



COOL!



Country of Origin Labeling

Grade Level:

Appropriate for
all grade levels

Subject Area:

Geography, Mathematics,
Biology, Human Health,
Disinfection, Sanitation,
Packaging

Time:

Preparation: one week
Activity: 50 minutes
Clean-up: 5 minutes

Student Performance Standards (Sunshine State Standards):

01.02 Analyze the impact of agriculture on the local, state, national, and global economy (SC.912.E.5.7; SC.912.L.14.1; SC.912.L.15.13; SC.912.L.17.1, 5, 13, 18, 20; SC.912.N.4.2; MA.912.A.2.1; MA.912.S.3.1, 3).

11.11 Identify aquaculture/mariculture species of commercial importance in your area (SC.812.L.17.16).17.01 Recognize and observe safety and sanitary procedures in harvesting and processing aquaculture/mariculture species (SC.912.L.17.4, 5, 8; SC.912.L.18.6, 11; SC.912.N.2.4; MA.912.A.1.1, 2, 4, 5; MA912.A.2.1, 2, 4, 5; MA.912.A.3.5; MA.912.A.10.1, 2; MA.912.G.2.7; MA.912.S.3.1, 2, 3).

17.02 Determine harvesting practices recommended for commercially desirable aquaculture/mariculture species (SC.912.L.17.4, 5, 8; SC.912.L.18.6, 11; SC.912.N.2.4; MA.912.A.1.1, 2, 4, 5; MA912.A.2.1, 2, 4, 5; MA.912.A.3.5; MA.912.A.10.1, 2; MA.912.G.2.7; MA.912.S.3.1, 2, 3).

18.01 Identify possible market outlets for aquaculture/mariculture products (SC.912.L.17.4, 5, 8; SC.912.L.18.6, 11; SC.912.N.2.4; MA.912.A.1.1, 2, 4, 5; MA912.A.2.1, 2, 4, 5; MA.912.A.3.5; MA.912.A.10.1, 2; MA.912.G.2.7; MA.912.S.3.1, 2, 3).

18.04 Determine legal and commercially important methods of transporting and marketing (SC.912.L.14.16, 17, 19; SC.912.L.17.6, 9, 11, 13, 14, 15, 16, 17, 18, 20; MA.912.A.1.1, 2, 3, 4, 5; MA.912.A.2.1; MA.912.F.3.12, 14; MA.912.F.5.21; MA.912.S.1.1, 2; MA.912.S.3.1).

20.01 Identify and observe laws and regulations affecting the industry in the local area (SC.912.L.17.4, 5, 8; SC.912.L.18.6, 11; SC.912.N.2.4; MA.912.A.1.1, 2, 4, 5; MA912.A.2.1, 2, 4, 5; MA.912.A.3.5; MA.912.A.10.1, 2; MA.912.G.2.7; MA.912.S.3.1, 2, 3).

20.03 Identify and list agencies regulating the industry and their functions (SC.912.L.17.4, 5, 8; SC.912.L.18.6, 11; SC.912.N.2.4; MA.912.A.1.1, 2, 4, 5; MA912.A.2.1, 2, 4, 5; MA.912.A.3.5; MA.912.A.10.1, 2; MA.912.G.2.7; MA.912.S.3.1, 2, 3).

Objectives:

1. Students will be able to identify countries around the world.
2. Students will be able to identify the country of origin for aquacultured foods.
3. Students will be able to use mathematical equations as they relate to aquaculture (food conversion ratios, price/pound, pounds to ounces, shipping costs of products based on weight and volume).
4. Students will be able to explain the importance of COOL as it relates to human health.
5. Students will be able to explain the importance of sanitation in the packaging process and at home.

Abstract:

We are all familiar with the seafood counter at our local grocery store or supermarket. Many of us will often stop, especially with our children and admire the “catch of the day” even if we are not planning to purchase anything special. The bottom line is that the shrimp, scallops, clams, oysters, crayfish, crabs, fish fillets, whole fish and even live fish and lobsters are COOL. That is not only COOL to look at but also COOL as in the Country Of Origin Labeling.

The United States Congress originated the idea of Country of Origin Labeling in 2002 as part of the Farm Bill and through legislation has finally made it a law. The COOL Law went into effect on March 16, 2009. Country of Origin Labeling is required on all muscle cuts and ground beef, lamb, chicken, goat and pork, as well as both wild and farm raised fish and shellfish, perishable agriculture commodities (fresh and frozen fruits and vegetables), also included are peanuts, macadamia nuts, pecans and ginseng which are to be sold in a supermarkets and grocery stores that carry a full line of products.

In this very simple activity students will be asked to list as many seafood items as possible along with the Country Of Origin for each item (possible field trip). The students can also be asked to bring in examples (Labels) of other items that are commonly used in their homes. This activity will not only allow student teacher interaction regarding the Country Of Origin of many different seafood (aquacultured or wild) products, but can also be used to teach other disciplines such as disinfection, sanitation, human health, packaging, not to mention mathematics (price per pound, percent yield, food conversion ratios...) and especially geography.

Interest Approach:

Select one of the articles from below and read aloud to the students. Discuss the impact of not knowing where your food comes from and lead into an introduction of COOL.

Student Materials:

1. Pencil
2. Paper

NOTE: Depending on the grade level or if this activity is converted into a field trip, sufficient time should be given in order to complete this activity.

Teacher Materials:

<i>Material</i>	<i>Store</i>	<i>Estimated Cost</i>
A world map (1/classroom)	Amazon-World Wall Map Deluxe Laminated (M Series Map of the World) by Rand McNally	\$12 and up (new)
Pushpins	Office Depot, WalMart	\$1 and up (50 count)
Post-it Notes	Office Depot, WalMart	\$7 and up (100 count)
Dry erase markers	Office Depot, WalMart	\$6 and up (4 count)

Student Instructions:

1. List as many seafood items as you can. Include the country of origin for each item, as seen at the local grocery store.
2. Bring in examples (labels) of other food products commonly used in your home with COOL.

NOTE: This activity is best performed over a week (including a weekend) in order to allow each student time to visit their local grocery store. It could also be performed as a field trip. Extra credit can be given for the student who acquire the most labels, as well as the one who can pinpoint those locations on a world map. This can be done as individuals or as teams.

NOTE: Depending on the grade level, students could be asked to produce the Genus and species of each seafood item as well as the common culture methods.

Teacher Instructions:

Preparations:

The teacher should review the Country Of Origin Labeling (COOL) portion of the curriculum in order to familiarize his or herself with the pros and cons of Country Of Origin Labeling. Special attention should be taken to human health as well as the drawbacks and benefits related to the term Made in America and the power behind the statement Buy American. Gather a few labels to have on hand in addition to those brought in by the students.

