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Protecting Salmon from Pesticides

By Zeke Grader, Glen Spain

PCFFA has been working for decades to secure stronger protections for the West Coast's damaged salmon runs from the impacts of all sorts of chemical pollutants, including many pesticides now found routinely in most key West Coast salmon nursery rivers.

In a previous federal court case brought by PCFFA and others nearly a decade ago, the federal Courts ruled that, under the Endangered Species Act (ESA), the impact of pesticides on ESA-listed salmon must be assessed, not just by the Environmental Protection Agency (EPA), but also by the salmon scientists of the National Marine Fisheries Service (NMFS).

Not surprisingly, the pesticide Biological Opinions (BiOps) so far issued by NMFS have found that, indeed, high concentrations of these pesticides in the nation's waters are harming salmon, and widespread multiple pesticide exposures threaten to drive many of these already endangered runs to extinction. NMFS ordered the EPA to improve its pesticide regulations.

However, the giant chemical pesticide manufacturing companies – in fact, the whole "chemical-farming complex" – have recently tried to fight back by seeking to Congressionally exempt themselves entirely from these proposed new pesticide salmon protection regulations in the new Republican-dominated House of Representatives, portraying these potent chemical poisons as "harmless to salmon," and even modest river-side spraying protective buffer zones as "shutting down farms."

Below are excerpts from our PCFFA testimony on this issue for a May, 2011 hearing in Washington, DC, showing why these protections for salmon against pesticides are important and necessary to support our industry and the jobs it produces.

A full set of testimony and an archive of the webcast of the hearing can be found at: http://naturalresources.house.gov/Calendar/EventSingle.aspx?EventID=237995.

As the Executive Director of the Pacific Coast Federation of Fishermen's Associations (PCFFA), a major US fishing industry trade association centered on the US west coast, I wish to thank the two Committees for the opportunity to provide comments on behalf of the West Coast fishing industry on the importance of crafting stronger pesticide controls to keep these highly toxic chemicals out of America's rivers, and in particular out of fish such as salmon which are an important part of the human food chain.

The current EPA pesticide protection rules have obviously failed. EPA-regulated pesticides are now found nearly everywhere in west coast rivers and are killing salmon, destroying salmon jobs, and endangering public health.

As you know, salmon are "anadromous," which means they begin their lives in inland fresh water streams, then move to the sea for several years, and they then return (typically three to five years later) from the ocean as adult spawners to lay their eggs in inland freshwater streams all along the US west coast and Canada. There the young salmon must remain, some for months – in the case of coho salmon, one year – until they grow large enough to migrate to the ocean where they'll spend their adult lives. During all this time in fresh water, young salmon are very vulnerable to the dozens of agricultural chemicals that can pollute West Coast rivers.

The great Pacific salmon runs have always been the workhorse of commercial fishing on the West Coast. Now, however, multiple stressors in our coastal rivers overwhelm many of these salmon stocks. Seventeen once-major salmon runs are so imperiled they are protected under the federal Endangered Species Act (ESA) as threatened or in danger of extinction. Another 11 stocks of closely related anadromous steelhead are also ESA-listed in these same river systems, and for the same reasons.

Steelhead, while not a commercially fished species, supports a vibrant inland recreational fishing industry that in turn

supports thousands of additional sportfishing jobs and hundreds sportfishing businesses, large and small. This, too, is a billion dollar industry bringing jobs and dollars to many rural communities. Salmon and steelhead are collectively referred to as "salmonids."

When salmon or steelhead stocks are ESA-listed, they cannot be harvested, and fishermen must make every effort to avoid them, which has included closing whole fisheries. This has been done all over the West Coast to protect these weakest stocks – yet still these ESA-listed stocks remain at very low numbers, some still heading toward extinction. Increased mortality from in-river pesticides, scientists now tell us, is one of the reasons these stocks are not recovering.

