



# Wild oysters

## Digital Lesson

KS3

**ZSL** | LET'S WORK  
FOR WILDLIFE



**BLUE MARINE  
FOUNDATION**

**BRITISH  
MARINE** 

Working together to recover self-sustaining populations of native oysters in UK seas

Supported by players of

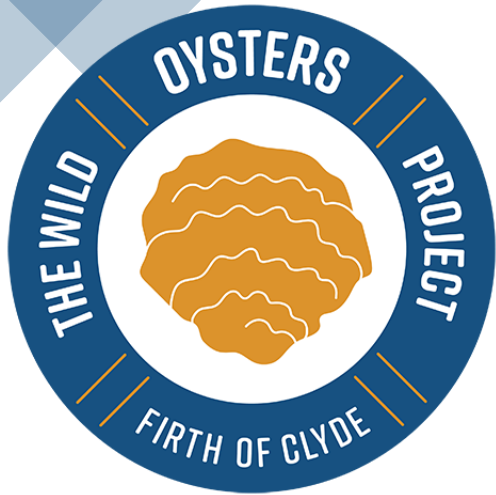


Awarded funds from





# The Wild Oysters Project scientists





**PROJECT MANAGER (ZOOLOGICAL  
SOCIETY OF LONDON)**



# Women in science in the Wild Oysters team!

**LOCAL PROJECT OFFICER (CONWY BAY)**



**PROJECT ASSISTANT (TYNE & WEAR)**



**PROJECT ASSISTANT (FIRTH OF CLYDE)**



**SENIOR RESTORATION PROJECT MANAGER (BLUE)**



# Learning intentions

## Students will be able to:

### (All)

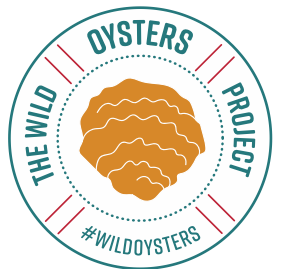
- State two amazing facts about oysters
- State one reason why oysters have declined
- Name two reasons why the oceans are important to them

### (Many)

- Explain what an ecosystem is, using the terms habitat, community
- Explain how losing oysters has a knock-on effect on other species
- State two ways that oysters directly benefit other wildlife
- Describe what the Wild Oyster Project is aiming to achieve
- State two things they can do to help the marine environment

### (Some)

- Explain how the oyster reef provides a habitat for other animals
- Explain what an ecosystem service is
- Plan what data they will record when they visit the site







**What does the sea  
mean to you?**







Home to more than 90% of life  
on the planet

Capable of absorbing a third of  
CO<sub>2</sub> emissions!







**What is happening to our  
seas?**





**(Over)fishing**

**Plastic**

**Pollution**

**Sewage**

**Habitat destruction/Trawling**

**Ocean acidification (due to climate change)**

**Deep sea mining**





**(Over)fishing**  
**Plastic**  
**Pollution**  
**Sewage**  
**Habitat destruction/Trawling**  
**Ocean acidification (due to climate change)**  
**Deep sea mining**



# Oysters & why are they important for the health of our oceans?







# Oyster facts!

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Oysters are molluscs,  
like snails.

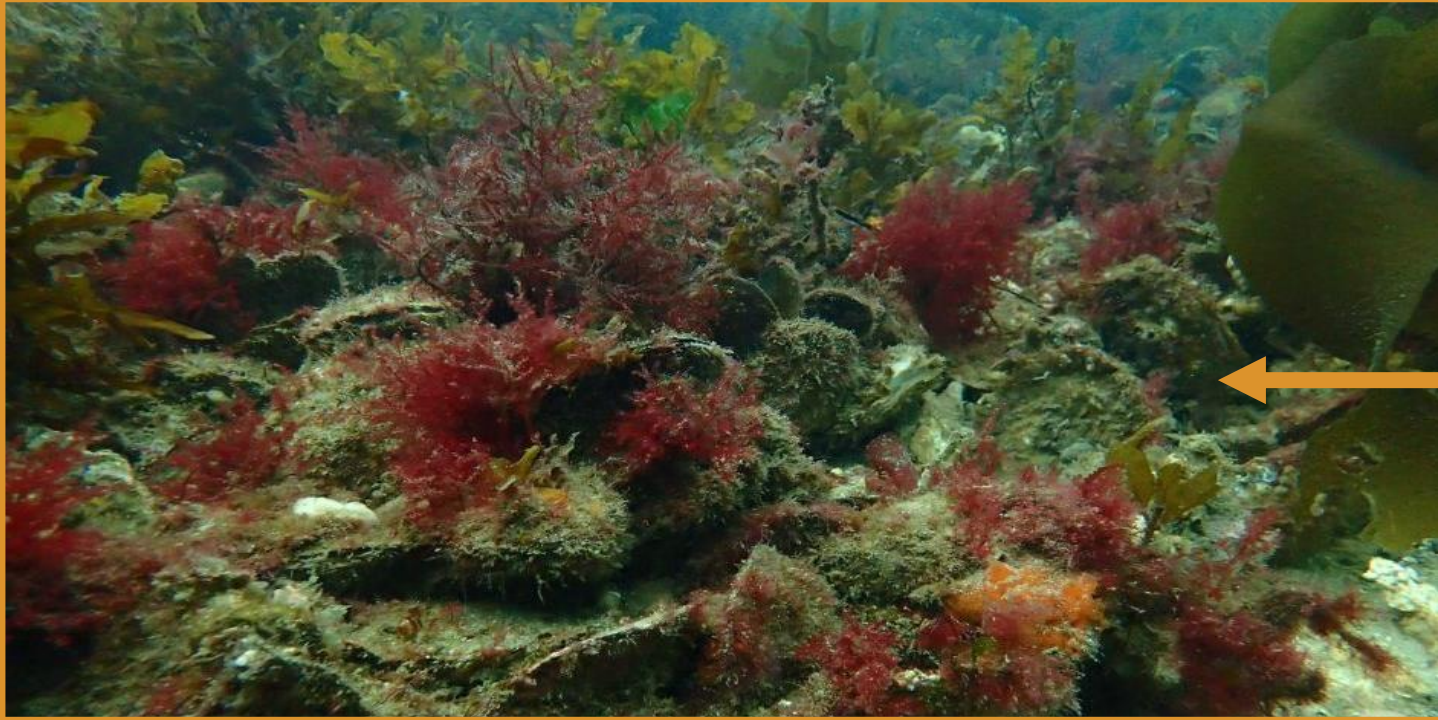
But..... we call them bivalve  
molluscs as they have two  
shells instead of one.

Only one species of oyster that is native to the UK  
- the European native oyster (*Ostrea edulis*).

They live in large groups that form reefs, a  
bit like coral reefs!







Native oysters  
form **reefs...**



...which are as  
complex and  
biodiverse as **coral  
reefs!**





# Ecosystem engineers

**Habitat** = a place where an organism lives

**Community** = all the living things in a habitat

**Ecosystem** = a habitat and all the living things in it





**Biodiversity** = variety of life



© Luke Helmer



# Biodiversity = variety of life



97  
species!