Activity:

The teacher should have a world map present in order to be able to post the locations reflecting the Country Of Origin for each seafood item. As the students begin to bring in the COOL's the teacher may discuss the reasons why the wild-caught or aquaculture produced items originate from those areas (i.e. salmon and trout / cold climates, shrimp and catfish / warm climates).

Post work/Clean-up:

Other than removing the pushpins, stickers, dry erase marks from the map and either filing or throwing away old COOL labels there should be no clean up.

Anticipated Results:

1. The students will understand that seafood doesn't originate from the grocery store or supermarket. This realization should teach the students about the above-mentioned subject areas as well as strengthen the term Made in America.

Support Materials:

1. *Is Fish Farming Safe*
Terry McCarthy/Campbell River
Sunday, November 17th, 2002 TIME.com
2. *Exporters of Shrimp Call for Stricter Testing*
Thursday, July 17th, 2008 LIVEMINT.com
3. *FDA Detains Imports of Farm-Raised Shrimp From China*
June 29th, 2007 SHRIMPNEWS.com
4. *Insignificant Amounts of Melamine Get into Some of Zeigler's Shrimp Feeds*
June 29th, 2007 SHRIMPNEWS.com
5. *Country Reports*
June 29th, 2007 SHRIMPNEWS.com
6. *Questions and Answers on FDA's Import Alert on Farm-Raised Seafood from China*
FDA.gov

Explanation of Concepts:

1. Geography
Worldwide wild caught and aquaculture produced seafood and the reasons why those items are produced in those areas (i.e. salmon and trout / cold climates, shrimp and catfish / warm climates).

2. Mathematics

Become familiar with mathematical calculations used in aquaculture such as food conversion ratios, price per pound, pounds to ounces, shipping cost associated with each product (cargo rates based on both weight and volume).

3. Biology

Fish physiology along with water quality requirements, broodstock manipulation, hatchery husbandry such as larval rearing, juvenile nutrition, and grow out. Human health related to disinfection, sanitation, and packaging of seafood products as well as the occasional foreign cases of illegal chemical usage.



Support Materials



Is Fish Farming Safe

By Terry McCarthy/Campbell River
Sunday, November 17th, 2002 TIME.com



Flying in a seaplane up the east coast of Vancouver Island in British Columbia you see little but forested hills, a myriad of islands and the blue waters of the narrow channel that runs from Seattle to the Alaska Panhandle. As the plane drops over a ridge, a floating hut appears, anchored in the channel and nestled in a grid of net-covered pens. It all looks innocuous enough — no smoking chimneys, no visible plumes of

discharge, no growling of chainsaws, not even a road.

This is Venture Point, 15 minutes northeast of Campbell River by air, one of 91 salmon farms licensed to operate in British Columbian waters. They produce some 50,000 tons of salmon a year, most of it destined for the U.S. market. Young men work their way along the floating walkways around the 10,000-sq.-ft. pens, tossing brown food pellets that are met by a swirl of fish. In these 12 pens, there are about 1 million salmon, each a delicious, silver-sided beauty, and when harvested in 18 months, they will fetch more than \$10 million in retail sales.

What could be wrong with this picture? The farm-grown harvest is cheap, predictable and year-round. "A fillet of farmed salmon in your supermarket is fresher than a wild fish netted at sea that can take five to six days to get to harbor," says Odd Grydeland, 54, former president of the British Columbia Salmon Farmers Association and an executive at Heritage Salmon, based in New Brunswick, B.C. Moreover, each farm-grown salmon means, in theory, one less fish taken from wild stocks that have been declining for decades. (Farm-raised fish now make up most of the fresh salmon sold in U.S. supermarkets.)

But the story isn't that simple. Salmon farming can be a dirty business. According to Otto Langer, 56, a biologist who worked 30 years for Canada's Department of Fisheries, a large salmon farm may pour as much liquid waste into the sea as a small city. Add to that the plagues of destructive sea lice that thrive in densely packed salmon pens and the schools of farm-grown fish that inevitably

escape to the open sea, where they spread diseases and compete for food and breeding grounds with wild stocks.

Because salmon are voracious eaters of smaller species, it takes several pounds of wild fish, ground up into meal, to yield 1 lb. of farmed salmon — an exchange that depletes the world supply of protein. The diet of farmed salmon lacks the small, pink-colored krill that their wild cousins eat, so the flesh of farmed fish is gray; a synthetic version of astaxanthin, a naturally occurring pigment, is added to the feed.

Aquaculture — the commercial raising of fish — is being touted as a "blue revolution," a seagoing version of the Green Revolution that vastly multiplied agricultural output in underdeveloped countries. But just as the Green Revolution sparked concerns about its reliance on pesticides and chemical fertilizers, so has the blue revolution provoked a rebellion among scientists and environmentalists who fear that the industry, if left unregulated, could wreak havoc in oceans and estuaries. "We are not against aquaculture," says Langer, "but we are against the way it is being done now."

It has been several decades since there were enough fish in the sea to meet, on a sustainable basis, the growing worldwide demand for seafood — which accounts for 16% of global animal-protein intake, up from 14% in the early 1960s. About half the world's wild fisheries have been exhausted by overfishing. In the North Atlantic, one of the most depleted oceans, populations of popular fish (cod, flounder, haddock, hake and tuna) are just one-sixth of what they were a century ago. A European Union panel last week backed calls for a total ban on the fishing of cod in the North Atlantic and a moratorium on the fishing of haddock and whiting there.

Aquaculture was supposed to pick up the slack. It's already the world's fastest-growing food industry, with production increasing more than 10% a year. Farmed fish and shellfish supply 30% of all the seafood consumed worldwide today, up from 10% two decades ago.

But while the principles of aquaculture are generally accepted, experts fiercely debate which types of fish farming are safe to pursue. Says Andrew Fisk, 37, aquaculture coordinator for Maine's department of marine resources: "Aquaculturists used to be the good guys, and now they aren't, and there is a lot of anger on both sides."

On an eco-friendly scale, bivalves generally rate highest among the more than 220 species of fish and shellfish that are cultivated commercially. Mussels and oysters are filter feeders that make the surrounding water cleaner, so small-scale farming of them is not usually harmful to the ecosystem. Farming of crayfish in China — the largest supplier to the U.S.--is a relatively low-maintenance, drug-free business carried out in rice paddies. Next come the vegetarian freshwater species that do not need large quantities of fish meal — carp, catfish and tilapia. At the bottom are salmon and shrimp, onetime luxury foods that, thanks to aquaculture, can be purchased around the world in any season at supermarket prices. Both

species eat several pounds of fishmeal to gain a pound of weight. And both create lots of waste.

