

Reading Explorer 5 Unit 6 Lesson A

DIRECTIONS: Choose the best answer for each question.

Quicksilver

Prized for sushi, the fast and powerful Atlantic bluefin tuna is being relentlessly overfished. Kenneth Brower goes in search of the story behind the king of all fish.

[A] One moment the undersea scenery is an empty blue cathedral, the sun an undulating¹ hot spot in the waves overhead. Its beams shine down as if from stained glass.² The next moment the ocean is full of giant, bomb-shaped bluefin tuna, the largest measuring over four meters and weighing three-quarters of a ton. In the sea's refracted³ sunlight, their pale sides flash and sparkle like polished shields, and their long, curved fins cut the water like swords. Quick-moving tail fins drive them forward at 10 knots,⁴ with bursts of speed to 25. And just as suddenly, they are gone - the ocean empty again. Here and there, a small galaxy of scales marks where a bluefin swallowed a herring. The victim's scales swirl in the turbulence of the departed tuna, now heading off at high speed.

The King of Fish

[B] Tunas are streamlined⁵ to perfection and equipped with cutting-edge biological gear. The characteristics that distinguish them include great size, great range, efficient swimming, warm bodies, large gills, excellent regulation of heat, rapid oxygen uptake, and a cleverly adapted heart. All of these reach their zenith in the bluefin - "the king of all fish," as Ernest Hemingway described them after seeing Atlantic bluefin off the coast of Spain.

[C] The three species of bluefin - the Atlantic, Pacific, and southern - are found in all the oceans except around the North and South Poles. The bluefin is a modern fish, yet its relationship with humanity is ancient. Japanese fishermen and the Haida people of the Pacific Northwest have caught Pacific bluefin for more than 5,000 years. Stone Age artists painted Atlantic bluefin tuna on the walls of Sicilian caves. Iron Age⁶ fishermen watched for the arrival of bluefin schools at their Mediterranean spawning⁷ grounds, and ancient coins from that region have images of giant bluefin on them.

[D] But this relationship with humans has lately been detrimental to the bluefin. They are today among the most overfished species on Earth, largely because people are prepared to pay a high price for them. One medium-size bluefin in Tokyo brings in between \$10,000 and \$20,000, depending on quality. In 2019 a 288-kilogram bluefin sold for over \$3 million at the Tokyo fish market. It is a startling measure of what the bluefin tuna is up against if more than a handful are to see the 22nd century.

Tagging a Giant

[E] The day dawned over Cape Breton, Nova Scotia, as Captain Dennis Cameron and his crew left port in his fishing boat. Along the back wall of the boat's cabin, fishing rods were racked and ready. In the open ocean ahead, fishermen catch the biggest bluefin tuna in the world.

[F] Cameron knows the history of the local fishing industry well. "We didn't fish tuna," he says of his father's generation. "Tuna fishing was more of a sport. Years ago they used to call it 'horse mackerel.' It was cat food back then, or fertilizer."

[G] To the right, we passed the big island of Cape Breton; to the left, a small island with a scattering of white houses, including the one in which Cameron grew up. The waterfront - crowded with fishing boats in the 1920s - is now deserted. So it goes in fishing communities worldwide. The ocean is dying, and overfishing is the primary cause.

[H] That day, however, we were on a different kind of fishing trip: We had come to tag and measure bluefin, not to kill them. While Cameron steered toward deep water, Steve Wilson, a Stanford University researcher who works with the Tuna Research and Conservation Center (TRCC), checked the satellite tags he hoped to attach to bluefin that day.

[I] Nine kilometers offshore, drifting with three fishing lines in the water, we had a strike. Sheldon Gillis - Captain Cameron's assistant - fought the fish. It took twenty minutes until the fish made its first appearance, with Gillis reeling in furiously each time the tuna gave him the chance. After another 20 minutes came the loud, slapping bang of tail fin against the boat. The tuna was hauled aboard through a specially designed "tuna door," then laid on its side on a padded mat, perfectly still and enormous. Out of water, it looked like some kind of wonderful machine, biologically inspired and poured of living metal.

[J] Wilson and his tagging team worked quickly and efficiently. A wet black cloth went over the eyes, and a green hose went in the mouth, pumping seawater past the gills. The fish measured three meters long - a length that corresponds to a weight of around 550 kilograms. In nearly 20 years of work, it was the third biggest bluefin ever tagged by the team.

