

Cefas Careers Pack

Exploring Careers in Aquatic Science

KS3
KS4



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Introduction to Cefas

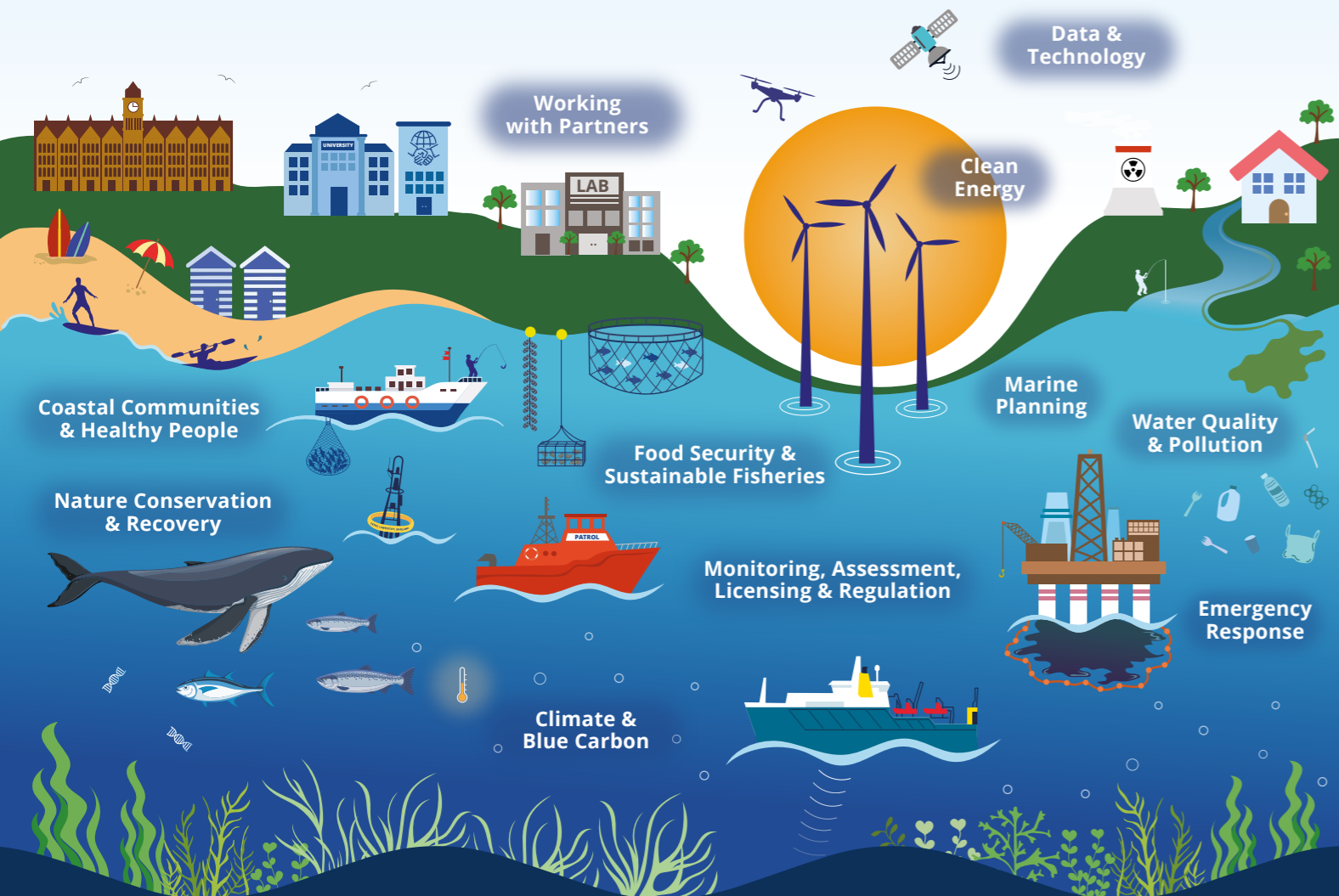
Cefas is the Centre for Environment, Fisheries and Aquaculture Science. We have around 600 employees which include scientists, engineers, mathematicians and many others! We are part of the Civil Service as an agency of Defra (the Government's Department for Environment, Food and Rural Affairs).

What do we do?

The rivers, seas and oceans that make up our aquatic environments are a vital tool in supporting life on Earth. They provide us with a source of food, oxygen and help to maintain the Earth's temperature and climates. However, human activity places increasing pressure on the natural world through overfishing, pollution and habitat loss.




At Cefas, we use cutting edge science to provide a better understanding of the state of our ocean, seas and rivers. Working across our laboratories in the Southwest and East of England and from our Research Vessel, the Cefas Endeavor, we conduct monitoring using a range of techniques. The data collected aids our understanding of the relationship between aquatic ecosystems and human activities, nature conservation and climate change.

Advanced modelling software allows us to predict potential changes in ecosystem health and provide advice on necessary management plans to ensure aquatic environments are as healthy and productive as they can be. We work alongside other research institutes, policymakers and marine managers to ensure that accurate, impartial data is available to create effective marine management plans.



About this Pack

This pack is designed to introduce you to a selection of careers in aquatic science. In the following pages, you will find detailed information about various career opportunities at Cefas, including the roles and responsibilities of different positions, some recommended skills and qualifications, and the potential career paths you could pursue. We have also included personal stories and experiences to give you a real-world perspective on what it's like to work in aquatic science. We hope that this pack will serve as a valuable resource as you explore the many possibilities that a career in aquatic science has to offer.

Peter		Benthic Taxonomist BIOLOGY	Nicola		Fisheries Stock Assessor MATHS
Mel		Molecular Biologist BIOLOGY	Kieran		Coastal Processes Scientist GEOGRAPHY
Chiara		Fish Health Inspector BIOLOGY	Amna		Software Developer COMPUTING
Euan		Analytical Chemist CHEMISTRY	Annie		Marine Engineer ENGINEERING
Nathan		Underwater noise scientist PHYSICS	Julia		Overseas Programme Manager BUSINESS



Hi, I'm Peter and I'm a Benthic Taxonomist!

