HEALTHY SEAS?

SEAS FOR LIFE

PLENTY OF FISH IN THE SEA?
SUSTAINABILITY – WHAT DOES IT ALL MEAN?

You may have heard this word a lot? Sustainability means making the best life for everyone (people, animals and plants) for as long as possible. If everything in the world can live happily, with enough food, warmth and shelter then life is ‘sustainable’.

We want to tell you about the sea and how it can be made more sustainable. ‘Seas For Life’...that’s the goal. Unfortunately there are lots of things that stop seas being healthy, many of them caused by people. But the story doesn’t have to end badly...you can help give the sea a happy ending!

ECOSYSTEMS

Everything in the sea is linked, by what it eats or what eats it! When little things get eaten by bigger things we get a food chain...but like us, creatures in the sea don’t just eat one thing so lots of food chains make a food ‘web’.

People are at the top of the food chain, or web, eating lots of different things. This is fine so long as we don’t take too much as this can make the food web out of balance...or UNSustainable.

THE PRICE OF FISH...

If we take too many of one type of fish, or fish that are too small (haven’t reproduced yet)...this is called ‘Overfishing’...read on to find out more about types of fishing on a later page...

PLASTIC SOUP!

Litter and plastic in the sea doesn’t look nice but it can also get tangled around marine life. Plastic pieces can end up in the stomachs of some pretty cool marine life, like marine mammals and seabirds.

SPILLS

Ships can spill lots of nasty things, like oil, into the sea if they are not careful. The water ships hold in their tanks (called ballast) can also be dumped at sea. This water often carries lots of nasties with it...

LOOK OUT FOR ALIENS!

We don’t mean little green men here, just living things from another country. Many plants and animals travel across the sea on litter, on and in ships. Alien species can grow very quickly and cause problems for our marine life. Take Japweed for example (from Japan) - this can cover a rockpool in a matter of days!

FISHING FOR LITTER

Marine litter can cost fishermen thousands of pounds each year as it can get stuck in their nets, damages their boats, gets picked up instead of fish, and just wastes their time! ‘Fishing For Litter’ is a simple idea to reduce the amount of marine litter in our seas. Fishing boats collect marine litter that is caught in their nets and bring it back to the harbour to be disposed of properly.

SEE N A GHOST?

Ghost fishing is where old fishing nets end up catching marine life by accident. Nets lost at sea are a big problem for both fish and marine mammals.

TAKE ACTION!

• Take part in an SAS Beach Clean
• Reduce, Re-use and Recycle the things you use to stop litter getting into our seas.
**Climate Change**

You may have heard of climate change and the fact that parts of the world are getting warmer. Well, so is the sea and warmer seas can also affect marine life...

**Acid Oceans**
More carbon dioxide in the air (from human sources) means more gets absorbed by the sea. This can make the ocean more acidic, which prevents some marine life building their shells, like snails, crabs and some plankton. As these creatures are food for bigger things like fish, acid oceans could be a big problem!

**Toxic Tides**
Warmer seas are a problem for plankton, the tiny plants that live in the sea. It can make them grow out of control and if they are poisonous, they can poison other marine life, like fish. If we then eat the fish we can get sick too!

**Sewage**
Sewage runs onto the beach or into the sea can cause a lot of problems for marine life...

**Spot the Species!**
Life on the coast has to cope with a lot of changes, like the tides going in and out. The type of animals and plants that can be found on the beach and how many are there, can tell us a lot about what is happening in the sea. Take the strawberry anemone...we are seeing more of these due to warmer waters...

**Sewage Related Debris**
Rubbish flushed down the toilet can disturb marine life, be swallowed by or poison it too.

**Bathing Related Debris**
Rubbish flushed down the toilet can disturb marine life, be swallowed by or poison it too.

**Bloom in plankton!**
Sewage in the water is like fertiliser for plants...it makes plankton (tiny plants in the sea) grow quickly and in big numbers. This makes the sea out of balance.

