

# What on earth?



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## Making our marine world a better place

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Learning English can be difficult even for native speakers. The language has an extensive vocabulary, and sometimes it is impossible to understand a word without knowing its etymology. Often we think we know a word, but its meaning is clear only after learning its origin.

Let's take an example. We study a range of subjects in "school." Fish swim in a "school." That absolutely does not mean that fish swim in a classroom or get an education. A school for learning comes from Greek and Latin. A school of fish originates in Germanic languages and means "multitude." These are two different roots with very different meanings.

A recent conversation with Boaz Kirschenbaum of the Jerusalem Aquarium yielded an interesting fact. Smaller fish can change schools. That is to say, as they swim they can move from school to school (group to group). Larger fish tend to remain in the same school.

Many of us over the years of our education have moved from place to place, leaving one city for another. Now for a rethink of our traditional thinking. Some fish have also moved around. We tend to

think of the Suez Canal in terms of shipping. True, but it has been important for fish as well. Species once exclusive to the Red Sea have used the Canal to migrate to the Mediterranean and vice versa.

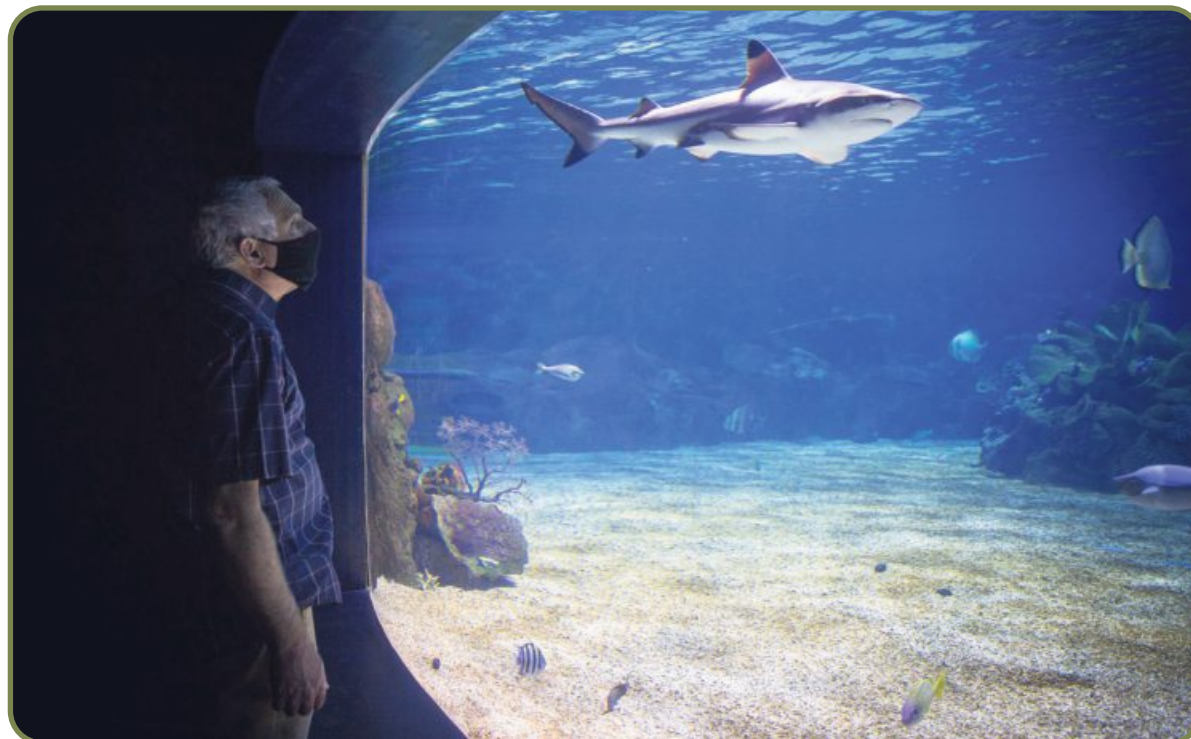
Another word with implications for fish is "gyre." We know the root from "gyroscope," a circular rotor mounted on an axis. The basic root refers to a circular movement.

In marine terms "gyre" refers to essentially circular movements of ocean currents with implications not only for sea life, but also for weather. There is, however, another (and very disturbing) application for gyre.