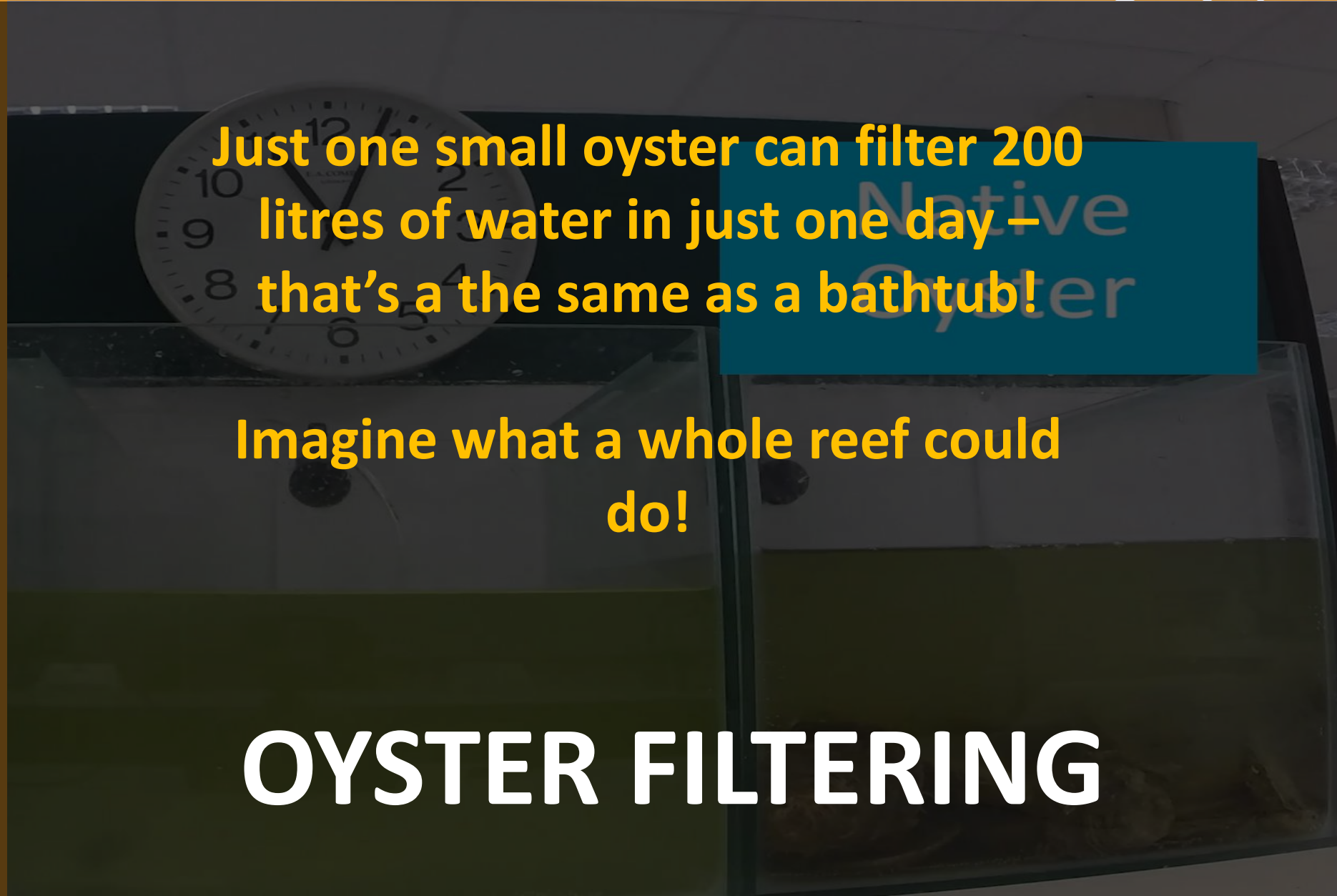


Oysters also provide other animals with  
shelter and a place to live.

Oyster reefs are made up of lots of oysters all living on top of one another, with spaces in between, which makes a really good home for other animals!



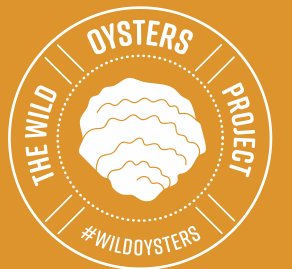




Just one small oyster can filter 200  
litres of water in just one day –  
that's the same as a bathtub!

Imagine what a whole reef could  
do!

# OYSTER FILTERING





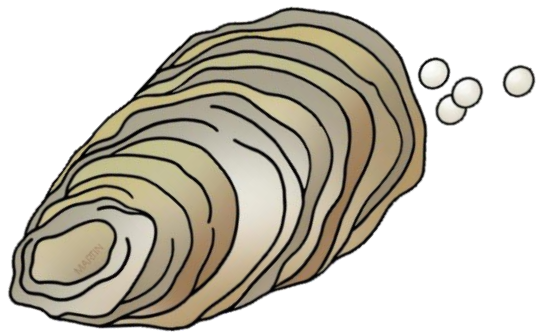
# Math Challenge!

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The average age  
of an oyster is  
15 years old.

One oyster can  
filter 200 litres of  
water/day

How much water can one oyster  
clean during its lifetime?

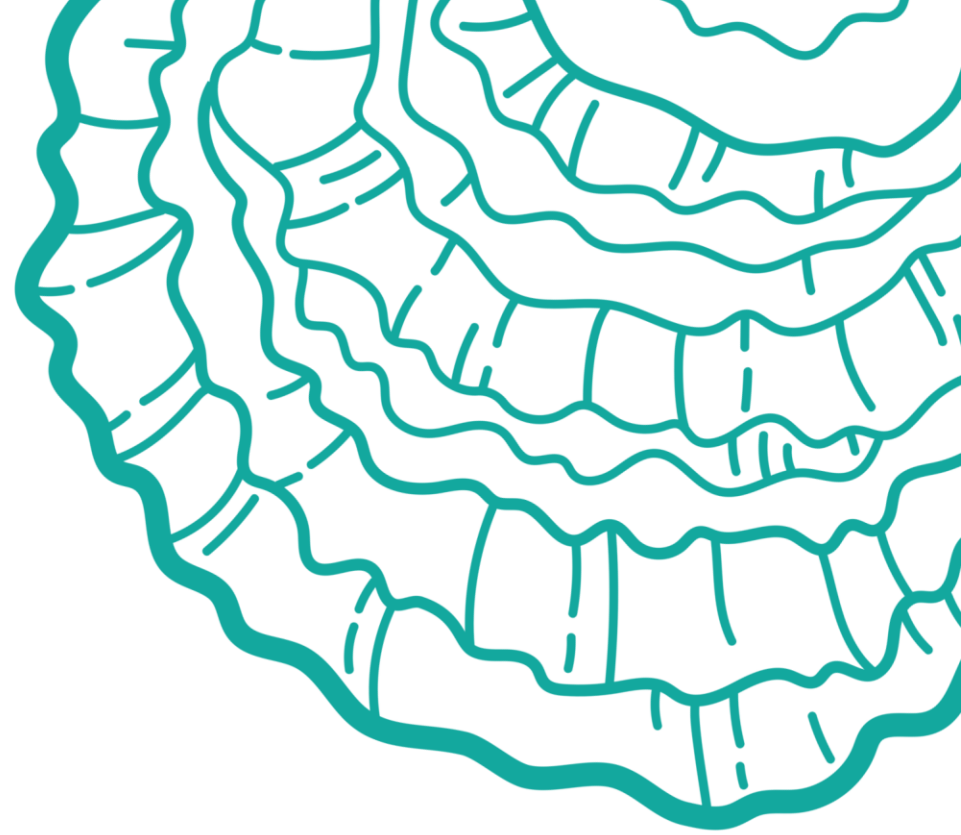


1) How much can an oyster filter in 1 year?

$$200 \times 365 = 73,000 \text{ litres}$$

2) How much can an oyster filter in 15 years (its life)?

$$73,000 \times 15 = \underline{\underline{1,095,000 \text{ litres}}}$$



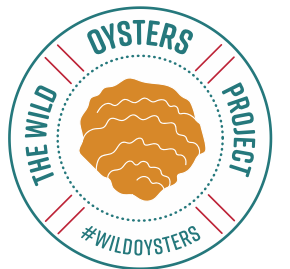




One Oyster can filter almost  
2 ½ Olympic sized swimming  
pools in its  
lifetime.....imagine what a  
reef of oysters could do!

