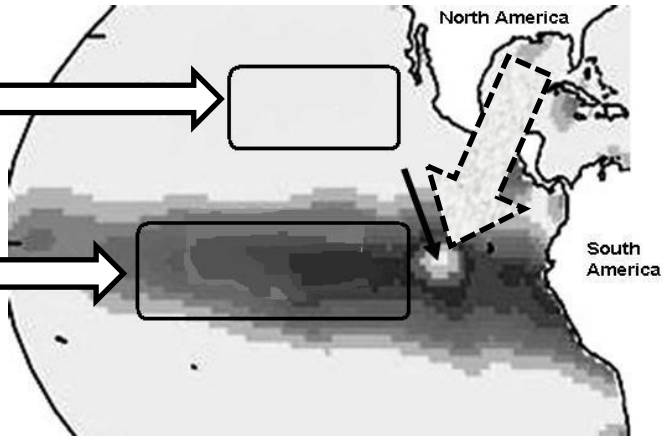
ANSWER ANSWER ANSWER ANSWER

Round: 8B

Region A
Surface nitrate=~ 0 µg N/liter

Region B
Surface nitrate=2 to 8 µg



1. Name the two regions (A and B) shown on the map
   Region A: Central North Pacific OR North Pacific gyre (2 pts)
   Region B: Equatorial upwelling OR equatorial Pacific (2 pts)

2. Why are surface nitrate concentrations lower in Region A?
   Gyre centers contain "old" surface waters that have been slowly moving towards the center of the gyre under Eckman transport and general circulation. The water has been at the surface for an extended period of time and subject to phytoplankton productions, thus it is depleted of nutrients. (4pts)

3. Why are surface nitrate concentrations higher in Region B?
   Upwelling (3 pts) (OR wind-driven upwelling) of nitrate rich subsurface water (3 pts)

4. The dashed arrow points to the Galapagos Islands. Why are surface nitrate concentrations lower in this area?
   Proximal iron sources (2 pts) cause higher phytoplankton production (2 pts), which leads to a drawdown in surface nitrate concentration (2 pts) around the islands.