

# From Sea to Toxic Sea – Part I

## Are Pollutants Disrupting the Marine Ecosystem?

by Niaz Dorry

*As fishermen work to do their part in restoring fish populations, it's important to ensure that all other hurdles the threatened marine wildlife face are also identified and removed. Environmental pollutants comprise one of the major hurdles the marine food web is facing today. This article is the first in a four part series that discusses environmental pollutants, their potential impact on various fish populations, and what is being done — or not — to address the issues. We start with the big picture.*

When Rachel Carson sounded the alarm about the impact of DDT on wildlife in her book *Silent Spring* she didn't mean to start a movement against persistent, fat-soluble toxicants such as pesticides that build up in the food chain. Rather, she felt a responsibility to clue the rest of the world in to what she had discovered: The vulnerability of nature in the face of human intervention. Carson's work led to increased scrutiny of the impact of pesticides and other chemicals on nature and wildlife.

Before she became engrossed in pesticides, Carson began her career by speaking for the oceans. She began as a junior aquatic biologist for the U.S. Bureau of Fisheries in Washington, D.C. and later worked for the Fish and Wildlife Service. Her 1951 book *The Sea Around Us* told of the latest science and understanding of the oceans.

"Carson sounded the alarm about toxicants on behalf of the wildlife, but here we are 40 years after *Silent Spring* and we still can't get governments and regulatory agencies to take seriously the impact of these chemicals on the health of the fish, whale, or bird populations. It seems their concern wanes when only wildlife appears threatened," said Rick Hind, legislative director for Greenpeace's Toxics Campaign. "But ignoring the impact of these toxicants on the birds, fish, and other wildlife means ignoring the health of our own food chain. By allow-

ing them to be poisoned, we only continue to poison our own bodies." Hind has been working on the impact of chemicals on the food chain and, by extension human health, since 1979.

"Luckily, we were able to shift the debate from wildlife to human health in the 80s," says Hind. "By focusing on human health, we were finally able to get the governments' ears. But that doesn't mean we are no longer concerned about what these toxicants are doing to the health of the wildlife. By tracing the sources of contamination in humans, regulators now see that the poisoning of humans is also due to the contamination of human food sources which include wildlife."

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*"As crude a weapon  
as a cave man's club,  
the chemical barrage  
has been hurled  
against the fabric  
of life."*

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— Rachel Carson

Hind and others believe as fishermen work to do their part in restoring fish populations, it's important to ensure that all other hurdles threatening marine wildlife are also identified and removed. Environmental pollutants comprise one of the major hurdles the marine food web is facing today.

Some government agencies, such as the Environmental Protection Agency, regularly install fish advisories warning the public to limit their intake of certain fish because they contain high



*Marine species long known to be in decline have only recently been discovered to likely be victims of industrial pollutants.*

levels of certain chemicals. However, government agencies responsible for managing marine species have taken little to no action to protect the fish or other marine animals exclusively from pollutants. Considering the money and time invested in rebuilding fish, whale, dolphins, and other marine animal populations, ignoring the impact of toxicants on these animals seems a clear oversight to some.

"As a fisherman, I am not saying we shouldn't do our part to address our role in the decline of some marine animals," said John Pappalardo, fisherman and member of the New England Fishery Management Council. "However, it seems that while working on making sure the fish, whales, or other marine animals come back, we need to make sure we are not dumping chemicals into their environment that could affect their reproductive system and compromise their life cycle."

### Special Interests Off the Hook

In 1996, during the reauthorization of the Magnuson Stevens Fishery Conservation and Management Act, amendments were introduced requiring the National Marine Fisheries Service and the regional fishery management councils take action on non-fishing actions — such as pollution — that

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## From Sea to Toxic Sea – Part I Are Pollutants Disrupting the Marine Ecosystem?

could compromise the marine ecosystem. Shortly before the Act was adopted, provisions holding non-fishing activities accountable for their impact on marine species were gutted thanks in part to intense lobbying by parties who suddenly found themselves in the midst of a fish fight.

In the meanwhile, studies suggesting a connection between the health of certain marine animals and toxicants continue to mount.

According to one such study by Canadian and European scientists, an “unexpected cause of the near extinction of [wild] Atlantic salmon might be the use of an insecticide used to combat spruce budworm.” The study holds the chemical nonylphenol responsible for disrupting the endocrine process of the salmon interfering with its ability to mature physiologically. Although the study needs additional work, the paper states that “exposed to nonylphenol, they [salmon] cannot switch their osmoregulatory system from fresh water, where they hatch, to salt water, into which they migrate in the first fall of their life.” It appears the nonylphenol disrupts the switch by mimicking the hormone estrogen, thus when the smolts reach the ocean, they die.

Other studies suggest that exposure of eggs to chemicals that disrupt the endocrine process in various ways, including mimicking estrogen, can cause complete sex reversal of males to fertile females in some fish.

And, yet another study points to the same class of chemicals for altering “the sex ratio of oysters, causing some to become hermaphrodites and dramatically impair survivorship of offspring.”

