

Ocean Ecosystem Extinction

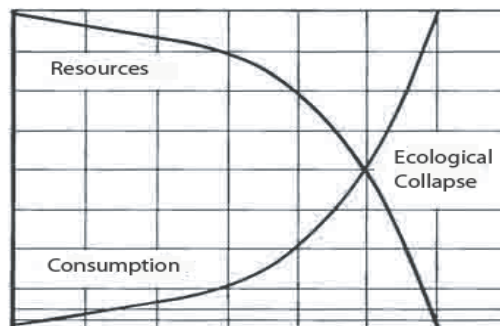
By Harry Braun

The oceans contain to oldest and largest ecosystems on the planet, and over the past two decades, there have been a bewildering array of scientific studies and news reports about the eminent death of the global ocean ecosystems, yet essentially nothing has been done to halt this ecological genocide. As vast as the oceans appear to be, the ancient and intricate ecological systems that lie below the surface are in the final stages of being pushed into extinction from destructive fishing practices and chemical pollution. The remaining fish and other marine organisms are being exterminated by a relentless armada of millions of unregulated fishing vessels that hunt the fish down 24-hours a day with high-tech fishing boats that utilize satellites and sonar, which give the fish no chance. Equally destructive are the thousands of primitive fishing boats that use 50-mile long driftnets that stripmine the oceans, and in many cases, the virtually invisible driftnets break free from the boats, and continue to kill vast numbers of marine organisms for decades.

The Problem

According to the most extensive study every completed, published in the scientific journal *Nature* (May 15, 2003), evaluated the impact of the global fishing industry over the past 50 years, and concluded that over 90 percent of the of the large commercial fish, are now gone. Dramatic declines have also occurred in mammals, reptiles and amphibians that live in coastal ecosystems. The authors of the study indicated the oceans are at the brink of extinction, much like the buffalo were, and there is very little time to save the remaining marine organisms so they can begin to recover. The paper, "Rapid Worldwide Depletion of Predatory Fish Communities," was prepared by Ransom Myers and Boris Worm, who are from the Biology Department at Dalhousie University, Nova Scotia, Canada.

The paper is the first attempt to characterize not just individual species, but entire ecological communities on four continental shelves and nine oceanic systems, using all available data from commercial fishing fleets that calculate the numbers of fish caught in the nets over time. The study clearly documents the pronounced declines of entire ecological communities across widely varying ecosystems. Ecological communities on the continental shelves and in the open ocean have typically provided nearly half of the fish food in the past. However, the widespread decline and collapse of major fish stocks in the world has sparked concerns about the effects of free market industrial fishing practices that typically reduce major fish stocks in a given ecological community by 80% within 15 years. Such destructive practices are unsustainable, and as the exponential graph below indicates, more and more fishermen compete for fewer and fewer fish until the ecological system collapses.



Moreover, it is not just the large fish that are being hunted into extinction. Ocean trawlers that use weighted nets operate like football-sized underwater bulldozers that are also devastating the very ocean habitats on the seabed floor that are critically needed to replenish the populations of fish and other marine organisms. In the process, the vast underwater rainforests of coral are literally being reduced to rubble on a daily basis. The situation is so serious that over 1,000 top scientists from over 68 countries have called for a moratorium on trawling and other destructive fishing practices, yet the U.N. has been helpless to stop the free market forces that have utterly failed to protect the ocean ecosystems from this human-induced mass-extinction.

Increasing Ocean Acidity

In addition to destructive unregulated free market fishing practices, a panel of scientists convened by the National Science Foundation, the National Oceanic and Atmospheric Administration and the U.S. Geological Survey, prepared a report documenting the corals and other marine creatures are also being destroyed by chemical changes in the ocean. These changes are being caused by the exponentially increasing levels of carbon dioxide, which is the result of burning oil, coal and other fossil fuels. Carbon dioxide is known to be responsible for global warming and rapid climate change, and as it dissolves into the oceans, it makes them more acid, which destroys corals, shells and other sea life.

According to Joan Kleypas, the report's lead author who is a senior scientist at the National Center for Atmospheric Research at Boulder, Colorado, the most fundamental property of ocean chemistry is the parts per hydrogen (pH) level, which determines how acid or alkaline the oceans are. The pH scale is rated from 0 to 14 with 7 being neutral. The lower the number, the more acid something is. The pH levels in the oceans have been remarkably stable for millions of years, but that is now changing. According to Kleypas: "The pH changes that are occurring in the oceans today are truly extraordinary." Moreover, the acidity levels will continue to increase long as carbon dioxide levels continue to increase.

