



## POWER PLANTS' EXTREME WATER WITHDRAWALS KILL STAGGERING NUMBERS OF FISH AND DEplete ECOSYSTEMS

America's aging power plants are not only the nation's largest air polluter; they also withdraw enormous volumes of water, causing staggering aquatic impacts. Like giant vacuums, *cooling water intake structures* at U.S. power plants suck up nearly 100 trillion gallons each year from rivers, lakes, oceans and estuaries to absorb waste heat. A single plant with an antiquated *once-through cooling* system can take in several billion gallons of water per day – more than a million gallons per minute. Their intake structures indiscriminately devour aquatic life, sucking in eggs and larvae (this is known as “*entrainment*”), trapping adult fish and wildlife on intake screens (“*impingement*”), and spewing heated, lifeless, chemical-laden water downstream (*thermal discharges*).



The killing of trillions of fish, shellfish, and other species at all life stages through this practice has stressed and depleted our waters for decades and disrupts the food chain. Power plants' toll on fisheries rivals, and in some cases exceeds, that of the fishing industry. The casualties of intake structures include endangered species like the Shortnose sturgeon and Chinook salmon.

**Fortunately, none of this damage is necessary** because modern *closed-cycle cooling* systems recirculate cooling water in low-profile towers, reducing withdrawals and fish kills by about 95 percent. Virtually all gas-fired plants and more than 75 percent of coal plants built in the past 30 years use closed-cycle cooling or, even better, the state-of-the-art *dry cooling* technology which uses little or no water at all, and 40 percent of existing nuclear plants use closed-cycle cooling. Section 316(b) of the federal Clean Water Act requires plants to use the *Best Technology Available* (BTA) to minimize the adverse environmental impacts of cooling water intake structures. In 2001, EPA issued national regulations identifying closed-cycle cooling as BTA for new plants.

**But many older plants**, typically those built more than 30 years ago, still rely on antiquated and damaging once-through cooling systems, which withdraw water directly from its source but do not recycle it. This uses massive volumes of water and kills enormous numbers of fish. The power companies have stubbornly resisted upgrading their cooling systems and orchestrated elaborate campaigns to ward off any regulations that would force them to modernize.

As a result, roughly half of U.S. power plants still use once-through cooling and they also pollute the air, because most of them are old, inefficient, and lack emissions controls. These plants have typically raked in enormous profits since 1989, the latest date by which all plants were supposed to install BTA, while avoiding the costs of upgrades. In March 2011, EPA will propose BTA regulations for existing power plants. The agency will take final action on those regulations by July 2012.

Contrary to the power industry's claims, **requiring older plants to install the same cooling technology as their modern counterparts** would not cause any significant adverse impacts on energy supplies or the economy. The power grid would be unaffected because few, if any, existing plants would shut down. Any increases in electric bills would be modest, costing consumers pennies or at most a few dollars per month on household electric bills. Only the most antiquated and marginal plants that can barely afford to operate might choose to close down rather than upgrade to closed-cycle cooling. Meanwhile, requiring cooling system upgrades would create jobs, improve the economy, and may even clean the air. Experience has shown that when forced to evaluate the outmoded condition of their facilities, some plant operators will choose to repower or replace their plants, transforming them into state-of-the-art modern facilities that can produce electricity cleanly, efficiently and at lower cost, which is a win-win-win for the environment, consumers, and the economy, bringing America's electric generating fleet into the 21<sup>st</sup> Century.