Endocrine disruption — or hormone disruption — is one of the characteristics of a particularly worrisome class of chemicals known as persistent organic pollutants — or POPs. By disrupting hormones, these chemicals break the communication channels of the body sending mixed or incorrect signals that could result in cancer, birth defects, reproductive problems, and immune problems. In 1998, an Environmental Protection Agency advisory group suggested the review of some 80,000+ chemicals for their

endocrine disruption potential.

Early studies of POPs suggest that these chemicals impair the hormone and reproductive systems of wildlife. From bald eagles to belugas, POPs have been incriminated in a host of diseases and reproductive problems associated with animals.

According to the United Nations Environmental Program, persistent organic pollutants are highly toxic, synthetic chemicals that are found in everyday products or created as a byproduct of some manufacturing processes. Once released into the environment, POPs can travel vast distances across air and sea currents. POPs are extremely toxic even at very low concentrations and build up — or bio-accumulate.

POPs don’t dissolve readily in water but do dissolve easily in fats and can build up in the fatty tissues of animals or humans. As they travel up the food chain, POPs multiply by factors of thousands. Big fish eating little fish is one way POPs moves up the food chain.

One thing we know is that persistent bio-accumulative chemicals are present in the marine environment. One clear example is the recent studies showing high levels of PCBs — which was banned nearly 30 years ago - in farmed Atlantic salmon. PCBs are one of the more notorious POPs.

Although finding PCBs in farmed salmon is alarming, it's important to note that the PCBs were found in the feed used by salmon farms. Aquaculture industry representatives such as Salmon Of The Americas, an organization representing the salmon aquaculture industry in Chile, Canada, and the US, claim that much of the feed that is testing high for PCBs is coming from the Baltic and North Sea regions where pollution levels are high. They believe the problem can be solved by getting the pelagic fish from other parts of the world where levels of PCBs and other toxicants are lower — such as the coast of Peru.

Finding PCBs in the salmon feed suggests levels of PCBs in the small pelagic fish that constitute the base of the marine food chain — a troubling prospect to those whose job it is to monitor the state of the marine environment.

“Regarding the forage base of the ocean, we need to be careful about what it is we are pouring into the oceans and our environment,” says

John Sowles, Maine’s Director of Ecology. “Although levels of PCBs in the Gulf of Maine have gone down, it’s disturbing that after being banned nearly 30 years ago PCBs are still around. This really speaks to the persistence of these kind of chemicals.”

Small pelagic fish aren’t the only victims of POPs. It is not clear what impact the PCBs can have on the top predators of the ocean. Many species of commercially valuable fish such as cod, haddock, blue fin tuna, swordfish, and striped bass eat small pelagic fish as part of their regular diet. Sea birds, whales, dolphins, and other marine mammals also feed on these small fish that are usually available in large quantities.

In 2000, the European Union received a report from its Scientific Committee for Food warning of high levels of dioxin, the most dangerous chemical known to science and one of the most notorious POPs, in both farmed and wild fish. In 2001, according to the Russian news agency Rosbalt, Sweden wanted to sell fish with dioxin levels above the country’s maximum allowable limit to Russia and other Baltic countries. Of all the species caught by the Swedish fishermen, only cod passed the dioxin muster.

Efforts are underway on local, national, and global levels to eliminate POPs. Much of the work is focused on replacing these chemicals with safer substitutes.

The international community through the United Nations Environmental Program (UNEP) has agreed to eliminate POPs from the environment. They have prioritized a list of 12 particularly potent POPs — referred to as the “dirty dozen” — as needing urgent action. The result is the Stockholm Convention, an international treaty that targets the dirty dozen for elimination. The treaty, which is signed by more than 100 countries, recommends using alternative processes and materials to prevent POPs from forming in the first place. The US was one of the countries that tried to dilute the Stockholm Convention and has not yet ratified it.

“PCBs represent a legacy we need to be aware of as we move forward to replacement chemicals,” says Sowles. “It makes all the sense in the world to replace these things with safer alternatives.” ∩

# From Sea to Toxic Sea – Part II

## The Politics of Uncertainty: How Much Data is Enough Data?

by Niaz Dorry

*This article is the second in a four part series that discusses environmental pollutants, their potential impact on various fish populations, and what is being done — or not — to address the issues. Part I ran in the January 2004 issue of the Fishermen's Voice.*

*“Data is like chantilly lace pattern where some of the actual pattern is formed by the gaps rather than the actual design.”*

