

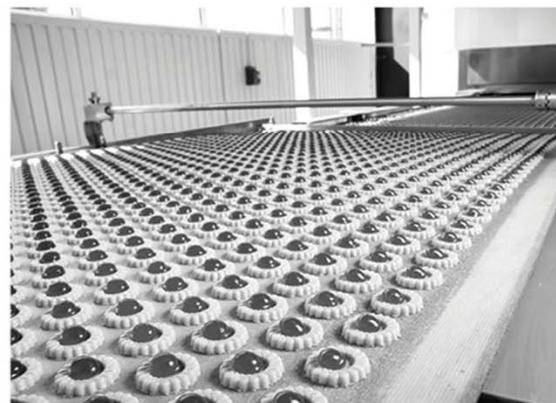


INTERNATIONAL FOOD PROTECTION TRAINING INSTITUTE

49 W. Michigan Ave. Suite 300
Battle Creek, MI 49017
269.441.2995



IFPTI Fellowship Cohort IV:
Research Presentation
Eugene E. Evans, CFP
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Surface Pathogen Elimination Practices for Ready-to-Eat Fishery Products

Eugene E. Evans, CFP

IFPTI 2014-2015 Fellow

New York State Department of Agriculture
and Markets (NYSDAM)

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Background

- Commercial fishing—not regulated by 21 CFR 123 “Seafood Hazard Analysis Critical Control Points (HACCP) Regulations.”
- Fishermen not required to have any food safety training.
- Fishing vessels not held to any sanitary standards.
- Surface pathogens (e.g., *Listeria monocytogenes* (*Lm*), *Salmonella*, etc.)
- 62% of waters on fishing grounds and up to 50% of raw fish contaminated with *Lm* (IFT, 2001).

Background (continued)



Image Source: Tuna Fish Catch by Commercial Fishing. Retrieved from <http://affleap.com/japan-rejoices-as-bluefin-tuna-trade-ban-defeated/>

Problem Statement

- Ready-to-eat (RTE), non-heat treated fishery products (NHTFP) may reach the consumer without being treated with a properly structured surface pathogen elimination procedure (SPEP).

Research Questions

1. What do fish industry dockside unloaders, wholesale manufacturers, wholesale distributors, and retailers know about surface pathogens on RTE non-heat treated fish or fishery products?
2. What control measure(s) do fish industry dockside unloaders, wholesale manufacturers, wholesale distributors, and retailers have in place to control the presence of surface pathogens on non-heat treated fish or fishery products?
3. If the RTE NHTFP industry has no control procedures in place, would the industry be willing to institute a surface pathogen elimination procedure that would be outlined in an official FDA guidance document?

Methodology

- Interviewed 17 seafood industry establishment representatives with a semi-structured set of predetermined questions.
- Data Collection
 - Personal interviews (1 telephone follow-up).
 - New York State (NYS) Food Lab NHTFP *Lm*-positive samples 2002-2014.
 - Response rate: 17/22 (77% agreed to be interviewed).
- Analysis
 - Determining gaps in knowledge, training, and desire.

Results

- Approximately 73% of establishments lacked knowledge of seafood surface pathogens.
- The remaining 27% were comprised of two (2) cold smoked fish processing establishments, one (1) wholesale sushi establishment, and one (1) retail sushi restaurant.
- The cold smoked fish establishments and the wholesale sushi establishment developed structured surface pathogen elimination procedures with the primary target organism being *Lm*, with one establishment not following chemical manufacturer instructions/regulatory requirements.

Results (continued)

- The cold smoked fish establishments did not know they were potentially reviving the deadly *Clostridium botulinum* (CBOT) hazard with their surface pathogen elimination.
- The retail sushi restaurant used a surface shaving procedure handed down for several generations that was not scientifically validated.
- After the interviews, 86% of establishments indicated a desire to implement surface pathogen elimination procedures outlined in an official FDA guidance document.

Conclusions

- The NHTFP establishments overwhelmingly lack knowledge of seafood surface pathogens risks and need education on the topic.
- Most NHTFP establishments lacked procedures to significantly reduce/eliminate seafood surface pathogens.
- Cold smoked fish establishments using surface pathogen elimination procedures and significantly reducing spoilage microorganisms used as a consumer indicator of CBOT toxin formation need to reevaluate their cold smoking procedures.

Recommendations

1. Educate the NHTFP industry while creating an FDA commercial fishing/harvester sanitation document.
2. Undergo a surface pathogen elimination procedure for all raw fish processed into NHTFP.
3. Create addendums to the FDA Fish and Fishery Products Hazards and Controls Guidance, FDA Food Code, and state seafood processing regulations for surface pathogen elimination.
4. Inform cold smoked fish establishments of the need to reevaluate cold smoking procedures ($WPS \geq 5\%$, $aW \leq 0.97$, inclusion of nitrates, time-temperature indicators [TT/s] on consumer-sized packages).

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Questions?

Eugene E. Evans, CFP
IFPTI 2014-2015 Fellow

New York State Department of Agriculture and Markets
(NYSDAM)

eugene.evans@agriculture.ny.gov