

Round: 3B

Iron fertilization of the ocean has been suggested as a way to mitigate global warming.

1. What effect might iron fertilization have in the ocean surface layer (upper 50m)?

Increased primary production OR phytoplankton biomass (1 pt). This would create blooms and sequester a large amount of Carbon from the atmosphere (1 pt) OR decrease in nutrients OR decrease in carbon dioxide

2. Name the three (3) main ocean provinces that have been suggested as the most responsive to this type of fertilization?

*- Southern Ocean (2 pts)
- Equatorial Pacific (2 pts)
- Subarctic Pacific (north Pacific/Gulf of Alaska) (2 pts)*

3. What effect might iron fertilization have in the deep ocean (below about 100m)?

The phytoplankton blooms (2 pt) will generate a flux of biogenic carbon (2 pts) to depth that is then thought to be stored in ocean sediments (1 pt).

4. List two (2) potentially negative impacts of iron fertilization.

*Any two (2) of the following (2 pts each, 4 pts total):
- Depletion of nutrients that are 'required' elsewhere
- Hypoxia or anoxia following the plankton bloom
- Genesis of harmful algal blooms
- Changes in phytoplankton species composition and
- Consequences for fisheries*

5. Give one (1) potentially negative policy impact of iron fertilization.

*Any one (1) of the following for 3 pts:
- Iron seeding would not conform to clean-air policies OR Clean Air Act
- It might allow polluters to buy more carbon offsets/credits
- It would run contrary to the London Convention
- It may divert attention away from other, more effective carbon reduction approaches*