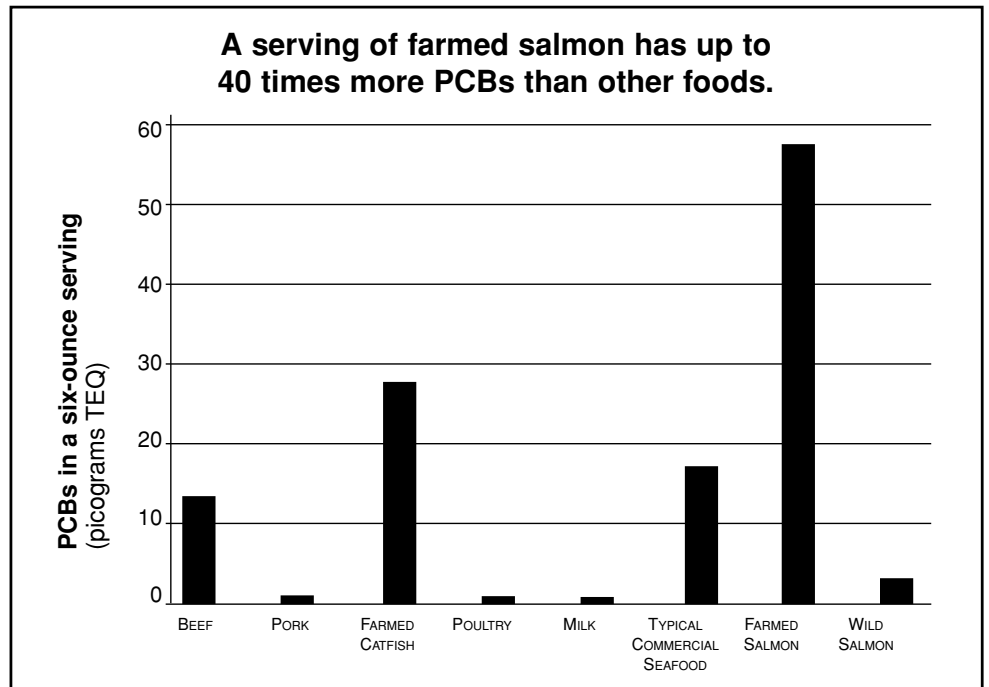
— Pete Myers,  
co-author *Our Stolen Future*

“We don’t have enough data,” is a familiar refrain heard in many political circles brought together to address a range of issues. Lack of data, uncertainty, and ignorance regularly derail many political processes ranging from fishery management to evaluating the impact of chemicals on human health. Government agencies are often paralyzed in the face of uncertainty.

Often, the politics of uncertainty is used to preserve the status quo and to avoid taking the necessary steps to prevent harm. Sometimes uncertainty about the full potential impact of certain activities or substances allows their introduction into commerce before their effect is fully realized often leading to not so pleasant surprises.

The best-documented cases of political uncertainty are seen in the history of pollutants and their impact on human health and the environment. It is evident this uncertainty has wreaked havoc across species and ecosystem lines. In its 2002 report “Late Lessons From Early Warnings,” the European Environmental Agency (EEA) tracked the history of action — and inaction — in response to early warnings through fourteen case studies.

“The key point in each case concerns the length of the gap between the specific problem being identified and effective action being taken. The answer for many case studies was



*Thirty years after they were banned, persistent PCBs are still showing up in the food chain. Source of data: Environmental Working Group report PCBs in Farmed Salmon, Factory Methods, Unnatural Results, 2002.*

that the gap was long, certainly many years or decades, and in some case of the order of a century,” said David Gee of the EEA, one of the co-authors of the report issued at a conference by the University of Massachusetts’ Center for Sustainable Production in Lowell, Massachusetts. “The case studies also provide many examples where ‘early warnings,’ and even ‘loud and late’ warnings, were clearly ignored; where the scope of hazard appraisal was too narrow; and where regulatory actions were taken without sufficient consideration of alternatives, or of the conditions necessary for their successful implementation in the real world.”

To help decision makers avoid making such mistakes in the future, the report offers “Twelve Lessons From Early Warnings” to help guide future regulatory processes in place to protect human health and the environment.

One of the case studies in the European report involves polychlorinated

biphenyls — or PCBs. Recent reports identifying high levels of PCBs in farmed salmon — in some cases up to 16 times higher PCB levels than in wild salmon — have been subject of news stories globally. The studies suggest that PCBs are found in the salmon feed which includes small pelagic fish. To mitigate this problem, many of the studies have recommended that salmon farmers get their feed from areas where the fish are found to have lower levels of PCBs.

The Salmon of the Americas (SOA), a salmon aquaculture industry-marketing consortium representing salmon farms in North America, Chile, and Canada, is trying to respond to the reports. “We know this is a problem and we’re talking with the supplier telling them that they need to reduce their PCBs,” says Alex Trent of SOA “But wild salmon are also contaminated the same way as the farmed because they’re eating the

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## From Sea to Toxic Sea – Part II

### The Politics of Uncertainty: How Much Data is Enough Data

same fish.”

In fact, high levels of PCBs and other POPs have been detected in wild animals, particularly those on top of the marine food chain such as whales, porpoises, sea lions, sea birds, and larger fish.

