A Great Wave Rising: The Coming Crisis in Water Policy in America

This paper is the result of extensive discussions with Bill Taylor, Abigail Schroeder and Nancy Leonard at Michigan State University.

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After 39 years in the fish and wildlife management business, I have concluded that only two things really affect fish and wildlife populations: habitat and climate. Most of the contributions made by detailed harvest management practices and manipulations of fisheries by hatcheries have generally had relatively minor impact on the sustainability of fisheries when compared to the quantity and quality of habitat available. Furthermore, most fish habitat projects tend to be expensive, difficult to accomplish and of negligible significance to the bigger picture of achieving healthy and sustainable fisheries. Many fish habitat projects are narrow in focus and represent minor efforts to try to counteract a much broader and more complex threat arising from society's development of land and water resources — habitat and ecosystem destruction. Protection of habitat and ecosystem function is far more critical in assuring sustainable fisheries, and the most effective protections are embodied in policy and environmental law.

One of the greatest crises ever experienced in fish and wildlife management is currently building — the great wave of water policy conflict. The combination of rapid development and climate change will change everything we know about water availability and water quality in America. The clock is ticking. The time of crisis is nearly upon us.

There are many examples that currently appear to be unrelated anecdotal events, which when considered together reveal the crisis we are facing. This broader view is necessary to see the connections and the expansive pattern emerging. In this paper, we will highlight a subset of case studies from across the United States to illustrate the water crisis that is looming ahead. As well, we will show actions that have been taken elsewhere in the continental USA to stave off this crisis.

In the Sacramento Bay Delta, many stocks of resident and oceangoing fish are in steep decline. Some would even say that the stocks are collapsed. (See the NOAA News Release "Fishery Failure" Declared for West Coast Salmon Fishery," May 1, 2008 http://www.noaanews.noaa.gov/stories2008/20080501_fisheryfailure.html.) If these collapsed

stocks were all oceangoing, some would attribute the collapse to ocean productivity conditions. The fact that Delta smelt and other pelagic estuarine fish species show parallel declines, however, points to causative factors within the river and delta. The explanation for these parallel declines is most likely related to the "double whammy" effect of depressed estuarine productivity along with depressed ocean productivity. This double whammy is ostensibly an important driver of the Pacific salmon collapse. It is imperative, when planning our course of action, that we recognize that we can control our impacts on the estuary, in contrast to the ocean, and hence focus our efforts where most effective.

The most likely suspect for declining fish stocks in the Sacramento Bay Delta is the increased pumping of water from the Delta for water exports to Southern California. This increase in water withdrawal is because of the state of California and the U.S. Bureau of Reclamation trying to accommodate an increasing water demand in Southern California that exceeds the available water from the Owens Valley, the Colorado River System and other water sources. The pumps in the Delta are so powerful, that they can reverse the tide. The drastic reduction of freshwater flowing into the delta can affect saltwater/freshwater balance in the estuary, which may be negatively altering the food web for the estuarine dependent fishes, including Sacramento River Fall Chinook salmon. These salmon are the "workhorse" stock of California and Oregon ocean fisheries, the collapse of which caused the most drastic fishing restrictions in history during the 2008 season. This collapse has precipitated the disaster declaration and the federal appropriation of $170 million to compensate desperate fisherman and fishery businesses (see Farm Bill SEC. 12034. FISHERIES DISASTER ASSISTANCE).

California Gov. Arnold Schwarzenegger and other state elected officials are justifying the increase in Delta water withdrawal by pointing to the needs of California's burgeoning human population of more than 39 million. But the truth is that 85 percent of the exported water headed south is for agriculture, some of it for subsidized cotton production. The "thirsty people" argument is a smokescreen to cover up water management decisions being driven by policies of the past to support unsustainable water use. It would be more rational to broaden our perspective by developing a vision for water conservation, with associated policy and laws, which would prioritize sustainable water use for now and for the future.

What are the elected officials going to do in 2100 to meet the unfettered increase in water demand from residential and agricultural sectors when California has 80 million citizens and the climate of Baja California? Climate models suggest that increased temperatures will approximate the movement of temperature and precipitation patterns roughly 400 miles north by 2100 (ref. Climate Impacts Group). This nonsensical water allocation and usage is just the front edge of a much greater water crisis that the West will face in the near future.