[K] Wilson then stuck a harmless dart into the fish to hold a satellite tag, and his assistant cut a thin piece of a fin for DNA analysis. Then the two men at the tail lifted their end of the mat, and the tuna plunged back into the water. Two flicks of its tail fin and it was gone. On his laptop the night before, Wilson had programmed the satellite tag to release in nine months, after which the tag will rise to the ocean's surface and send information about the tuna's movements to TRCC's home base in California.

Bluefin Migration

[L] Stanford University professor Barbara Block, a preeminent⁸ scholar of the bluefin, runs TRCC out of Hopkins Marine Station in collaboration with the Monterey Bay Aquarium next door. The walls and cabinets of Block's lab are covered with charts, maps, and illustrations from scientific journals. One poster shows a graph of the spawning population of Gulf of Mexico bluefin above a similar graph for Mediterranean bluefin. Both populations are represented by lines that are diving toward the bottom of their graphs. They have plunged past the dotted line representing sustainable yield and are headed for zero.

[M] The locations of bluefin, as reported by the many satellite tags over the years, are represented by small circles in different colors. The western bluefin - represented as reddish-orange circles - pack the Gulf of Mexico, their spawning grounds. From there they spread eastward into the western Atlantic, reaching all the way to Portugal and Spain. The eastern bluefin - represented as white circles - fill their Mediterranean spawning grounds, and from there spread westward, crossing over to the western Atlantic, covering the coastal waters of the United States and Canada.

[N] The fact of this mixing has been firmly established by Block, other taggers, and DNA researchers. The best estimates today are that around half of the bluefin caught off the eastern shores of North America were spawned in the Mediterranean. However, until recently these tuna - if caught in the west - have been mistakenly counted as fish of western origin. The discovery of the mingling of the two populations is making more accurate fisheries management possible.

Uncertain Future

[O] But an alarming lesson lies hidden at Hopkins Marine Station. Established by Stanford University in 1892, it was the first marine lab on the west coast of the United States. Its old buildings, like the abandoned canneries immediately to the east, were built during the age of sardines, which ended 60 years ago due to overfishing. By the 1980s, sardine populations had started to come back a little, but now they are falling again.

[P] In a building near Hopkins are three large, waist-deep tanks, where a number of Pacific bluefin tuna are swimming. Block and her colleagues practice their tagging techniques here on fish like these. To maintain healthy populations, the bluefin tuna will need wise management assisted by good science. Here in Monterey, the consequences of the opposite are clear. Directly below the tanks of bluefin are the ruins of cannery piers that reach out into the bay for sardines that are no longer there.

¹ Something that **undulates** moves up and down or back and forth in a smooth, gentle motion.

² **Stained glass** is colored glass used to create designs and pictures in windows.

³ When a beam of light is **refracted**, it changes direction (e.g., when it enters the water).

⁴ A **knot** is a unit of speed measurement for boats equivalent to 1.85 kilometers per hour.

⁵ A **streamlined** animal has a shape that allows it to move smoothly through air or water.

⁶ The **Iron Age** in Europe took place from around BC 1200 to BC 1.

⁷ When fish **spawn**, they lay their eggs.

⁸ Someone who is **preeminent** in a group is the most important, capable, or distinguished person in that group.

⁹ A **cannery** is a factory where food is canned.

- _____ 1. Which would be the best alternative title for this passage?
- a. A Disappearing Giant
 - b. Methods of Tagging Fish
 - c. The One That Got Away
 - d. Bluefins and Sharks
- _____ 2. Which of these is NOT a bluefin characteristic?
- a. a heat-exchange system
 - b. extremely large gills for oxygen uptake
 - c. fins that act as shields
 - d. a tail that moves side to side
- _____ 3. In paragraph A, what does the word *spot* mean?
- a. a lump or mark on a person's skin
 - b. a particular place
 - c. a small, round area
 - d. a small amount of something
- _____ 4. Where in paragraph D would the following sentence be best placed?

Given the popularity of raw bluefin tuna for sushi, overfishing is likely to continue.