To see fish farming at its worst, travel to Chile, where salmon farming has boomed in the past decade and generates \$1 billion a year in export revenue. "A film of feed leftover made of fish oil, animal fat and transgenic soybean oil floats on the water around the salmon farms," says Ronald Pfeil, 67, a cattle farmer in Chile's remote Aysen region. "When the tide is low, the beaches stink."

Under international pressure, Chile introduced strict new regulations in January. But the problems surrounding fish farming are complex, and some are only dimly understood. Daniel Pauly, 55, a professor of fisheries science at the University of British Columbia, has calculated that it takes 2 to 5 lbs. of anchovies, sardines, menhaden and the other oily fish that comprise fish meal to produce 1 lb. of farmed salmon, which he says makes no sense in a world trying to increase the amount of available protein. Kentucky State University biologist James Tidwell, 47, a former president of the World Aquaculture Society, points out, however, that wild salmon are bigger eaters than that — consuming at least 10 lbs. of fish to add 1 lb. in weight — and argues that harvesting large amounts of short-lived species like menhaden is no more harmful than mowing the lawn. "Fish-meal fish are nature's forage," he says. "Cropping them merely increases their productivity."

Disease is always a problem when fish are raised in close quarters. After a 1999 outbreak of infectious salmon anemia in fish farms in Scotland, all the farm-grown fish within 25 miles were slaughtered. A similar anemia outbreak in Maine two years ago led to the destruction of more than 2.5 million fish — and to federal insurance payouts totaling \$16 million. "The more aquaculture there is," warns Callum Roberts, senior lecturer in marine conservation at the University of York in England, "the more disease there will be."

Some of the antibiotics that fish farmers give their stock to minimize disease pass easily into the surrounding environment, and some are highly toxic. Last year traces of the banned drug nitrofurazone, which is dangerous to humans, were found by European Union inspectors in shrimp from Myanmar, Thailand and Vietnam. According to Wang Sihe, an expert with the Jiangsu Seawater Fisheries Research Institute, Chinese shrimp farms have mixed fish food with antibiotics and dumped it into fishponds. Chloramphenicol, an antibiotic that can cause fatal anemia in humans, has also been used.

The fetid water that runs off shrimp farms is particularly damaging to the environment. Thailand, with 25,000 coastal shrimp farms, is the world's largest exporter of shrimp--\$3 billion worth in 2001 alone. Through last June, Thailand accounted for 28% of the shrimp imported into the U.S. But this commerce is costly. Long strips of coastline south of Bangkok now look like powdery gray moonscapes. Shrimp farms can raise the salinity of the surrounding soil and water, poisoning the land for agriculture. Some flush their effluent into the sea, killing mangrove trees. Shrimp farming is also practiced in Brazil, India and Ecuador, and in the U.S. in Florida, South Carolina and Texas.

Parasite infestation is another chronic problem of high-density seafood farms. One of the most damaging organisms is the sea louse, which breeds by the millions in the vicinity of captive salmon. In 1989 Peter Mantle, who owns a wild salmon and sea-trout sport fishery in Delphi on the west coast of Ireland, discovered that young trout returning to his river from the ocean were covered with lice that were boring through the trout's skin and feasting on their flesh. The sea lice were breeding near newly installed salmon farms in the inlet fed by his river. By the time the salmon farmers started dosing their pens with anti-sea-lice chemicals, the sea-trout fisheries of the west of Ireland were effectively dead. "Sea-trout fishing was sustainable and eco-friendly," says Mantle, "but the salmon farms killed it off within a decade."

In the long run, wild-fish stocks may face an even greater threat from captive fish escaping and competing with or consuming native fish, or crossbreeding with them and diluting the genes that have helped them survive. Fish escapes are common: nets are ripped open by predators or storms, fish in ponds get swept into channels by rainfall, others are released accidentally during transport. Bighead and silver carp that were introduced to China's plateau lakes in the 1950s have cleared those waters of whole species of indigenous fish. And Asian carp, which were introduced in Mississippi Delta catfish ponds to control parasites, escaped in the early 1990s and have migrated up the Mississippi and Illinois rivers to within 25 miles of Lake Michigan, threatening native fish with their voracious feeding habits.

Experts say aquaculture done right could easily feed the world without polluting it. A favored method of environmentalists is the hard-walled pen system that isolates the fish from the surrounding water in 40-ft.-deep tanks and catches their waste in the bottom. Even more secure are containment ponds built onshore into which seawater is pumped. Agrimarine Industries in Cedar, B.C., is testing a site with eight tanks 100 yds. from the sea and 40 ft. above it. But production costs are expected to be about \$2.20 a fish — double what it costs to raise a salmon in a net pen.

Although salmon farming for decades has been a highly profitable industry and shows strong promise for the long term, profits are being squeezed today — making it more difficult for operators to adopt more expensive, eco-friendly methods. About 75% of salmon-farming firms are relatively small and privately held and don't make their finances public. The large, publicly held companies in the business — including Dutch food producer Nutreco Holdings NV and Norwegian seafood giants Fjord Seafood ASA, Stolt Sea Farm and Pan Fish ASA — are feeling the pinch. Pan Fish recently reported a quarterly operating loss of \$18.5 million.

The Chinese, who have been farming fish for 2,000 years, pioneered a method in which nothing is wasted. Farmers dig ponds around rice paddies and feed carp in the ponds with weeds from the rice field. The silt from the ponds is used as fertilizer for the fields, and crabs are grown to eat pests. Some of those techniques are being adapted in Western fish farms. In Tuscaloosa, Ala., Dan Butterfield, 59, raises bass, carp, catfish and other species in the same pond; the sun and the catfish feces stimulate the growth of phytoplankton, which feeds the other species. His water

stays relatively clean, with no need to discharge wastes. "I am probably the most environment-friendly fish farmer in the country," claims Butterfield, who figures he nets about \$1,000 an acre each year on his 150 acres of ponds.

But these alternative techniques tend to be expensive and difficult to scale up, which make them a hard sell for U.S. fish farmers. "The challenge is to have the industry grow in a way that is both ecologically sensitive and sustainable," says Rebecca Goldberg, 44, a scientist who co-authored a report on the aquaculture industry last year for the Pew Oceans Commission. "But until the government steps in, there will be no incentive for the industry to act."

Boatmen who catch wild fish and shellfish are often more strictly regulated than seafood farmers, whose wholesome image has helped them resist government oversight. But after eight years of discussion, shrimp farmers around the world are considering adoption of a universal certification process that would require them to comply with standards on the citing of ponds, effluent treatment, the reduction of chemicals and disease management. In exchange, their products would be labeled eco-friendly. By 2004, labels indicating whether seafood is farmed or wild will become mandatory in the U.S. (though they won't be required on restaurant menus). Jason Clay, 51, a senior fellow at World Wildlife Fund who helped develop the standards, is optimistic that they will be accepted. "As the industry gets more competitive, those who survive will be those who do it better and cleaner," he says.