Dead Zones & Chemical Contamination

The spread of oxygen-starved "dead zones" in the oceans are becoming a graveyard for the remaining fish and plant life. Some of the oxygen-deprived zones measure less than one square kilometer in size, but others are vast, measuring more than 70,000 square kilometers. The principal cause is pollution runoff from the overuse of nitrogen-based fertilizers and nitrogen-based emissions from burning fossil fuels in motor vehicles and power plants. Most of the 160 million tones of nitrogen used as fertilizer ends up in the oceans. The number of known dead zones has more than doubled since 1990, and according to Klaus Toepfer, the Executive Director of the United Nations Environmental Program, the problems is escalating rapidly. On land, nitrogen boosts plant growth, but when it washes into the sea, it triggers an explosive growth of algae. When the algae on the ocean surface die, they sink to the bottom and decompose, which uses up all of the oxygen, thereby suffocating the fish, oysters other marine animals, as well as the critical habitats such as the sea grass beds. Large dead zones are found in the Gulf of Mexico, the Chesapeake Bay off the U.S. East Coast, the Adriatic, Baltic and Black seas, and off the coasts of South America, Australia, New Zealand, Japan and China.

Equally alarming is the fact that the remaining fish are so contaminated with the mercury from coal plant emissions, they are no longer fit to eat. Indeed, according to EPA, over 600,000 babies in the U.S. are now born contaminated with mercury, which is a well-documented and potent neurotoxin that is particularly harmful to fetal and child development. The mercury that contaminates the babies comes from the mother's womb, which underscores that millions of people are accumulating toxic substances that they absorb from the air, water and food, but most of the mercury originated from some 1,200 coal burning power plants that provide roughly half of the nation's electricity. Moreover, the current plan in the U.S. is to build an additional 1,000 coal plants in the near future.

The mindless free market forces don't care, which is why they have utterly failed to protect the ocean ecosystems from this human-induced mass-extinction. Given the serious nature of the problem, the Bush administration should be working with the UN to authorize the U.S. Navy and Air Force to enforce the needed moratorium and eliminate these on-going destructive fishing and chemical dumping practices. Unfortunately, the Bush administration is opposed to protecting the remaining ocean life by arguing that the National Environmental Policy act and other environmental laws do not apply to vast tracts of ocean under U.S. control, thereby allowing oil and gas drilling, pipelines, destructive commercial fishing practices, and ocean dumping to escape public environmental review. This is a staggering contraction for an administration that claims to protect future generations.

Commercial Fish Farms

Most of the fish now found in supermarkets are no longer wild fish that come from the sea, but from corporate fish farms that raise the fish in captivity. The farm-raised fish still contain mercury and other industrial contaminants because they are also exposed to the air and water. But according to a recent study published in the Journal *Science* (January 29, 2004), which tested the contamination levels in both farm-raised and wild fish that were bought from around the world, the farm-raised salmon were found to contain significantly higher levels of PCBs and dioxins (one of the most toxic of the industrial contaminants known). More than half of the world's salmon now come from fish farms.

The study, which was reported on NBC and CNN, was directed by Dr. David Carpenter of the University of Albany, New York, who tested 700 salmon from around the world. His investigation traced the source of the contamination to the feed that is being used in the commercial fish farms, that concentrates the pollutants found in the oceans. While many people eat fish at least once or twice a week because of its high nutritional values, the contamination levels were so high in the farm-raised fish that the scientists concluded that eating even one meal a would increase the risks of getting cancer later in life, as the toxic substances are accumulated in the body over time. The salmon industry responded by stating that even higher levels of exposure to toxic chemicals and drugs are present in beef and other animal products, which is hardly reassuring.

Fundamental Solutions

**Windships, wave and ocean thermal systems can save
ocean and wilderness ecosystems while
making America energy independent
of fossil & nuclear fuels**

In addition to assigning the U.S. armed forces to protect the remaining ocean ecosystems, the large-scale deployment of sea-based Windships, wave and ocean thermal electricity and hydrogen production systems may be the only action that will effectively provide a vast and critical sanctuary for the remaining fish and other marine organisms on the continental shelves. This is because these sea-based renewable energy systems, and their underwater hydrogen production, liquefaction and storage systems will make commercial fishing impossible.

Unlike the fossil and nuclear fuels, these renewable energy technologies will actually be able to make America energy independent, while providing a vast ocean sanctuary to protect the remaining ocean ecosystems. In addition, the large-scale deployment of such renewable energy systems will also protect the remaining land-based mountain ecosystems, which are now being destroyed on a daily basis to get a few days worth of coal, which when burned, contaminates millions of Americans with mercury and other chemical pollutants. Although the U.S. has a 250-year supply of coal at the current rate of consumption, if it were to be mined and used on a scale to displace oil and other fossil fuels, the 250-year supply would be consumed in less than 20 years, and the ecological damage from the stripmining alone would be devastating. Mass-producing renewable energy systems will eliminate the need to use coal, or any of the other fossil and nuclear fuels that are responsible for many of the most serious global environmental problems, ranging from global warming and climate change to the contamination of our air, water, and food. The renewable energy technologies will work in harmony with the natural environment, and they will be expected to last for centuries, with a fuel that is pollution-free and inexhaustible.



Phoenix Project Foundation

6128 North 28th Street, Suite 100, Phoenix, Arizona 85016, Telephone: 602-977-0888

Email: hb@PhoenixProjectFoundation.US