- a. before the first sentence
- b. after the first sentence
- c. before the last sentence
- d. after the last sentence

- _____ 5. In paragraph E, what does the word *open* mean?
- large unblocked area
 - not hidden or secret
 - willing to accept new ideas
 - ready for business
- _____ 6. Cameron says: *Tuna fishing was more of a sport. Years ago they used to call it 'horse mackerel.' It was cat food back then, or fertilizer.* What does he mean?
- Bluefin was more expensive than canned cat food.
 - Tuna was not valued in the past as food for humans.
 - Years ago, the fish smelled like fertilizer.
 - Sportsmen competed to see who could catch the biggest mackerel.
- _____ 7. In paragraph I, what does the word *strike* mean?
- a protest for better pay or conditions
 - a successful catch
 - a thought that suddenly comes to mind
 - a sudden and violent attack
- _____ 8. In paragraph I, what does *it looked like some kind of wonderful machine* refer to?
- a specially designed door
 - Gillis's fishing rod
 - a metal machine
 - the tuna on deck
- _____ 9. What is the final step in gathering information from a satellite via tagging?
- Dart the tuna to attach the satellite tag.
 - Catch the fish and keep water flowing into the gills.
 - Take a DNA sample before releasing the fish.
 - Transmit movement information to the satellite.
- _____ 10. In paragraph M, what does *spawning grounds* mean?
- the home territory of migrant fish
 - where the fish reproduce
 - a place where fish go to die
 - land near the Mediterranean

DIRECTIONS: Complete the sentences using the words in the box.

alarming mingle	collaboration scholar	deserted shields	detrimental startled	hailed turbulence
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11. At the medieval museum, we saw the metal swords and _____ that knights used in battle.
12. During the flight, the captain announced that we would need to stay in our seats due to air _____.
13. The bluefin tuna population is decreasing at a(n) _____ rate. If left unchecked, they risk becoming an endangered species.
14. Consuming alcohol during pregnancy can be very _____ to the developing baby's health.
15. He was _____ when he heard the statistics about the company's financial position.
16. The run-down farmhouse seemed to be _____ until we heard a dog bark and a door open.
17. The fishermen _____ their large catch into the boat with great effort.
18. He is a distinguished _____, as well as an author of several popular science books.
19. The film about lion behavior is the result of a(n) _____ between wildlife biologists and photographers.
20. The *Casual Business* event is an opportunity for small business owners to _____ and network in an informal setting.

Reading Explorer 5 Unit 6 Lesson A

Answer Section

1. ANS: A PTS: 1 REF: Pages 119-123
OBJ: Gist TOP: Survival and Protection
2. ANS: C PTS: 1 REF: Pages 119-123
OBJ: Negative Detail TOP: Survival and Protection
3. ANS: C PTS: 1 REF: Page 126
OBJ: Understanding Words with Multiple Meanings TOP: Survival and Protection
4. ANS: C PTS: 1 REF: Pages 119-123
OBJ: Cohesion TOP: Survival and Protection
5. ANS: A PTS: 1 REF: Page 126
OBJ: Understanding Words with Multiple Meanings TOP: Survival and Protection
6. ANS: B PTS: 1 REF: Pages 119-123
OBJ: Paraphrase TOP: Survival and Protection
7. ANS: B PTS: 1 REF: Page 126
OBJ: Understanding Words with Multiple Meanings TOP: Survival and Protection
8. ANS: D PTS: 1 REF: Pages 119-123
OBJ: Reference TOP: Survival and Protection
9. ANS: D PTS: 1 REF: Pages 119-123
OBJ: Sequence TOP: Survival and Protection
10. ANS: B PTS: 1 REF: Pages 119-123
OBJ: Vocabulary in Context TOP: Survival and Protection
11. ANS: shields

PTS: 1 REF: Page 127 OBJ: Vocabulary TOP: Survival and Protection
12. ANS: turbulence

PTS: 1 REF: Page 127 OBJ: Vocabulary TOP: Survival and Protection
13. ANS: alarming

PTS: 1 REF: Page 127 OBJ: Vocabulary TOP: Survival and Protection
14. ANS: detrimental

PTS: 1 REF: Page 127 OBJ: Vocabulary TOP: Survival and Protection
15. ANS: startled

PTS: 1 REF: Page 127 OBJ: Vocabulary TOP: Survival and Protection
16. ANS: deserted

PTS: 1 REF: Page 127 OBJ: Vocabulary TOP: Survival and Protection
17. ANS: hauled

PTS: 1 REF: Page 127 OBJ: Vocabulary TOP: Survival and Protection
18. ANS: scholar

PTS: 1 REF: Page 127 OBJ: Vocabulary TOP: Survival and Protection

19. ANS: collaboration

PTS: 1

REF: Page 127

OBJ: Vocabulary

TOP: Survival and Protection

20. ANS: mingle

PTS: 1

REF: Page 127

OBJ: Vocabulary

TOP: Survival and Protection