WATCH PETER'S CAREER VIDEO HERE:



As a **benthic taxonomist**, I specialise in identifying and classifying organisms that live on, or near, the bottom of water bodies, such as oceans, seas, rivers, and lakes. These organisms, known as benthic fauna, include a wide variety of species like worms, molluscs, crustaceans, and other invertebrates.

Understanding the benthic ecology of a habitat can help us monitor environmental changes and advise the government on where best to focus their efforts in ensuring the health of our ocean.

Where do I work?



Travel/
Overseas



Laboratory



Office

Who do I collaborate with?

- ▶ Other scientists internally and externally
- ▶ Journalists

Relevant qualifications:

Biological science qualification (GCSE, A-Level, Degree, Masters, PhD)

Environmental science qualification (GCSE, A-Level, Degree, Masters, PhD)

Laboratory Technician Apprenticeships (Level 3-5)

Required skills:

- ▶ Attention to detail
- ▶ Communication
- ▶ Teamwork and collaboration
- ▶ Problem solving

What are my key responsibilities?

Benthic taxonomists play a crucial role in marine and freshwater ecology by:

- Identifying and cataloguing benthic organisms
- Assessing biodiversity for ecosystem health
- Monitoring changes to detect pollution, climate change, and stressors
- Providing data for Marine Protected Areas, Environmental Impact Assessments, and Non-Native Species management

Identifying Benthic Fauna

Task

1. Look up the definitions of the anatomical terms below.
2. Use the definitions to correctly label these 2 different crab species.
3. Use the anatomical terms and pictures to write a paragraph that helps others correctly identify each crab.

You will need:

- ✓ Pencil
- ✓ Paper to write answers
- ✓ Access to the internet to look up definitions

Anatomical Terms:

Carapace

Pincer

Long Antennae

Swimming Leg

Teeth

Spine

Short Antennae

Velvet Swimming Crab



Spider Crab



Not to scale

Tips:

- 1 Include as much detail as you can.
- 2 Try to avoid using ambiguous language like 'big' and 'small', instead give a specific measurement.
- 3 Don't give direct comparisons between the 2 crabs as people using the guide might not be able to see both species.

Example paragraph: Shore Crab

The shore crab has a strong carapace that is wider than it is long (up to 8cm in width) and usually greenish-brown (although colour can vary). It has five noticeable teeth on each side of the front edge. The crab's pincers are uneven, with one being bigger than the other. It also has spines along the edges of its carapace and both long and short antennae. (Reference)





Hi, I'm Mel and I'm a **Molecular Biologist!**

WATCH MEL'S
CAREER VIDEO
HERE:



As **molecular biologist** at Cefas, I test fish and shellfish samples, investigating serious outbreaks of disease in both farmed and wild species. Our work prevents the introduction and spread of serious diseases in fish, shellfish and crustacea in England and Wales.

I'm also a molecular technical area manager making me responsible for equipment, training, traceability, test standardisation and quality control of test results.

Where do I work?



Home



Laboratory



Office

Who do I collaborate with?

- ▶ Other scientists internally and externally
- ▶ Government advisors
- ▶ University students
- ▶ External and internal auditors

Relevant qualifications:

Biological science qualification
(GCSE, A-Level, Degree, Masters, PhD)

Molecular Biology (Degree, Masters, PhD)

Laboratory Technician Apprenticeships
(Level 3-5)

Required skills:

- ▶ Attention to detail
- ▶ Reliability
- ▶ Problem Solving
- ▶ Leadership

What are my key responsibilities?

By monitoring the health of the fish and shellfish, we protect people and improve businesses' ability to trade whilst protecting valuable natural resources. My main responsibilities at Cefas include:

- Performing experiments to investigate molecular mechanisms, using techniques like PCR, DNA sequencing, and protein purification
- Analysing experiment results and data to identify patterns
- Innovating and refining methods to improve research accuracy and efficiency
- Writing papers and reports, documenting findings in scientific journals and presenting our work to government

Polymerase Chain Reaction (PCR) tests

Scientists at Cefas can confirm if a fish has a virus by looking at its cells under a microscope. One method for doing this is called cell culture. Using cell culture helps scientists isolate and grow viruses, which is important for diagnosing diseases, conducting research, and making vaccines.

You will need:

- ✓ Pencil
- ✓ Paper to write answers
- ✓ Access to the internet to look up definitions

To do this, scientists:



Collect Samples: Fish Health Inspectors start by taking tissue samples from fish (learn more about this on page 7 and 8).



Grow Cells: Tissue culturists grow fish cells in a lab. This is because viruses need a living cell to reproduce.



Add the Virus: Virologists add the sample from the fish to these growing cells. If there are any viruses in the sample, they will infect the cells

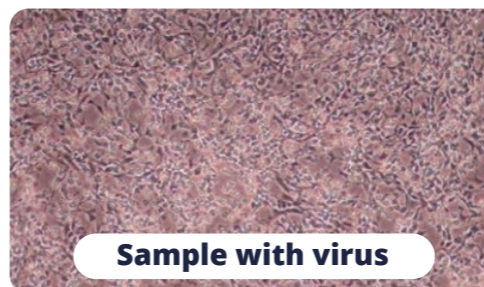


Observe Changes: Scientists observe the cells closely under a microscope. If the cells start to break apart or holes appear in the sample, it means there is a virus present (see image below).

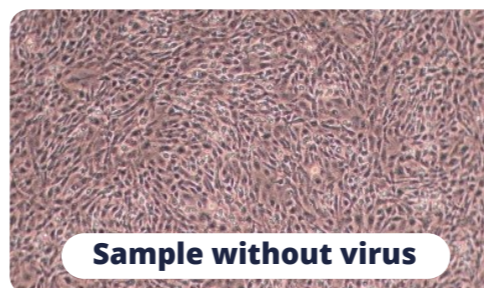


Identify the Virus: Further antibody and Polymerase Chain Reaction (PCR) testing are completed to figure out exactly which virus is causing the problem. All viruses isolated are PCR confirmed by molecular biology scientists (see Mel's profile on page 5).

Look at the image below showing cells with a virus and cells without. We can tell the top sample has been damaged because there are gaps between the cells.