How many oysters would it  
take to filter 10 Olympic sized  
pools?

$$10 \div 2.5 \\ = 4 \text{ oysters}$$

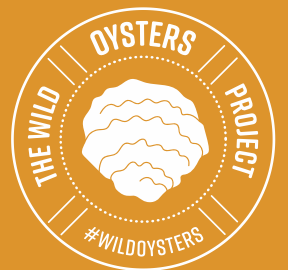




# FILTERING THE WATER



AND PROVIDING HABITAT FOR LOTS OF OTHER SPECIES





Oysters are secret...

# SUPERHEROES

Improve water  
quality



Reduce  
nitrogen levels



Increase  
biodiversity



Create nursery  
habitats for fish



Provide jobs  
and food



The jobs they do for humans are called  
**ecosystem services**



# Mozambique

Mozambique women collect oysters from the seashore as a social activity and sell them at market



# UK

Whitstable in England there is still an oyster festival every year – Oyster King and Queen!



# Brazil



# India

Source of food and money, as well as being part of the local culture



# France

In France oysters are considered a delicacy.







Oysters have now practically disappeared due to - **overharvesting, pollution and habitat loss.**



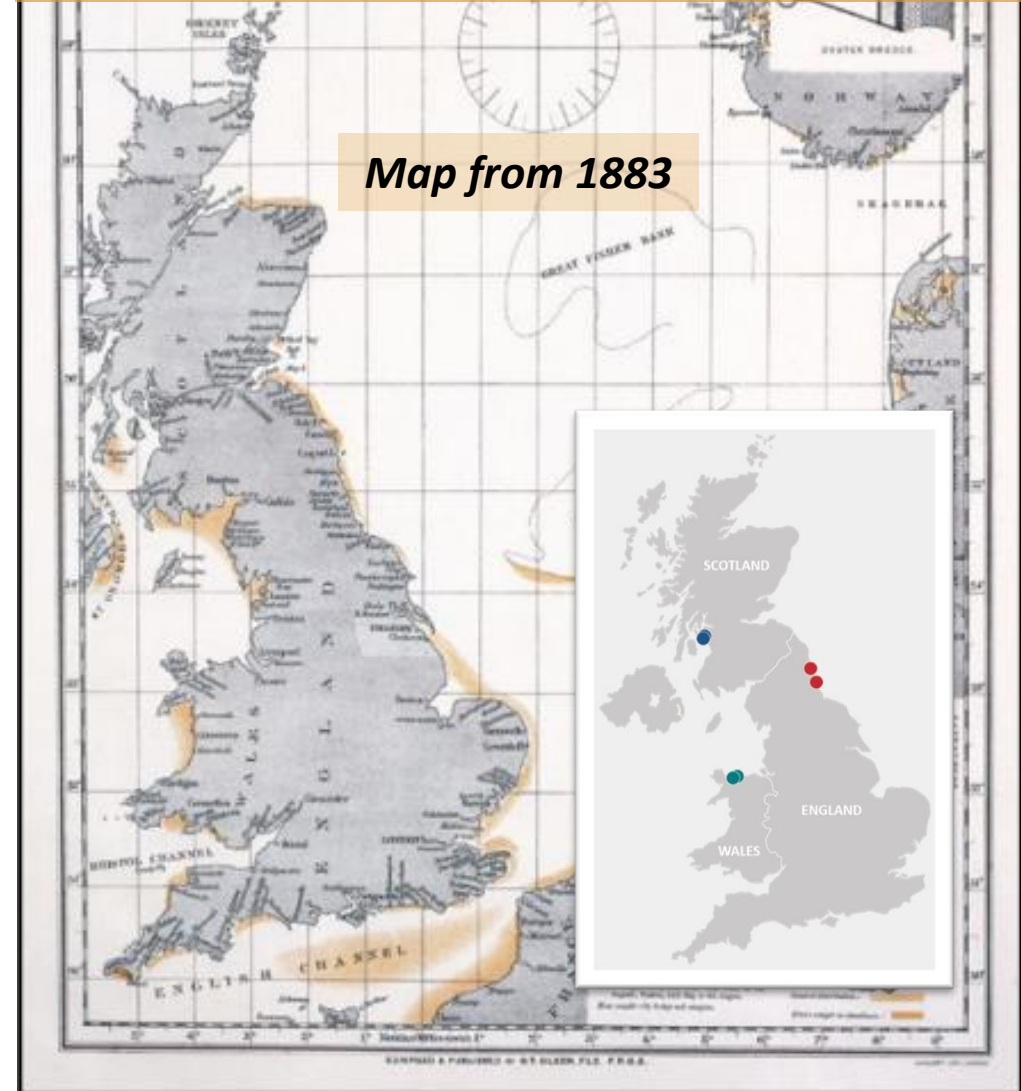
**Oyster day in 1835- the arrival of the first oysters of the season at Billingsgate fish market. Oysters were a staple part of their diet as they were so cheap – around 4 for 1 penny.**



AUGUST.

Have declined by **95%** in the last 200 years

*Map from 1883*





# European native oyster (*Ostrea edulis*)



## LOCATION: Europe



Previously found around the coast from Norway to Morocco, and in the Mediterranean and Black Sea.



## DIET:

Algae and organic particles (tiny pieces of animals and plants).



## LIFESPAN: 5–10 years...

...but some can live up to 30 years old!



## HABITAT:

Mud and sand in salty water.



## SIZE: 10–12cm...

...but some can grow to over 20cm!

## Oysters are molluscs, like snails.

Molluscs are a type of **invertebrate** (they do not have a backbone).

## All oysters are born male, then change between male and female throughout their lives.

This is known as being a **protandrous hermaphrodite**.

## One oyster can clean up to 200 litres of water per day!

They suck in water through valves like a Hoover, and trap small food particles on tiny hairs – this is called **filter feeding**.

## Oysters have been eaten in the UK since Roman times.

Oyster fishing has been happening in the UK for so long it has become a big part of the **local culture** in some areas.

## Each adult female can produce around 1 million babies per year!

These babies are called **larvae**. Only a few will survive to become adults.

## Oysters create habitats for other living things.

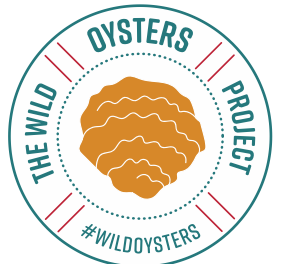
Oysters live together in big groups, forming reefs (like coral reefs). These provide **food and shelter** for species such as sponges, crabs, eels and seahorses!



**95%** of native oyster reefs have been lost in under 200 years.

Oyster reefs are one of the most threatened sea habitats in Europe.