According to the European Environment Report, the impact of PCBs on marine and other wildlife was documented as early as 1966 when Soren Jensen discovered an unknown molecule in the muscle of white-tailed sea eagles in higher levels than in the fish the eagles were eating. By the time he published his findings in 1969, he presented information showing “remarkably high PCB concentrations in a large proportion of the Baltic Sea fauna.”

At the same time, infertility was leading to a reduction in the population of three seal species in the Baltic Sea. Some studies suggested that all three species had high levels of PCBs and DDTs. A 1998 report by the Swedish Environmental Protection Agency cites studies that link high PCB levels in the seals to reproductive disorders, skin and claw damage, and damage to the intestines, kidneys, adrenal glands, and skeleton.

No other well-known chemical might better exemplify the persistent nature of POPs than PCBs. PCBs were first developed in a lab in 1881. By 1899 chloracne, a pathological condition resulting in painful and disfiguring skin disease, was identified in people working in the chlorinated organic industry. Yet production continued.

Monsanto began mass-producing and marketing PCBs in 1929, primarily for use in electrical equipment and as ingredients in PVC plastics, paints, carbonless copy paper, lubricants, and adhesives.

By the mid 1960s, evidence showed that PCBs were not staying in the products but instead in the environment, food chain, and people. Despite the early evidence and a string of worker related illnesses spanning three decades, PCBs were not banned in the U.S. until 1976, when the Toxics Substances Control Act was enacted. Production in the U.S. finally ceased in 1979. In other parts of the world,

particularly eastern European countries, production continued until the mid 1980s.

Today, we know that PCBs belong to a class of chemicals commonly referred to as Persistent Organic Pollutants (POPs). POPs are highly toxic, fat soluble, synthetic chemicals found

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in common, everyday products or as by-products of some industries. Once released into the environment, POPs can travel vast distances across air and sea current. POPs accumulate in fatty tissue and are passed up the food chain as one animal eats another organism.

“The PCBs found in farmed salmon further speaks to the persistent nature of these chemicals. Thirty years after it was banned, PCBs are out in the environment from historic uses and disposal circulating around and showing up in the food chain,” said Mike Belliveau, Executive Director of the Environmental Health Strategy Center in Bangor, Maine, a non-profit organization that advocates for safer alternatives and cleaner industry through building partnerships.

Belliveau’s organization is part of national and international networks working to eliminate certain known persistent pollutants and advocating for the development and use of safer alternatives.

“Despite what we know about PCBs and similar substances, today there are many chemicals in commerce that are similarly persistent, and should have not been allowed to be marketed and distributed,” says Belliveau. “Now they are showing up in the food chain and they are showing up in the fish and other marine animals. Once they are in the food chain they become part of our diet.”

Indeed, the presence of PCBs in farmed salmon shows that persistent pollutants are in the marine food chain. Many commercially valuable fish such as wild salmon, cod, tuna, and haddock undergoing rebuilding plans feed on the same small pelagic fish that constitute portions of the farmed salmon feed. Yet, the impact of

persistent pollutants on the reproductive and immune systems of marine animals is not thoroughly studied nor taken into account when devising management plans for the marine environment.

“The traditional fishery biologists are ignorant of the plausible effects of endocrine disruptors on fish,” says Pete Myers, CEO of the Environmental Health Sciences (EHS) and co-author of *Our Stolen Future*, a 1996 book exploring the world of endocrine disruptors. Environmental Health Sciences is engaged in advancing public understanding of environmental links to health. According to [www.ourstolenfuture.org](http://www.ourstolenfuture.org), “the investigation begins with wildlife, as it was in animals that the first hints of widespread endocrine disruption appeared. Although the book moves from animals to people to make it’s case, it does examine “a series of experiments examining endocrine disruption of animals in the laboratory that show conclusively that fetal exposure to endocrine disrupting chemicals can wreak life-long damage.”

Pointing to studies such as those outlined in *Our Stolen Future*, efforts are on the way on state, regional, and international levels to act on early warnings, advocate for the use of safer alternatives to toxic materials when available, and to eliminate certain known toxicants from the production processes.

The international community through the United Nations Environmental Program (UNEP) has agreed to eliminate POPs from the environment through the ratification of the Stockholm Treaty. They have prioritized a list of 12 particularly potent POPs — referred to as the “dirty dozen” — as needing urgent action.

Alex Trent of the Salmon of the Americas believes such actions as the Stockholm Treaty are needed to address the issue of PCBs. “We live in a world that we’ve put a lot of stuff out there that shouldn’t be there. Our organization will absolutely support the international efforts to ban the dirty dozen,” said Trent. ↴

# From Sea to Toxic Sea – Part III

## Plastic at Sea: A Legacy of Poison?

by Niaz Dorry

*This article is the third in a four part series that discusses environmental pollutants, their potential impact on various fish populations, and what is being done — or not — to address the issues. Part I ran in January 2004 and Part II ran in February 2004 of the Fishermen's Voice.*

*All life is inter-related. We are all caught in an inescapable web of mutuality . . . Whatever affects one directly, affects all indirectly.*

— Dr. Martin Luther King

STOP! Next time you think tossing plastic garbage overboard will get rid of the problem, you better think twice. The plastic you may be leaving at sea could be contributing to a host of problems facing commercial fisheries and the overall health of the marine ecosystem.

