**Blue Planet – Seasonal Seas**

**Background**

The first thought that comes to mind in considering seasons are the changes in deciduous forests as the leaves fall in autumn, then return in the spring. However, seasons can also apply to oceans in temperate latitudes. This episode of the BBC series Blue Planet will explore some of the aquatic ecosystems that change with the seasons.

**Questions**

These questions are written in sequence with the seasonal seas episode. Ask about any missed questions at the end of the video.

1. What advantage does giving birth in the harshest part of winter give to the grey seal pups?
2. What are phytoplankton, and how are they affected by the change in seasons?
3. A food chain is shown between the phytoplankton, common jellyfish, and copepods. Identify the **producer, primary consumer,** and **secondary consumer** in this food chain.
   1. Producer –
   2. Primary consumer –
   3. Secondary consumer –
4. Describe an adaptation of the *basking shark*.
5. Describe two adaptations of the *Californian sea otter*.
6. The sea otters have a mutualistic relationship with the giant kelp. Explain how each benefits.
7. Describe an adaptation of the *manta ray*.
8. A predator-prey relationship is shown between two sea slugs: *janolus* and *navanox*. Describe an adaptation each has either for hunting or escaping.
9. Why do lobsters migrate in the summer?
10. What adaptations do the adult crabs gain that allow them to be carnivores?
11. Describe an adaptation of the *salmon shark*.
12. Describe an adaptation of the *hooded sea slug*.
13. Describe an adaptation of the *leafy sea-dragon*.

**Analysis**

Answer on your own after watching the entire episode.

1. A **keystone species** is an organism that serves as a foundation for an entire food web of an ecosystem. If this organism were not present, the other species that depend on it would have to migrate elsewhere or die off. What species in this video would you describe as a keystone species? Justify your answer.