

ANTIBIOTICS AND FISH FARMING

The rapid expansion of industrial farming of salmon and shrimp is creating a number of ecological and public health problems. Some of these problems include drinking water contamination, loss of aquatic habitat, intentional killing of marine mammals and birds, pollution and the widespread use of pesticides, antibiotics and other toxic chemicals to treat pests and diseases.

With the rise in public awareness about the loss of effectiveness of antibiotics due to overuse, consumer groups, public health experts, and environmentalists have begun to challenge antibiotic usage in livestock, poultry and factory fish farming. Antibiotics in fish farming and other animal food production is widely believed to contribute to the dramatic increase in numbers of antibiotic-resistant bacterial strains now threatening human health.

The good news is that in the United States, antibiotic drug use on fish farms was highest in the 1990s and appears to be declining due to the development of vaccines and better management practices¹. The bad news is that unregulated use of antibiotics in fish farms overseas continues to skyrocket. In many countries exporting to the United States, farmed fish and shrimp are produced in crowded facilities with inadequate, or non-existent regulation of antibiotic use. The recent detection of chloramphenicol (vital for treating typhoid fever) residues in shrimp has set off an international public health alarm. Efforts are slowly underway to set standards and procedures to detect risk-laden contamination.²

Antibiotic Drug Use in Factory Fish Farming

So what do we know about antibiotic drug use and fish farming? A quick answer is – not enough. Governments and the corporations who own and operate large-scale industrial fish farms and vertically integrated processing plants have been reluctant to disclose and acknowledge problems created by widespread antibiotic use.

- Publicly available scientific studies and investigations show while antibiotic drug use has declined in terms of sheer poundage, the potency of the drugs has increased in a number of fish producing countries.³
- There is no rigorous inspection of imported farmed fish products at U.S. Customs checkpoints for antibiotic residues.⁴
- There is no rigorous monitoring of on-site antibiotic drug use practices on feedlot fish farms. It has been documented that antibiotic-laced fish have been sold in the U.S. market.⁵
- Fish are cold-blooded creatures and live out their lives in vastly different environments than warmed blooded animals such as hogs and chickens. The microbial interactions between humans, antibiotics, bacteria, fish and aquatic environments are poorly understood.⁶
- New studies showing significant pollution of surface waters with antibiotics and other drugs indicate that there is a potential risk to our drinking water from drug use in land based factory farms.⁷
- At fish processing plants, workers can infect fish with a number of human bacterial agents through cuts, abrasions and sores. At the



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same time, some workers may be getting untreatable bacterial diseases from antibiotic resistance bacteria from the fish they are handling.

- Reliable sources suspect that the recent chloramphenicol contamination of exported Chinese shrimp may be due to the widespread use of this drug as a “wipe-down” disinfectant in unregulated processing for export. In China, the drug is manufactured illegally and widely available.

These are just a few of the concerns expressed by public health, animal welfare, environmental, and marine conservation specialists. Perhaps of equal concern, however, is what we do not know. For example, we don't yet know all of the ways that people can become exposed to resistant bacteria, or how genetic manipulation may affect resistance to a given antibiotic used in feedlot fish farming. Information has been difficult to obtain about the extent of antibiotic use that is extra-legal, beyond the purposes that are currently approved. Some antibiotics are easily obtained and can be used with little fear of detection, since the government has all but abandoned testing of imported seafood. For these reasons, feedlot fish farming may be contributing to the pool of antibiotic resistant bacteria disproportionately to the legally reported antibiotic drug use.

What Can be Done?

1. Given the global nature of factory fish farming and the antibiotic resistance crisis in human health, any use of antibiotics contributing to the problem should receive immediate attention by federal and state authorities responsible for monitoring food safety. This is extremely critical since 70 percent of seafood consumed in the United States is imported from other countries. Shrimp and Atlantic salmon are almost always farmed and oversight of antibiotic drug use is inadequate. Our Food and Drug Administration, U.S. Customs Inspectors and others must step-up their level of vigilance. Infrequent sampling and “spot-checks” will no longer do, given the scope of the problem.
2. For your health, ask your fish counter manager which fish and shrimp are safe and without antibiotics. Organic certification will guarantee antibiotic-free.
3. When in doubt, buy Marine Stewardship Council Certified wild fish – they will always be antibiotic-free.

- 1 Benbrook, Charles. 2002. “Antibiotic Drug Use in U.S. Aquaculture.” Institute for Agriculture and Trade Policy. <http://www.iatp.org/fish/library/antibiotics>
- 2 Chamberlain, George. 2002. “Food Safety First.” *Global Aquaculture Advocate*. 5(1):2.
- 3 Warren Bell and Sergio Paone. 2001. “Human Health Risks Associated with Salmon Farming.” Presentation to the Legatt Inquiry, Vancouver, British Columbia. October 9, 2001.
- 4 Benbrook 2002.
- 5 Bell and Paone 2001.
- 6 Benbrook 2002.
- 7 Chee-Sanford, J.C., R.I. Aminov, I.J. Krapac, N. Garrigues-Jeanjean, and R.I. Mackie. 2001. “Occurrence and Diversity of Tetracycline Resistance Genes in Lagoons and Groundwater Underlying Two Swine Production Facilities.” *Applied and Environmental Microbiology*. 67(4): 1494-1502.

For more information on Antibiotic Resistance, go to <http://www.keepantibioticsworking.org>. For more information on Antibiotics in Fish Farming, go to <http://www.iatp.org/fish/library/antibiotics>. For more information about factory fish farming and IATP's Fish and Marine Conservation Program, go to <http://www.iatp.org/fish> or call our toll free hotline 877-565-1287. Institute for Agriculture and Trade Policy, Fish and Marine Conservation Program, 2105 First Ave. S., Minneapolis, Minnesota 55404