The problem with plastics appears to start at the point of production and is only exacerbated by the method of disposal. According to Blue Oceans, a Portsmouth, New Hampshire based non-profit organization dedicated to promoting conservation of the marine environment through education and research, plastics are the most common human-made object sighted at sea and represent 89 percent of the visible garbage floating in the North Pacific Ocean.

While many plastics appear to pose serious threats to the environment, polyvinyl chloride, also known as vinyl and PVC, seems to be the single-most damaging of all plastics. PVC production accounts for nearly 40 percent of all chlorine used in the United States. Chlorine-based chemicals are one of the primary sources of persistent organic pollutants (POPs) such as polychlorinated biphenyls or PCBs.

POPs are highly toxic, fat soluble, synthetic chemicals associated with health problems including infertility, immune system damage, impaired childhood development, hormone disruption, cancer and many other harm-

ful effects in wildlife and humans. Once released into the environment, POPs can travel vast distances across air and sea current. POPs accumulate in fatty tissue and are passed up the food chain as one animal eats another organism.

Among plastics, PVC seems unique in that it always requires the addition of certain other chemical additives such as lead, cadmium, phthalates, and non-phenols, to give it the integrity, flexibility, and overall qualities desired by the marketplace. These additives are associated with an increase in many cancers, birth defects, and disruption of the hormone system in both humans and wildlife.

Once disposed of, plastics such as PVC are either buried in landfills, or burned in incinerators, or dumped unaccounted for at sea or on land. One of the characteristics of persistent pollutants such as chlorine is that they can't really be destroyed, only disbursed, rendering most disposal methods ineffective when it comes to destroying the chemicals in question.

Some consider tossing plastic at sea a solution to their garbage problem. But floating plastic garbage, which constitutes between 60 to 80 percent of the total marine debris,

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how we are living,  
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— Bruce McKay, SeaWeb,  
senior researcher

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could be putting a range of new obstacles in the path to recovery of the marine animals that fishermen, fisheries managers, and environmental organizations around the world are working to restore to healthy population levels.

“Recent studies implicate floating



*Crew members from the Coast Guard Walnut recover part of the 57,000 pounds of marine debris from the northwestern Hawaiian islands.*

plastics in the marine environment in a whole host of problems including invasion of marine life through plastic debris, colonization of plankton on plastic debris, introduction of exotic species, algal blooms, and depositing PCB-like pollutants along their path as they float through the seven seas,” said Bruce McKay, senior researcher for SeaWeb. “It appears that plastics allow for a lot of algae to adhere to it and travel for miles and miles. Now, some are suggesting that there might be a connection between plastic pollution and algal blooms – which have led to massive fish kills due to either direct toxicity or suffocation.”

According to McKay, plastics are providing a faster vehicle for many organisms, algae in particular, to move to different places. In addition, McKay says, some studies have looked at species found on many plastic debris and found that they had brought with them organisms to places where they have never been before.

One study suggests that floating plastics have become the “most widespread seagoing transport system,” taking organisms to even the most remote areas. In other words, plastics may have become to marine organisms what trains and airplanes have to humans: rapid, mass transporta-

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## From Sea to Toxic Sea – Part III Plastic at Sea: A Legacy of Poison?

tion. The study further suggests that in certain cases involving organisms with no obvious means of dispersal, the only explanation for their spread seems to be oceanic debris such as plastics. To compound the problem, since plastic debris is a slow traveler, relatively long-lasting, and more pervasive, it may be contributing to a higher survival rate of otherwise short-lived organisms that use them to hitch a ride.

Yet, plastics continue to comprise the largest percentage of the garbage found in the ocean. Much of this litter is created at sea by ships, a practice made illegal under the 1978 MARPOL Protocol. Although inspired by the unsightly appearance of plastics floating on beaches as well as the increase in the number of wildlife found entangled in various plastic products, the MARPOL Protocol is intended to address the issue of pollution by oil, chemicals, and harmful substances in packaged form, sewage, and garbage. The International Maritime Organization (IMO), a United Nations agency concerned with the safety of shipping and cleaner oceans, has adopted the Protocol.

“It’s such a basic principle: when you are growing up you’re taught not to litter and to think that there is a whole ocean that this principle doesn’t seem to apply to,” says Sally Lentz who worked on the MARPOL Protocol during its inception in the 1970s as a staff attorney for the Oceanic Society, and today serves as part of a delegation to the IMO. Lentz is the Executive Director of Ocean Advocates, a national group dedicated to protecting the marine environment.

“Even though the Protocol is ratified, enforcement is very difficult, as with most ship regulations,” said Lentz. “We did our best, but lost on trying to get ships to bring the garbage back so we can see what is going on out there.”

Some fishermen have taken the matter into their own hands and are organizing their communities to stop dumping their garbage at sea and bring it to shore instead.

