On March 11, 2011, Japan experienced a catastrophic magnitude 9.0 earthquake, one of the most powerful tremors ever recorded. That major quake was followed by a series of aftershocks, some of which registered higher than 7.0 on the Richter Scale. As damaging as the quake and its aftershocks were, a tsunami set in motion by the quake proved even more destructive and deadly. Although many people had a rudimentary knowledge of earthquakes prior to the events of 2011, very few understood the causes, complex configurations, and real dangers of tsunamis. Now, however, people living along the world's coastlines are suddenly interested in and concerned about these giant waves. Florida residents, in particular, worry about what, if any, effects a tsunami might have on their state, a peninsula that includes more than 2,200 miles of tidal shoreline.

To fully understand the threat of a tsunami, experts warn, people should first be aware of the causes.Tsunamis can be triggered by a number of natural events. Although the 2011 tsunami that decimated much of the eastern shoreline of Japan was initiated by the large earthquake, these waves can be generated by any abrupt motion on an ocean floor. Volcanic eruptions, underwater landslides, or even the impact of a large meteorite can trigger a tsunami. Since tsunamis can be created by any of these recurring natural occurrences, they are not uncommon and can pose a threat to any country with a coastline.

Although tsunamis are common, they are often misunderstood. One general misconception concerns the configuration of a tsunami, which is not just one ocean wave, but a series of enormous waves. These waves can reach heights of more than 100 feet. Although their height makes tsunamis extremely dangerous, it is their speed that often produces deadly consequences. Tsunamis can race across an open ocean at speeds exceeding 500 miles per hour and become larger as they gain momentum in the shallow waters off shorelines. As a result, populations living along shorelines often have little or no warning of the deadly towers of water racing toward them.

How dangerous is a tsunami? Well, in 1992 and 1993 more than 2,000 people were killed by tsunamis in Nicaragua, Indonesia, and Japan. A 1960 earthquake in Chile generated a tsunami that caused extensive fatalities and destruction in Chile, Hawaii, Japan, and other areas in the Pacific. The final death toll in the 2011 Japanese disaster might never be precisely known, but estimates range from 15,000 to 20,000 people. In addition, more fatalities eventually might be indirectly attributed to the 2011 disaster because of radiation poisoning produced by extensive damage to Japan's nuclear power plants, a result of the earthquake and tsunami.

Can tsunamis pose a threat to Florida? California, Oregon, and Washington experienced lesser versions of the 2011 tsunami that ravished Japan. But what about the Eastern seaboard, including Florida, especially the Florida Keys? Experts differ on the probability of a tsunami striking Florida, but most scientists believe that such an occurrence isn't probable. "Improbable," however, does not mean "impossible." According to Dr. Ted Kluszewski of the Southeast Florida College of Environmental Engineering and Phenomena, the "chances of Florida experiencing a tsunami the magnitude of the 2011 event in Japan are remote." Those odds, Dr. Kluszewski explained, are "because most tsunamis are the result of major earthquakes. Unlike the Pacific Ocean, the Atlantic is not ringed by large faults, which move and collide, creating tremors." Even so, he cautions, underwater landslides can occur in Caribbean waters and trigger tsunamis, although probably not of the magnitude of those that have devastated Pacific shorelines.

Despite Dr. Kluszewski's opinions, which are shared by most experts, the 2011 events in Japan have generated some concern among many residents of Florida, especially along the Treasure Coast. A nuclear power plant on Hutchinson Island, a slender barrier island, these residents worry, is just as susceptible to natural disasters as the reactors located along Japan's coasts. Although the Treasure Coast plant has experienced hurricanes without any reported problems, could it withstand a major earthquake and/or a resultant tsunami? Prior to the 2011 event in Japan, nuclear experts in that country believed that their reactors were invulnerable to any forces of nature, including cyclones, earthquakes, and tsunamis. The Japanese experts' confidence proved erroneous, however, as tsunami-damaged reactors failed: Radiation readings climbed, forcing the evacuation of thousands of residents who lived near the nuclear plants.

The United States government has attempted to allay any concerns, claiming that this nation is prepared for any eventuality, including tsunamis. Even so, acknowledging these rogue waves as a potential threat in the Atlantic Ocean, however minimal, the Federal government has initiated a warning system for the Atlantic and Gulf of Mexico coasts. A seismometer network, including a series of warning buoys scattered in ocean waters off these coasts, has been placed in effect. These buoys are linked to sensors on the seabed and monitored by the National Oceanic and Atmospheric Administration. Theoretically, the sensors would note any unnatural occurrences on the ocean floors in time for officials to order an evacuation of coastal communities.

