

How the **nuclear power industry** destroys endangered marine wildlife and ocean habitat to save money.

Licensed^{xxii} TO KILL

NUCLEAR POWER: LICENSED TO KILL

Originally, Nuclear power was sold to the public as "electricity too cheap to meter," and now the nuclear industry is attempting to portray nuclear energy as environmentally friendly. The truth is that day after day the nuclear industry disregards the environmental laws in place to protect our marine ecosystem by killing and harming endangered species, fish, fish eggs and larvae, numerous mammals and sensitive micro-organisms, while polluting the water and increasing its temperature.

There are 48 reactors in the United States that use once-through cooling systems and suck extremely large volumes of water from a river, bay, lake or ocean. A typical 1000-megawatt reactor requires as much as 500,000 gallons of cooling water per minute per unit. A multiple unit station like Florida's St. Lucie facility draws as much as one and a half billion gallons of water daily. However, other reactors that use closed cycle cooling towers can significantly reduce their coolant intake to 20,000 gallons per minute.

During normal operation a reactor with once-through cooling systems:

-Returns the water to the source much warmer than when it was withdrawn; temperature shock kills countless numbers of marine species everyday at the majority of the nuclear reactors in the United States. Most reactors discharge about one billion gallons of water per day and typically that water is 25 degrees F hotter than when it was sucked out. This warmer water can create a "thermal plume" that can slowly erode the quality of the biologically important marine habitat in coastal waters around the reactor.

-Contaminates the water with radionuclides, heavy metals and toxic chemicals;

-Kills untold numbers of Turtles, Fish, Fish larvae and eggs and countless numbers of other species; Water sucked into the cooling system either kills the creature by violent impact with walls, pipes or other objects and larger animals often drown or suffocate. In fact, the Millstone nuclear reactor in Connecticut is responsible for a 50% decline in the Niantic River Flounder and there have been over 1000 sea turtles captured every year at the reactors studied.

-Creates marine destruction that is widespread and far-reaching. The area around the discharge pipes are often scoured to bare rock, the debris that is discharged blocks light, killing kelp and microorganisms essential to the food-chain. At the Diablo Canyon reactor in California, the discharge has resulted in the destruction of the natural marine ecosystem around Diablo Cove.

What is being killed by the nuclear industry?

- ° Turtles: 4 species of endangered and 1 threatened species of sea turtle are harmed and killed by nuclear power plants. Loggerhead, green, and Kemp's ridley sea turtles are the most common victims at nuclear reactors. Turtle experts believe that every turtle is very important to the survival of the species and the Kemp's ridley is among the most endangered sea turtle species.

- ° Fish and Fish eggs: Fish, eggs and larvae are sucked (*entrained*) into the plant's cooling canals through an intake canal or tunnel and are destroyed by their passage through the plant or when discharged at the end of the cooling process.

- ° Mammals: Seals, sea lions, endangered manatees and American crocodiles have been captured and killed at several reactors.

- ° Birds: Various breeds of diving ducks have drowned at nuclear plants, sucked through the intake structures. Almost no attention has been paid to these incidents, even though at least one resulted in the death of 103 scaup, a bird whose numbers have declined at an alarming rate in recent years. Scaup are attracted by mussels that flourish on water intake structures, but there have been no preventive actions to avoid these fatalities.

How is the nuclear industry getting away with this?

In essence, nuclear reactors with once through cooling structures have been allowed by regulators to knowingly and willingly violate the Clean Water Act (CWA). In short, the law requires that cooling water intakes reflect the *best technology available* for minimizing adverse environmental impacts.”¹ The best technology available for a nuclear reactor is unequivocally a closed-cycle cooling system. Indeed, the Fish and Wildlife Service has pronounced that closed cooling was the best technology available to mitigate reactor fish kills. However, somehow, the nuclear industry has been allowed to kill large numbers of fish and escape the regulation imposed on so many others.

Furthermore, the Endangered Species Act mandates protection of endangered and threatened species and their habitat. Yet, endangered and threatened species are being killed, both knowingly and unknowingly. When they are knowingly being killed, rather than applying sanctions for these illegal kills, the NRC acts on behalf of the plant owner to secure a quota to legally kill the species. In short, to save

¹ 33 U.S.C. 1326 (b).

the industry money, requirements that would protect marine life and habitat are weakened, watered down, or done away with entirely at nuclear reactors.

Over the years, the nuclear industry has spent tens of millions of dollars to portray itself as environmentally and wildlife friendly. Recently, some of its advertising and promotional efforts have featured the same animals killed or captured at nuclear reactors. In fact, the industry claims "that nuclear power helps protect the environment," and causes "no harm" to sea turtles.

CONCLUSIONS

The impact upon the marine environment of these massive withdrawal and discharge systems are both *inhumane and avoidable*. Yet, the nuclear industry is willing to destroy significant areas of marine habitat through daily operation of its once-through coolant reactors. The degradation of the marine environment as a result of this technology could have serious, and potentially irreversible, repercussions if these reactors are allowed to continue operating with reckless disregard.