**Overfishing, pollution, habitat loss and disease** are causing oysters to die out.



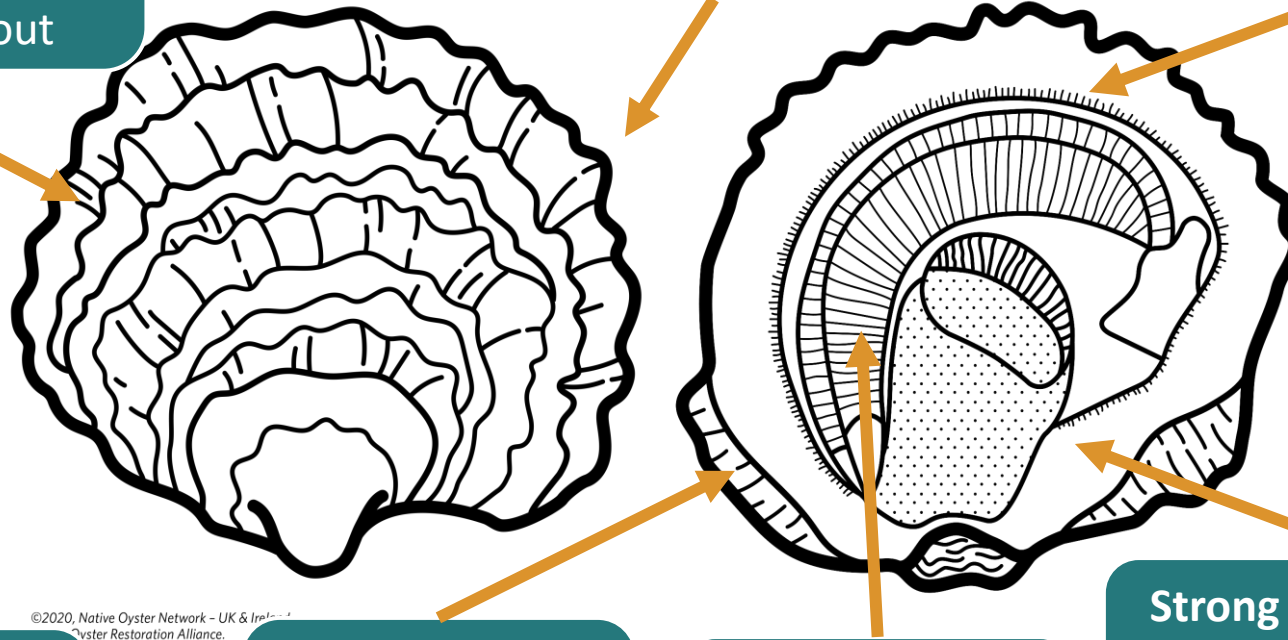


# Oyster adaptations

**Hard shell** for protection against predation and to stop them drying when the tide goes out

**Can change sex** so there is always the correct ratio of males to females

**Hairs (cilia) and mucus** to trap microscopic algae and small organic particles from the surrounding water



**Produce lots of larvae** to ensure that some survive to adulthood

**Valves** to suck in water and pass it over the gills

**Gills** to absorb oxygen from the water

**Strong muscles** to close their shells quickly when threatened by predators

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Oyster Restoration Alliance.



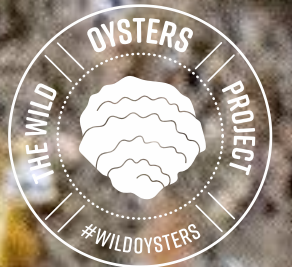




# Oyster bingo time!!

Fill out the bingo  
templates with nine facts  
of your choice.

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# Oyster bingo!

1. Read the fact sheet and fill in the squares below with six oyster facts.


2. Listen to the questions and put a tick in the box next to each correct answer. Don't forget to shout 'bingo!' when you have ticked off all six facts.



3. Complete the follow sentence: Adaptations are **Behavioural** **Physical** or **Physiological** that help a species to **Survive**
4. Read the Oyster Adaptations sheet and draw lines below to link the adaptations with how they help oysters survive.

### Adaptation

Hard shell

Valves

Produces lots of larvae

Gills

### How it helps oysters survive

absorb oxygen from the water

ensures that some survive to adulthood

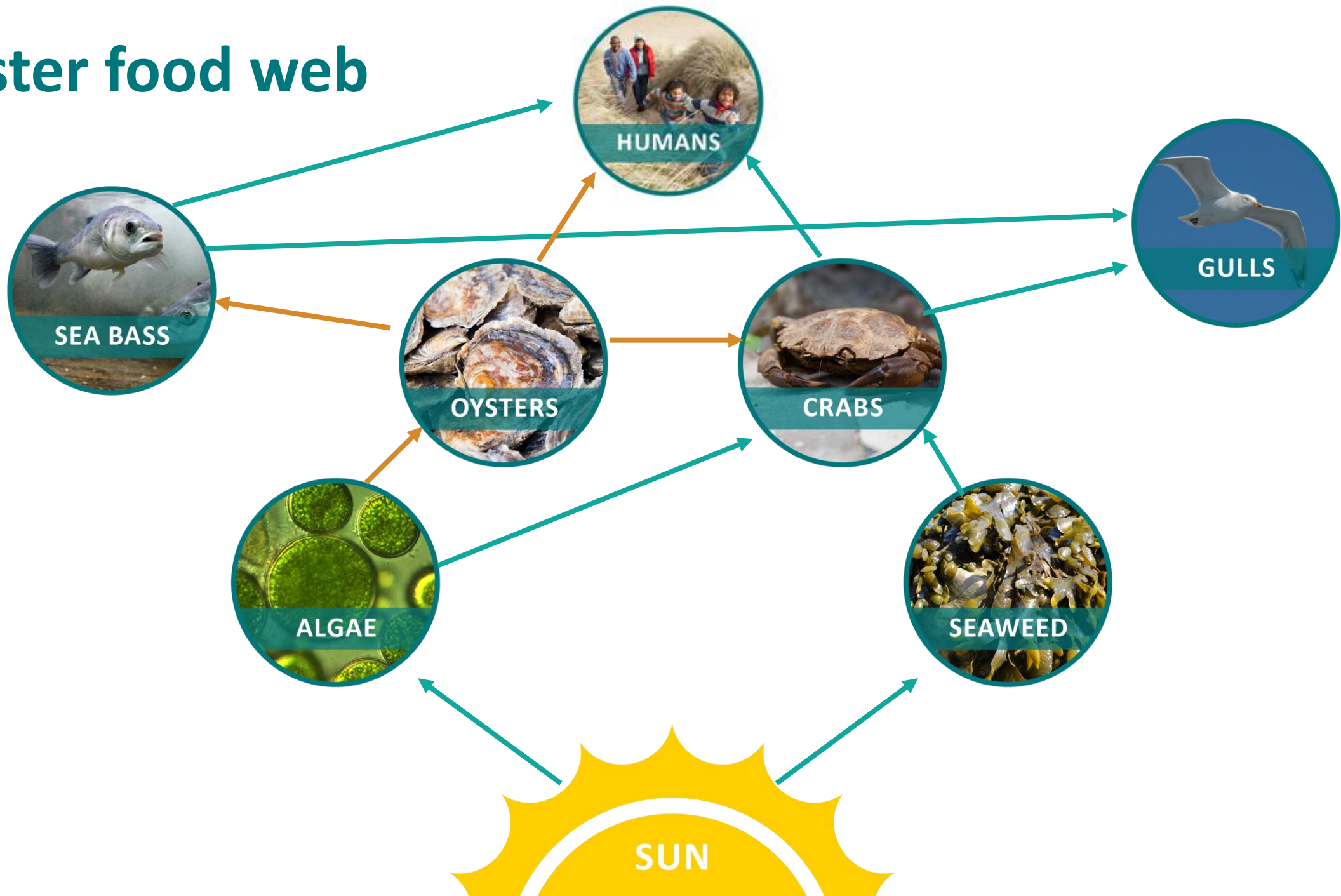
protects against predators and stops them drying up when the tide goes out

