flotsam. About 2,000 ducks still continue to circle here even now. There are five major gyres; the Indian Ocean gyre, the North Pacific gyre, the South Pacific gyre, the North Atlantic gyre and the South Atlantic gyre. Most of the flotsam is land derived and too small to be seen by human eye. Land derived rubbish is a major pollutant for marine life.

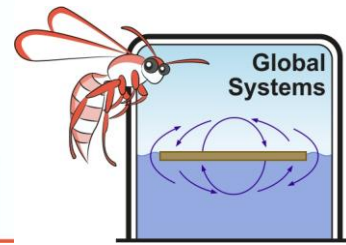
Reporters can misinform the public by using misleading images. See below.



Famous friends working together at Scitech? No a cardboard cut out of the “Mythbusters”.

*An initiative supported by Woodside and ESWA*

## Duck Dispersal & Gyres - Teacher Notes



Some images purported to have been taken ten years after the cargo was lost was used by reporters and have bright yellow unweathered ducks. Another famous image accompanying a much read report on the North Pacific Gyre and its garbage used a picture taken of rubbish floating in an Indonesian harbor. Gyre pollutants are mostly too small to be seen by the human eye.

Scientists have to be skeptical. You may wish to visit <http://www.youtube.com/watch?v=NBfi8OEz0rA> for a very short but humorous video on the subject of believing what you appear to see.

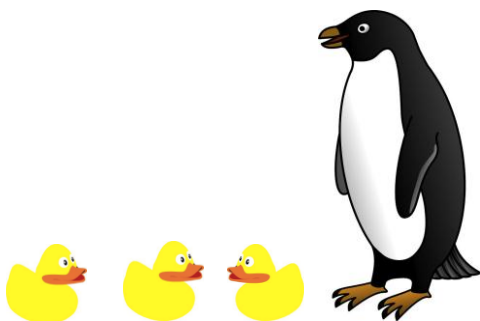
View the two photographs below. They may be of one of these Pacific travellers. List the incongruities (things which might suggest they are not true pictures) alongside.

### Duck washed up on Australian shore August 2002

The duck is still yellow. It should be white.

The duck is in good condition, not roughened by weathering.

The sand has been dumped onto a flat white painted surface.



### Ducks and Arctic Adele penguin on ice flow November 2009.

Both ducks and penguin are cartoon images

Penguins do not live in the Arctic, only in Antarctic and sub-Antarctic waters.

Ducks are bright yellow and not weathered

### Your Task

Create an annotated poster or info graphic that tells the story of these ducks and of the currents and gyres they may have travelled through.

#### Materials per student or group

- Access to Internet and reference books.
- Paper, pens, printers

To ensure your work is scientifically and geographically accurate you will need to interrogate the Internet with Scientific skepticism.

DATE DUE \_\_\_\_\_

### Extension

Students may wish to create a poster that can convincingly promote misinformation