CAREER PATHS

FISHING & Seafood Industry

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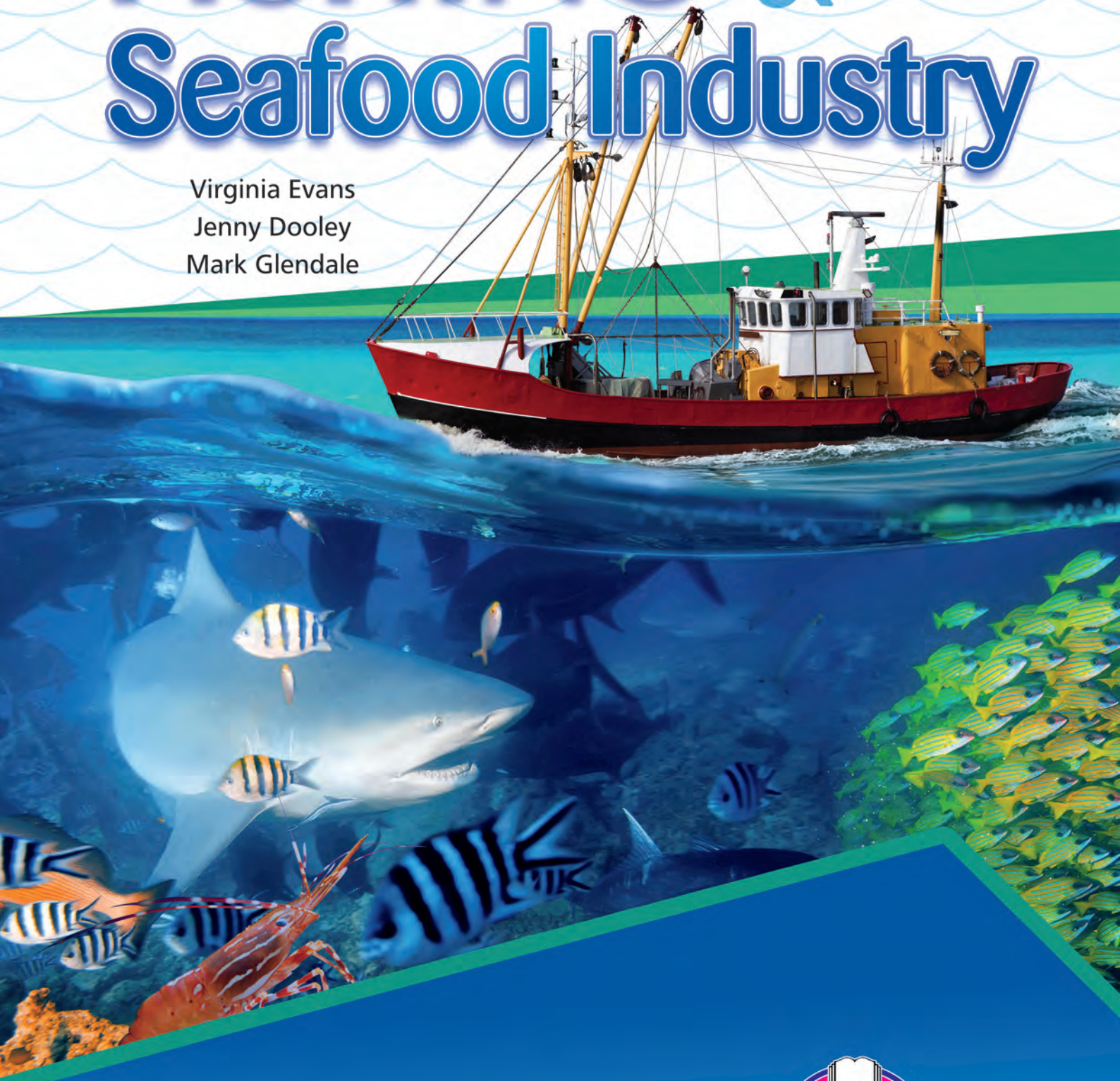

Express Publishing

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1 Navigation

Introduction to Navigation

This course introduces students to the basics of nautical navigation. We will begin with the history of navigational techniques. The beginning of the course will cover early types of **celestial navigation** all the way to modern **electronic navigation.**

We will also focus on the terminology for understanding a nautical **chart**. We will cover core concepts like **latitude** and **longitude**. These concepts will help us understand basic locational techniques. Then we will study terms for calculating speed, distance, and location. These include **degrees, minutes,** and **seconds**. Terms like these have different meanings at sea than they do in other contexts.

