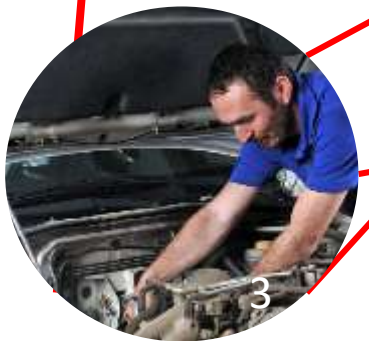
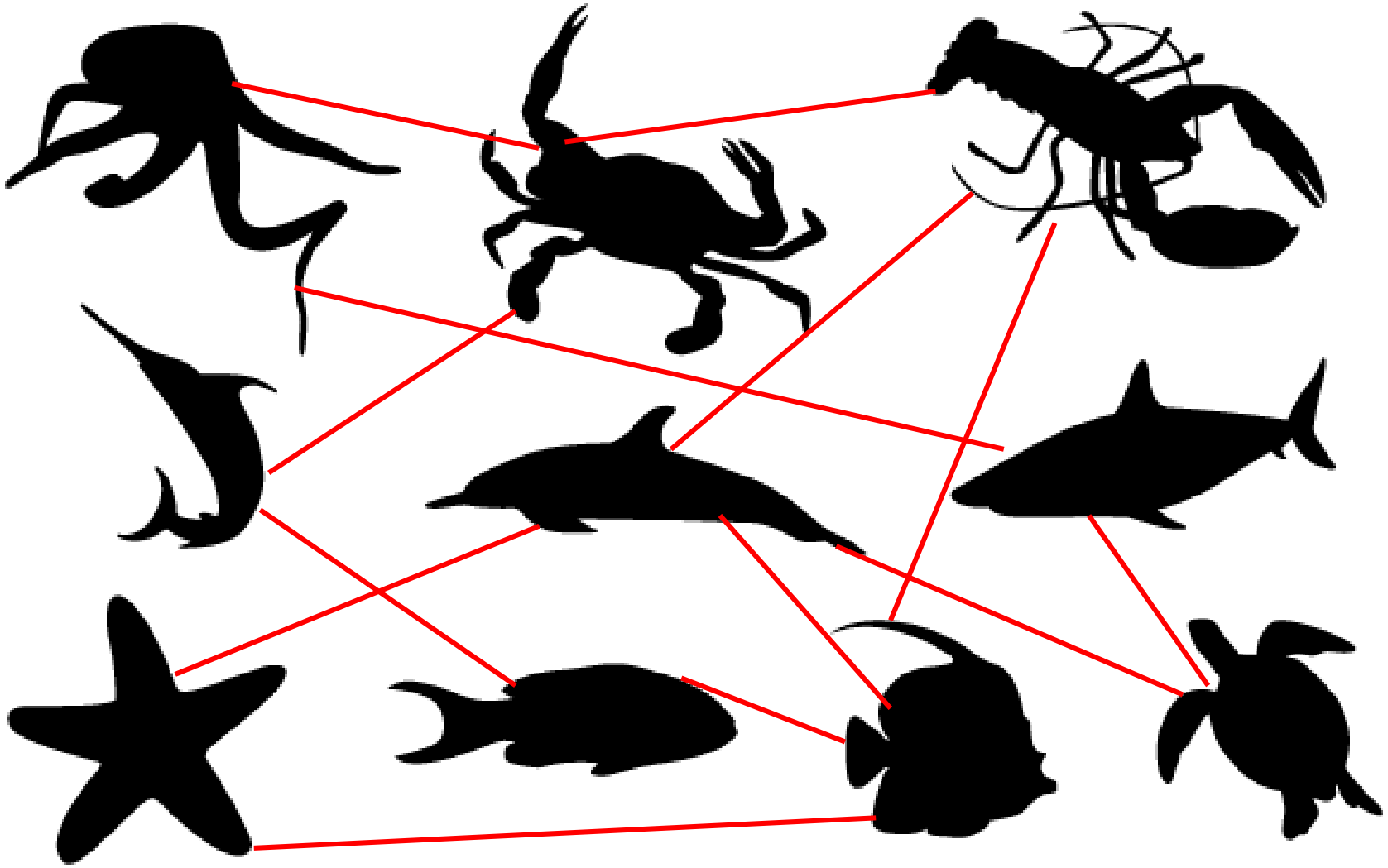
