

What does Global Climate Change mean for Salmon and Steelhead?

From California to Alaska, both symbol and essence of nature have been the magnificent salmon and steelhead that hatch in our cold, clear creeks, make their way to the ocean, and then struggle back upstream to spawn and restart the cycle.

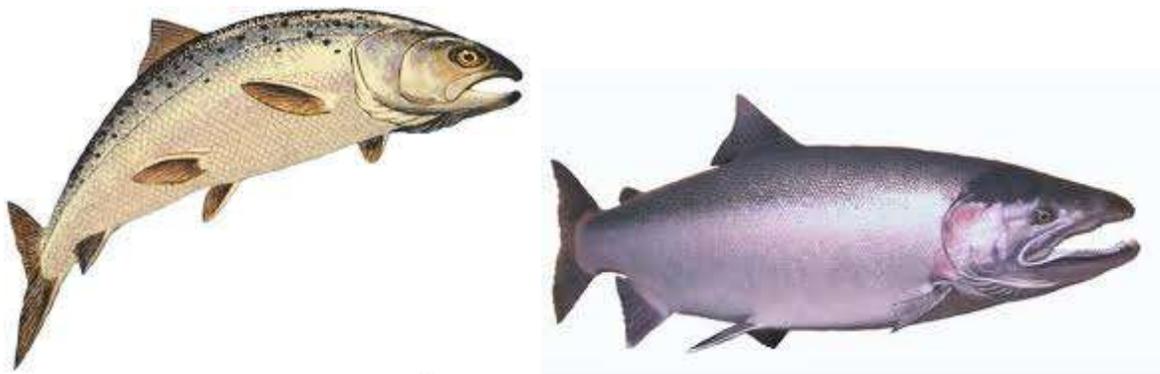
Symbol because they represent courage and perseverance, nature's abundance, cyclical continuity and change. Essence because the fertility that they bring, fattened, from the sea made them the mainstay for bears, eagles, native populations, and even forests along streams, fertilized by their bodies.

Dams, logging, farming, and cities have all but destroyed the great seasonal migrations of these magnificent fish. We humans close off spawning areas, fell trees, mine gravel, suck out water and spit it back hot and polluted, clear banks so that eroded mud smothers eggs, and change currents so fish cannot find their way.

Global climate change is increasing these threats while nurturing new ones. Here are a few likely effects of global warming:

- Warmer water in the streams where salmon eggs hatch and the young linger can be lethal to both. This effect is likely to be greatest at the southern end of the range -- that is, in California.
- Earlier, faster snowmelt and increasingly variable weather will bring more floods, washing away nests and young. Streams will dry out earlier and drought will become more common, trapping and killing young.
- In the ocean, rising sea levels are likely to destroy the beaches, marshes, and tide flats where small prey are nurtured. Increasingly acid seawater, due to dissolved carbon dioxide, may corrode the shells of tiny floating creatures that are the basis of food in the open ocean. And changes in temperature, currents, and winds are likely to disrupt both the amount of such food and where it is found.
- Warmer water when salmon and steelhead migrate upstream will encourage disease and parasites, and use up the fishes' energy stores faster.
- Human threats to salmon are likely to be magnified by human demands aimed at counterbalancing drought and bigger storms and floods.

Similar complex, creeping tragedies loom for thousands of animals and plants worldwide.



What does global climate change mean for other species?

We are in the midst of one of the great eras of extinctions that have rocked our planet. For example, some 205 million years ago, the way was cleared for dinosaurs on land; 70-65 million years ago, dinosaurs went extinct.

The United Nations Environment Program has identified more than 11,000 endangered animal and plant species, including nearly a quarter of all mammals, one in eight bird species, and more than 5000 different plants. The true number is unknown, because we don't begin to know how many species there are. But worldwide, the greatest threat to Earth's literally marvelous abundance of species is mankind's destruction of habitat. The great destroyers are our cities, farms, logging, dams, mines, pollution, and transfer of invasive species.

The effects of global warming on extinction are likely to be severe, but less than those due to habitat loss. One of the best studies predicted that over this century, 1,100 bird species would perish due to habitat loss alone, 64 due to climate change alone, and another 800 due to the combined effects of both. Birds, of course, can move. Climate change may be worse for creatures that cannot – like polar bears that die when sea ice melts, or pikas that freeze as their mountaintop homes lose their insulating blanket of snow. California's native plants, about half of them found only in the state, may be particularly hard hit as climate change shrinks their ranges.

Biodiversity – abundance and variety of species -- may be as important as climate to life on our planet. In crass terms, the money value of goods and services provided by ecosystems is estimated at nearly twice the global production resulting from human activities. And ecosystems are stabilized by their complex webs of organisms. We can't ignore the effects of dumping 250 million years of fossilized carbon into the atmosphere in the blink of a geologic eye. Neither can we ignore our own massive destruction of forest and wetlands, encroachment into wild lands, pollution, and introduction of invasive newcomers.

Sustainability requires a broad and long-term view. On this day, many of us worldwide are taking small, symbolic actions in the hope of encouraging larger political, technological, and philosophic changes. Looking at what it will really take to preserve our beautiful, life-giving planet is a start.

--Susan Schwartz, President, Friends of Five Creeks



Polar bear greeting, from www.firstpeoples.us