“As a fisherman, the ocean is the incubator for my survival and I shouldn’t be throwing garbage in

there. With all the complaints we have about outfall pipes, oil drilling, and pollution in general, to throw our own garbage overboard is hypocritical. Conservation-minded people wouldn’t throw garbage in the ocean and here we were dumping soda cans, saran wrap, fishing lines, tin foIL, oil, coolant jugs, and other garbage overboard. It makes no sense. It’s simply short sighted,” said John Pappalardo, a Chatham, Massachusetts fisherman and a member of the New England Fisheries Management Council, who began a voluntary effort in his community to stop dumping garbage, including plastics, overboard.

Starting in 1996, Pappalardo began encouraging his fellow fishermen to bring their garbage back to shore through a voluntary effort that started to work only through peer pressure. Starting in the summer, Pappalardo and his fellow fishermen began going from boat to boat with garbage bags, asking others for their garbage. By fall, many fishermen had started to bring their garbage in on their own.

“The fishermen realized it didn’t take a lot of effort or expense to bring the garbage back. In fact, new information has taught us that the benefits far exceed the perceived hassle. Although there is still some resistance, some people are actually bringing back garbage that they find floating out there,” said Pappalardo.

Indeed, new information does seem to suggest that keeping garbage, particularly plastics, out of the marine environment may help prevent or reduce a host of problems facing the oceans.

Addressing unsightly and aesthetically distasteful plastic debris is only one part of the problem.

Studies show that relatively invisible, small plastic resin pellets and granules that make up the raw material used in plastic manufacturing are found in large numbers of beaches, including some remote and non-industrialized places, but with greatest concentrations found near industrialized areas. Unlike garbage that is thrown overboard, these relatively

unnoticed plastic pellets end up in the marine environment through factory discharges, spillage during transport, and other handling processes.

Small plastic particles have been found in the stomachs of fish, marine mammals, and sea birds.

In a 2002 study, Jose G. B. Derrick of the Ecology and Health Research Center of the Wellington School of Medicine and Health Sciences in New Zealand has reviewed most of the studies over the past three decades to

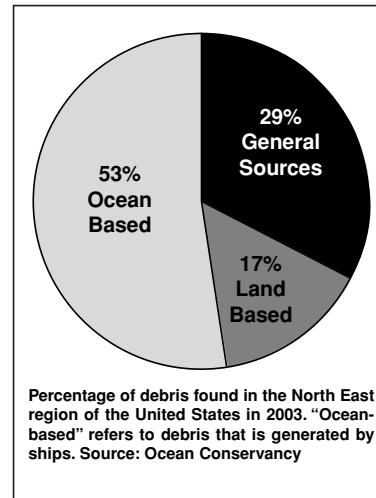
better understand the “deleterious effects of plastic debris on the marine environment.”

“A large number of marine species is known to be harmed and/or killed by plastic debris, which could jeopardize their survival, especially since many are already endangered by other forms of anthropogenic activities,” says Derrick in his report.

“Other less-known threats [of plastic debris] include the use of plastic debris by “invader” species and the absorption of polychlorinated biphenyls [PCBs] from ingested plastics.”

Derrick suggests that the volume of plastics ingested by some animals may be leading to a reduction in the storage volume of the stomach, diminished feeding stimulus, reduced food consumption and therefore reduced fat deposit and fitness, cause internal injury or death following blockage of the intestinal tract, blockage of gastric enzyme secretions, lowered steroid hormone levels, delayed ovulation, and reproductive failure.

“What’s happen-ing to the oceans is quite complex. There is a lot of uncertainty out there and some interests use this uncertainty to argue for the status quo instead of looking for safer alternatives,” said Bruce McKay of SeaWeb. “The effect of the processes and derivatives involved in the making of plastics is unknown in the context of fisheries impact. But safer alternatives exist for almost all plastics, including PVC. We have to look at how we are living, what we are buying, and what kind of products we’re using. Some things — such as a lot of plastics — just shouldn’t be made.” ♪



# From Sea To Toxic Sea — Part IV

## *Facing Jail, Texas Shrimper Takes On Polluters*

By Niaz Dorry

*This article is the final of a four part series that discusses environmental pollutants, their potential impact on various fish populations, and what is being done — or not — to address the issues. Part I, II and III ran consecutively beginning in the January 2004 issue of the Fishermen's Voice.*

Diane Wilson is about to go to jail for over four months to defend her belief that toxins don't belong in her fishing grounds.

The 54-year-old grandmother and fourth generation shrimper began her fight against persistent pollutants in 1989, when the results of the first-ever Toxics Release Inventory (TRI) was released by U.S. Environmental Protection Agency (EPA). The U.S. EPA ranked Calhoun County, Texas, her home, as the number one county in the U.S. for toxic disposal on the land and high for emissions to the air, transference of toxic chemicals, and water.