Sample with virus



Sample without virus

Task

You may have used a Polymerase Chain Reaction (PCR) test to look for the presence of the COVID 19 virus. PRC testing can also be used to identify the presence of other viruses, such as those found in fish.

There are 4 stages to the PCR testing process - use the internet to research these and briefly explain what happens at each stage?

1. Collection
2. Preparation
3. Amplification
4. Analysis

Extension: Research the pros and cons of this testing method. How useful do you think PCR testing is for Cefas science?





Hi, I'm Chiara and I'm a Fish Health Inspector!

As a **fish health inspector** at Cefas, I'm responsible for monitoring and ensuring the health of fish and other aquatic animals.

I visit fish farms, hatcheries, and natural water bodies to check for signs of disease or poor health in fish populations to prevent pathogens reaching people.

WATCH CHIARA'S CAREER VIDEO HERE:



Where do I work?



Outside



Office

Who do I collaborate with?

- ▶ Other Cefas scientists
- ▶ Marine Management Organisation
- ▶ Environment Agency
- ▶ Aquatic animal business owners

Relevant qualifications:

Biological science qualification (GCSE, A-Level, Degree, Masters, PhD)

Current EU/UK driving license

Required skills:

- ▶ Communication
- ▶ Self-motivation
- ▶ Conflict resolution
- ▶ Attention to detail

What are my key responsibilities?

Fish health inspectors play a crucial role in protecting aquatic ecosystems and supporting the aquaculture industry by:

- Conducting inspections of fish farms and hatcheries
- Collecting samples for testing back at the Cefas laboratories
- Supporting the enforcement of regulations to maintain fish health and biosecurity
- Advising stakeholders on best practices for preventing disease outbreaks

Importance of Monitoring

Why is it important to monitor the health of fish?

In the UK, farmed fish can be used for several purposes including human consumption, for animal feed and to stock recreational fishing lakes. Fish can carry various diseases which, if undetected, can be detrimental to human health and the wider ecosystem.

You will need:

- ✓ Internet access to the website linked [here](#).
- ✓ Pen and paper to record your answers

In England and Wales, the Fish Health Inspectorate (FHI) is the official service for the control of serious diseases of aquatic animals. Individuals such as fish farmers have a legal responsibility to notify the FHI of any suspected listed fish or shellfish disease.

More information and the list of diseases can be found [here](#).

Task

Using what you have learned in the video and the information above, can you explain why the role of Fish Health Inspectors is important for:



a. The Environment



b. Human Health



c. Other industries and businesses (the economy)

Write a short paragraph to explain your answer for each of these points.

Extension: What steps do you think a farmer might need to take to reduce the risk of disease spreading?





Hi, I'm Euan and I'm an Analytical Chemist!

WATCH EUAN'S CAREER VIDEO HERE:



An **analytical chemist** at Cefas processes samples from the environment to determine the pollutant content.

As part of the hydrocarbon team, I look for alkanes and polycyclic aromatic hydrocarbons that are toxic to marine organisms. These hydrocarbons often enter the environment through oil spill incidents.

Where do I work?



Laboratory



Research Vessel

Who do I collaborate with?

- ▶ Other scientists internally and externally
- ▶ Environmental organisations
- ▶ Other Civil Service Departments

Required skills:

- ▶ Attention to detail
- ▶ Problem solving
- ▶ Collaboration
- ▶ Self- management

Relevant qualifications:

Chemistry science qualification (GCSE, A-Level, Degree, Masters, PhD)

Laboratory Technician Apprenticeships (Level 3-5)

What are my key responsibilities?

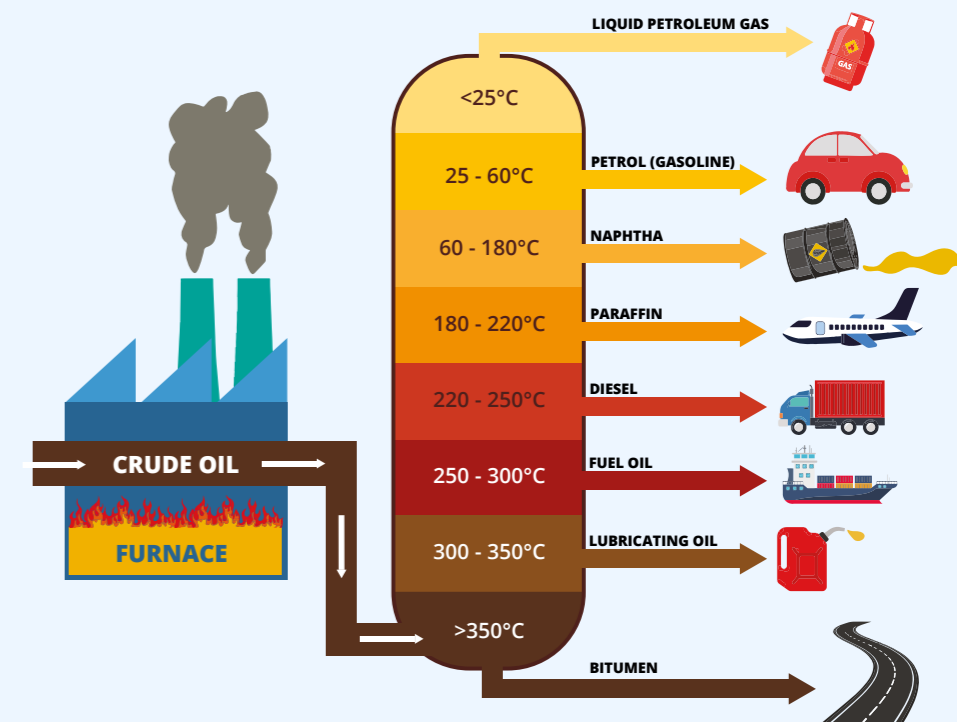
Analytical Chemists are crucial in understanding the biogeochemical processes in the ocean and addressing environmental challenges related to marine pollution and climate change. In my role at Cefas I'm responsible for:

- Carrying out routine chemical analysis to quantify trace metals, organic compounds, and pollutants in the marine environment across the UK
- Monitoring pollutants looking for long term trends and protective measures
- Sharing data and reports with policy makers to help inform decisions made to protect the marine environment

Oil in the Environment

About oil

Oil is hydrophobic, meaning it doesn't mix easily with water. Crude oil is extracted from the seabed and can be heated in a fractionating tower. By heating oil to different temperatures and then cooling it, its properties change. Oil taken from higher up the fractionating tower is less dense than oil at the bottom. As a result, it typically floats on water, while crude oil and fuel oil sink.