In Texas, leaders of the state have recognized the critical need to have secure freshwater sources for their growing population. In a state with almost no natural lakes, reservoirs are providing critical water storage used during the dry season by growing cities. This increase in freshwater demand is threatening the freshwater inflows for the hyper saline estuary of the Laguna Madre and other Texas estuaries as freshwater inflows are subsequently reduced. Some of our most productive marine ecosystems are hanging in the balance as Texas attempts to solve the water supply crisis with forward-looking planning. But the clock is ticking and the great wave is rising, giving an unprecedented level of urgency to the situation.

In Florida, the overdrafting of freshwater aquifers has caused such a crisis in water supply that some communities have put a moratorium on new construction. This is a shock to the "growth at any cost" mentality that has dominated Florida politics for many years. The moratorium is a sure sign that business as usual can no longer proceed without far more foresight in regard to water supply.

Lake Okeechobee, with its world-famous Florida largemouth bass fishery, is threatened with destruction from water policies that attempt to control flooding and that supply water to the politically powerful sugar farming industry. Occasionally, the water from Lake Okeechobee is dumped into the St. Lucie estuary, where such flushing destroys estuarine food webs that cannot withstand the shock of being instantly converted to a freshwater system. Once the flush is over, the decimated system tries to recover with the reestablishment of saltwater. Fifty years ago, this impact was anticipated, and a proposal to dig a channel to directly flush the freshwater to the ocean was made in order to try to avoid this destructive impact on the St. Lucie ecosystem. The U.S. Army Corps of Engineers rejected the proposal. The destruction of the St. Lucie ecosystem was just cheaper and easier!

In Atlanta, the drought reached a crisis and severe water conservation measures are now beginning to take hold. The reality of population growth at any cost is bumping up against the reality of limited long-term water supply. When the region faces a political crisis centering on water quantity, where will fish habitat factor in? It will be a trivial consideration in the quest to satisfy the demand for drinking water for Atlanta. Only by utilizing sound preplanning and public interest-based water policy do fish and wildlife managers have any chance to incorporate needs for fish habitat and recreation into the water allocation equation.

In the Columbia River basin, the demand for water for urban development and agriculture is matched with the need for electric power in a rapidly growing region. The commitment to recover endangered salmon is threatened by the water demands of a region expected to double its population by 2040 and quadruple it by 2100. Confounding the challenge is the expectation that the region's climate will shift toward a climate similar to Northern California, resulting in less snow, more winter rain, less summer rain and lower/warmer summer stream flows.

The above case studies portray a broader trend — one in which the future of fisheries and fish habitat will be driven by societal demand for water quality and water quantity on both the continental and global scale. We predict a future in our children's lifetime where many of the northern hemispheric rivers will be piped south to thirsty metropolitan centers in a similar fashion to the current movement of oil and gas. We can anticipate a future where freshwater will be shipped south in tankers similar to those that transport oil today. In the future, freshwater may be more valuable than the high-valued oil today. Specialized plants to desalinize ocean water as well as to filter sewage and wastewater for the production of freshwater at huge cost may be a common means of providing water to thirsty cities.

This is not as far fetched as it might seem. Saudi Arabia already provides its population with drinking water from desalinization plants, and Los Angeles already has plants to filter and reuse sewage. The future is moving rapidly toward us. The clock is ticking. The great wave is rising.

Our only chance to protect fisheries habitat and fisheries recreation is through proactive planning and the implementation of sound water policy. There is no doubt that we will eventually have to

find and use new freshwater sources, conserve water as never before and prioritize water uses using policy and market forces. The question is whether we will do all of this before we destroy ecosystems like the Sacramento Bay Delta.

Water, like fish and wildlife resources, falls under the public trust doctrine requiring that the government preserve and maintain it for the public's use, including fisheries related uses. The "Lords of Yesterday," those who continue to advocate outdated and unsustainable water policy, will continue to do their best to preserve the policies of the past. They will do this even when it brings them into conflict with the purpose of the public trust doctrine. Maintaining the status quo is easier than addressing the imminent need to change our water policies. If these Lords have their way, only a full-scale crisis will be strong enough to create real change in water policy. If an "Atlanta style" water crisis occurs, it will be far too late to factor in fisheries habitat into the policy equation.

