Impacts of Climate Change on Life

Climate change is upon us, and greenhouse gas emissions continue to rise:

- **Air temperatures**: 1.37°F increase globally
- **Seawater temperatures**: 0.18°F increase globally, oceans have absorbed >80% of heat increases
- **Sea level**: 0.56 ft. rise in the 20th century
- **Extreme weather events**: increased droughts, heavy rains, heat waves and hurricanes
- **Snow and ice melting**: decreased snow, sea ice, and glacier cover and thickness in the last half century
- **Ocean Acidification**: rising acidity along the West Coast may be cause of decreased oyster farm production

Species are:
- Shifting and contracting their distributions
- Undergoing earlier seasonal changes
- Going extinct

The threatened checkerspot butterfly in Northern California has shifted north and hatches earlier.

Many species cannot move, and those that do move will have DOMINO EFFECTS on other species.

**Predators will suffer when separated from prey.** Polar bears use sea ice to hunt seals, but as the ice melts, the seals stop using the ice and bears cannot hunt them. Polar bears may become the first species to be endangered due to climate change.

**Pollinators and plants may be separated.** If they shift at different rates, both species would be negatively affected. This could be extremely detrimental to agricultural crops.
**Predators will infiltrate new food webs.** Predators expanding their ranges, such as the as the Humboldt squid in California, can decimate new prey populations with the potential to damage economically important fisheries and crops.

**Diseases will infect new populations.** Warming may increase the prevalence of tropical diseases in North American humans, animals and plants, such as malaria.

**Solutions**

- Reduce greenhouse gas emissions immediately
- Promote cleaner, alternative energy sources
- Create a cooperative federal and state framework to sustainably manage natural resources
- Support Long–term observational studies to monitor species’ responses to climate change
- Expand public outreach campaigns to promote understanding of climate change and its consequences

For further information contact:
Sarah Gravem
PhD Candidate & NSF GK-12 Fellow
Bodega Marine Laboratory, University California, Davis
sagravem@ucdavis.edu
707.875.1921
http://www.bml.ucdavis.edu