Except in Maine, there's little talk of certification systems among salmon farmers. But there are quiet moves to clean up the industry from within. "A lot of farms were badly run," admits Peter Sawchuk, 49, who has been farming salmon in British Columbia since 1989 for Marine Harvest and Agrimarine. "They were overfed, poorly sited and there was too much drugging. But now we are getting better. We are not in the business of destroying our farms."

Venture Point, near Vancouver Island, is something of a showcase. Underwater video cameras monitor the salmon feeding so that extra pellets are not added after the fish have stopped eating. And those pellets contain up to 60% soy meal instead of fish. Nutreco, the company that owns Venture Point, individually vaccinates young salmon, reducing the need for larger quantities of antibiotics later on. Venture Point was located in a narrow channel east of Vancouver Island to take advantage of powerful currents that prevent wastes from building up under the pens.

If techniques like those used at Venture Point are widely adopted, fish farming could become sustainable while remaining profitable. If methods don't change, either voluntarily or by government regulation, we may get plenty of fish and shrimp to eat — at least for a while — but lose the wild stocks they came from and the clear blue waters in which they once swam.

Exporters of Shrimp Call for Stricter Testing

Thursday, July 17th, 2008 LIVEMINT.com

Kochi: Frustrated by the rejection of shrimp consignments to the European Union (EU) following the detection of antibiotic residues, Indian exporters are demanding stricter testing at local aquaculture farms. The UK destroyed a consignment from India last month after detecting residues of potentially harmful antibiotics used to treat the shrimp.

In a double blow for exporters, demand, meanwhile, is increasing for low-priced white shrimp, or *vannamei*, that's not farmed in India. That has brought down both demand for India's tiger shrimp, and its price.

Shrimp exports accounted for 60% of Indian's marine exports worth Rs7,570 crore (~\$1.6 billion) in fiscal 2007-08. The EU had a share of around 38%.

Seafood Exporters Association of India (SEAI) secretary-general Elias Sait says though the number of rejections of consignments to the EU is as low as 10 so far this calendar year, down from 45 in 2007, the continued use of antibiotics such as chloramphenicol or nitrofurans at aquaculture farms has aroused concern.

According to Sait, chloramphenicol could cause anemia in susceptible individuals and nitrofurans could damage the genes, leading to cancer.

Exporters took up the issue with the government trade promotion body, the Marine Products Export Development Authority (MPEDA), this week and the authority has promised to set up more testing facilities at farms. Two years ago, when several Indian consignments were rejected in the EU, MPEDA had taken steps to test the shrimp at farms to ensure that only quality material went to processing centers.

Whenever antibiotic residues are detected in shrimp, the EU puts out an alert, blacklisting the exporter. Member-countries then stop trading with the exporter, and getting out of the blacklist is a cumbersome process, says Sait.

Exporters are also finding it difficult to sell black tiger shrimp because of a global shift towards the white variety. "Rising inflation across the globe is forcing people to go for *vannamei*, which is much cheaper compared with black tiger shrimp," says K.S. Choudhry, director of Apex Exports Ltd in Andhra Pradesh. While the price of 1kg of *vannamei* is around Rs180, the small-sized black tiger costs Rs220-230. The *vannamei* yield from 1ha is around 20 tons, five times more than the yield of black tiger, Choudhry says. The cost of production of *vannamei* is only one-third that of black tiger.

The government last year accepted, in principle, the induction of this exotic variety and exporters were expecting guidelines on *vannamei* cultivation by January, after a study by a risk analysis committee. But the guidelines have not yet been framed and the season for shrimp farming has already begun.



“It is important for the industry to produce according to the taste of consumers. Six months after the government promised to issue the guidelines for introduction of *vannamei*, very little has been done,” Choudhry says.

FDA Detains Imports of Farm-Raised Shrimp From China

June 29th, 2007 SHRIMPNEWS.com

On June 28, 2007, the USA Food and Drug Administration (FDA) announced a broader import control of all farm-raised catfish, basa, shrimp, dace (related to carp) and eel from China. FDA will start to detain these products at the border until the shipments are proven to be free of residues from drugs that are not approved in the United States for use in farm-raised aquatic animals.

This action by FDA, a part of the USA Department of Health and Human Services, will protect American consumers from unsafe residues that have been detected in these products. There have been no reports of illnesses to date.

“We’re taking this strong step because of current and continuing evidence that certain Chinese aquaculture products imported into the United States contain illegal substances that are not permitted in seafood sold in the United States,” said Dr. David Acheson, FDA’s assistant commissioner for food protection. “We will accept entries of these products from Chinese firms that demonstrate compliance with our requirements and safety standards.”

During targeted sampling from October 2006 through May 2007, FDA repeatedly found that farm-raised seafood imported from China were contaminated with antimicrobial agents that are not approved for this use in the United States.

The contaminants were the antimicrobials nitrofurans, malachite green, gentian violet, and fluoroquinolone. Nitrofurans, malachite green, and gentian violet have been shown to be carcinogenic with long-term exposure in lab animals. The use of fluoroquinolones in food animals may increase antibiotic resistance to this critically important class of antibiotics.

None of these substances is approved for use in farm-raised seafood in the United States, and the use of nitrofurans and malachite green in aquaculture is also prohibited by Chinese authorities. Chinese officials have acknowledged that fluoroquinolones are used in Chinese aquaculture and are permitted for use in China.

The levels of the drug residues that have been found in seafood are very low, most often at or near the minimum level of detection. FDA is not seeking recall of products already in USA commerce and is not advising consumers to destroy or return imported farm-raised seafood they may already have in their homes. FDA is concerned about long-term exposure as well as the possible development of antibiotic resistance.

The FDA action includes conditions under which an exporter can be exempted from FDA’s detention action by providing specified information to the agency. This information must demonstrate the exporter has implemented steps to ensure its products do not contain these substances and that preventive controls are in place. The additional import controls placed on seafood from China will last as long as needed.

FDA may allow the entry into the United States and subsequent distribution into the marketplace of individual shipments of the Chinese farm-raised seafood

products if the company provides documentation to confirm the products are free of residues of these drugs.

Additional Information: Questions and Answers on FDA's Import Alert on Farm-Raised Seafood From China (<http://www.cfsan.fda.gov/~frf/seadwpe.html>).

