



# COCAINE FOUND IN BRAZILIAN SHARKS



Scan to review worksheet

Expemo code:  
1EQT-D1L7-45D

1

## Warm up

Look at the pictures and discuss the following questions.



Picture A



Picture B



Picture C



Picture D

1. How do you think drugs like cocaine end up in the ocean?
2. Why is plastic waste dangerous for marine animals?
3. How can marine research help to protect aquatic life and human health?



## 2 Vocabulary

Add vowels to create words that match the definitions.

### Group 1

1. tw \_ st (n) - an unexpected development in a situation
2. gr \_ \_ ndbr \_ \_ k \_ ng (adj.) - new and innovative
3. c \_ nd \_ ct \_ d (v) - carried out an activity or task
4. d \_ ss \_ ct \_ ng (v) - cutting apart to study internal parts
5. v \_ ss \_ ls (n) - large boats or ships
6. m \_ t \_ b \_ l \_ t \_ (n) - a substance produced during metabolism

### Group 2

1. sm \_ ggl \_ ng (n) - the illegal movement of goods in or out of a country
2. d \_ mp \_ d (v) - disposed of waste or unwanted items carelessly
3. s \_ \_ z \_ d (v) - taken possession of something
4. \_ st \_ n \_ sh \_ ng (adj.) - very surprising or hard to believe
5. st \_ rk r \_ m \_ nd \_ r (n phrase) - a clear and severe indication of something important
6. cr \_ c \_ \_ l (adj.) - extremely important or necessary

## 3 Listening for gist



You are going to listen to a report about sharks in Brazil. What is the main idea? Listen to the audio first and choose the correct option.

1.  A research team looked at the effect of drugs on sharks' livers.
2.  Sharks in Brazil have been made to eat cocaine as part of an experiment.
3.  Scientists made a surprising discovery about marine life in South America.



## 4 Watching for comprehension

Watch or listen to the report again and complete the following sentences with one or two words.

1. Brazilian \_\_\_\_\_ sharks were found to contain cocaine.
2. All \_\_\_\_\_ of the sharks tested positive for cocaine.
3. Scientists were able to detect drugs by using \_\_\_\_\_.
4. Drugs were found more often in the \_\_\_\_\_ of the sharks than in their livers.
5. The US Coast Guard \_\_\_\_\_ huge quantities of drugs last year.
6. The discovery raises \_\_\_\_\_ about the consequences of human activities.

## 5 Reading: forever chemicals

You are going to read a short text about PFAS. Scan the text and choose the correct preposition for each gap.

### The dangers of forever chemicals

PFAS are often called 'forever plastics' because they don't break down **in / out / with**<sup>1</sup> the environment. They can end **in / on / up**<sup>2</sup> floating in oceans and rivers, where they are harmful to marine life. Aquatic animals, such as fish and dolphins, can take in PFAS **by / from / with**<sup>3</sup> water, food, or sediment.

When marine animals absorb PFAS, these chemicals can affect their health. PFAS can interfere **at / to / with**<sup>4</sup> their growth, reproduction, and immune systems. For example, fish exposed to PFAS might have problems reproducing or getting sick more often. This can also affect animals higher **by / out / up**<sup>5</sup> the food chain, including humans, who eat seafood.

Addressing the problem of PFAS is important **for / in / with**<sup>6</sup> protecting marine life and the health of our oceans.

*sources: epa.gov, chemtrust.org*

## 6 Talking point

Discuss the following questions.

1. What effect do you think chemicals can have on aquatic animals?
2. Who should be held responsible for plastic pollution?
3. Should there be more rules to protect sharks and other aquatic species?



## 7

**Scanning for vocabulary**

Skim-read the article on page five about how drugs are affecting marine life and find the following words that match the definitions below.