Oil in the environment

Oil can impact the environment in different ways. You've probably seen images of marine animals covered in oil from an oil spill and unable to survive. This can potentially result in mass mortalities and is one way that oil can impact marine life.

Crude oil and fuel oil is denser than water, so it can sink into the sediment. This can then be ingested by marine life and cause long term damage. This could include damage to internal organs from the toxicity of the compounds in the oil. Sometimes, this can inhibit an animal's ability to reproduce which could cause a decrease in population size. ([Reference](#))

You will need:

- ✓ Pen to draw your poster
- ✓ Coloured pens or pencils to colour your poster

Task

A) Can you look up and write a definition for these terms:

Hydrophobic Sediment Ingested Toxicity Compounds

B) Can you design a poster telling people about the impacts of oil in the marine environment?





Hi, I'm Nathan and I'm an Underwater Noise Scientist!

WATCH NATHAN'S CAREER VIDEO HERE:



As an **underwater noise scientist**, I study the impact of sound on marine environments and organisms.

My team carries out a range of projects and scientific work, from advising marine regulators and policymakers on how to reduce noise disturbance on marine life, to research projects monitoring noise in UK seas to better understand the risks of impact of different underwater noises.

Where do I work?



Home



University



Office

Who do I collaborate with?

- ▶ Other scientists internally and externally
- ▶ Government policy makers
- ▶ Marine regulators
- ▶ Industry

Relevant qualifications:

Science qualification such as Marine biology, ecology, bioacoustics or zoology. (GCSE, A-Level, Degree, Masters, PhD)

Required skills:

- ▶ Leadership
- ▶ Communication
- ▶ Presentation
- ▶ Organisation

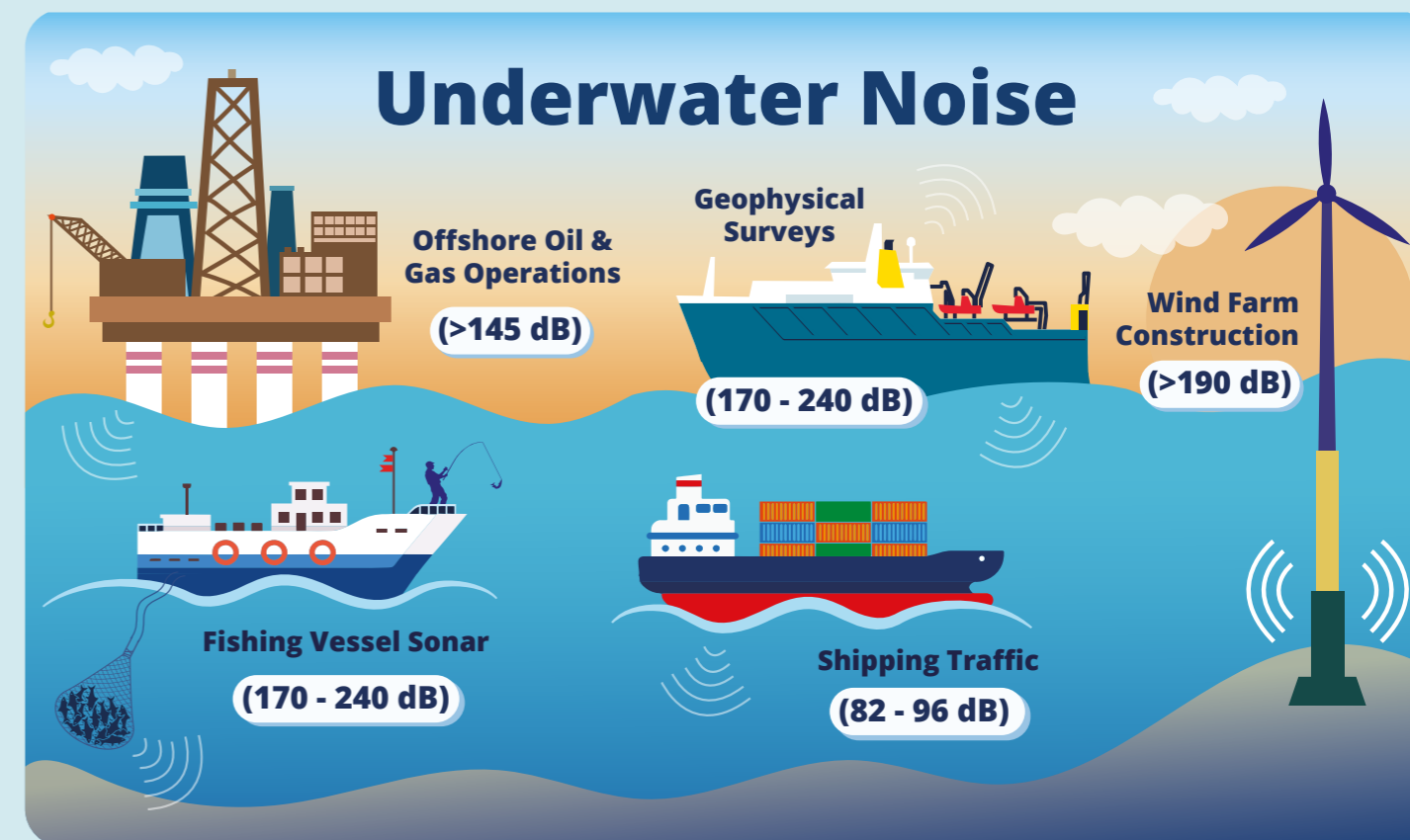
What are my key responsibilities?