Source: USA Food and Drug Administration Webpage. FDA News/FDA Detains Imports of Farm-Raised Chinese Seafood/Products Have Repeatedly Contained Potentially Harmful Residues (<http://www.fda.gov/bbs/topics/NEWS/2007/NEW01660.html>). Media Inquiries: Michael Herndon (phone 301-827-6242). June 28, 2007.

Insignificant Amounts of Melamine Get into Some of Zeigler's Shrimp Feeds
June 29th, 2007 SHRIMPNEWS.com

Uniscope, a Colorado firm, founded in 1975, manufactures and markets a complete line of pellet binders, water stability binders, anti-bridging agents, pellet lubricants, and additives for use in the production of pelleted and extruded animal feeds. Small amounts of one of its products, Aqua-Bond, which contains melamine, got into Zeigler's pelleted and crumbled shrimp feeds. Zeigler's extruded shrimp feeds and shrimp larval feeds do not contain Aqua-Bond. Uniscope got the Aqua-Bond from Tembec BTLRSR.

The New York Times reports: On May 30, 2007, federal officials announced that Tembec BTLRSR, a Canadian forest products company with a small chemical plant in Toledo, Ohio, USA, was using melamine to make binding agents that ended up in feed for livestock, fish and shrimp.

Dr. David Acheson, assistant commissioner for food protection at the USA Food and Drug Administration said the levels of melamine and melamine-related compounds in Tembec's products were far lower than those found in the wheat flour from China that ended up killing pets in the USA. Consequently, the authorities thought the contamination did not appear to pose a risk to human health. Nevertheless, it issued a voluntary recall on finished feed made with Aqua-Bond.

Rush PR News reports: The USA Food and Drug Administration (FDA) is alerting livestock and fish/shrimp feed manufacturers about a voluntary recall of products used in feed production because several have been found to contain melamine and related compounds.

Based on the levels of melamine and related compounds in the initial ingredients, FDA estimated the probable level of melamine and related compounds in livestock feed at less than 50 parts per million (ppm). The estimated amount in shrimp feed was less than 465 ppm.

FDA advises feed manufacturers to recall finished feed that is made with Aqua-Bond. FDA advises those who mix their own feed to contact their feed manufacturer.

The Tembec and Uniscope products also reportedly contain a urea formaldehyde resin-type ingredient. FDA is investigating its use in the Tembec and Uniscope products and will take appropriate regulatory action if warranted.

Uniscope's Press Release: Johnstown, Colorado, USA...Uniscope, Inc., recently informed the Food and Drug Administration that a sample of resin incorporated into a binding agent for animal feed tested positive for the chemical compound melamine. The melamine in the resin comes from our supplier who added it without Uniscope's knowledge or consent. These types of resin products have been historically used in animal feeds. Uniscope has received no reports of any illness or deaths associated with these products. In addition, the company has seen no publicly available information that would lead it to believe that its products pose any adverse consequences to the health of humans or animals. Information: Charles Russell (303-549-3130), Uniscope Inc., P.O. Box 1039, 310 South 1st. Street,

Johnstown, CO 80534 USA (phone 970-587-4614, fax 970-587-4372, email customerservice@uniscope-inc.com, webpage <http://www.uniscope-inc.com>).

Zeigler's Press Release: In cooperation with the USA Food and Drug Administration, Zeigler Bros., Inc., is issuing a voluntary nationwide recall of its pelleted and crumbled shrimp feeds. Zeigler is recommending that its customers immediately stop feeding its pelleted and crumbled shrimp feed products. It is in the process of providing the entire shrimp feed product list on its website (www.zeiglerfeed.com).

The recalled products contain Aqua-Bond, which has been found to contain the chemical melamine and related compounds. Aqua-Bond is used in the production of pelleted and crumbled shrimp feeds. It is used in a much lower concentration than similar ingredients used in the recent pet food recall.

No other Zeigler products are involved in this voluntary recall. Only Zeigler pelleted and crumbled shrimp feeds are formulated with Aqua-Bond. Zeigler extruded shrimp feeds and shrimp larval feeds do not contain Aqua-Bond and are not included in the recall.

Zeigler is working closely with the FDA and with Uniscope, its supplier for Aqua-Bond, to provide timely product information and immediate recall instructions to its customers. Zeigler is not aware of any instances of ill health effects in shrimp fed with Zeigler pelleted and crumbled shrimp feeds. Information: Zeigler Bros., Inc., P.O. Box 95, Gardners, PA 17324 USA (phone 717-677-6181, fax 717-677-6826, email info@zeiglerfeed.com, webpage www.zeiglerfeed.com).

FDA has issued a safety/risk assessment on melamine that can be viewed at www.cfsan.fda.gov/~dms/melamra.html. For more information on melamine, go to http://en.wikipedia.org/wiki/Melamine#Reported_widespread_use_in_Chinese_feed_and_food.

Sources: 1. The New York Times. Business Day/Melamine Discovered in Feed Agent. Andrew Martin. May 31, 2007. 2. Rush PR News. Tembec and Uniscope Voluntary Recall Feed Ingredients (<http://www.rushprnews.com/press/archives/123812>). Anne Howard (www.annehowardpublicist.com). May 31, 2007. 3. Uniscope's Webpage (<http://www.uniscope-inc.com/>). Melamine Press Release with FDA Explanation (http://www.uniscope-inc.com/Uniscope_%20Press%20Release%203%20final.pdf). May 31, 2007. 4. Zeigler's Webpage (www.zeiglerfeed.com). News Release. Zeigler Issues a Voluntary Recall on Pelleted and Crumbled Shrimp Feeds (http://www.zeiglerfeed.com/pdf/Zeigler_Press_Release_May_english.pdf). May 31, 2007.

Country Reports

June 29th, 2007 SHRIMPNEWS.com

Belize

Shrimp Farm For Sale

Company: West Indies Tides

Location: Maya Beach, Belize

Price: \$20,000,000

Closing Date: July 15, 2007

Contact: Paul duX (phone 501-622-3858, email pdux_aquamon@yahoo.com).

Source: AquaNic (The Aquaculture Network Information Center, a gateway to the world's electronic aquaculture resources, <http://aquanic.org/index.htm>). Jobs Directory (http://www.aquanic.org/Text/job_serv.htm)/In cooperation with the WAS Employment Service. Search jobs (<http://aquanic.org/jobs/search.asp>). Investor opportunity of a lifetime (<http://aquanic.org/jobs/jobinfo.asp?jobid=2463>). Posted June 25, 2007.

China

Penaeus vannamei Production

China is now producing about one million metric tons of *Penaeus vannamei* a year. About 80% of China's production is consumed in country, mainly in places like Shanghai and Guangzhou.