There are positive examples that we can look to for guidance on averting this looming water crisis. An excellent example is the fish enhancement and water recovery program implemented by the Iowa Department of Natural Resources. The restoration of Iowa lakes is a proactive investment that is returning a 10:1 benefit to cost in terms of recreation for local and regional economies. This restoration effort is having positive results as Iowa's watersheds are healthier, fisheries are flourishing and some of the broader water quality issues are starting to be addressed. A local constituency, such as the Iowa counties, cities, and watershed and fish conservation groups (ref. Iowa DNR/Boneau) that recognize the value of healthy lakes and watersheds will fight to prevent degradation that might otherwise be inevitable as growth occurs across the landscape. The Iowa Department of Natural Resources is stepping up to the challenge, and Iowa legislators are putting state money on the table.

Ten years ago, Congress passed the Central Valley Project Improvement Act (CVPIA), a law that reprioritized the use of water stored in large federal reservoirs. This act shifted priority use from the agricultural sector to supplying more water to urban areas and to environmental restoration of wetlands, fish and wildlife. This remarkable shift in water policy was accomplished by a coalition of fishermen and environmentalists, as well as the political horsepower of the cities in Northern California. This coalition was able to counter the huge resistance of the "Lords of Yesterday" water diversion interests. Only powerful coalitions equal to or surpassing this historic coalition have any chance of shifting focus to conservation and reprioritization of water usage before the water crisis explodes. Today, with an intensifying water crisis in the Sacramento Delta, some interests are trying their best to undermine the progressive results of the CVPIA. We should expect no less, and we need to remain vigilant in order to hold on to our previous water planning victories.

In the Great Lakes, political leaders have recognized both the value of the huge quantity of high quality freshwater in their basin and the potential for others to attempt to export that water to meet the needs of development. The Great Lakes states and Canada have created forward-looking water policy to protect these resources for the citizens of their region. (See http://www.glc.org/about/glbc.html; Public Law No: 110-342.) Whether they will be successful against the powerful political interests needing water in America's southern latitudes and around the world will be played out over the course of the next century.

If fisheries interests are not completely horrified by this picture of future demands on water supplies being threatened by rapid development and climate change, then they are probably not paying attention. In every region of the country and around the world, there are experts studying the projections of water demand and worrying about how to solve the increasing gap between demand and available freshwater. Many of these experts are found in academic centers, in government, or working for conservation organizations. However, very little of this looming freshwater crisis is reaching policymakers, the media or the general public, and therefore has not created the political pressure needed for change.

Natural resource advocates need to find regional experts on development projections, population growth and climate change. They should listen to them and collaboratively search for solutions while there is still time. Broad political coalitions advocating sound long-term water planning in concert with long term growth/development planning offer the only way to avoid the tsunami of the water supply crisis. We must evaluate the trade-offs well in advance and choose the future we want, or we will be in danger of ending up with the future that we get.

Currently, many fishing interests are tinkering around with initiatives and issues so trivial as to be meaningless in the long-term sustainability of fisheries. For instance, water and electric power interests frequently point to the impact of non-native fish species such as black bass, walleye and striped bass as bogeymen for their impacts on native species to avoid accountability for the impact of power and water policy. Such efforts often pit fishermen against fishermen and fishermen against environmentalists, in an effort to split the constituency pushing for water use planning and accountability.

The clock is ticking, the wave is rising, and we are mostly unaware of the true threat to our fisheries legacy.

State and federal fisheries agencies will be helpless to protect fish habitat needs once the crisis develops. Fish and wildlife interests will be swept aside as minor considerations unless they can be embedded in progressive, public interest water policy well in advance of the looming water crisis.

What would Atlanta pay for a secure water supply today? And what would happen if a fishery and some fish and wildlife agency were in the way? Enough said.

We still have time to put the focus on the bigger picture. We can anticipate the coming crisis and plan for solutions — now! Let's work on what's important rather than what's urgent.

The clock is ticking.

The great wave of the water policy crisis is rising.

We can still make the difference that will determine the future of fishing and fish habitat during our children's generation.