PCFFA identified the growing threat that waterborne pesticides present to West Coast salmon runs in 1999, with the publication of *Diminishing Returns: Salmon Declines and Pesticides* (Feb. 1999), published by the Oregon Pesticide Education Network. That report is available on a PCFFA web site at: www.pcffa.org/salpest.htm.

That report is, however, merely an overview of a representative sample of literally hundreds of peer-reviewed scientific reports and studies at the time (there are many more now) that clearly show how even extremely low but persistent concentrations of pesticides in rivers can greatly increase salmon mortality.

When that report came out, we were also shocked to find out that the US Environmental Protection Agency (EPA), unlike any other federal agency, had never consulted on the impacts of these EPA-registered pesticides on ESA-listed salmonids under ESA Sec. 7 as federal agencies are required by law to do for federal actions. The EPA had simply refused to do so for more than 25 years, since the ESA was first adopted into law in 1976.

As a result, in 2001 PCFFA joined as co-Plaintiff in the lawsuit, *Washington Toxics Coalition, et al.* v. *Dept. of Interior* (457 F. Supp. 2d 1158) (W.D. Wash. 2006) that subsequently required EPA to consult under Sec. 7 of the ESA, for the first time ever, on the impacts of 54 different commonly used but highly toxic pesticides on ESA-listed salmon and steelhead. PCFFA brought this suit to protect West Coast fishing industry jobs – and seafood consumers – from these chemicals in the river harming the nation's valuable salmon runs. The end result of that suit, after yet more litigation, was the current set of Pesticide BiOps that are now coming out of NMFS on a Court-ordered schedule.

This initial list target list of 54 pesticides and herbicides was not chosen at random. All of these 54 chemicals have been found at levels higher than maximum health standards in rivers on the west coast, they are among the most broad-spectrum and toxic of all pesticides, and therefore the ones most likely to impact salmon and steelhead generally, and so these were selected for first analysis. Some have been eliminated from the list in the analysis, which now consists of 37 chemicals. These are the worst of the worst for salmon. These are the chemicals now going through ESA Sec. 7 Consultation.

So far these Pesticide BiOps have concluded that, on the basis of the best available science, current EPA-endorsed pesticide practices for those chemicals analyzed will likely drive these already ESA-protected salmon runs toward extinction. This also means that these chemicals negatively impact other, far more abundant, salmon runs in these same rivers. And since these very same chemicals are also serious human health hazards, the fact that all these chemicals are being found in West Coast rivers that supply water to millions of people is also a serious – but as yet unaddressed – human health hazard.

It should be noted as well that PCFFA obtained an Injunction in that case against the further EPA-authorized uses of these 54 target pesticides within buffer zones comparable to those later required in the Biological Opinions, at least until that Sec. 7 Consultation could be completed. That Injunction, and those required buffer zones, have now been in effect since January 22, 2004.

Getting Back to Fundamentals

In all the technical details of ESA Sec. 7 consultations and discussions (driven by chemical industry concerns about regulation), including some of the past discussions on this issue before these two Committees, many have lost track of some basic facts, including the following:

• **These Chemicals are Poisons.** It is often forgotten that agricultural pesticides and herbicides are poisons for both fish and humans. They are designed to be poisons and, while they may be useful in agriculture when applied at the correct time, place and dosage, once these chemicals escape into the nation's rivers, they are nothing more than broad-spectrum, highly toxic poisons to both fish and humans.

• **These Chemicals are Already In Our Rivers.** Again, the original list of 54 different pesticides and herbicides we chose to sue on in *Washington Toxics Coalition, et al.* were not chosen at random. Not only are these chemicals all highly toxic to fish, each has been found by US Geological Service (USGS), many in multiple locations, in West Coast rivers at levels that far exceed National Academy of Sciences (NAS) recommended aquatic protection standards.