Source: Seafood.com (an online, subscription-based, fisheries news service). China's turn to being an enormous shrimp consuming country putting pressure on vannamei prices. Editor and Publisher, John Sackton (phone 781-861-1441, email jsackton@seafood.com). June 21, 2007.

Ecuador

Expalsa

Expalsa, a fully integrated shrimp farm in Ecuador, has announced that it has been accredited with a ISO 22000 certification by the Société Générale de Surveillance. Together with its subsidiaries and joint ventures, SGS provides inspection, verification, testing and certification services through a network of over 1,000 offices and laboratories around the world.

The ISO 22000 standard defines food safety management requirements for companies that need to meet and exceed safety regulations all over the world. It can be used by all organizations in the supply chain from farmers to food services, to processing, transportation, storage, retail and packaging.

According to Expalsa spokesperson Humberto Trujillo, "This is part of our continuous process of improving our systems in order to provide our customers with the safest product available."

Source: Seafood.com (an online, subscription-based, fisheries news service). Expalsa, an Ecuadorian shrimp exporter, is one of first seafood companies to be certified to ISO 22000. Editor and Publisher, John Sackton (phone 781-861-1441, email jsackton@seafood.com). June 21, 2007.

Egypt

We Need Shrimp Know-How

We at Bustan Trading are pioneers in fish farming and wish to add shrimp farming to our activities, but we do not have the know-how. We are looking for consultants and companies that could construct turnkey shrimp farms and hatcheries for us.

Information: Mahmoud A. Wahab (email ramy.mahmoud@link.net, fax 0020222735796).

Source: Email to Shrimp News International from Mahmoud A. Wahab on June 17, 2007.

India

Crocodiles Protect Mangroves from Shrimp Farmers

Kendrapara, Orissa...In a novel experiment to prevent the destruction of mangroves, forest department personnel have let loose 48, large, captive-bred crocodiles in the Bhitarkanika Wildlife Sanctuary to ward off human interference and shrimp farmers.

Source: Kalinga Times. Crocodiles let loose to save mangrove forest (http://www.kalingatimes.com/orissa_news/news/20070618_Crocodiles_let_loose_to_save_mangrove.htm#). Manoj Kar. June 18, 2007.

India

Penaeus monodon Job

Moana India (Pvt.), Ltd., the first SPF *Penaeus monodon* project in India is looking for technical staff for its hatchery and farm.

Salary: Best in the industry commensurate with the qualification and experience

Qualifications: Graduate/post graduate in aquaculture or fisheries

Experience: Minimum of 2-3 years of experience in the field

Closing Date: June 30, 2007

Information: Sulfikar (moanaindia@gmail.com)

Source: AquaNic (The Aquaculture Network Information Center, a gateway to the world's electronic aquaculture resources, <http://aquanic.org/index.htm>). Jobs Directory (http://www.aquanic.org/Text/job_serv.htm) In cooperation with the WAS Employment Service. Search jobs (<http://aquanic.org/jobs/search.asp>). Shrimp

Hatchery/Farm Technician (<http://aquanic.org/jobs/jobinfo.asp?jobid=2459>). Posted June 19, 2007.

Indonesia

Opposition to CP Prima

Shidiq Moeslim, Chairman of the Indonesian Shrimp Commission, made some negative comments about the planned takeover of PT Dipasena Citra Darmaja, a major Indonesian shrimp farming company, by a consortium led by Thailand's PT Central Proteinaprima (CP Prima). He said that if Dipasena is sold to the CP Prima consortium, the farm would be used to generate foreign exchange for Thailand and contribute nothing to the development of fisheries in Indonesia.

Source: Seafood.com (an online, subscription-based, fisheries news service). Indonesian shrimp commission voices opposition to Dipasena purchase by CP Prima. Editor and Publisher, John Sackton (phone 781-861-1441, email jsackton@seafood.com). June 19, 2007.

Mozambique, Africa

Strategic Investment Opportunity

- Integrated aquaculture facility
- Modern EU-approved seafood processing plant
- State-of-the-art shrimp hatchery
- Feed mill
- Operational 500-hectare shrimp farm
- Fully permitted with exports to European Union, United States and Japan
- Trained workforce
- A pristine environment

Information: Charles F. Woodhouse, Woodhouse (phone 1-352-371-0101, fax 1-202-478-0851, email cfw@woodhouselaw.com).

Source: Fish Farming International (<http://www.fishfarminginternational.com>). Editor, Kenny McCaffrey (kenny.mccaffrey@informa.com). Advertisement. Strategic investment opportunity. Volume 34, Number 6, Page 10, June 2007.

Myanmar

Prisoners Rebuild Shrimp Farms

On May 14, 2007, a hurricane hit the coast of Myanmar and damaged 75% of the shrimp farms in the state of Arakan, which has 150,000 acres of shrimp ponds. On Akyab Island, about 80 kilometers west of the state capital of Rakhine, prisoners at Akyab Prison have been forced to rebuild its 15-acre shrimp farm, confiscated from local villagers five years ago. Prison authorities have also hired out prisoners to work on the reconstruction of other shrimp farms that were damaged by the hurricane.

Source: Narinjara. Prisoners Forced to Work on Shrimp Farm Reconstruction (<http://www.narinjara.com/details.asp?id=1307>). June 15, 2007.

Philippines

Free PCR Tests for Shrimp Farmers

For shrimp farmers in the Philippines, the Southeast Asian Fisheries Development Center is going to provide free nested polymerase chain reaction tests for shrimp viruses.

Information: SEAFDEC/AQD Brackishwater Station (phone 033-527-3016 and 033-336-2965, webpage www.seafdec.org.ph).

Source: The Visayan Star. SEAFDEC: Ensure biosecurity for shrimp farms (<http://www.visayandailystar.com/2007/June/18/businessnews2.htm>). June 18, 2007.

Saudi Arabia

Partner Wanted

Saudi Mariculture owns 300 hectares of land north of Jeddah that it wants to develop into an integrated shrimp farm. It has the necessary permits and is looking for partners to help develop the project.

Information: general manager, saudimariculture@yahoo.com.

Source: AquaNic (The Aquaculture Network Information Center, a gateway to the world's electronic aquaculture resources, <http://aquanic.org/index.htm>). Jobs Directory (http://www.aquanic.org/Text/job_serv.htm)/In cooperation with the WAS Employment Service. Search jobs (<http://aquanic.org/jobs/search.asp>). Business partner in shrimp project in Saudi Arabia (<http://aquanic.org/jobs/jobinfo.asp?jobid=2458>). Posted June 18, 2007.

