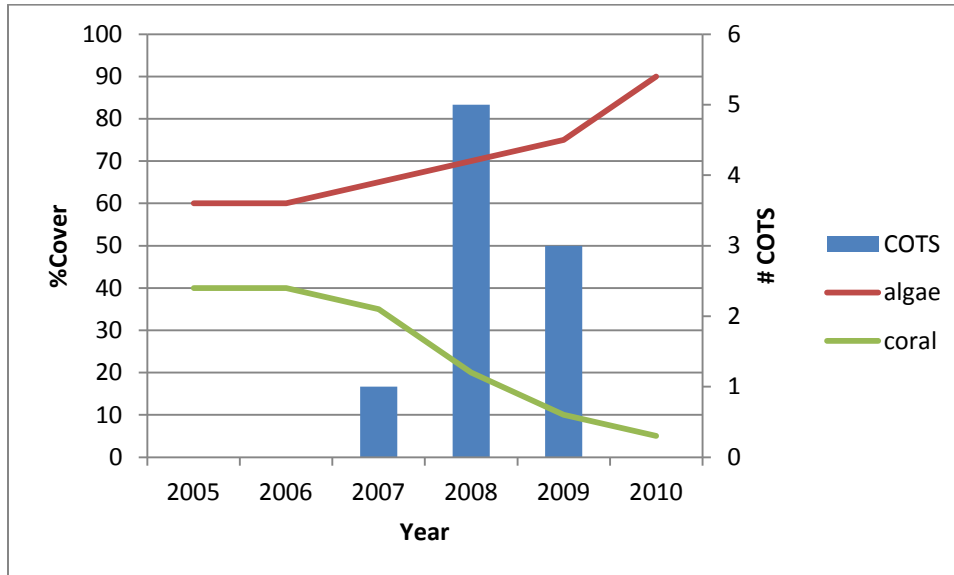


## Answer Key for Population Dynamics Activities:

### Coral Reef:

Graph



Questions:

2) Coral decreases as the number of Crown of Thorn sea stars increase.

3) The algae increases as COTS increase and coral decreases.

4) Open ended thought question...potential answers include:

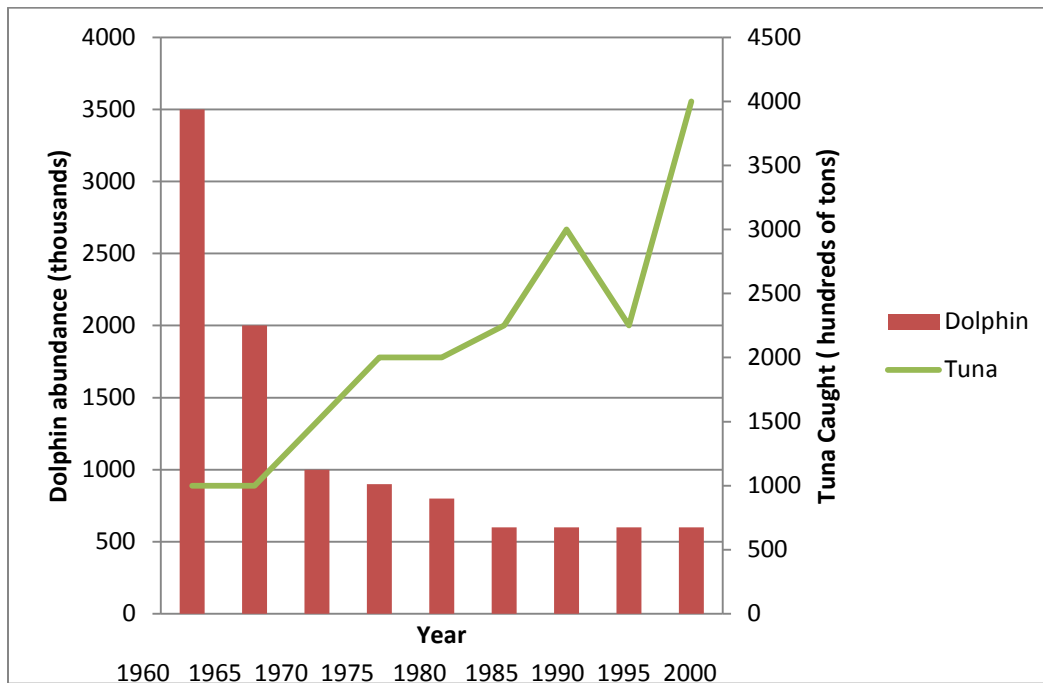
Why did the sea star have a population spike?