Among the many findings of these various USGS monitoring studies is that the highly toxic pesticides carbaryl, carbofuran, diazinon, chlorpyrifos and malathion were all found at levels well above NAS's Aquatic Life Criteria (ALC) standards, often multiple times and in multiple basins. For instance, diazinon was found at 400 times the ALC's maximums in the San Joaquin-Tulare river systems. Malathion was found at levels 45 times higher than ALC again in the San-Joaquin-Tulare systems. Malathion was also found at 30 times higher than ALC in the Willamette River in Oregon.

These nasty toxic pesticides are found in major salmon-bearing river systems nearly everywhere on the west coast. What all this means, bluntly, is that whatever protective rules the EPA

now has in place are simply not working to keep these chemicals out of the nation's waterways. The committees were right to describe this as federal regulatory dysfunction.

If these commonly used chemicals are already in salmon-bearing rivers they are also in urban public water systems supplied from those same rivers. This represents a serious and growing – but largely unaddressed – public health hazard. All are highly toxic to humans, many are bioaccumulative in human tissue, several are human endocrine disrupters, and most are virulent carcinogens or mutagens or both. Few of them can be effectively filtered out from these public water systems by any currently available water filtering systems, most are very hard to detect and few are currently even tested for.

If, under EPA labeling controls now in effect, these 54 and many other agricultural pesticides and herbicides are getting into the nation's rivers, it is clear and convincing proof that current EPA restrictions against use of these chemicals in and around waterways is insufficient to keep them out. This simple fact is ignored in this debate by the chemical industry. If EPA rules under FIFRA are, as they claim, "already strong enough," then where did these chemicals in our rivers come from?

• **These Chemicals Kill ESA-Listed and Non-listed Salmonids Alike.** The 54 commonly used pesticides and herbicides originally chosen as our target list are all well known in the scientific literature as highly toxic, broad spectrum chemicals which can be fatal to fish. Once these pesticides and other agricultural chemicals are in our nation's rivers, they not only kill ESA-listed salmon runs, but all other salmon runs as well.

Most of these 54 target chemicals have been in use for many years, some since shortly after World War II. Most are very broad-spectrum toxins which kill both target pests and many beneficial species. Some (in particular carbofuran and azinphosmethyl) are now being phased out by EPA because of increasing pest resistance and widespread ecological toxic side effects. Most of these 54 chemicals are being replaced by second- and third-generation pesticides that are far less toxic and far more selective.

• **Once These Chemicals Are In Our Rivers, Society As a Whole Pays a High Price.** When these poisons are allowed to enter the nation's waterways and kill salmon this depletes the salmon resource that supports thousands of salmon related jobs along the Pacific Coast, and deprives our nation's consumers of one of America's healthiest foods sources. Moreover, it instigates further ESA listings as otherwise healthy salmon stocks (and other fish and wildlife species) are in their turn damaged to the point where they also need federal protection.

These chemical pollutants are an increasing public health hazard, including some which are known as human "endocrine disputers" which can affect human growth and development, especially in infants and children, even at extremely low concentrations. According to EPA, the insecticide cararyl likely causes cancer in humans. Three of the pesticides under analysis (chlorpyrifos, malathion and diazinon) have been linked with attention deficit hyperactivity disorder in children. Many other studies show the dangers of other chemicals on this list to human health.

• **There Are Simple Ways To Keep Most of These Chemicals Out of Our Rivers.** It is far more expensive to society as a whole to put poisons in rivers and then have to deal with the consequences to human health and fisheries, plus the added costs of filtering such poisons out of public water supplies, than to keep them out of our rivers in the first place. Fortunately, there are very simple ways to keep these chemicals away from rivers – the use of river bank "buffer zones" and substitution with less toxic alternatives, as discussed below.

Chemical Industry Complaints

The chemical industry and pesticide manufacturer's group CropLife has been particularly vocal about what it characterizes as the "serious flaws" in the Sec. 7 consultation process between NMFS and EPA. On January 26, 2011, eighteen members of the US House of Representatives even asked the Council on Environmental Quality (CEQ) to halt or delay further federal evaluations of the effects of toxic pesticides on threatened and endangered west coast salmon and steelhead on the basis of these unverified CropLife complaints.