suck in water and passes it over the gills

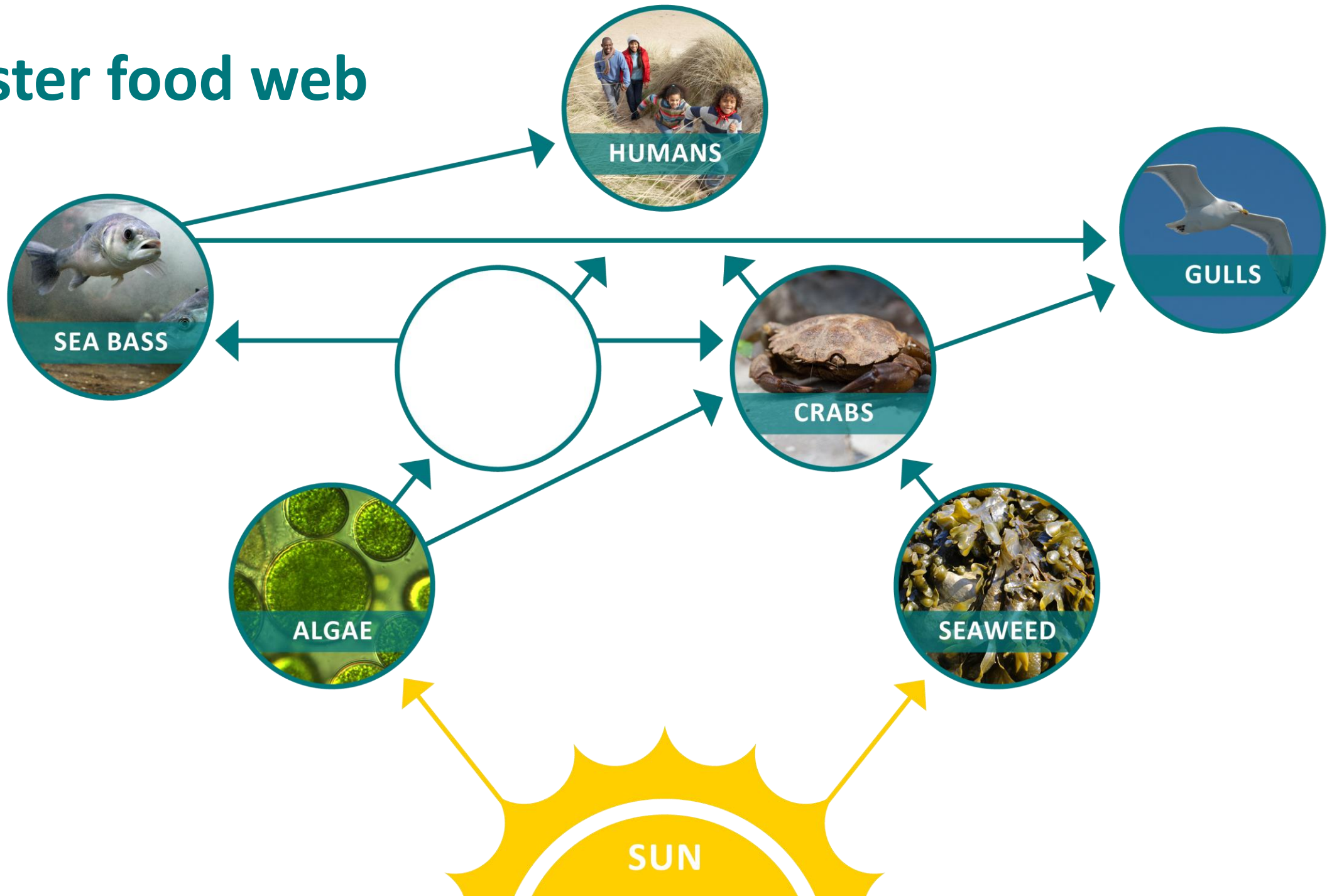




# Oyster food web

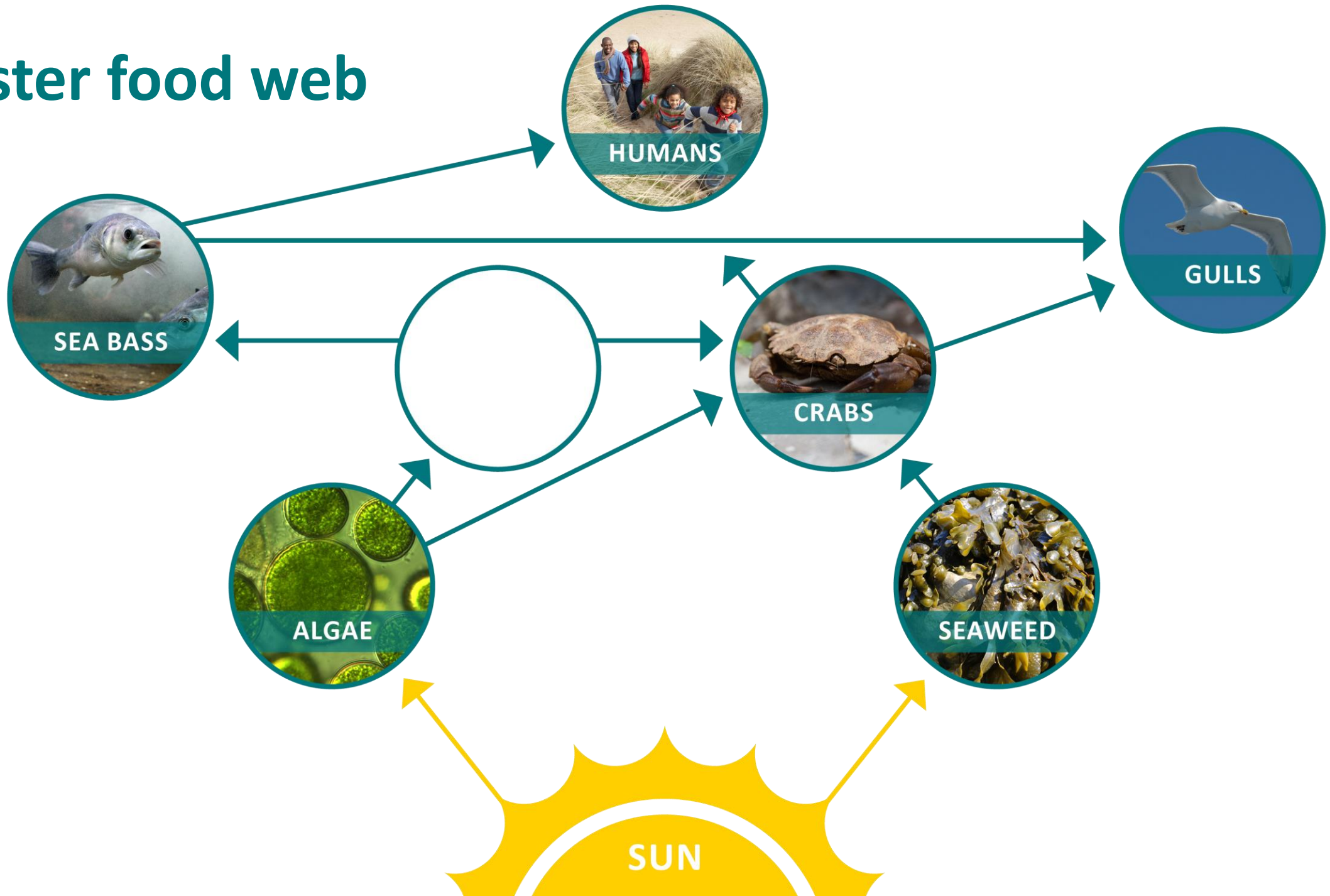


# Oyster food web

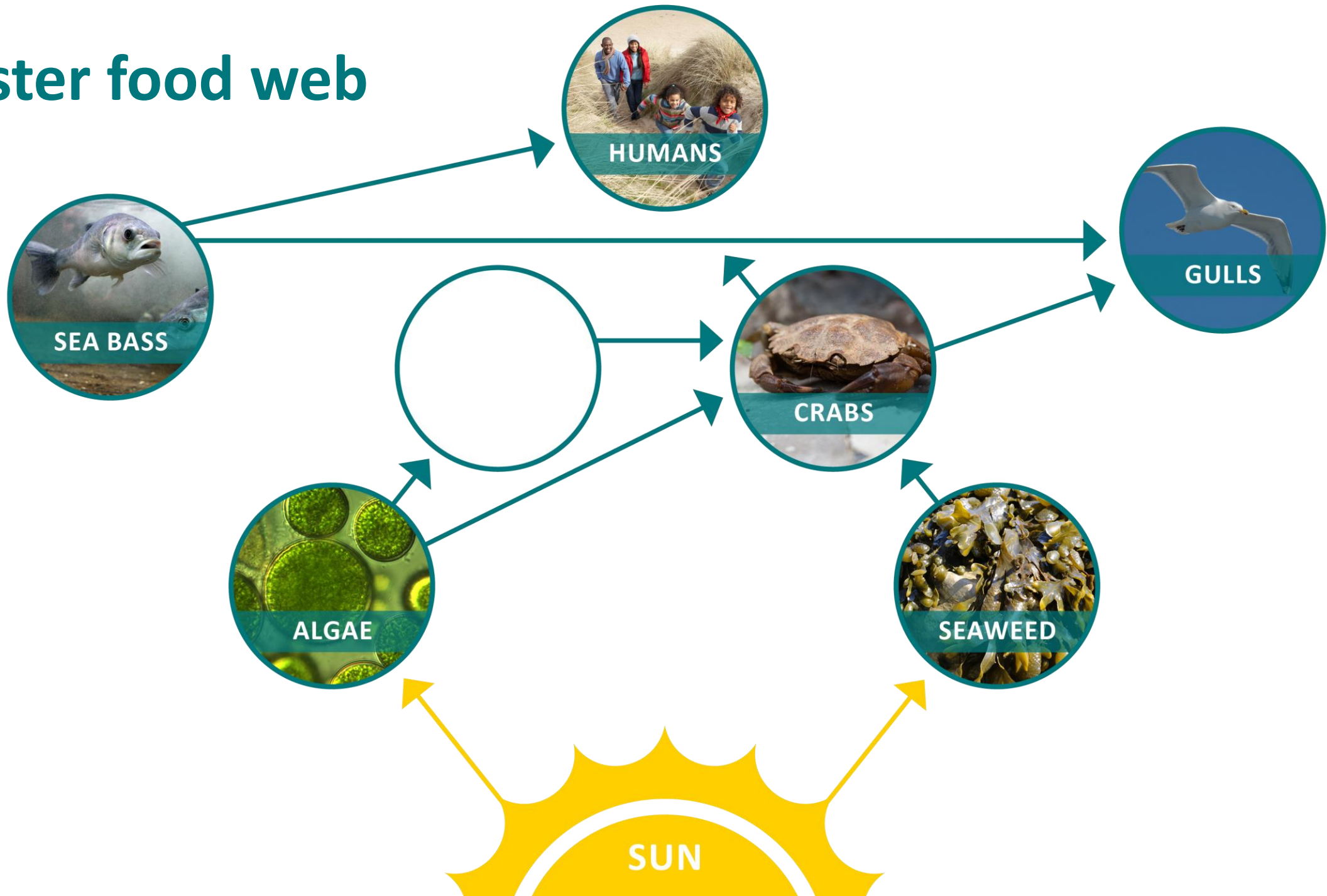