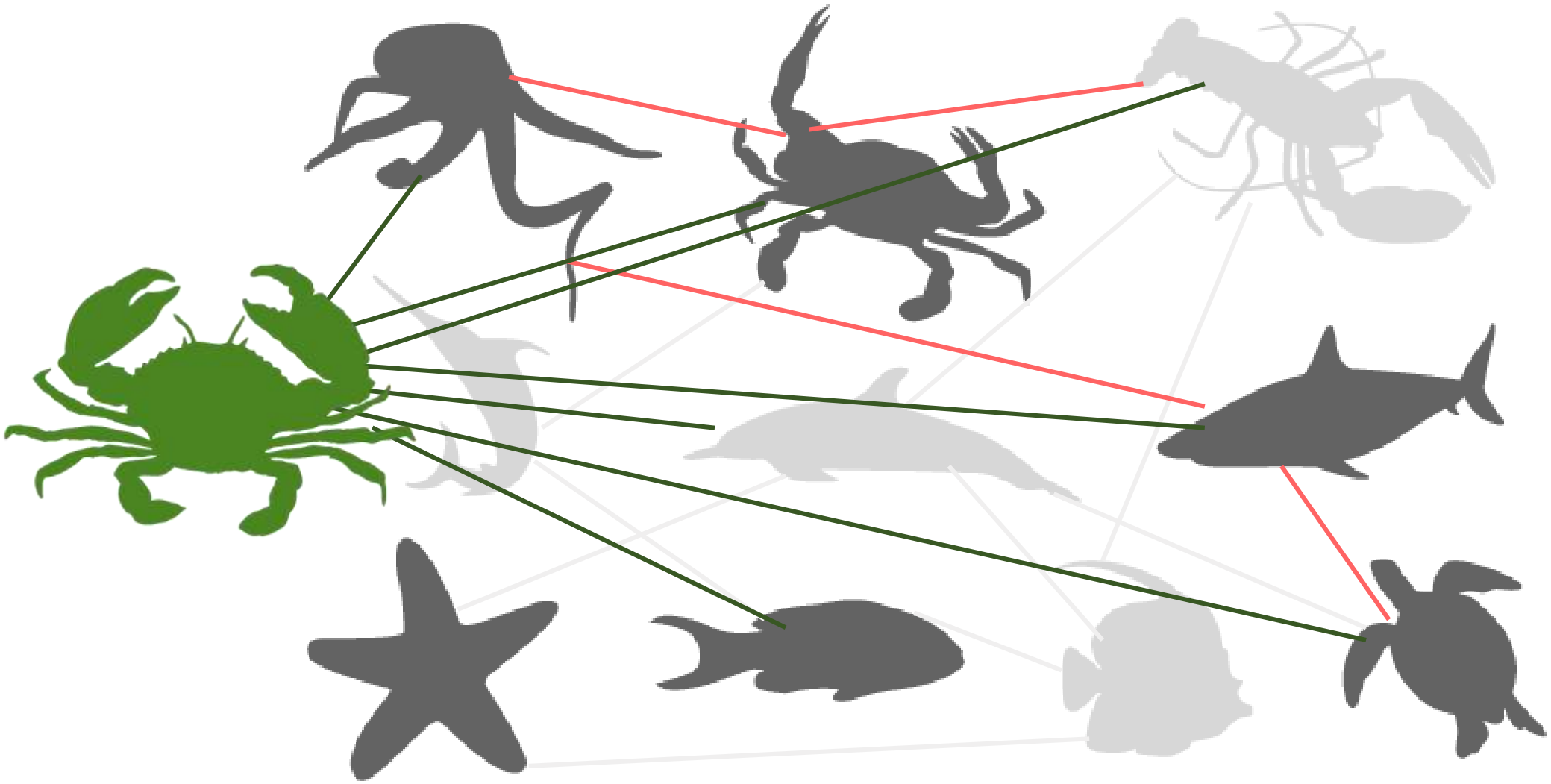