Briefly, the major misstatements agricultural interests have made to this Congress include the following:

• ***Claim:*** Riparian buffer zones required under the RPA's in the NMFS Biological Opinions will eliminate farming over large portions of current agricultural lands.

• ***Response:*** The buffer zones required in the Pesticide BiOps only restrict the use of a very few of some of the oldest, most toxic and increasingly obsolete pesticides right near rivers and streams. In nearly every instance when one of these highly toxic pesticides would otherwise be used for pest control, there are less toxic, and far more specific pest control alternatives. More are being developed. Agriculture can continue as usual using other newer and far more specific pesticides more wisely. And within these buffer zone, hand applications (as opposed to aerial spays which drift considerably and thus require much larger buffers) are nearly always an option.

It should also be noted that the ongoing Injunction in the *Washington Toxics Coalition* case, which mandated no-spray buffer zones for all the 54 chemicals subject to the Pesticide BiOp consultation until consultation is completed, has been in effect for almost seven years. Farmers have almost always been able both to find less toxic and more targeted chemical substitutes and to adapt in various ways. Very little productive acreage has been "eliminated" as originally foretold.

• ***Claim:*** The current ESA process is completely duplicative of EPA's FIFRA analysis, under which EPA already considers the effects of pesti-

cides on fish and wildlife.

• ***Response:*** The ESA consultation process as currently conducted in no way duplicates EPA's current FIFRA pesticide evaluation processes because the ESA analysis asks very different questions. Because EPA's ecological risk assessment process fails to adequately consider and protect the nation's most threatened and endangered wildlife, the ESA Sec. 7 consultation process is an indispensable check on EPA's inadequate species risk assessments. Moreover, EPA's own internal ESA effects determinations also show that its FIFRA process to register pesticides is flawed because the EPA's own "effects determinations" have nearly all concluded that pesticides that EPA has already approved under FIFRA are nonetheless likely to adversely affect listed species – see for instance www.epa.gov/espp/litstatus/effects/red-leg-frog/index.html.

Furthermore, both NMFS (and for non-salmonids, US Fish & Wildlife Service) have considerably more experience with evaluating impacts on fish and wildlife than does EPA. That is, in fact, part of the Services' statutory job description.

• ***Claim:*** The ESA Sec. 7 consultation process allows no input from the chemical industry or affected users, and does not consider the real-life circumstances in which these chemicals are used.

• ***Response:*** This is an easy one to dispose of. Far from being a "closed process," since the draft of the first biological opinion evaluating the effects of the organophosphates chlorpyrifos, diazinon, and malathion was released in 2008, EPA has released each draft BiOp specifically to solicit and consider input from pesticide manufacturers, local, state, and tribal governments, and the general public. It has published guidance outlining the procedures for input and established a docket number (EPA-HQ-OPP-2008-0654) for this specific purpose, available on the Internet.

To date, EPA has received more than 300 written comments on the first three BiOps alone, including from each of the manufacturers, many pesticide users, various state agencies, and concerned members of the public. In addition, for each BiOp prepared, EPA and NMFS have held extensive meetings with pesticide manufacturers, and have received large amounts of information and material from those registrants. NMFS has documented this input and detailed how it considered the information it received in each of the BiOps issued thus far.

As to considering "real world conditions," this is exactly what NMFS does when it considers not only long-term behavioral impacts but also synergistic impacts of multiple pesticides working together, as they certainly do in real world streams. EPA only considers effects of one pesticide at a time in isolation, and then only for the so-called "active" ingredient, excluding the impacts of so-called "inert ingredients" in pesticide formations, some of which are actually more toxic to fish than the registered ingredient. Thus it is EPA, not NMFS, which is not considering the "real world impacts" of these chemicals in the natural environment. This is one reason EPA's FIFRA toxic risk analysis method has been criticized by both scientists and the courts.