Thailand

Farmers Selling Directly to Consumers

Phuket...In order to help the island's suffering shrimp farmers, the Phuket Provincial Internal Trade Office (PITO) has set up a "Blue Flag Shrimp Festival" to sell farm-raised shrimp directly to consumers for just \$3.07 a kilogram until the end of September 2007. PITO Chief Somphot Sangkha-pong said 1,500 kilograms of Pacific white shrimp (*Penaeus vannamei*) are harvested daily in the province. "We have about 30 shrimp farms in Phuket, almost all of them in Thalang. Most of them switched from raising giant tiger prawns to Pacific white shrimp, but now there is a glut in the market and prices have fallen," Somphot said. The problem in Phuket reflects a nationwide trend, decreasing export sales and domestic production

continuing to rise. Thai Frozen Foods Association president Poj Aramwattanont said that last year shrimp exports from Thailand reached 193,764 metric tons.

Source: Daily News. Shrimp gets ahead with 'blue flag' promotion (<http://www.phuketgazette.net/news/index.asp?fromsearch=yes&Id=5764>). June 19, 2007.

United States

Arizona—Desert Sweet Shrimp Farm

Gary Wood, whose family owns Desert Sweet Shrimp, a small shrimp farm in Gila Bend, said that in taste tests at fairs and exhibits, his shrimp wins 95 percent of the time. Wood said his shrimp is lower in iodine and contains less salt and no additives.

"There's probably no better place to grow them," said Craig Collins, the farm's manager. According to Collins, the desert heat speeds the shrimp's growth, and the calcium in the area's aquifer allows the exoskeleton to harden quickly, so they peel easily. "We offer the finest quality you can buy," he said, while working on a customer's 100-pound order for a wedding in New York.

"We sell mostly through the Internet," Wood said. The farm used to sell its shrimp to wholesale brokers and specialty markets such as AJ's Fine Foods, Whole Foods Market, and Sprouts, but was losing out to foreign suppliers.

The Wood family farm is the last of four Arizona farms that raise shrimp. One of the four, a farm in Hyder, has had more success converting to tilapia, a popular white fish, Wood said.

Wood counts a Phoenix resort and a Maricopa County restaurants as steady commercial customers.

He said the Shedd Aquarium in Chicago buys his shrimp to feed its exhibit animals because the product is pure. Wood is talking about supplying other aquariums.

Desert Sweet Shrimp harvests shrimp from its ponds in mid-October, packs it in ice, and trucks it to a Phoenix processing plant 60 miles away. Although Wood says shrimp with its head intact is one criteria of high quality, the plant processes his shrimp headless and deveined "because that's what customers want." Additives such as sodium tripolyphosphate, used to retain moisture and add weight, are not used. The shrimp is then packed in dry ice and delivered to customers by FedEx.

Wood said, "We don't ever discharge the water." The water from the ponds is used to irrigate other crops, alfalfa and olive trees.

Source: The Arizona Daily Star. Desert shrimp (<http://www.azstarnet.com/allheadlines/188064>). Vern Lamplot. July 20, 2007.

United States

Louisiana—Lawsuit Against State Policies

Piazza's Seafood World, a Louisiana seafood distributor, claims state Agriculture Commissioner Bob Odom is doing an illegal end-run around a federal court decision in his crusade against foreign seafood. Piazza is suing Odom in Baton Rouge federal court, alleging the commissioner is overstepping his authority in testing seafood for antibiotics. The company claims Odom is misusing state Agriculture Department regulations to seize imported seafood and tie it up in red tape to prevent it from going to market in Louisiana and other states. Piazza claims Odom has targeted it because the company successfully fought a state statute regulating labeling on imported products.

Piazza argues in the lawsuit that only the USA Food and Drug Administration and the Louisiana Department of Health and Hospitals have the authority to regulate the content of food products. DHH can't seize or regulate items that aren't intended for consumption in Louisiana.

Odom says he has a year-old formal agreement with DHH that gives him the authority to test for pesticides and antibiotics.

Source: Seafood.com (an online, subscription-based, fisheries news service). Piazza sues State of Louisiana over campaign against imported seafood. Editor and Publisher, John Sackton (phone 781-861-1441, email jsackton@seafood.com). June 15, 2007.

United States

New Jersey—Eastern Fish Co.

Eastern Fish Company's Sail Brand proudly presents its "Supreme" all-natural, hand-processed, chemical-free, sustainably raised shrimp from Mexico (and soon Thailand), raw or cooked in 1-pound bags. The shrimp are spawned, grown and processed under strict controls to ensure the freshest, highest-quality product possible with complete traceability from the hatchery to the customer. The shrimp are never exposed to chemicals, antibiotics or additives. Strict testing by both government and independent laboratories is conducted at all phases of production. Assurance inspectors monitor every phase of production to ensure compliance with all national and international laws governing responsible aquaculture.

Information: Eric Bloom, Eastern Fish Co., 300 Frank W. Burr Blvd., Teaneck, NJ 07666 USA (phone 800-526-9066, webpage www.easternfish.com).

Source: SeaFood Business (www.seafoodbusiness.com). Editor, Fiona Robinson (frobenson@divcom.com). Special Advertising Section. Eastern Fish Co. Page 10, June 2007.

United States

South Carolina—Waddell Mariculture Center

The Waddell Mariculture Center has proven the economic viability of shrimp mariculture during two years of full-scale field trials. Using a closed-loop

greenhouse system, it is now possible to farm shrimp profitably in practically any environment in the USA. The possibility of a production level in excess of 60,000 pounds of shrimp per acre per crop has been exhibited, and new methodology allows for the production of three or even four crops per year.

Source: Seafood.com (an online, subscription-based, fisheries news service). New shrimp farm planned in South Carolina. Editor and Publisher, John Sackton (phone 781-861-1441, email jsackton@seafood.com). June 15, 2007.

United States

Texas—Wild-Caught Shrimp Taste Better Than Farm-Raised Shrimp

The characteristic flavor of wild-caught shrimp is caused by bromophenols, a group of chemicals found in bottom dwellers, like shrimp.

A Texas A&M research report, which examined research from a variety of studies on seafood across the globe, verifies that the taste of wild-caught shrimp is not only discernable from and better tasting than farmed shrimp, but also that no method exists for farmed shrimp to effectively mimic the taste of wild-caught shrimp. The characteristic flavor of wild-caught shrimp is caused by bromophenols, a group of chemicals found in saltwater seafood. The source of bromophenol compounds in shrimp's muscle tissue is from their natural diet.

Also, the varieties of shrimp found in American waters each have their own distinguishable taste because of bromophenols. For example, muddy sea bottoms have higher bromophenol concentrations than do sandy or shelly sea bottoms.

The difference in taste between wild-caught and pond-raised shrimp is detectable by the average person, not just shrimp connoisseurs. The Texas A&M researchers found that a significant number of taste panelists could differentiate between the two in all four of their taste tests. Consumer taste tests confirmed that shrimp raised on commercial shrimp feeds tasted bland.