We do not thrive alone…

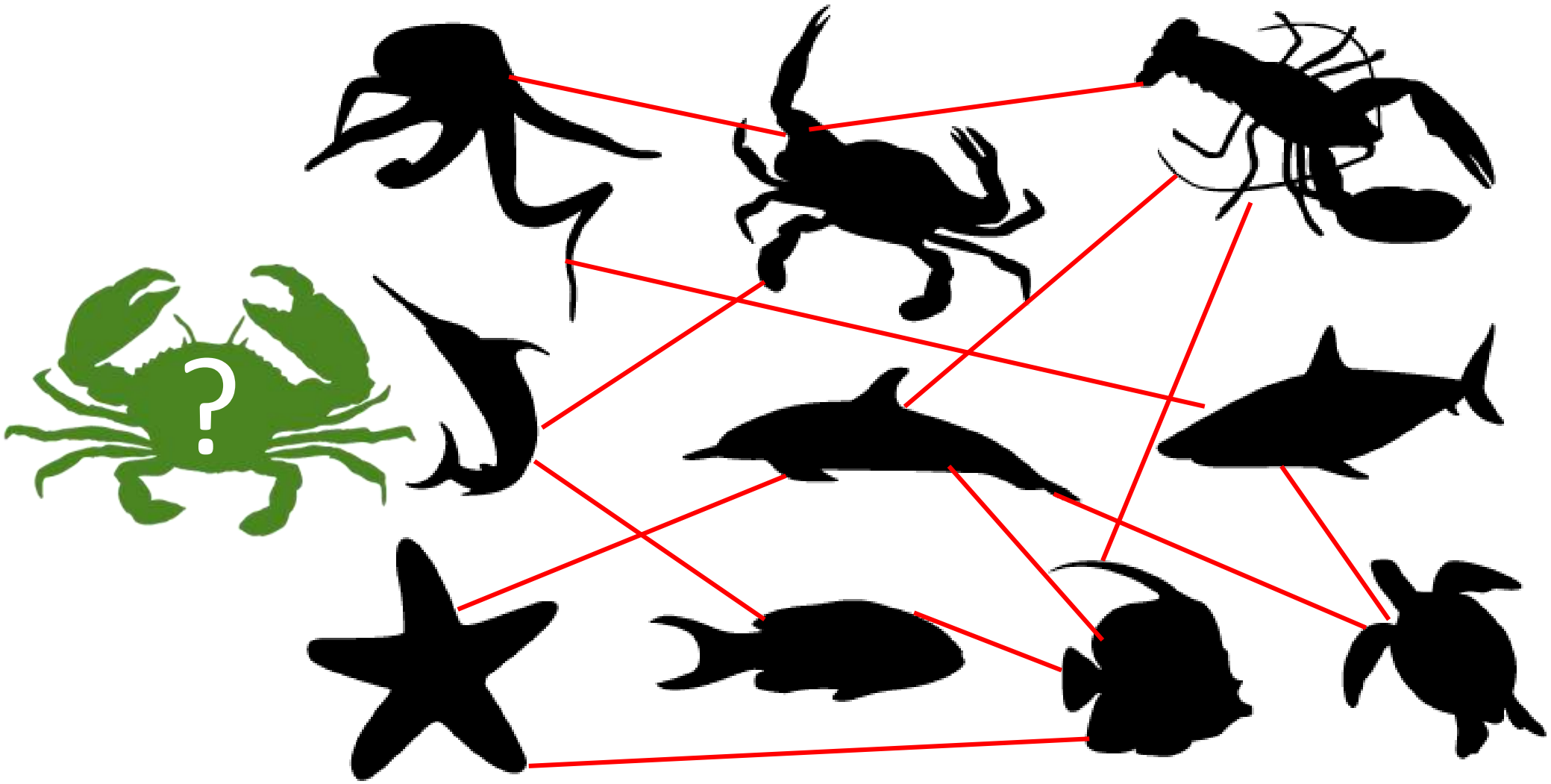


…and neither can the planet

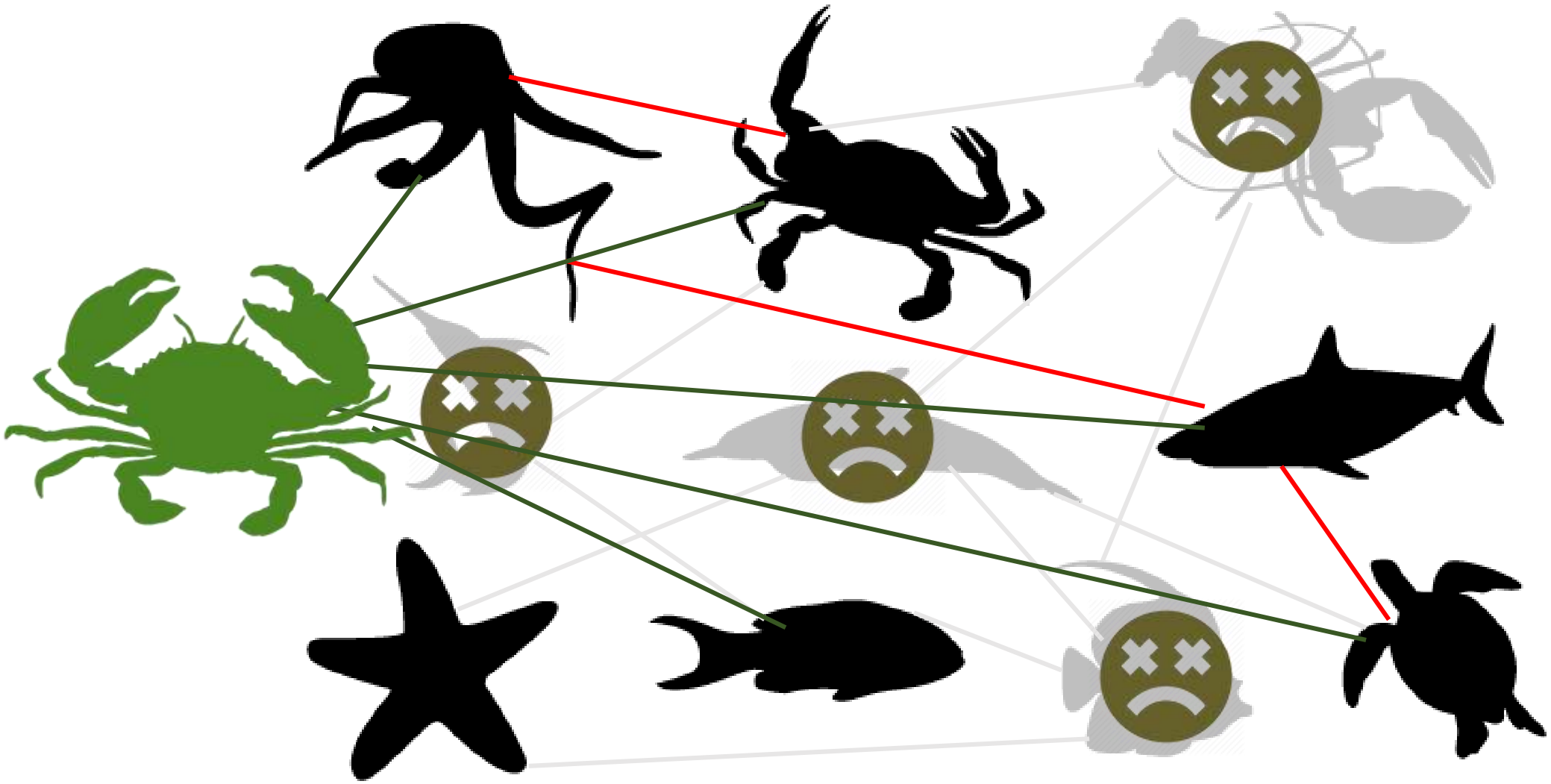


Invasive species upset the balance

Invasive species are often found in impacted areas