By the end of this course, you will be able to **plot** a ship's **bearing, range,** or **position.** You'll learn to calculate the exact **fix** of a ship using tools such as **radar, radio beacons**, and **GPS**. Following that, you'll practice drawing accurate **LOPs**. You will be able to measure how many **nautical miles** a ship is from shore. Finally, you'll learn to estimate quickly how many **knots** it is traveling.

The final exam for this course tests your ability to read charts. You will also have to plot a fix using celestial navigation skills as well as electronic ones.

Get ready!

1 Before you read the passage, talk about these questions.

1 What is the difference between celestial and electronic navigation?

2 What are some technologies used in navigation?

Reading

2 Read the course description. Then, choose the correct answers.

1 What is the main purpose of the course?

A to teach experienced sailors about new electronic techniques
B to train students to draw their own nautical charts
C to introduce beginners to various navigation techniques
D to teach students to plot and follow a course at sea

2 Which of the following is NOT covered in the course?

A navigation techniques using the stars
B navigation techniques that rely on technology
C terminology for understanding nautical charts
D repairing navigation tools like radar and GPS

3 What does the course's final exam cover?

A calculating knots per hour
B charting terminology
C practical navigation skills
D navigational history

Vocabulary

3 Fill in the blanks with the correct words: *GPS, LOP, fix, range, minutes, seconds, chart, plot, knot*.

1 Nautical degrees are divided into 60 units called _____.

2 Sixty _____ make up a single unit of a nautical degree.

3 A(n) _____ indicates how many nautical miles you are traveling each hour.

4 You can _____ a course using technological or more traditional methods.

5 Many ships now use _____ technology to verify their exact location.

6 The captain drew a(n) _____ between the ship and the island to help determine our position.

7 You can determine a ship's _____, or its exact location, using several techniques.

8 The _____ between our ship and that lighthouse decreases as we approach it.

9 A good _____ includes a variety of information, including lines of longitude and latitude.

4 Read the sentence pairs. Choose which word or phrase best fits each blank.

1 **celestial navigation / electronic navigation**

A _____ depends on the use of modern technology.

B People have used _____ since very early in human history.

2 **latitude / longitude**

A The horizontal lines on the map indicate _____.

B The vertical lines on the map indicate _____.

3 **radio beacons / radar**

A Many ships use _____, sending out radio waves to determine their speed.

B _____ broadcast from a stationary location.

4 **position / degrees**

A The location of the shore will help us determine our exact _____.

B We are at 10 _____ latitude, about 600 nautical miles from the equator.

5 **nautical miles / bearing**

A We need to know how far we've traveled in _____.

B We need to calculate our _____ in relation to the approaching ship.

5 Listen and read the course description again. What are some terms that have special meanings when used in navigation?

Listening

6 Listen to a conversation between a student and an instructor. Mark the following statements as true (T) or false (F).

1 __ The man needs help with an exam problem.

2 __ The man mixes up latitude and longitude.

3 __ The woman explains how to use GPS for navigation.

7 Listen again and complete the conversation.

Student: I'm having **1** _____ _____ reading this chart.

Instructor: What **2** _____ _____ _____ the problem?

Student: I think I understand latitude and longitude, but I'm not **3** _____ _____ degrees.

Instructor: Degrees indicate **4** _____ from the equator or from the prime meridian.

Student: And then minutes and seconds describe **5** _____ _____ it takes to go from one degree to the next?

Instructor: No, that's not quite right. "Minutes" and "seconds" mean something different in nautical terms. They aren't the same as ordinary minutes and seconds.

Student: What do you mean?

Instructor: A nautical minute measures distance. Sixty minutes **6** _____ _____ one degree.

Speaking

8 With a partner, act out the roles below based on Task 7. Then, switch roles.

USE LANGUAGE SUCH AS:

I'm having trouble ...

What seems to be ... ? / No, that's not ...

Student A: You are a student. Talk to Student B about:

- a problem you are having
- a difficult navigational term
- clarifying his or her statements

Student B: You are an instructor. Talk to Student A about his or her difficulty with a concept.

Writing

9 Use the course description and the conversation from Task 8 to write a course evaluation. Include: a description of the subjects covered in the course and which subjects you found most or least interesting or challenging.