Underwater noise scientists play a crucial role in understanding the impacts of underwater noise on different marine species and ecosystems. Some of my key responsibilities include:

- Monitoring sound using hydrophones and other acoustic devices
- Analysing acoustic data to identify patterns and trends in underwater noise
- Advising on strategies to mitigate the impact of noise pollution. Eg. Suggesting areas to be considered as Marine Protected Areas
- Providing data, reports and advice to inform government policy

Underwater Noise

You might imagine that the underwater world is serene and quiet, but in reality, there are lots of different users of the marine environment that all make noise. Just look at the image below to see some of the examples.



Many underwater animals use sound to communicate and learn about their surroundings. For example, whales and dolphins make noises that bounce off objects around them. They listen to these echoes to help them find their way, locate food, and find shelter. If other noises drown out these sounds, it can confuse them and sometimes cause them to get stranded on beaches. Very loud noises can also damage the hearing organs of some animals. ([Reference](#))

Task

In small groups look at the image above and discuss:

- A) Which of these activities do you think has the biggest impact?
- B) Do you think this problem will get better or worse over time?
- C) What do you think people could do to reduce their impact?

Extension: To learn more about Cefas' work on underwater noise, you can listen to our podcast episode [here](#).

You will need:

- ✓ Partner or small group
- ✓ Internet access to listen to the podcast





Hi, I'm Nicola and I'm a Fisheries Stock Assessor!

WATCH NICOLA'S CAREER VIDEO HERE:



My job as a **fisheries stock assessor** is to estimate the size of fish populations and provide scientific advice on how many fish can be caught sustainably.

I use data and mathematical models to better understand fish dynamics, including: the current size and health of fish populations; how fish populations may change under future fishing and climate; and fish movements and spatial distributions.

Where do I work?



Home



Office

Who do I collaborate with?

- ▶ Cefas colleagues
- ▶ Scientist from other national and international organisations
- ▶ Fisheries managers

Relevant qualifications:

Mathematical/statistic qualification (Degree, Masters, PhD)

Biological science qualification (GCSE, A-Level, Degree, Masters, PhD)

Required skills:

- ▶ Mathematics/statistics
- ▶ Computer programming
- ▶ Data analysis
- ▶ Problem Solving

What are my key responsibilities?

My work is crucial for sustainable fisheries management, helping to balance the needs of the fishing industry and the conservation of marine ecosystems. Here are some of my responsibilities:

- Collect data from commercial and recreational fisheries, as well as independent surveys, to assess fish populations
- Analyse data using mathematical models to estimate the size and health of fish stocks in and around the UK
- Forecast sustainable fishing levels to avoid depleting fish populations
- Report data to policymakers to support decision making around fish stocks

Working with Data

Imagine that you are a fisheries stock assessor and have been presented with the following data collected during surveys off the UK coast between 2012 and 2023*.

Table to show standardised abundance of fish species surveyed between 2012 and 2023

YEAR	EUROPEAN MACKEREL	SAND EEL	EUROPEAN PLAICE
2012	12	45	29
2013	14	50	32
2014	18	42	26
2015	23	44	24
2016	25	33	21
2017	28	20	18
2018	27	15	12
2019	29	14	13
2020	30	16	10
2021	32	12	9
2022	33	11	9
2023	34	14	7

Task

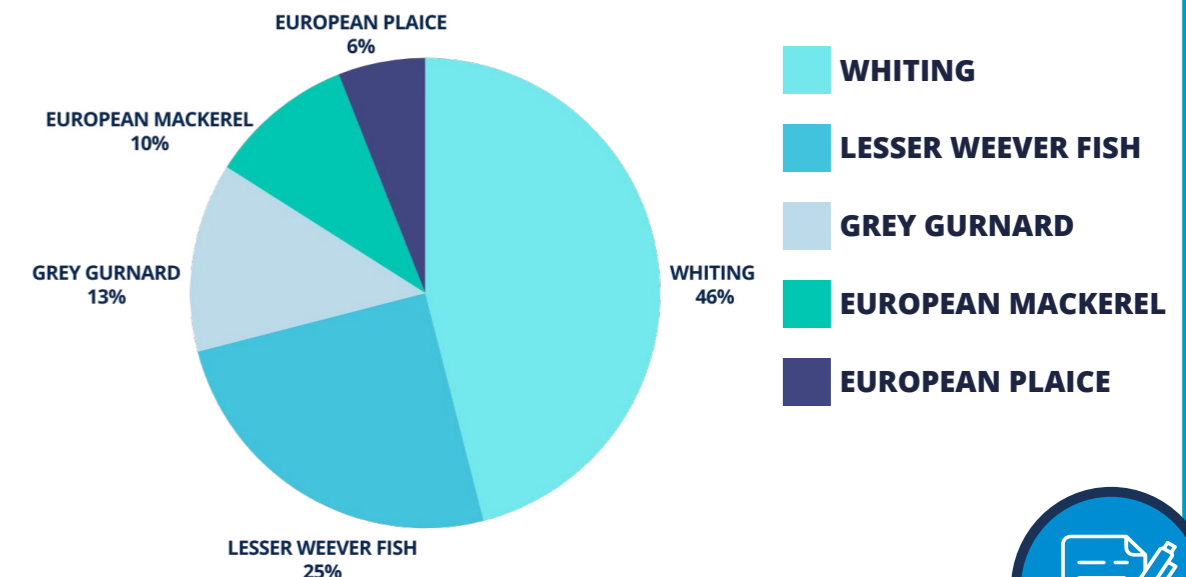
Can you plot this data on a graph and write a description of what the information is showing?

Extension: Using your graph and the data below, can you explain what you think could be happening in this ecosystem?

You will need:

- ✓ Graph paper and a ruler

Percentage of Fish with Sand Eel found in Stomach contents (2012-2023)



*the data in this activity is fictional for the purpose of the exercise only and not representative of true stock numbers.



Hi, I'm Kieran and I'm a Coastal Processes Scientist!

WATCH KEIRAN'S CAREER VIDEO HERE:



As a **coastal process scientist**, I specialise in studying and analysing the physical processes that shape and impact our coastline. This includes understanding phenomena such as erosion, sedimentation, tides, and wave dynamics. One way of doing this is to use drones to capture images that help us monitor how the coastline changes over time.

Where do I work?