How are invasive species successful?



Pollution paves the way for invasion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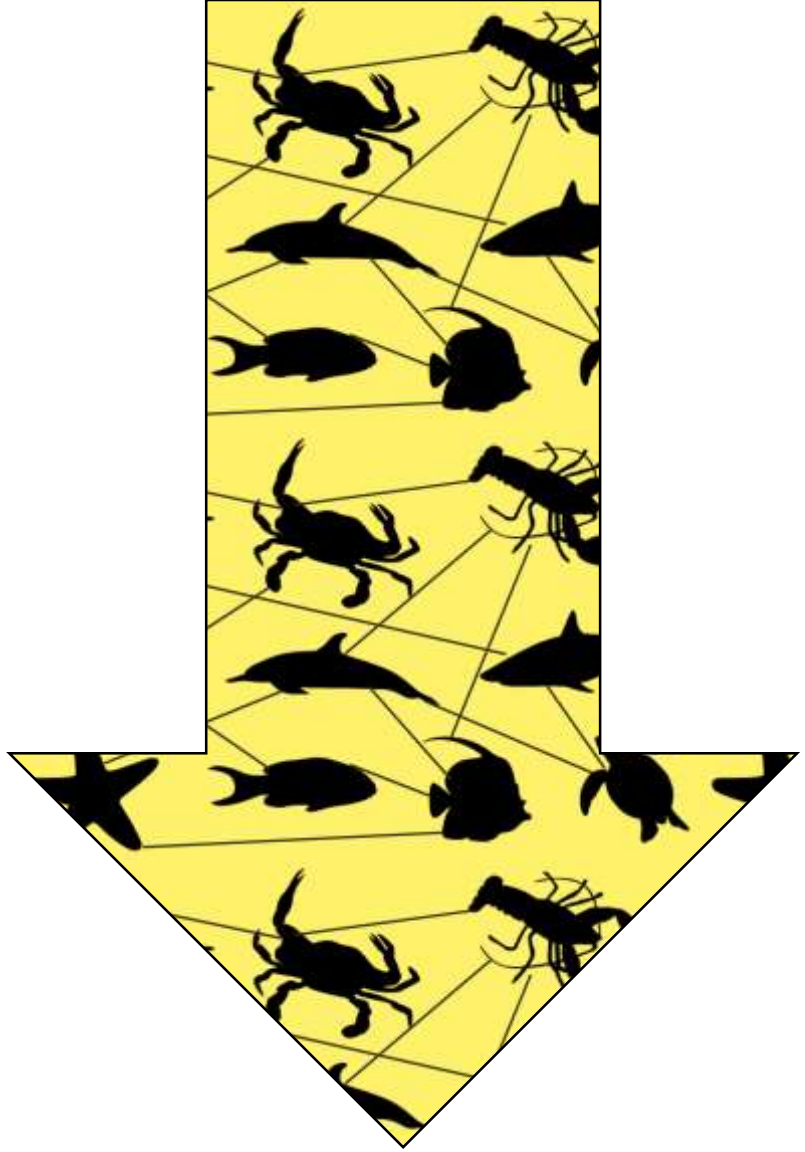
KIMBERLY TURECAMO