# Oyster food web

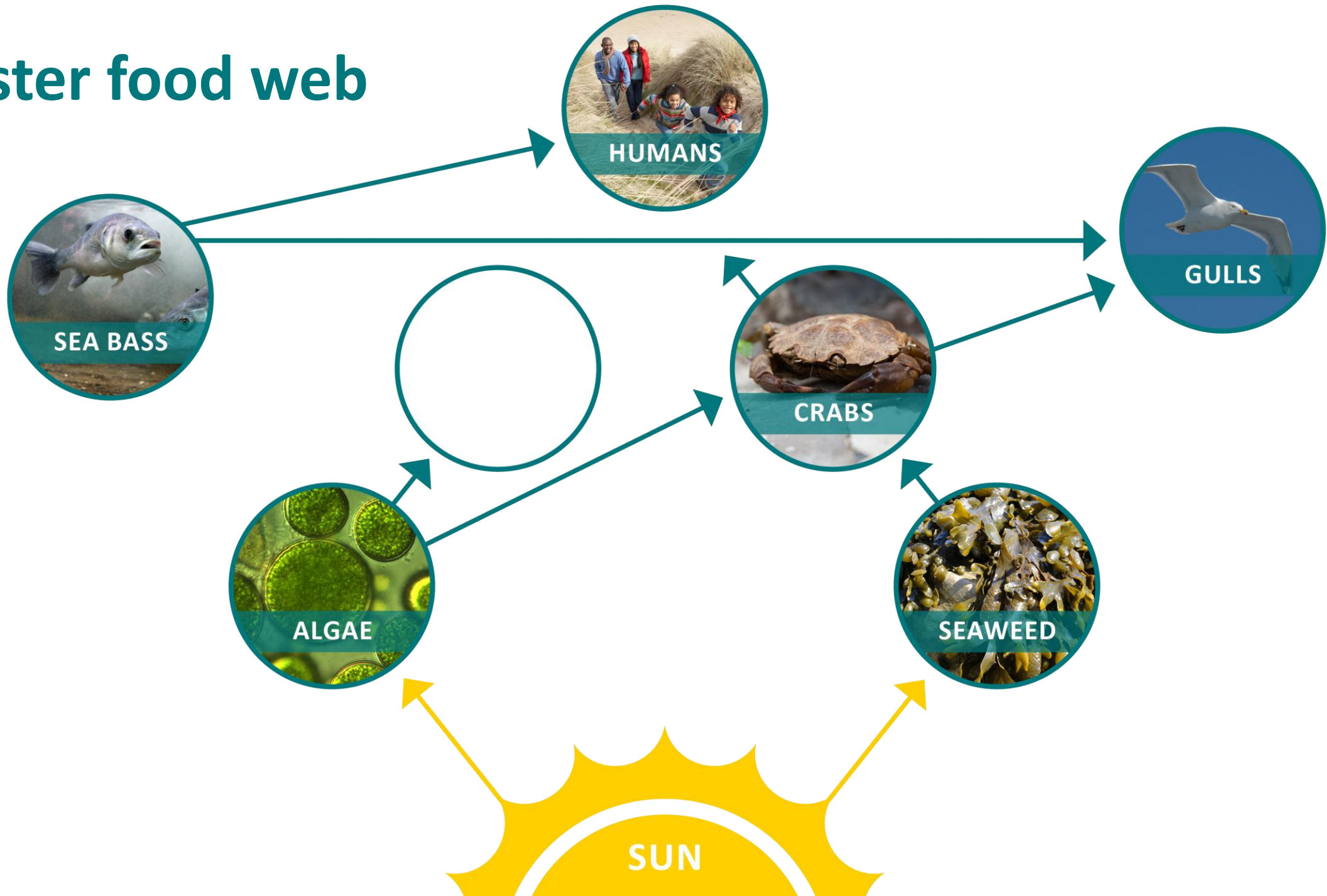


# Oyster food web

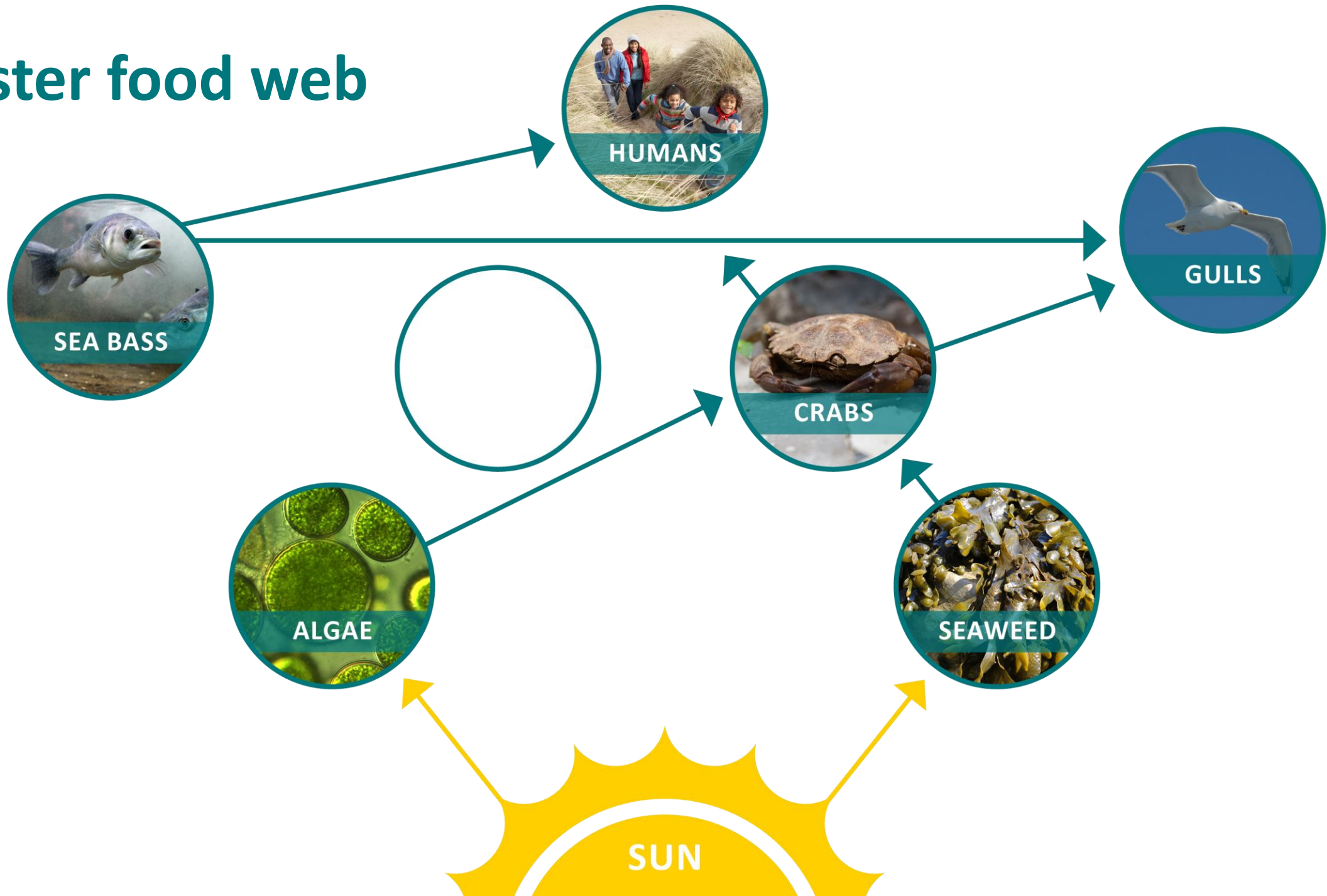




# Oyster food web

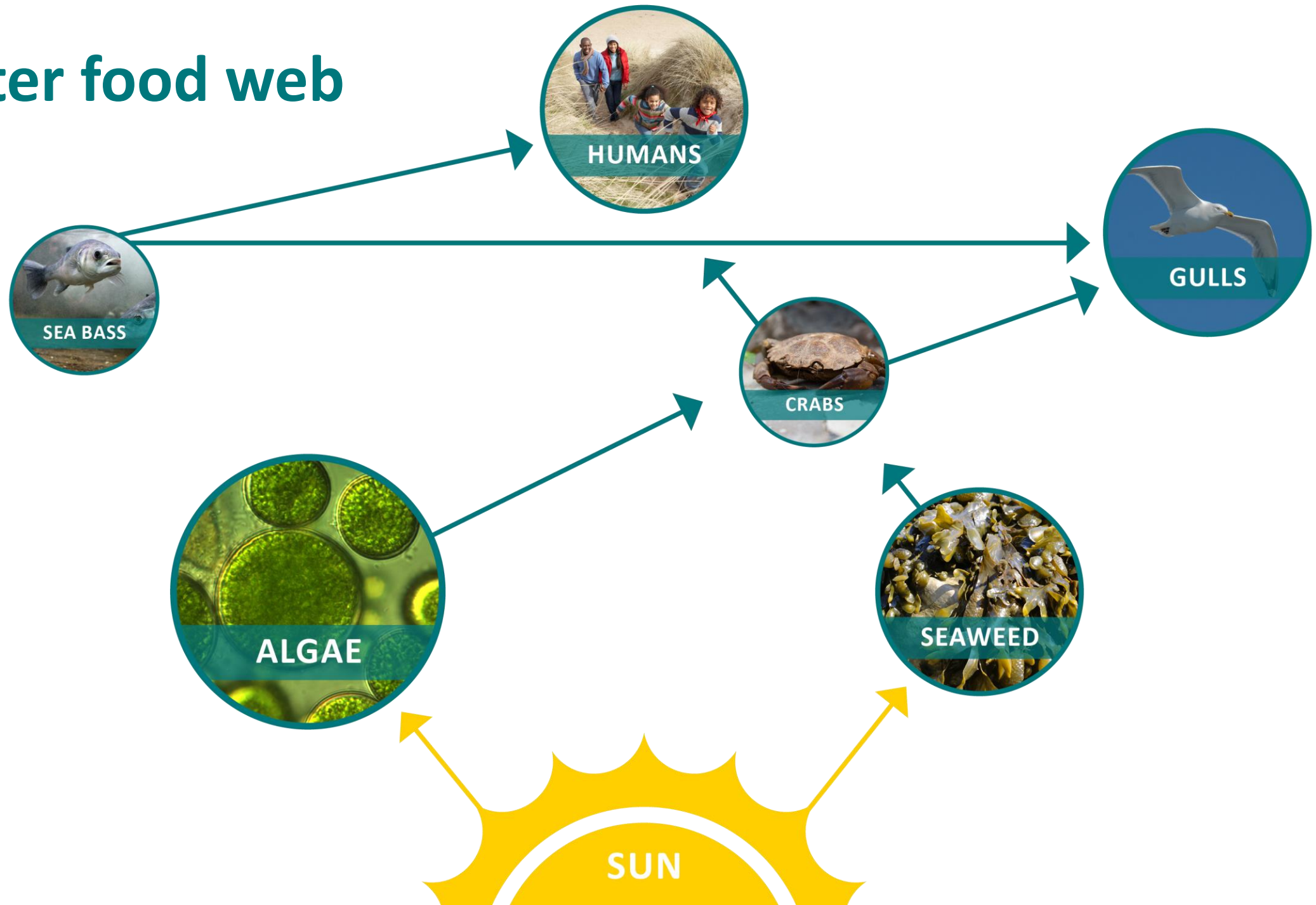


# Oyster food web





# Oyster food web



# Amazing Oysters need our help...



## ...they are on the path to extinction.

Marine scientists like me are helping to put oysters back in different areas of the UK and Europe.







Projects like Wild  
Oysters are helping to  
put oysters back!