Five major gyres in the world's oceans have created waste deposits, or, in plain English, marine garbage dumps. These have grown exponentially in the last seventy years and threaten sea life. The largest is in the North Pacific. The process is as simple as it is lethal. Waste is dumped into a river or left on the shore. It is carried out to sea and swept into one of the gyres by currents.

What kind of waste? Let's take a plastic bottle of mineral water. It never totally disintegrates. After decades it can break into small pieces, then smaller pieces, then micro-particles, but it never goes away.

We know that swimming in a



school does not make fish smart. That is certainly true for three sea turtles who swallowed plastic bags, mistaken for jellyfish. These three sea turtles were lucky. As shown in a video at the Aquarium, rescuers were able to extract the plastics and save the sea turtles. This is only one example of dangers of garbage in the ocean.

It is naïve to think that the gyres can be cleaned up by sending trawlers out to sea to scoop up the waste. There is too much garbage to retrieve, some is not visible to the naked eye, the deposits are fluid as they move with currents, and they keep getting larger as more waste keeps coming in.

"Trawler" is another word that has to be understood. A trawler drags a net through the water to catch fish (and anything else that becomes entangled in it). There are two types of trawling --- near the

surface and at sea bottom. The latter is particularly disruptive as it not only catches fish but also uproots underwater growth that provides marine food. For many reasons, a growing number of countries have outlawed trawling in various distances from the shoreline. For the record, it is estimated that 50% to 60% of the waste in gyres comes from discarded plastic trawling nets.

As Beverly Barkat, a Jerusalem artist who came on aliyah from South Africa in 1976, has explained, "We are covering ourselves with plastic." As an artistic expression of her concern she has constructed a globe covered exclusively with various plastics. We all use these plastics --- bags, food wrappers, disposable plates and cutlery, bottles... The list goes on and on. Look inside the globe. There is more plastic, reminiscent of the

ocean floor. Today the globe is on loan to the Jerusalem Aquarium, but in six months it is due to be sent to the newly-rebuilt World Trade Centre in New York, where it will be on permanent display.

To remind people of how we use and misuse plastics, Barkat has also put together colourful collections of food wrappers and plastics reminiscent of a skein of yarn. Barkat's message is clear. "The next time you reach for plastic, ask yourself if you really need it."

What kind of world do we want to leave for our descendants? There are steps that we can take. Recycle as much as possible. Minimise the use of plastics. Dispose of garbage properly. By following these guidelines we can create a better world for future generations --- both for marine life and for people.

## Switching asthma inhaler could be better for planet



The current aerosol asthma inhalers we use are cheap but, because of the gases they contain, are one of the NHS's biggest contributions to climate change. Other countries think alternatives are superior - and some patients in the UK who have switched say they are controlling their asthma better. So, could millions of people be prescribed different inhalers?

"The aerosol sprays contain a powerful greenhouse gas which is used to propel the medicine out of the inhaler and into the airways," says Dr Alex Wilkinson, an NHS consultant in Stevenage who specialises in lung diseases.

The different gases - called hydrofluorocarbons - used in these inhalers are between 1,000 and 3,000

times more potent at warming the planet than carbon dioxide.

You might not think that adds up to much. After all, inhalers are small and just slip inside your coat pocket. But more than five million people are being treated for asthma in the UK and the overwhelming majority are prescribed aerosol spray inhalers. Overall, around 4% of the NHS's entire carbon footprint comes from asthma drugs. The only other medicines to come close are the anaesthetic gases used in surgery.

"Greener" inhalers contain no propellant. These are called dry powder inhalers and you have to do the work of sucking the medicine out.

The case for using dry powder inhalers is clear if you only care about climate change, but are they a better

choice for patients?

In a GP surgery in Sheffield you'll find one of the country's first "net-zero" GPs. Dr Aarti Bansal's aim is to simultaneously improve care for patients and cut carbon emissions.

She says the aerosol spray inhalers are "actually quite tricky" to use and people often get the technique wrong. So instead of the medicine going into the lungs "it's going to hit the back of your throat".

Aerosol spray inhalers require a slow steady breath as the inhaler is used. A dry powder inhaler needs a quick hard suck, which is how many people use inhalers instinctively.

Dry powder inhalers are not radical or new. They used to be common in the UK and remain the preferred choice in other countries.