

Tsunami Waves and Sea Walls

The tsunami waves that followed the earthquake came almost immediately. They were reported to have reached as high as nine meters in some areas. Japan has concrete sea walls wrapped around forty percent of its coastline. But those walls were not built for such high waves. In some areas, the sea walls were as low as three meters.

Japan has one of the best tsunami early warning systems in the world. There are more than four thousand seismic intensity meters in place across the country to measure earthquakes. These meters provide information within two minutes of an earthquake striking. Information about the strength and the epicenter of the earthquake can be learned in less than three minutes.



Concrete sea walls protect parts of Japan's coast.

Key Facts

- **Wave Height:** Up to 9 meters
- **Coastline Protected:** 40%
- **Warning Time:** Within 2 minutes of a strike

Tsunami Safety and Infrastructure

Directions: Use the information from the reading passage to answer the following questions in complete sentences.

1. According to the text, how high were the tsunami waves reported to be in some areas?

2. What percentage of Japan's coastline is protected by concrete sea walls?

3. How many seismic intensity meters are currently in place across Japan?

4. How quickly do the meters provide information after an earthquake strikes?

5. What two specific pieces of information about an earthquake can be learned in less than three minutes?

6. Why were the sea walls ineffective against these specific tsunami waves? Use data from the text to support your answer.

7. Why is it important for the early warning system to provide information in under three minutes? What might happen if it took longer?

8. Based on what you read, do you think sea walls alone are enough to protect a city from a tsunami? Why or why not?

.....

.....

.....

.....

.....

.....

.....