# Wild Oyster Project locations

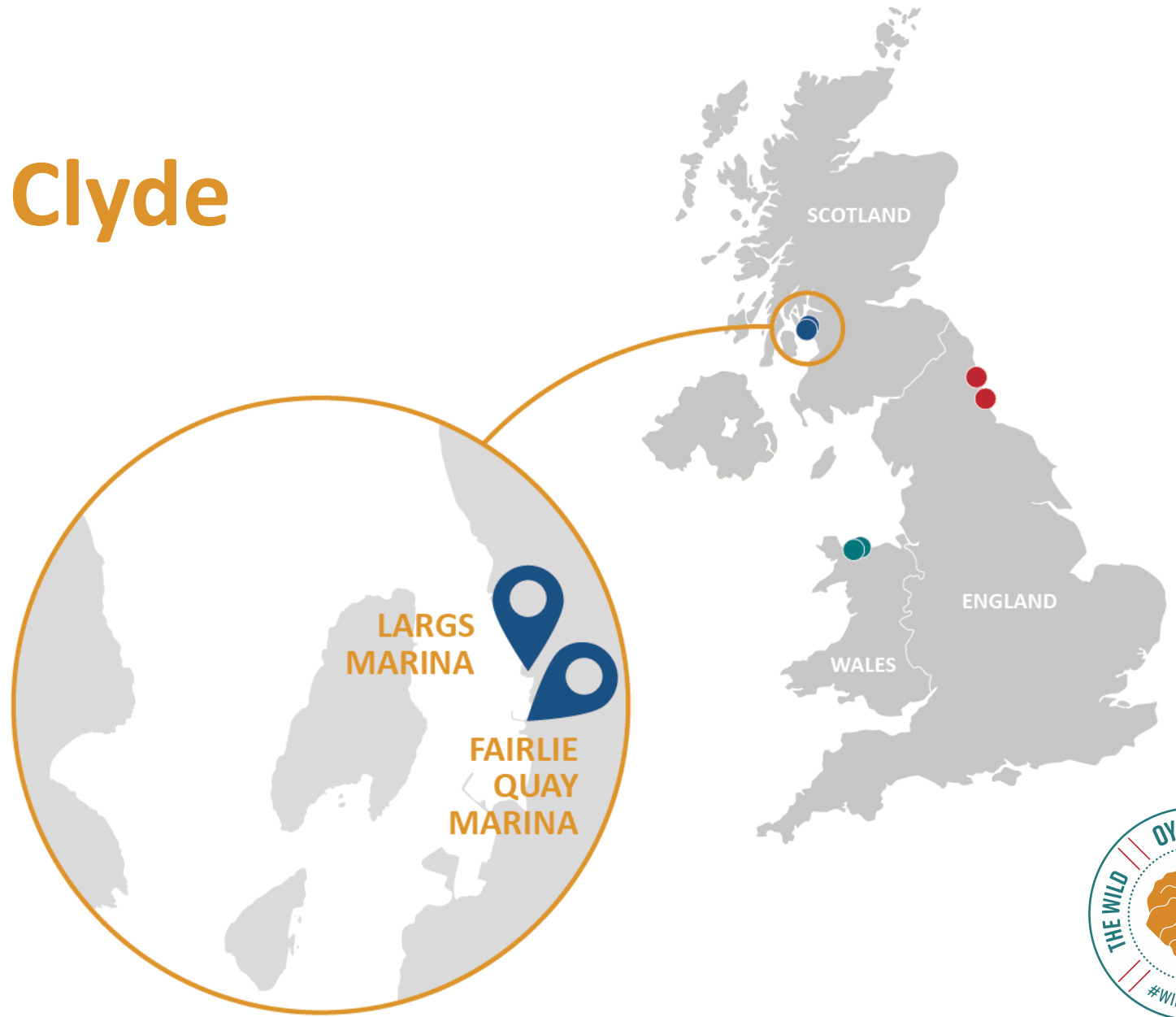
With the support of our local delivery partners, we have established three restoration hubs across the UK to recover the native oysters and the services they provide.







# Firth of Clyde





# Tyne & Wear







# Conwy Bay





**What is happening to our  
seas?**





**(Over)fishing**  
**Plastic**  
**Pollution**  
**Sewage**  
**Habitat destruction/Trawling**  
**Ocean acidification (due to climate change)**  
**Deep sea mining**



# How can you help?

**Reduce waste**= especially plastic waste – so that it doesn't end up in the environment



**Help clean up your local area** =  
Recycling with your family at home  
Organising a beach clean-up



Get involved and **volunteer** at  
local Wild Oysters project



**Share fascinating facts** =  
about oysters and how  
important they are with  
others





Oysters are secret...

# SUPERHEROES

Improve water  
quality



Reduce  
nitrogen levels



Increase  
biodiversity



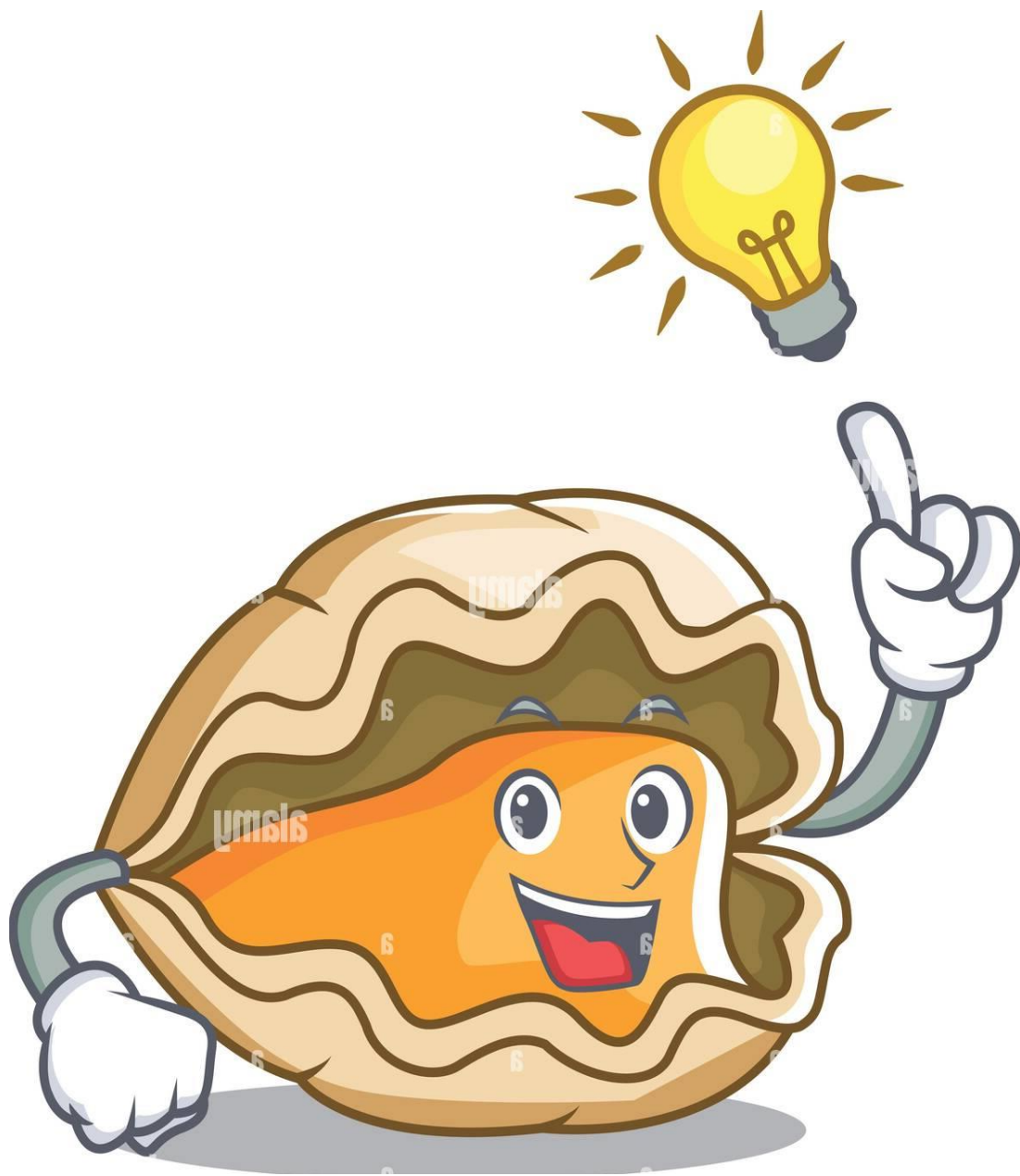
Create nursery  
habitats for fish



Provide jobs  
and food



The jobs they do for humans are called  
**ecosystem services**



# Oyster Quiz







# Your Visit!







# Wild oysters

## Digital Lesson

KS3

**ZSL** | LET'S WORK  
FOR WILDLIFE



**BLUE MARINE  
FOUNDATION**

**BRITISH  
MARINE** 

Working together to recover self-sustaining populations of native oysters in UK seas

Supported by players of



Awarded funds from