**Indicator Species**
Life on the coast has to cope with a lot of changes, like the tides going in and out. The type of animals and plants that can be found on the beach and how many are there, can tell us a lot about what is happening in the sea. Take the strawberry anemone...we are seeing more of these due to warmer waters...

**Biaccumulation**
Is a big word! Animals like oysters and mussels are filter feeders...they filter their food (plankton) out of the water. Sometimes they can filter out pollution too which can build up in their bodies and poison them...and us if we then eat them!

**Take Action!**
- Think before you flush
- Support renewable energies
HEALTHY SEAS?

SAVE YOUR SEAS!
USE THE OCEAN SCENE TO SHOW WHAT YOU’VE LEARNT SO FAR...

1. Draw on the GOOD and BAD things that could be happening in the ocean scene
2. Draw arrows to link up the marine life into a food chain....what eats what?!
TRY OUR Q AND A...
1. What are the tiny plants that live in the sea called?
2. Name a creature that could be affected by the oceans getting more acidic.
3. What, apart from oil, can ships spill into the sea?
4. Name an animal that we can find more of due to climate change.
5. What is overfishing?

SCORES:
5 out of 5...Aye aye Captain!
3 out of 5...Not bad sailor
1 out of 5...Down to the Abyss!

PLAY THE FISHING GAME
WILL IT HAVE A HAPPY ENDING?

STEP ONE:
Cut up the fish opposite, try to keep to the lines!

INSTRUCTIONS
• Get in a group of five people...four of you are fishermen, one is a fish buyer.
• Fish buyer - scatter the cut up fish on the sea picture on the centre page, or your school desk.
• Play two fishing rounds each of one minute. Each fish a fisherman catches in the first round is worth one penny (or sweet), each fish in the second round, two pence (or sweets).
• As soon as you’re ready...START FISHING!

STEP TWO:
Imagine you’re a fisherman! You have to make a living from fishing... and compete with other fishermen.

NOW PLAY THE GAME A DIFFERENT WAY...
• Fish buyers - divide the sea up (using a pen) into four equal rectangles (or territories). Give each fisherman a territory and put an equal number of fish in each territory.
• Play the game again...using the same rules.
• What happened this time? Did the fishermen behave differently? Why?
MARINE CONSERVATION ZONES

THE ECOSYSTEM APPROACH

Marine Conservation Zones (MCZs) are protected areas of the sea. They will be created to protect rare or threatened marine species and the habitats that they need to live in. MCZs will also ensure that all of the animals and plants needed for a healthy ecosystem are given the opportunity to grow and reproduce.

EVERYONE’S A WINNER!

The added bonus of MCZs is that as life grows and reproduces there, the next generations will move away and find new homes in other parts of the sea. This means there could be more fish to be caught by fishermen. This wealth of life, or biodiversity, will mean Seas for life, for everyone, for ever!

BE AN ACTIVIST!

ACTIONS YOU CAN TAKE

Tell your friends about MCZs and tell your family. They will then tell other people. The more people know about the sea and how to keep it healthy, the better for us all.
TEACHER’S NOTES

The content in this leaflet aims to teach the principles of sustainability, in a fun and engaging way. The interactive fishing game teaches the idea of ownership and that if we feel we own the sea, we will more likely protect it. The content is most suited to Key Stages 1 and 2 but can be adapted for all ages.

The key National Curriculum learning outcomes that the SAS Sustainable Coastal Communities educational programme covers are:

**SCIENCE:**
Humans and other animals;
Living things and their environment; Adaptation

**CITIZENSHIP AND PSHE:**
Developing a healthy, safer lifestyle;
Preparing to play an active role as citizens

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**WANT TO FIND OUT MORE?**

This leaflet was produced by SAS as part of the Sustainable Coastal Communities Education Programme, in collaboration with the Fisheries Local Action Group Northern Devon and the Quiksilver Foundation.
For more information or to book an educational experience phone: 01872 553 001 or visit: www.sas.org.uk

Surfers Against Sewage (SAS) is an environmental charity protecting the UK’s oceans, waves and beaches for all to enjoy safely and sustainably, via community action, campaigning, volunteering, conservation, education and scientific research.

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