**Group 1**

1. \_\_\_\_\_ (adj., para. 1): related to activities done for enjoyment or pleasure
2. \_\_\_\_\_ (n, para. 1): medication used to relieve symptoms of depression
3. \_\_\_\_\_ (n, para. 1): a hormone involved in the development of female reproductive features
4. \_\_\_\_\_ (v, para. 1): cause to develop or behave in a way considered typical of women
5. \_\_\_\_\_ (n, para. 2): substances made from two or more chemical elements
6. \_\_\_\_\_ (n, para. 2): substances that pollute or make something impure

**Group 2**

1. \_\_\_\_\_ (n, para. 2): chemicals used to kill or control pests
2. \_\_\_\_\_ (n, para. 3): drugs or substances used to treat or prevent diseases
3. \_\_\_\_\_ (n, para. 3): wastewater and excrement in sewers or drains
4. \_\_\_\_\_ (n, para. 3): the release of substances into the environment
5. \_\_\_\_\_ (n, para. 4): distinct parts of an economy, industry, or field of activity
6. \_\_\_\_\_ (v, para. 4): act in accordance with rules, regulations, or requests



# High levels of drugs found in sea off English coast

## Study says marine life being harmed by drugs in wastewater

1. A study looking at water pollution on the south coast of England has revealed high levels of harmful chemicals, including recreational drugs and antidepressants. Scientists involved in the research say marine life is in serious danger, pointing to evidence that oestrogen in water can even feminise male fish. Bianca Carr, the co-founder of the Clean Harbour Partnership (CHP) that organised the work, said: "We are looking at what's in human waste. We know the chemicals that are in it, the next step will be to look across the UK at what cocaine and other human drugs are doing to our water, to our food chain."
2. In more than 288 samples, researchers have so far found more than 50 chemical compounds across some of the 22 sites. Prof Alex Ford, from the University of Portsmouth's School of Biological Sciences, said: "This project is enabling us to see what chemical contaminants are in our marine life and coastal waters. We have found a large variety of illegal drugs, plus a variety of pesticides in marine organisms, such as crabs. This is important, because we know that aquatic ecosystems are under threat from drugs and farming practices."
3. Ford has previously published research showing that even tiny quantities of antidepressants in water can affect wildlife. Drugs will affect the behaviour and biology of these creatures, including causing them to change colour or reproduce in a different way. Ford said: "The release of human pharmaceuticals into aquatic ecosystems is an environmental problem we should consider seriously." The professor called for a full public inquiry into the actions of water companies as sewage discharges into rivers and coastal waters more than doubled to record levels in England last year, new figures show.
4. Campaigners have also been highlighting the amount of waste entering Britain's seas in recent months. However, Southern Water said removing chemical substances from wastewater was not asked for by the Environment Agency. The director of wastewater operations, John Penicud, said: "Removing 'forever chemicals' is a global challenge that requires close collaboration of industry, agriculture, and other sectors, including water companies and regulators. Our processes already comply with strict Environment Agency rules."

sources: [theguardian.com](http://theguardian.com), [independent.co.uk](http://independent.co.uk)

## 8 Reading for comprehension

Read the article on page five in more detail and decide if the following statements are true (T) or false (F).

1. Some types of marine life have high levels of drug use. \_\_\_\_\_
2. Bianca Carr hopes to look at the effects of the drugs. \_\_\_\_\_
3. All of the samples taken contained chemicals. \_\_\_\_\_
4. Drugs can alter how different species look. \_\_\_\_\_
5. Professor Ford believes there does not need to be any further investigations. \_\_\_\_\_
6. Southern Water has not done its job to remove chemicals. \_\_\_\_\_



## 9

**Optional extension / homework**

Write an essay agreeing or disagreeing with one of these statements.

1. "The discovery of high levels of cocaine in sharks will affect environmental policies."
2. "Recycling programs need to be improved to reduce the amount of waste entering the ocean."
3. "Stricter rules should be introduced to stop drugs from contaminating marine environments."

**You should:**

- write at least 250 words,
- check your grammar, spelling, and punctuation.



