

SEAFOOD SAFETY SAVVY: A HACCP UPDATE

from the Connecticut Sea Grant College Program, University of Connecticut
and the Cooperative Extension & Sea Grant Programs, University of Rhode Island

Issue 5 May 2002

A Message from the Editors:

Welcome to the fifth edition of our newsletter. While it's been almost a year since the last edition, you should have received some updated information from us on the most recent version of the *Fish and Fishery Products Hazards and Controls Guide* in the meantime. Hopefully you've ordered your new copy. We'll be covering some of the main changes that may be of interest to you in this newsletter. Special thanks to Robert Samuels, FDA Office of Seafood, for his assistance with the section on histamine.

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DID YOU KNOW...

...there are website locations of lists provided by foreign government inspection authorities of processors of fish and fishery products that, according to those authorities, are in good standing and are meeting the requirements of the FDA Seafood Hazard Analysis Critical Control Point (HACCP) regulations? Importers should be aware that the FDA has not verified the lists or the information on them. The lists are maintained and updated by those governments. As of now, the countries listed are Canada, Japan, New Zealand, and Thailand.

Go to: <http://vm.cfsan.fda.gov/seafood1.html> and click on "Lists of Foreign Processors of Fish and Fishery Products" under the heading, HACCP.



Additional Training Course Offerings

Seafood HACCP Training Course
June 4-6, 2002, Providence, RI.

Sanitation Standard Operating Procedures Course, June 25, 2002, Groton, CT

Shellfish HACCP Course
June 26-27, 2002, Groton, CT.

Segment Two Internet Course
October 15, 2002, Narragansett, RI.

All classes must have a minimum number of registered participants to be held. For more information on any of these classes, please contact Lori or Nancy.

Methylmercury Update

In our last newsletter, we provided information on methylmercury in fish. While the FDA action levels (1.0 ppm) and HACCP guidance haven't changed yet, the EPA is still promoting an action level of 0.3ppm. There is another study to look at this issue, but the results have not been finalized.

Many states have issued their own advisories concerning consumption of fish species that are suspect for high levels of mercury, particularly for high risk groups, like pregnant and nursing women, and children under the age of 6. In addition to the four species listed in the FDA advisory, these state advisories include freshwater species, and cover other risks like PCBs. These advisories are typically found on the state's health or fisheries department websites, and you may want to look at your state's.

Temperature Monitoring

The third edition of the Hazards Guide now recommends that continuously recording temperature monitors be used whenever temperature at a cooler or cooker is used as a Critical Control Point (CCP). For more information, please consult your guide or contact Lori or Nancy.

Parasites

Parasites are now out of transition and they are considered a biological hazard which you must consider in your HACCP plan, if necessary. It has been confirmed that parasitic infections occur with sufficient frequency to make controls necessary during processing of parasite-containing species of fish that are intended for raw consumption. Guidance is found in Chapter 5 of the Hazards Guide (Third Edition). Specifically, freezing is the most effective way of killing parasites in fish intended for raw consumption.

Three control options are provided in this guidance:

- Frozen at -4°F (-20°C) or below and stored for 7 days at those temperatures
- Frozen at -31°F (-35°C) or below and stored for 15 hours at those temperatures
- Frozen at -31°F (-35°C) or below and stored for 24 hours at -4°F (-20°C)

Of course, if the fish is intended to be cooked, you do not need to consider parasites as a biological hazard. Similarly, if you have assurance that the fish will be processed by a subsequent processor, restaurant, or other user in a way that will kill the parasites, you do not need to identify parasites as a significant hazard.

Histamine

The guidance for the control of scombrototoxin formation was substantially changed for the Third Edition of the Hazards Guide. As you know, rapid chilling of fish after death is the

most important step in preventing the formation of histamine. The size of the fish, along with the chilling method and ambient harvest temperatures, will all have an impact on the cooling rate of fish. Since temperature abuse is the primary cause for the histamine development that can cause foodborne illness, rapid chilling of certain fish species after death is the most important step in preventing histamine formation. Due to recent questions we have received concerning the guidance, we have attempted to clarify the recommendations for you. The following are *highlights* of the new guidance for harvest vessel control and the processor that has been developed in an effort to prevent the histamine hazard from occurring:

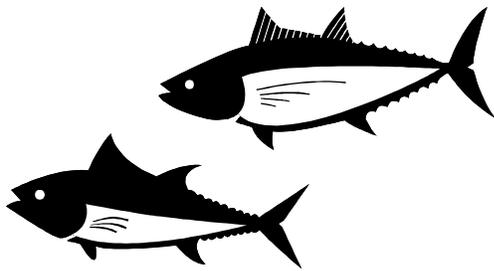
What are the recommendations for chilling fish on the harvest vessel?