Diane was working in a fish house when a fellow fisherman with three different cancers showed her the results of the TRI. According to the U.S. EPA, TRI "is a publicly available EPA database that contains information on toxic chemical releases and other waste management activities reported annually by certain covered industry groups as well as federal facilities."

The TRI results made Diane wonder about the relationship between her home's dubious honor, the fisherman's cancers, and the health of the fishing grounds from which she makes a living.

Thus began Diane's journey into the workings of global chemi-



*My life as a fisherwoman has taught me one thing that there are no seas with lines and divisions. Diane Wilson, Texas shrimper.*

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*"When I tried to sink my boat in protest that these companies were poisoning my fishing grounds, the Coast Guard confiscated it."*

—Diane Wilson

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cal companies and environmental regulations.

She began looking into the companies along San Antonio Bay, where she and her family had been fishing for years. She found that one company, Taiwan-based Formosa Plastics, was planning a \$2 billion expansion for increasing its production of polyvinyl chloride

(PVC). Her research into the company revealed that it had been kicked out of Taiwan due to bad practices.

She also learned about the dangers plastics manufacturing and its byproducts can pose to the marine environment.

PVC production accounts for nearly 40 percent of all chlorine used in the United States. Chlorine-based chemicals are one of the primary sources of persistent organic pollutants (POPs), such as polychlorinated biphenyls or PCBs. POPs are highly toxic, fat soluble, synthetic chemicals associated with health problems including infertility, immune system damage, impaired childhood development, hormone disruption, cancer and many other harmful effects in wildlife and humans. Once released into the environment, POPs can travel vast distances across air and sea current. POPs accumulate in fatty tissue and are passed up the food chain as one animal eats another organism.

In addition, relatively invisible, small plastic resin pellets and granules that make up the raw material used in plastic manufacturing are found on large numbers of beaches, including some remote and non-industrialized places, but with greatest concentrations found near industrialized areas. Unlike garbage that is thrown overboard, these relatively unnoticed plastic pellets end up in the marine environment through factory discharges, spillage during transport, and other handling processes.

Small plastic particles have been found in the stomachs of fish,

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## From Sea to Toxic Sea – Part IV Facing Jail, Texas Shrimper Takes On Polluters

marine mammals, and sea birds.

“When people talk about the fish and the marine environment, they act as if they are talking about a commodity, as if it’s something that can just be used. They forget how it’s a part of our lives,” says Diane, of her fight to stop dumping pollutants on her fishing grounds. “People talk about how much [toxins] the bays can handle as if it was nothing. To me, that is like someone telling me how much toxins my beloved child can carry in him.”

Diane believes that the survival of the fishermen depends on healthy oceans and waterways.

“Fishermen are the natural advocates for the water. I know as fishermen we can get lost in the panic and desperation. But, if we believe in our survival, we have to get over that and start fighting for something we all have in common: the water.”

Monique Harden, co-director and an attorney at the Louisiana-based Advocates for Environmental Human Rights, agrees.

“It’d be a wise move for fishermen to come together on this issue. Even if they don’t have a facility nearby, the effluent and pollution from other factories end up in the same waters and polluting the same fishing grounds as theirs,” says Monique. “This [pollution] has to come from somewhere. We can’t blame the tuna for the mercury, but we can go after the companies that are putting that mercury in our environment, and harming the fish and the fishermen’s livelihoods.”

Advocates for Environmental Human Rights work with communities in Louisiana and the greater South whose basic human rights are violated when their health, environment, and quality of life are being harmed by destructive environmental practices. Monique

assists Louisiana communities, where fishermen have brought lawsuits against polluting companies seeking compensation for those who were able to show the link between pollutants and their catch.

In addition to polluting the marine environment, Diane and Monique have learned that when threatened, polluters fight dirty.

Monique was involved in a lawsuit against the U.S. EPA for failure to fulfill its obligations to protect the region’s waterways and the marine environment from polluters, but finds that the agencies involved are afraid to reign in the

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*“We need to make sure  
these companies are  
held accountable for  
their actions.”*

—Diane Wilson

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companies involved.

“The agencies responsible for curbing pollution are afraid to put the industries on a diet. Instead, they keep lowering the standards the industries have to meet,” says Monique. “These companies have no right to do what they are doing. We need safe alternatives and materials produced at these facilities, because industrial pollution is killing us. But, the industry has a lot of political control over these agencies, to the point where we have to sue the agencies to force them to fulfill their legal duties.”

Diane has felt the wrath of the industry in different ways. In response to a community meeting she called in 1989, the companies she believed were polluting the Bay started to turn other fishermen against her by telling them Diane’s fight would destroy their businesses. The community turned against her for creating a controversy. “Everyone came down on me like a hammer. They said I wasn’t being a very good citizen, that I should stop asking questions, and cancel the meeting.”

Fifteen years later, Diane has been arrested, threatened, jailed, shot at, gone on hunger strikes, and attempted to sink her beloved shrimp boat, to make her point. Recently, Diane was kicked out of New York City for six months for climbing the gates of the United Nations, and was advised by a Washington D.C. judge to go home to Texas or risk a future arrest and some serious jail time for her protests at the U.S. Capitol.