Doesn't it have natural predators?

Can anything keep it in balance and if so, what happened to the population abundance of its predator?

## Eastern Tropical Pacific:

Graph:

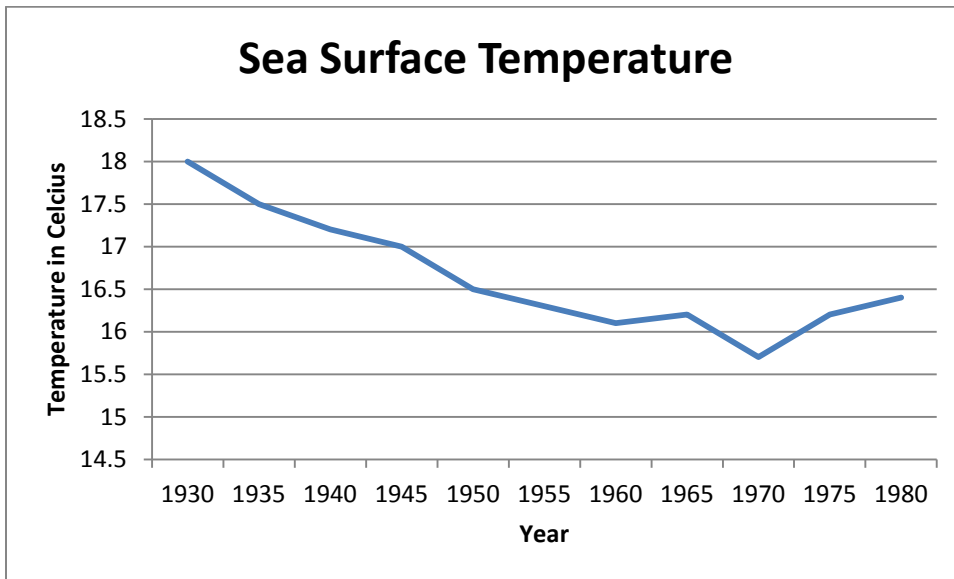
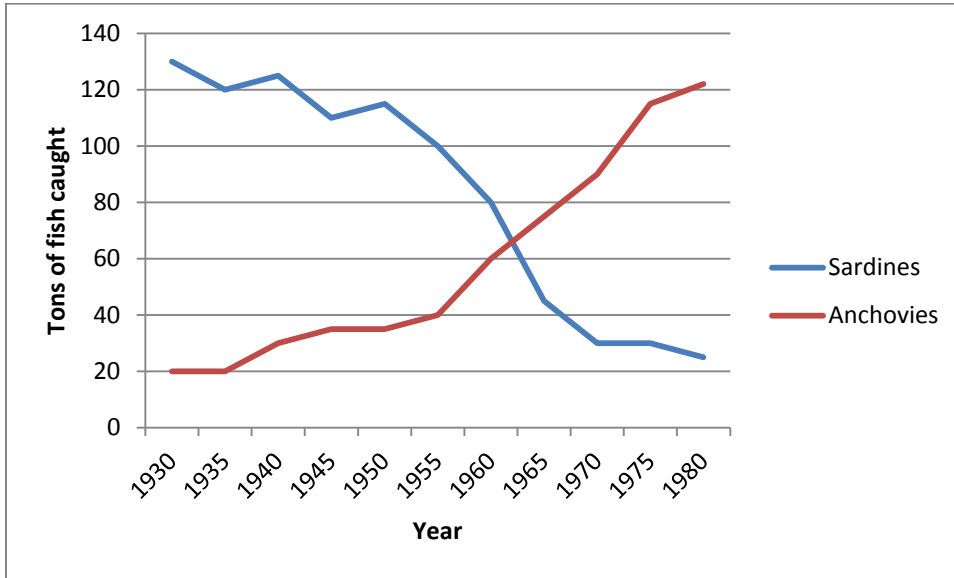