# Transcripts

## 3. Listening for gist

**Speaker:** Sharks with a shocking twist! Off the coast of Brazil, scientists have discovered something astonishing: cocaine in sharks. Yes, you heard that right. These Brazilian sharpnose sharks tested positive for cocaine, marking a groundbreaking discovery in marine science. Researchers from the Oswaldo Cruz Foundation in Brazil conducted a study to investigate the impact of drug pollution on marine life. Their findings - all 13 wild Brazilian sharpnose sharks tested positive for cocaine, with concentrations up to 100 times higher than ever reported in other aquatic creatures. The study involved dissecting sharks bought from local fishing vessels. Muscle and liver tissues were tested using advanced techniques to detect cocaine and its main metabolite, benzoylecgonine. Shockingly, the presence of cocaine was more prevalent in muscle tissue than in the sharks' livers. This marks the first-ever study to find cocaine in free-range sharks. But how did this happen? Scientists believe the drug entered the ocean through smuggling operations. With large quantities of cocaine being dumped into the water around Florida, South, and Central America, marine life is becoming an unintended victim. In fact, just last year, the US Coast Guard seized over 14,100 pounds of cocaine in the Caribbean Sea and Atlantic Ocean, valued at an astonishing \$186 million. While the long-term effects of cocaine on sharks and other marine life are still unknown, this discovery raises serious concerns about the health of our oceans. It's a stark reminder of the unintended consequences of human activities on our planet. As we learn more about the impact of pollutants on marine ecosystems, it's crucial to take action to protect our oceans and their inhabitants.



# Key

## 1. Warm up

5 mins.

Guide students as they discuss the following questions, correcting any mistakes.

## 2. Vocabulary

5 mins.

Inform students that they should first try to complete the exercise independently, checking the pronunciation of any challenging words. Additionally, encourage them to provide examples of how to use the vocabulary.

Group 1

- |              |                   |
|--------------|-------------------|
| 1. twist     | 2. groundbreaking |
| 3. conducted | 4. dissecting     |
| 5. vessels   | 6. metabolite     |

Group 2

- |                   |                |
|-------------------|----------------|
| 1. smuggling      | 2. dumped      |
| 3. seized         | 4. astonishing |
| 5. stark reminder | 6. crucial     |

## 3. Listening for gist

5 mins.

Students should just listen for the general idea of the video. Discuss why the other options are wrong as a class.

3.  Scientists made a surprising discovery about marine life in South America.

## 4. Watching for comprehension

5 mins.

Students should focus on the words surrounding the gap to determine what type of word is needed.

- |                        |                     |
|------------------------|---------------------|
| 1. sharpnose           | 2. 13               |
| 3. advanced techniques | 4. muscle tissue    |
| 5. seized              | 6. serious concerns |

## 5. Reading: forever chemicals

5 mins.

Students should use the context of each sentence to help deduce which preposition is needed.

1. in
2. up
3. from
4. with
5. up



6. for

Article sources:

<https://www.epa.gov/pfas/pfas-explained>

<https://chemtrust.org/pfas/>

## 6. Talking point

5 mins.

Monitor the students' conversations and encourage them to expand on their ideas.

## 7. Scanning for vocabulary

5 - 10 mins.

Make sure that students understand that they should not read the article in detail, but should scan it, looking for the words that match the definitions.

Group 1

- |                 |                    |
|-----------------|--------------------|
| 1. recreational | 2. antidepressants |
| 3. oestrogen    | 4. feminise        |
| 5. compounds    | 6. contaminants    |

Group 2

- |               |                    |
|---------------|--------------------|
| 1. pesticides | 2. pharmaceuticals |
| 3. sewage     | 4. discharges      |
| 5. sectors    | 6. comply          |

Article sources:

<https://www.theguardian.com/environment/2023/jun/09/high-levels-drugs-water-pollution-study-england-south-coast>

<https://www.independent.co.uk/news/uk/home-news/cocaine-sea-fish-marine-life-b2519505.html>

## 8. Reading for comprehension

5 - 10 mins.

Students read the article on page five in more detail and decide if the statements are true (T) or false (F).

1. F - "A study looking at water pollution...has revealed high levels of...drugs."
2. T - "...the next step will be to look across the UK at what cocaine and other human drugs are doing to our water..."
3. F - "In more than 288 samples, researchers have so far found more than 50 chemical compounds across some of the 22 sites."
4. T - "Drugs will affect the behaviour and biology of these creatures, including causing them to change colour..."
5. F - "The professor called for a full public inquiry..."
6. F - "...removing chemical substances from wastewater was not asked for by the Environment Agency."

## 9. Optional extension / homework

15 - 20 mins.+

Encourage students to use the vocabulary they have learnt in today's lesson. Brainstorm some ideas in the class if there is time.