- For most fish that have not been exposed to temperatures greater than 83°F, and for tuna less than 20 lbs, the **ambient or surrounding chilling temperature** of the fish should be at **40°F or less within 12 hours of death OR at 50°F or less within 9 hours of death**. Chilling can be accomplished using ice, brine or refrigerated seawater (RSW). If brine or seawater is used, the temperature of the cooling liquid should be monitored and recorded. *Note: if the ambient temperature of chilled storage is 50°F, you have less time after death to begin chilling. The lower temperature, 40°F, is better for safety and quality. Remember, the goal is to achieve lower temperatures as **quickly** as possible.*

- For any fish exposed to temperatures of greater than 83°F, OR for large tuna (greater than 20 lbs) that are eviscerated, the **ambient or surrounding chilling temperature** of the fish should be at **40°F or less within 6 hours of death**. If ice is used for chilling, the belly cavity of the

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eviscerated tuna *should* be packed with ice. If brine or seawater is used, the temperature of the cooling liquid should be monitored and recorded. *Note: the choice of evisceration for large tuna is a very important change. It allows monitoring of ambient temperature and does not require that a specific internal temperature be met in a short timeframe as outlined below. Evisceration must be done carefully, otherwise the harvester could spread bacteria from the contents of the belly region and actually hasten histamine formation.*



- Large tuna (greater than 20 lbs) that are **not** eviscerated before on-board chilling, should be chilled to an **internal temperature of 50°F or less within 6 hours of death**. *Note, that for a very large tuna, meeting this critical limit is extremely difficult, if not impossible.*

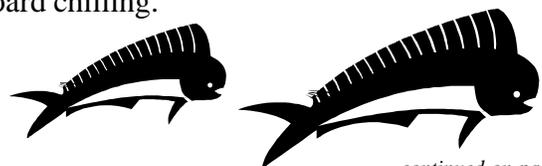
Reliable harvester records provide key information that allow processors to meet critical limits and monitoring requirements, and to ensure the safety of the fish they receive. A key change in the new guidance is that under certain circumstances, certain harvest operations may lend themselves to monitoring and record-keeping by the primary (first) processor. This arrangement will work only if the processor has direct knowledge about the harvesting practices, and has first-hand observations that the practices occurred. Check the guide for more information. ***Whatever method is chosen by the harvester, the goal is to rapidly get the product to a temperature of 40°F or less. This is important since additional control strategies are recommended upon receipt.***

What are recommendations for receipt by the primary processor?

The Hazards Guide recommends two alternative approaches to controlling histamine at receipt by primary processors. One approach incorporates the receipt and review of meaningful harvest vessel records as described above, along with sensory examinations, and internal temperature measurements (as an indicator of adequate onboard chilling).

- Internal temperature of fish that has been chilled or iced on-board and delivered 24 hours or more after death should be 40°F or less.
- Internal temperature of fish that has been chilled or iced on-board & delivered at least 12 but less than 24 hours after death should be 50°F or less.
- Fish that have been chilled or iced on board and delivered less than 12 hours after death should have an internal temperature that demonstrates adequate on-board chilling has been taking place. For example, the internal temperature of the fish should be less than the ambient air and water temperature.
- Sensory examination is recommended; less than 2.5% should show any signs of any decomposition.

The other approach incorporates a system of sampling and testing each lot received for histamine content. These histamine testing strategies are outlined in the Hazards Guide. If anyone is interested in these recommendations, details are in the Guide. This approach should be used along with sensory examinations, and internal temperature measurements, as an indicator of adequate onboard chilling.



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What are the recommendations for the secondary processor for receipt and processing/storage?

As we are sure you *all* remember, the proposed recommendations for time/temperature critical limits during processing / storage, or for the secondary processor, were outlined in Issue 2, December, 1999. These have not changed, but again, they are as follows:

At receipt:

- Transportation records should show that the fish were held at 40°F or below throughout transit **OR** a check to ensure there was adequate ice or cooling media surrounding the product at time of delivery. *Note: there is no longer a recommendation to check the internal temperature when product is received from other processors, however, it may be a good idea to use internal temperature checks as a verification tool – this is quick and easy.*

During processing / storage of previously frozen fish:

- Exposure of product for up to 24 hours during processing / storage at temperatures greater than 40°F if the product is NOT exposed to temperatures above 70°F at any time
- Exposure of product for up to 12 hours during processing / storage at temperatures greater than 40°F if the product was exposed to temperatures above 70°F

Processing / storage of fish NOT previously frozen:

- Exposure of product for up to 8 hours during processing / storage at temperatures greater than 40°F if the product is NOT exposed to temperatures above 70°F

- Exposure of product for up to 4 hours during processing / storage at temperatures greater than 40°F if the product was exposed to temperatures above 70°F

These general exposure guidelines take into account all handling time (cumulative) of the fish during processing and storage. Remember, as always, superior quality and safety is achieved by minimizing any exposure above 40°F.

These are highlights of some of the changes recommended in the Hazards Guide. If you handle fish with an inherent potential hazard of histamine development, please look over this chapter in detail.

If you have any questions, please call Nancy, Lori, or your regional or local FDA office. Additional information can also be obtained from:

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