Questions:

- 1) As tuna fishing increased, more and more dolphins were being caught in nets and dolphin abundance decreased as a result.
- 2) Bycatch.
- 3) Dolphin numbers do not appear to have recovered fully even though various measures have been put in place to ensure that less dolphins are being killed in tuna nets. (Though many less dolphins are caught today, dolphin populations in this area have not rebounded fully. Scientists think that this may be related to the stress the dolphins experience when they are caught in nets. Even though they no longer die in nets nearly as often, the stress of being encircled is thought to potentially cause them to abort their babies if they are pregnant at the time which could prevent populations from increasing as quickly.)

**California Current:**

Graphs:

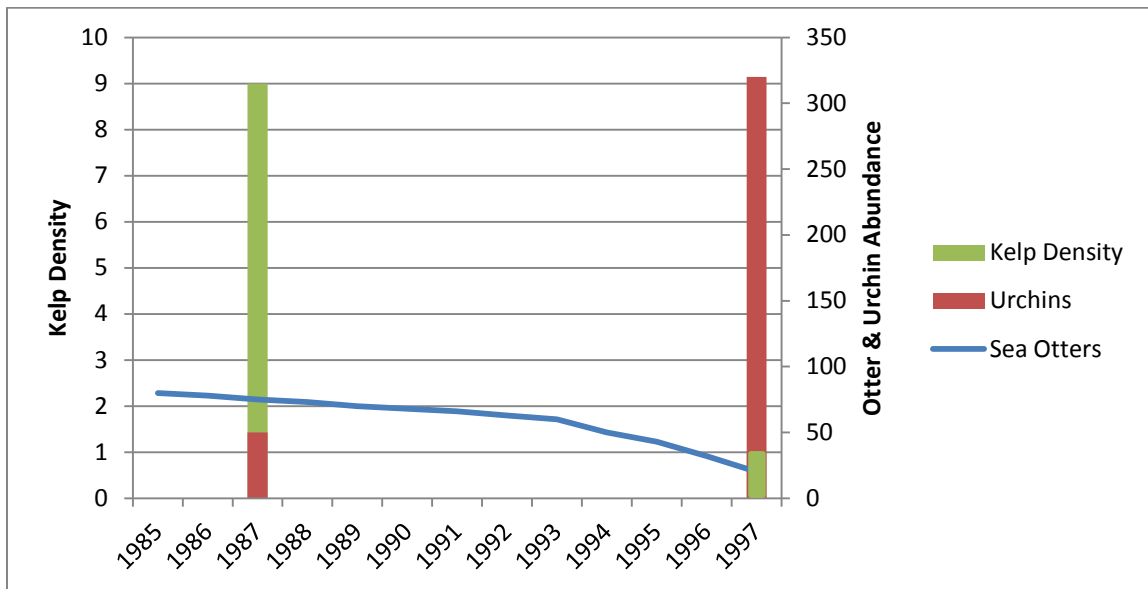


Questions:

- 2) Sardines prefer warm water while anchovies thrive in cooler waters.
- 3) No, sardine populations will be low in abundance during cooler years and should not be fished as much in order to ensure that their populations are not reduced too far to recover.

## Kelp Forest:

Graph:



Questions:

2) As the otters declined, urchin abundance increased because they had been released from predation. As a result, the prey of the urchins – the kelp – vastly decreased in density because there were more urchins eating more kelp.

3) Humans can, and in fact have, protected sea otters so that they hopefully increase in abundance and restore the balance in the system.