Pollution

=



Native Species


Pollution facilitates invasive species
and further reduces biodiversity


Thank you.

Rough Transcript

Welcome to your planet Earth. You love your planet. Everything you've ever known lives here and depends on it for life: your family whom you love to your boss who pays your bills. Anything you've ever eaten, laughed at, or cried over lives here. Earth is your everything.

Now, we cannot thrive alone. We depend on others for survival, from the farm to produce our food to the city which cleans our water.

The planet is no different. All living things provide a service. And just how you would not want to depend on one farm to provide all your food, the planet depends on having a large variety of living things. We call this variety biodiversity.

On a smaller scale, an environment is usually home to a smaller web of organisms who have evolved alongside one another. Each organism has a role to play in this environment. These specific roles allows a sense of balance – no one species takes all the food or all the space.

The planet's biodiversity is under attack. Researchers have found a number of major threats causing this decline. Today we will talk about two: pollution and invasive species.

An invasive species is a species found outside of its native range and negatively impacts species there, usually by taking more than their fair share of food or space. Researchers have found that habitats where over a 25% of species are invasive are also home to the highest number of threatened and endangered species.

Furthermore, this same study found that these invasive species hot spots are also hotspots for humans impact. Harbors, for example, are hotspots for invasive species. Between humans introducing structures like docks, heavy boat traffic, and pollutants like gasoline leakage, a harbor can be a rough place to make a living. Yet even in such harsh conditions, many invasive species have been very successful.

Take the European Green Crab as an example. Native to the European Atlantic, it is now a major invasive species on both coasts of the United States. I don't know about you, but these guys look pretty successful to me. Scientist agree, and studies suggest that they wreak havoc on local ecosystems.

It's pretty impressive. Native environments usually have a sense of balance – there is not extra space or food. So how is there room for the invader?

This is where our other biodiversity threat comes in – Pollution. Pollution directly hurts our planet's biodiversity. This makes sense. Toxic lakes and plastic-filled oceans are hardly pristine places for life to thrive.

However, pollution does more than muck up our waterways. Research suggests that but it might also make it easier for an invader to take hold.

This is scary.

When pollutants enter an ecosystem, they can weaken organisms. Maybe the new pollutant makes some species less effective at their role, so they no longer take up all available space or food.

This creates an opening for an invasive species.

You might see a problem in my reasoning – of course harbors and marinas are home to more invasive species! Don't most marine invasive get here on a boat? Well, a number of studies have attempted to parse out the effects of increased abundance of new invasions and pollution on invasion.

In 2011, a controlled experiment which removed the effect of invasion likelihood suggested that pollution facilitates invasions. They found that native species abundances reduced by 40% when exposed to a pollutant, compared to invasive species which were not affected at all. This suggests that pollution creates a space for invasive species to establish themselves.

As you can see, the planet, and everything you've ever known relies on biodiversity, and while the decline in global biodiversity is caused by a handful of processes, it seems that some might be more connected than we previously thought. Pollution not only makes habitats unlivable, but also makes them better suited for invaders.

So, do your part to reduce pollution and other human impacts. Join beach and harbor cleanups. You might be surprised to find that not only did you clean up a local beach, but you just might have helped your ecosystem reject an invader.

1. http://www.farmlaborsolution.com/news/
2. http://www.acroamawatertreatment.com/
3. http://driftingtuning.com/dont-pay-a-mechanic-to-do-these-11-things/
4. http://kincoinc.com/construction/
5. http://www.thetopfree.com/free-vectors/Animal/sea-life-silhouette-vectors-in-black-1450.html#.VyK6YTArLIU
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