Field



Office

Who do I collaborate with?

- ▶ Other scientists internally and externally
- ▶ Modellers
- ▶ Statisticians

Relevant qualifications:

Biological science qualification (GCSE, A-Level, Degree, Masters, PhD)

Environmental science qualification (GCSE, A-Level, Degree, Masters, PhD)

Laboratory Technician Apprenticeships (Level 3-5)

Required skills:

- ▶ Adaptability
- ▶ Problem solving
- ▶ Organisation
- ▶ Teamwork

What are my key responsibilities?

Understanding coastal processes is crucial for managing and protecting coastal environments, predicting changes, and mitigating risks associated with coastal erosion and flooding. Here are some of my key responsibilities:

- Collecting data on coastal processes like erosion, sediment transport, tides, and waves
- Using models and simulations to predict changes
- Researching the physics, chemistry, and biology of coastal environments
- Advising policymakers on coastal development, conservation, and flood management

Coastal Management

Imagine you are a coastal processes scientist and you have been asked to conduct monitoring on this piece of coastline:



Task

Monitoring has been requested in response to plans to develop a nuclear power station at the site of the red arrow.

After watching Kieran's video can you explain:

- a) How do you think you should monitor this area? What sort of information do you think you need to collect and why?
- b) If your monitoring shows signs of coastal erosion over time, what sort of management plans do you think might need to be put in place?
- c) Who else would be interested in this information and why?

Extension: In pairs can you discuss the advantages and disadvantages of using drones in fieldwork.

You will need:

- ✓ Partner or small group to discuss your answers





Hi, I'm Amna and I'm a Software Developer!

WATCH AMNA'S CAREER VIDEO HERE:



My role as a **software developer** at Cefas is to design, create and maintain software applications with developers related to marine science, environmental monitoring, and fisheries.

I also work to ensure data integrity and efficient data processing, implementing security measures to protect sensitive information.

Where do I work?



Home



Office

Relevant qualifications:

Computer Science qualification (A-Level, Degree, Masters, PhD)

Software Engineering qualification (A-Level, Degree, Masters, PhD)

Who do I collaborate with?

- ▶ Other scientists internally and externally
- ▶ Researchers internally and externally
- ▶ Stakeholders
- ▶ Policymakers

Required skills:

- ▶ Programming / Coding
- ▶ Critical thinking
- ▶ Problem-solving
- ▶ Adaptability

What are my key responsibilities?

Software developers are integral to various departments across the organisation, each working on different projects and systems to support Cefas science. My responsibilities at Cefas include:

- Developing software solutions that contribute to larger scientific projects within Cefas
- Creating coding, programs and apps that support Cefas science, environmental monitoring, and fisheries management
- Aiding data analysis, modelling and decision support systems through the development of relative programs or codes
- Ensuring Cefas software supports sustainable practices which contribute to food security and livelihoods

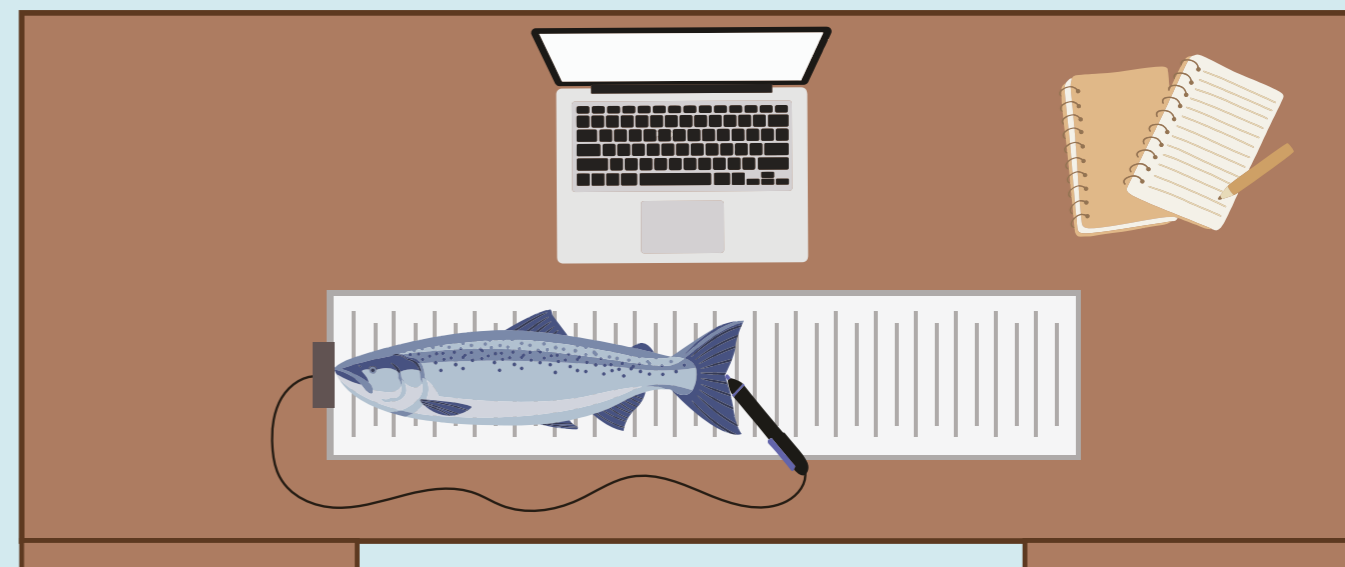
Develop an App

Software developers at Cefas have created bespoke software for data collection using an Electronic Data Collection (EDC) board, which can be seen in Amna's video. This board is used by scientists to measure the length of fish. Once the fish is placed on the board, the Bluetooth wand is used to measure the length. This data is then stored digitally for further analysis. There are several benefits to recording data in this way:

1. More data can be recorded more quickly
2. There is less chance of error
3. Data can be collected and accessed in real time

You will need:

- ✓ Internet access to research your ideas
- ✓ Pen and paper to brainstorm and plan your app



At Cefas, data is collected to help us understand and monitor marine and freshwater environments. For instance, by measuring fish length and weight and comparing this to age of the fish, scientists can find out how big fish are when they reach maturity. This information helps policymakers ensure that the animals have had time to reproduce before they are removed from the ocean by fishers. Apps like the one above help us collect data in the most efficient and accurate way.