Diane’s protests have cost her the *Seabee*, the shrimp boat she used to fish with for fifteen years.

“When I tried to sink my boat in protest that these companies were poisoning my fishing grounds, the Coast Guard confiscated it,” says Diane. “I took out the diesel engine so no one could blame me for polluting the Bay. I knew that they would be pointing to my little engine while they would allow Formosa to pollute illegally.”

The Coast Guard later returned Diane’s boat, but she had sold the engine already and couldn’t afford a new one. So, today, she uses a small skiff with 1,500 hooks to fish for black drum.

“My great-grandfather fished these waters for shrimp and red fish, now I can only fish for black drum. Catching anything else is pretty much illegal,” says Diane. “They’ll hang you from the highest light pole here if you catch one red fish!”

She is facing over four months in jail for climbing the smokestack of the Dow Chemical facility in Texas – something she did in solidarity with the victims of the worst industrial disaster in the world’s history in Bhopal, India.

But, Diane believes that it’s all been worth it. Over the past fifteen years, Diane’s journey has taken her all over the U.S. and around the globe. From Bhopal, India to the straits of Taiwan to North Korea, Japan, and Sri Lanka, Diane has joined others fighting against global polluters.

In her hometown, Diane’s efforts have led to one company’s

*Continued*



## From Sea to Toxic Sea – Part IV Facing Jail, Texas Shrimper Takes On Polluters

adoption of a zero discharge strategy for toxins and another to reduce its waste stream by 32 percent in San Antonio Bay.

Diane feels the most connection with the people of Bhopal, India. Once, while visiting the area, an Indian man started to chase her bus. He held up a handkerchief to her window. Inside were ten snapshots of little tiny infants covered in blood. They were members of his family who had died in the deadly disaster 20 years ago.

“I am a mother of five and, at the time, my kids were small. Those pictures got me where I live. I felt a strong connection to that man,” remembers Diane. “Then I found out that the incident at the Union Carbide plant was going to be treated as if it was just an auto accident and I realized that I couldn’t just sit by and watch this happen.”

The disaster in India was the result of a gas leak from the Union Carbide’s pesticide factory around midnight on December 3, 1984. The Union Carbide gas leak has so far killed more than 20,000 people.

Twenty years after the incident, most survivors have received less than \$500 of Union Carbide’s \$470 million compensation payout, which has been mired in Indian bureaucracy and other delays. The abandoned factory remains littered with toxic waste, leaking poisons into the surrounding neighborhood and their water supply. Dow Chemical, which acquired Union Carbide in 2001, maintains to this day that it has no liability for the industrial disaster. Yet the Indian government has issued an extradition order for Warren Anderson, Union Carbide’s former CEO, to face criminal charges in Bhopal. And a federal district court in New York recently ruled that Dow could be held liable for property damages and compensa-

tion related to the ongoing contamination of the Bhopal pesticide factory site.

Diane believes that accidents like those in Bhopal are preventable.

“We need to start looking at cleaner technologies and safer alternatives to the poisons we are dumping on the world,” says Diane. “Also, we need to make sure these companies are held accountable for their actions. Most of the time, they don’t stick around to see what they have done. Often, they are not headquartered where their factories are located. It’s too easy for them to say they’re sorry for such a disaster from a safe distance.”

In 2002, Bhopal activists embarked on yet another hunger strike in order to bring attention to the issue. Diane received an email from a Bhopal mother she had never met. The email so touched Diane that she embarked upon a hunger strike of her own in solidarity.

The hunger strike catapulted the issue to a larger level. Over a 1,000 people from eight different countries joined Diane and Bhopalis in solidarity.

To take her message directly to the company, Diane took her fast to the gates of Union Carbide, in her town. She parked her truck outside the gate of the company, where she was visited by sympathizers on a daily basis.

In a strong show of solidarity, on the 30th day of her hunger strike, Diane left her truck, walked right in the Union Carbide/Dow factory, scaled a smokestack, chained herself to the equipment, and hung a banner that read “Dow: Responsible for Bhopal.”

For that, Diane has been given a five-month jail sentence and is currently out on bail while her case is being appealed. She’s certain that she will have to spend the time in jail.

But even with jail time looming over her, Diane says it’s all worth it.

“I am not the person I used to be. I was an uninvolved, reclusive,

loner . . . it was just me on that water. I didn’t believe anything existed outside of Seadrift. Now, the way I perceive the world has changed. I have realized that there are no borders that separate me from the rest of humanity. The water in Bhopal [India] is the same as the water in Texas and the water in the Straights of Taiwan,” says Diane, who credits her accomplishments against polluters to serendipity. “I have never planned anything in my life. I see something that’s not right and I take one step and start moving. It’s serendipity. Everyone has a path, and this must be my path. Maybe I am on that ‘Hero’s Journey’ that Joseph Campbell talked about...” ∩