With the chemicals responsible for wild shrimp's flavor identified and recognized globally, shrimp feed millers have explored using bromophenols, but have repeatedly failed to produce detectable differences in taste. Also, adding bromophenols to feeds is very expensive.

Source: Food Ingredients First. Wild-Harvested Shrimp's Natural Diet Responsible for its Unique Flavors

(http://www.foodingredientsfirst.com/newsmaker_article.asp?idNewsMaker=14225&fSite=AO545&next=3). June 15, 2007.

Questions and Answers on FDA's Import Alert on Farm-Raised Seafood from China

FDA.gov

1. What seafood products from China is FDA putting on import alert status?

FDA is placing farm-raised catfish, a related fish called "basa", shrimp, dace, and eel from China on detention without physical examination ("DWPE", or "Import Alert" status). This means that no products of these types from China can enter the U.S. without first being shown to be safe. Wild caught seafood from China is not impacted by this import alert.

2. Why is FDA taking this action now?

From October 2006 through May 2007 FDA's import surveillance program repeatedly found that farm-raised seafood imported from China were contaminated with unapproved animal drugs or food additives. It is FDA's policy to place firms whose products have been found to contain unapproved drugs or food additives on detention without physical examination status (DWPE). A number of Chinese firms are already on DWPE status for unapproved aquaculture drugs or food additives. When it appears that the problem is not isolated to a select number of firms, but rather is endemic through a country, FDA may place the entire country on DWPE status for that product.

3. What unapproved drugs or food additives have been detected in seafood imported from China?

Malachite green, fluoroquinolones, nitrofurans, and gentian violet have all been detected. These drugs are used as to inhibit the growth of bacteria and fungus on seafood or to prevent parasite infestation. However, they are not approved for use in farm-raised seafood in the United States.

4. What is the risk posed by the seafood covered by the import alert?

The levels of the contaminants that have been found are very low, most often at or near the minimum level of detection. As a result, the health risk posed by the detected drugs is primarily from long-term exposure. Nitrofurans, malachite green, and gentian violet have been shown to be carcinogenic in study animals, while the use of fluoroquinolones in food animals may increase antibiotic resistance in human pathogens. Based on the sum of all current information, FDA believes that risk to U.S. consumers due to these drugs in seafood products from China is minimal, and do not represent an immediate risk to public health. FDA's action is precautionary.

5. How will products be shown to be safe under the import alert?

The provisions of the import alert require importers to provide results of third-party laboratory analyses of the listed products that prove the products are free of the substances specified in the import alert. Only after FDA import authorities have received and reviewed such proof will they release individual shipments of the listed products for entry into U.S. commerce.

6. Is FDA going to ask retailers to recall all seafood products from China currently in commerce?

No. The agency does not believe it is necessary to encourage importers to recall their products absent evidence that specific products are contaminated. The agency's import alert announced today will prevent future, chronic exposure to tainted products. [See question above on risk]

7. What should I do with the seafood in my freezer?

Consumers can continue to consume the seafood they have already purchased.

8. How much of the seafood consumed in the U.S. comes from China?

According to statistics provided by NOAA Fisheries:

Shrimp:

- 90% of the total US supply of shrimp is imported
- 11.5% of the total US imports of shrimp is from China
- 9.6 % of the total US shrimp supply is imports from China
- 100% of imported shrimp from China is aquacultured

Catfish:

- 2% of the total US supply of catfish is imported
- 99% of the total US imports of catfish is from China
- 1.9 % of the total US supply of catfish is imports from China
- 100% of imported catfish from China is aquacultured

Basa:

- 100% of US supply of basa is imported
- 8% of the total US imports of basa is from China
- 8% of the total U.S. basa supply is imports from China
- 100% of imported basa from China is aquacultured

9. How do I know if my seafood is from China?

The Agricultural Marketing Service (AMS) of the U.S. Department of Agriculture (USDA) requires that fish be labeled regarding the products' country of origin. The USDA country of origin labeling (COOL) requirement is in addition to the generic COOL requirements for all imported products (including all food products) required and enforced by the Customs and Border Protection (CBP). Thus, consumers will be able to determine whether fish is imported from China by referring to the label or labeling of the product. FDA does not have any additional requirements for country of origin labeling for fish offered for sale to U.S. consumers. However, FDA believes that consumers need not be concerned about whether or not the seafood they purchase is from China, because the agency's import alert will prohibit the entry into the U.S. of any seafood products from China that do not meet our requirements and safety standards.

10. Has FDA found any unapproved drugs in domestic products?

No, unapproved drugs have not been found in any domestic aquacultured products.

11. Do you anticipate any other aquaculture products being added to the list (as was the cause for melamine)?

Other aquacultured products are imported from China (e.g., tilapia). Several exporters of these other products are subject to detention without physical examination. However, FDA has not noted a pattern of violations with these products that would warrant countrywide DWPE. Nonetheless, we will continue to monitor these products and take further action if warranted.

12. What evidence is there that malachite green, gentian violet and nitrofurans cause cancer?

FDA is aware of two reports issued by the National Toxicology Program on nitrofurans. Nitrofurazone (TR-337 published in June 1988) and Nitrofurantoin (TR-341 published in Sept 1989). Both of these reports concluded that under the conditions of two year feed studies there was clear evidence of carcinogenic activity of these compounds in mice and rats.

In 1991, FDA withdrew the approvals of two nitrofurans, nitrofurazone and furazolidone. These two drugs had several approved new animal drug applications for both poultry and swine. It was determined that these this class of compounds could induce cancer in man or animals. FDA issued a Federal Register Notice in 1991 that explains the reasons for the withdrawal.

FDA is also aware of a toxicology study published in June 2004 by the National Toxicology Program on malachite green and leucomalachite green. These compounds were nominated for the study by the FDA due to the potential for

consumer exposure, structural similarity to gentian violet, and lack of carcinogenicity data. The report of the 2-year feed studies concluded that there were equivocal and some evidence of carcinogenic activity for malachite green and leucomalachite green respectively, in rats

Crystal violet, sometimes referred to as the medicinal preparation gentian violet, is another dye in the triphenylmethane family that has antifungal properties similar to those of malachite green. It has been reported to be used for treatment or prevention of external fungal and parasitic infection in fish and fish eggs. Like MG, CV is readily absorbed into fish tissue from water exposure and is reduced metabolically by fish to the leuco moiety, leucocrystal violet (LCV). Several studies by the National Toxicology Program reported that the carcinogenic and mutagenic effects of crystal violet in rodents. It has also been linked to increased risk of human bladder cancer. The leuco form induces renal, hepatic and lung tumor in mice.