Task

Can you plan an app that would help Cefas to collect data about the aquatic environment? (See appendix 1 for some ideas of things you might want to consider).

You could use one of the examples below or write your own.

- a) Location of fish when sampled
- b) Weight of fish
- c) Water temperature/ salinity/ depth

Extension: Can you write an algorithm or some code to make your idea work?





Hi, I'm Annie and I'm a Marine Engineer!

WATCH ANNIE'S CAREER VIDEO HERE:



Marine engineers play a crucial role in advancing our understanding of the ocean and developing technologies to protect and utilise marine resources sustainably.

I design, operate and maintain the marine equipment used on board our Research Vessel Cefas Endeavour and other tools utilised by Cefas scientists. Monitoring equipment is integral to Cefas' data collection and research objectives. The data our equipment collects is then analysed by scientists to inform our ever-expanding knowledge of the marine environment.

Where do I work?



Workshop



Research Vessel

Relevant qualifications:

Science qualification (GCSE, A-Level)

Engineering qualification (A-Level, T-Level, Degree, Masters, PhD)

Engineering qualification

Who do I collaborate with?

- ▶ Other scientists internally and externally
- ▶ Equipment manufactures
- ▶ Government
- ▶ Vessel operators

Required skills:

- ▶ Technical ability
- ▶ Problem solving
- ▶ Communication
- ▶ Organisation

What are my key responsibilities?

Without engineers, Cefas scientists would not have the tools needed to monitor the environment and provide the robust data needed to inform the Government policy. As a Cefas engineer, I am responsible for:

- Designing and developing equipment and sensors to monitor the marine environment
- Installation and maintenance of mechanical and electrical systems
- Ensuring Cefas equipment complies with safety standards and protocols
- Conducting routine inspections, troubleshoot issues, and perform repairs to keep marine equipment and systems operational

Developing Equipment

A healthy marine ecosystem can be measured by recording various environmental parameters. Temperature, salinity (salt content) and oxygen content are 3 such parameters. Seawater that is too high or too low in any of these measures may be less able to support marine life. These measurements also tell us how the marine environment is changing over time in response to threats like climate change, pollution and habitat loss.

Taking sediment samples is also an important monitoring technique for various reasons. For instance, benthic organisms (plants and animals living on the seabed) found in the sediment are a good indication of how healthy the aquatic environment is (learn more on page 3). The movement of sediment over time also provides key information about coastal processes (learn more on page 15).

You will need:

- ✓ Internet access to research vocabulary below
- ✓ Pen and paper to draw your equipment ideas

Task

Imagine that you are a marine engineer and you have been asked by your colleagues to create a piece of equipment that can measure the salinity, temperature and oxygen of sea water, whilst also taking a sediment sample. Draw a design of what this equipment might look like.

Factors to consider:

- ✓ **Weight**
How will it be deployed and recovered?
- ✓ **Navigation**
How will you prevent it from getting lost?
- ✓ **Durability**
How will you make it waterproof and resistant to corrosion from the salt in seawater?
- ✓ **Impact**
How will you minimise the disturbance to the marine environment?

Useful vocabulary

It might help you to look up these technical terms, so you have a good understanding of what they are and how they work, before you start your plan.

- winch
- pulley
- corrosive
- thermometer
- oxygen gauge
- sediment grabber





Hi, I'm Julia and I'm an Overseas Programme Manager!

WATCH JULIA'S CAREER VIDEO HERE:



As an **overseas programme manager**, I lead and manage delivery of complex and high-risk science delivery programmes within Cefas. I apply advanced project and programme management principles and techniques, working closely with a range of scientists and stakeholders both internally and internationally.

This role can require travel and needs a deep understanding of the cultural, political, and economic contexts of the countries where the projects are implemented.

Where do I work?



Home



Travel/
Overseas

Who do I collaborate with?

- ▶ Scientists across multiple disciplines
- ▶ International partners
- ▶ Stakeholders
- ▶ Customers

Required skills:

- ▶ Communication
- ▶ Leadership
- ▶ Organisation
- ▶ Financial

Relevant qualifications:

Business management qualification (GCSE, NVQ, A-Level, Degree, Masters, PhD)

Economics qualification (A-Level, Degree, Masters, PhD)

International relations qualification (A-Level, Degree, Masters, PhD)

What are my key responsibilities?

An Overseas Programme Manager is responsible for planning, executing, and overseeing projects that Cefas conducted in international locations. My primary duties within Cefas include:

- Coordinating projects to meet objectives on time and within budget
- Leading and managing diverse teams, locally and internationally
- Communicating effectively with stakeholders and partners across time zones.
- Ensuring compliance and mitigating risks in international projects

Planning Budget for a Trip

Imagine that you are a programme manager. You receive the below email inviting you to attend a conference and offer some lab training in a partner country.

1 new email

Subject: Middle East Trip

Good morning,

We are delighted to invite you to the annual Marine Litter Conference, which will be held at the Convention Centre, Dubai on the 4th April. This conference aims to bring together experts, researchers and stakeholders from around the world to address the pressing issue of marine litter and explore innovative solutions.

We are pleased to offer you the opportunity to present a talk and/or host a stand during the conference sessions. This is an excellent chance to showcase your work, share your expertise, and engage with a diverse audience.

Additionally, we would love for your organisation to offer training on marine litter monitoring to local organisations. This training will help them learn how to track and manage marine litter effectively.

We look forward to your positive response and hope to see you at the Marine Litter Conference.

Warm regards,

Omar Kahn



Task

Can you estimate a budget for this trip? Think about how much each element will cost and work out the total amount of funding you will need to request (see appendix 2 for some ideas of things you might want to consider).

Use Excel to create a spreadsheet to record your budget and keep a running total.

Extension: After submitting your budget application, you are told you need to reduce the overall cost by 20%.

- a) Work out how much money you need to save
- b) Discuss which expenses you will cut back on and what impact this might have on your project.