Although a better understanding of the causes, configurations, and dangers posed by tsunamis might ease the concerns of most Floridians, skeptics are quick to share a solemn reminder: Prior to March, 2011, few people in Japan feared tsunamis either.

1. Which of the following titles is best for this passage?

   A. The History of Tsunamis
   B. Tsunami Kills Thousands in Japan
   C. United States Prepared for Tsunamis
   D. Tsunamis Remain a Cause for Concern

2. According to the passage, the U.S. government has prepared for tsunamis by _____

   A. scheduling a summit of seismologists and nuclear energy experts.
   B. creating an underwater seismometer network.
   C. providing evacuation routes for coastal areas.
   D. establishing a national earthquake and tsunami center.

3. Which of the following is explicitly stated in the passage?

   A. Florida has never experienced a tsunami.
   B. Tsunamis are occurring in record numbers.
   C. Japanese nuclear experts underestimated the effects of tsunamis.
   D. The islands of the Pacific Ocean can expect more powerful tsunamis.

4. The word "allay" in the seventh paragraph most nearly means _____

   A. downplay.
   B. exaggerate.
   C. dispel.
   D. disregard.

5. Which one of the following is not a cause of a tsunami?

   A. Cyclones.
   B. Landslides.
   C. Meteorites.
   D. Earthquakes.

6. The passage implies that _____

   A. tsunamis pose a greater threat in the Pacific islands than volcanic eruptions.
   B. nations with Pacific Ocean coastlines are more vulnerable than nations on the Atlantic coasts.
   C. earthquakes always trigger tsunamis.
   D. like hurricanes, tsunamis are more prevalent during certain seasons.

7. The main topic of this passage is _____

   A. any coastal area is susceptible to tsunamis.
   B. the economic havoc generated by tsunamis.
   C. tsunamis can travel long distances at great speeds.
   D. that coastal areas should be evacuated following all earthquakes.

8. In which publication type would this article most likely appear?

   A. A scholarly journal for meteorologists.
   B. An advanced physics textbook for college students.
   C. A news magazine for a general audience.
   D. A periodical for atmospheric scientists.

9. All of the following are mentioned except _____

   A. barrier islands.
   B. the Caribbean.
   C. meteorites.
   D. ocean temperatures.

10. According to the passage, a tsunami _____

    A. loses momentum as it approaches a coastline.
    B. becomes a series of waves as it approaches a coast.
    C. spawns radioactivity as it approaches a coast.
    D. generates higher waves as it approaches a coastline.

11. All of the following are mentioned in the passage. Which two are compared?

    A. tsunamis and tides
    B. the Atlantic Ocean and the Pacific Ocean
    C. tsunamis and floods
    D. the National Oceanic and Atmospheric Administration and the National Hurricane Center.

12. The author's primary purpose in writing this passage is which of the following?

    A. To explain in scientific terms how tsunamis are formed.
    B. To provide some fundamental knowledge of tsunamis.
    C. To offer solutions for protecting shorelines against tsunamis.
    D. To describe the destruction Japan experienced as a result of a tsunami.

13. The passage provides information that could be used to answer which of the following questions?

    A. Will the Florida Keys eventually experience an earthquake?
    B. Has research proven that sensors can predict tsunamis?
    C. Is Florida more vulnerable to a tsunami than California?
    D. What steps can be taken to curtail the deadly effects of tsunamis?

14. The author would agree with which of the following statements?

    A. Tsunamis pose no danger to the Florida coasts.
    B. Tsunamis are complex natural phenomena.
    C. Tsunamis can be prevented.
    D. Natural disasters are predictable.

15. Which of the following best describes the development and organization of the passage?

    A. A theory is posed, and ensuing examples provide complex elucidation.
    B. An example is presented, followed by a rudimentary explanation, further examples, and a relevant question and discussion.
    C. A statement is given, followed by arguments examining two sides of an environmental issue.
    D. The various features of an environmental phenomenon are discussed and analyzed in detail.

HESI A2 Reading Passage 2 Answers

1. D
2. B
3. C
4. C
5. A
6. B
7. A
8. C
9. D
10. D
11. B
12. B
13. C
14. B
15. B

Note: For questions or explanations, please visit one of the Indian River State College's Academic Support Centers or Virtual Tutoring Collaborate classrooms to review answers with an English/reading tutor.