• ***Claim:*** If these chemicals cannot be used for mosquito control, there will be outbreaks of West Nile virus and other serious diseases, which will jeopardize human life.

• ***Response:*** First off, few to none of the most common chemicals used for mosquito abatement are currently under ESA scrutiny.

Second, urgent public health or land management matters such as mosquito control or control of invasive species are not likely to be affected by these Pesticide BiOps. Special exemptions (such as ESA incidental take permits) can and have been carved out for these rare, and usually one-time, hazard abatement techniques.

Third, our January 22, 2004, Injunction in the *Washington Toxics Coalition* case, which enjoined the use of many of these same chemicals within certain buffer zones, contained specific public health exemptions for disease vector controls and for eliminating invasive species.

Failure To Protect Salmon Promotes Government Waste

In light of the theme of this Hearing, which is on job costs from "Federal regulatory dysfunction" it should be obvious that it is past EPA failure to prevent harmful pesticides from getting into salmon-bearing rivers, harming ESA-listed and non-listed salmonids, and threatening public health that wastes government money and jeopardize jobs, including:

Further restricting the West Coast commercial and recreational salmon fishing industries, jeopardizing the very resources upon with they both depend, and destabilizing tens of thousands of family wage jobs in coastal and inland salmon-dependent communities;

Making it that much hard to recover, and thus to eventually de-list, those species that are already ESA protected, essentially helping to keep them on the ESA list forever.

Driving currently abundant salmonid species into a downward population spiral, creating more ESA listings in the future.

Many hundreds of millions of dollars in combined federal, state and local landowner funds have now gone toward protecting endangered salmonids. Poisoning these species with federally allowed pesticide practices that pollute rivers works at complete cross purposes with all existing salmon recovery efforts.

As more ESA-listed fish decline from pesticides, this just increases in severity the restrictions necessary on local landowners. Many Central Valley farmers, for instance, have pointed to "water pollution" as a main cause of depletion of San Francisco Delta salmon stocks (not to mention Delta smelt). But the more these fish stocks are depleted by pesticide pollution, the more irrigation water will be necessary to take from agriculture to help offset that other damage, e.g., diluting the pollution. It is thus just as much in the Central Valley farmers best interests to make sure these pesticides do not jeopardize ESA-listed fish in the San Francisco Bay-Delta

Estuary as it is for fishermen. This is also true elsewhere in rivers throughout the West Coast, in most of which pesticides are serious problems for ESA-listed fish.

Causing serious public health concerns as toxic pesticides are increasingly found in drinking water and begin significantly entering the human food chain.

In short, it makes no economic sense to be poisoning the nation's rivers and salmon runs which support tens of thousands of jobs, simply to keep using certain highly toxic pesticides, most of which could be easily replaced with much less toxic alternatives.

The current Sec. 7 ESA consultations and their resulting Pesticide BiOps help us craft ways to keep these chemicals out of our nation's rivers and away from urban water supplies in the first place. It is always far more cost effective to prevent a problem in the first place than to have to clean it up later – if it can be cleaned up at all.

And while conducting these decades-overdue ESA Sec. 7 consultations may burden the resources of EPA and the Services temporarily, the long-term solution is to provide the agencies the additional resources they need to speed up the process. The solution is not to deny the science, ignore polluted rivers, devastate the nation's valuable salmon runs, turn a blind eye to serious human health problems, overturn the law – and then just hope for the best.

We do indeed have a dysfunctional federal regulatory system – but it is dysfunctional primarily when it comes to *regulating* pesticide usage in order to protect food fish, jobs and human health. That was why PCFFA sued.

PCFFA looks forward to working with the committees and members of Congress to ensure that the regulation of pesticides will, in fact, *effectively* consider and protect our nation's valuable food fish, fishing-industry jobs – along with protection for farm workers, and human health.

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