You will need:

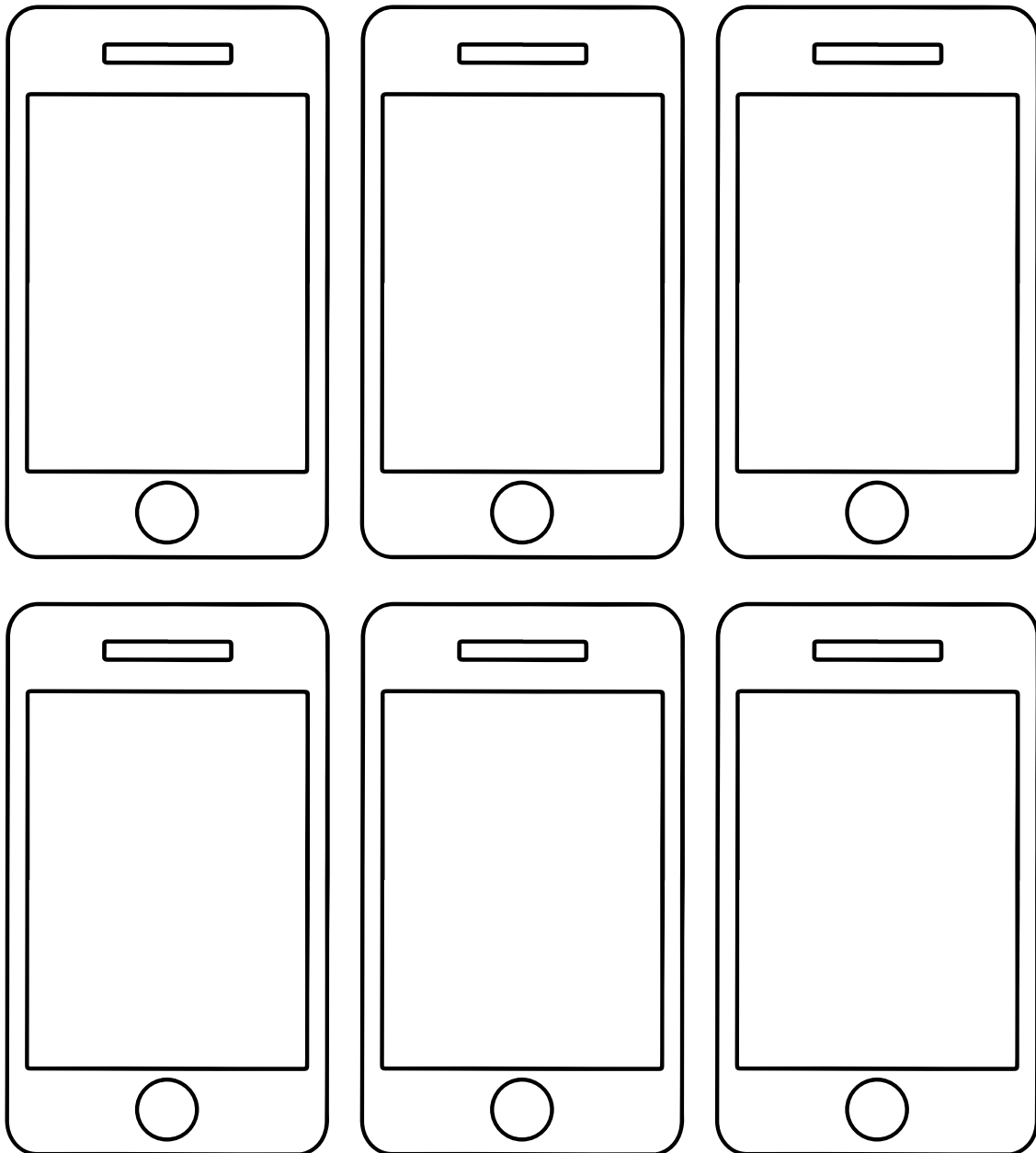
- ✓ Pen and Paper to plan
- ✓ Access to Excel
- ✓ A calculator



Appendix 1

When designing your app you might need to think about the following:

- What other necessary information is needed to make that data useful, (e.g. if you are designing an app that logs weight, you might also need to record species name, location, date etc.)
- How will the information be recorded, e.g. the app could request location tracking through the phone's GPS
- How user friendly is the app? You could use the wireframe below to plan this. You might like to look for examples on the internet to get you started



Appendix 2

Some things you might need to consider are listed below. The list is not exhaustive and you might feel that some items are not necessary. You may need to estimate some costs, but you should use the internet to research expenses where possible (e.g. flights, hotels):

1. Who will you take? See the table below to find out who is in your team. It is preferable to avoid lone working when overseas, so you might prefer to send more than one person for safety. As their salary is covered by the budget expenses, you need to include this in your budget plan.

2. Travel- how will you choose to travel? Will you fly business class or economy? Will you use taxis or hire cars?

3. Accommodation and food.

4. Resources (remember these will need to be shipped to the venue, which will also cost you money):

i. For the training (e.g. specific lab equipment, protective clothing, printed handouts with further information)

ii. For the conference (e.g. poster board, banner, branded tablecloth, branded merchandise)

5. Will you attend the whole of the event or just part? You have been invited to:

i. Present a talk

ii. Host a stand

iii. Provide training

People in your team:

Job Role	Responsibilities/Experience	Cost (per day)
Senior Marine Litter Scientist	I lead research on marine litter, develop monitoring methods, and collaborate with global partners. I often present my work at big ocean conferences around the globe.	£1000
Principal Microplastics Scientist	I lead experiments, look at data, and share findings. I work with partners around the world, mentor junior scientists and provide expertise to support environmental policies and raise public awareness.	£650
Analytical Chemist	I look for and measures pollutants in the ocean. I use specialist techniques to monitor the impact of pollution on marine life and share my findings in reports and journal articles.	£480
Marine Litter Scientist	I support the senior marine litter scientist by analysing samples we receive in the lab and processing the data. I love public engagement work and have recently spent time creating a new game for young children about marine litter.	£480
Assistant microplastic scientist (apprentice)	As an apprentice, I assist the marine litter scientists with lab tests, analysing samples and recording data. I am also learning to use scientific tools and methods to understand and solve pollution problems.	£300

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