Seafood Technical Committee Meeting

November 12, 2020
11-1pm AKST

Seafood Technical Director
Michael Kohan, ASMI

Seafood Technical Coordinator
John Burrows, ASMI

Seafood Technical Committee Chair
Joe Logan, Trident Seafoods

Seafood Technical Committee Vice Chair
Hart Schwarzenbach, Peter Pan Seafoods
OVERVIEW

› Seafood Technical Committee Introduction
› Applied Research Projects
› Outreach Materials
› Regulatory Update
› Technical Program Kudos
› Species Questions/Upcoming events/Announcements
Adaptive Symptom Care Using Fish-Based Nutritional Directives Post Breast Cancer

Michelle P. Judge, PhD, RD
Associate Professor
University of Connecticut
School of Nursing

Please see recorded meeting video to view Dr. Judge’s presentation
Nucleotides Content in Groundfish By-Products

Kevin Nelson, Graduate Research Assistant, Oregon State University
Quentin Fong, Professor, University of Alaska-Fairbanks
Alina Fairbanks, Summer Intern, University of Alaska-Fairbanks
Michael Kohan, Alaska Seafood Marketing Institute
Christina A. Mireles DeWitt, Professor, Oregon State University
Total Nucleotides in Groundfish By-Products
Experimental Design

1. Freeze-Dried @ -40°C
2. Dehydrator Drying @ 70°C
3. Oven Drying @ 100°C
4. Oven Drying @ 120°C

→ Quantity of Nucleotides?/Degradation?
Analyses Used to Assess Nucleotide Quantities in Milt and Roe

1. Nucleotide Monophosphates (NMPs) derived from DNA Extracts
2. Nucleobases (NBs) derived from DNA, RNA and free pool
3. Degradation Pathway of Adenosine Monophosphate (AMP)
# Total Nucleotides as Nucleotide Monophosphates in Pollock Milt (µg/mg on a dry weight basis)

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<td>Species</td>
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<td>Pollock (2017)</td>
<td>0.58 ± 0.14&lt;sup&gt;a,A&lt;/sup&gt;</td>
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<td>1.76 ± 0.10&lt;sup&gt;a,B&lt;/sup&gt;</td>
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<td>1.71 ± 0.38&lt;sup&gt;a,A&lt;/sup&gt;</td>
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<tr>
<td>dCMP</td>
<td>0.16 ± 0.04&lt;sup&gt;a,A&lt;/sup&gt;</td>
<td>0.19 ± 0.03&lt;sup&gt;a,A&lt;/sup&gt;</td>
<td>0.43 ± 0.01&lt;sup&gt;a,B&lt;/sup&gt;</td>
<td>0.42 ± 0.04&lt;sup&gt;a,B&lt;/sup&gt;</td>
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<tr>
<td>dGMP</td>
<td>0.33 ± 0.16&lt;sup&gt;a,A&lt;/sup&gt;</td>
<td>0.59 ± 0.03&lt;sup&gt;b,AB&lt;/sup&gt;</td>
<td>0.38 ± 0.01&lt;sup&gt;b,AB&lt;/sup&gt;</td>
<td>0.45 ± 0.09&lt;sup&gt;a,B&lt;/sup&gt;</td>
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<td>dAMP</td>
<td>0.14 ± 0.02&lt;sup&gt;a,A&lt;/sup&gt;</td>
<td>0.22 ± 0.04&lt;sup&gt;a,B&lt;/sup&gt;</td>
<td>0.49 ± 0.02&lt;sup&gt;a,C&lt;/sup&gt;</td>
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<td>dTMP</td>
<td>0.37 ± 0.18&lt;sup&gt;a,A&lt;/sup&gt;</td>
<td>0.58 ± 0.07&lt;sup&gt;b,A&lt;/sup&gt;</td>
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Total NMPs

Results are represented as the mean values ± standard deviations (N = 3). Lowercase letters represent significant differences between 2017 and 2018 harvest years at P < 0.05; uppercase letters represent significant differences between processing conditions for each year at P < 0.05.
# Total Nucleotide Monophosphate Equivalents in 2018 Pollock Milt (µg/mg on a dry weight basis)

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<td>31.32 ± 11.20&lt;sup&gt;a&lt;/sup&gt;</td>
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<td>83.83 ± 17.82&lt;sup&gt;bc&lt;/sup&gt;</td>
<td>128.44 ± 12.59&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td><strong>GMP</strong></td>
<td>5.81 ± 3.11&lt;sup&gt;a&lt;/sup&gt;</td>
<td>22.00 ± 4.57&lt;sup&gt;b&lt;/sup&gt;</td>
<td>19.49 ± 4.90&lt;sup&gt;bc&lt;/sup&gt;</td>
<td>31.40 ± 3.74&lt;sup&gt;c&lt;/sup&gt;</td>
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<td><strong>UMP</strong></td>
<td>1.58 ± 0.01&lt;sup&gt;a&lt;/sup&gt;</td>
<td>2.18 ± 0.14&lt;sup&gt;a&lt;/sup&gt;</td>
<td>2.69 ± 1.25&lt;sup&gt;a&lt;/sup&gt;</td>
<td>2.18 ± 0.07&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td><strong>AMP</strong></td>
<td>7.82 ± 2.58&lt;sup&gt;a&lt;/sup&gt;</td>
<td>21.87 ± 4.61&lt;sup&gt;b&lt;/sup&gt;</td>
<td>20.87 ± 4.98&lt;sup&gt;bc&lt;/sup&gt;</td>
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<td><strong>IMP</strong></td>
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<tr>
<td><strong>XMP</strong></td>
<td>1.46 ± 0.03&lt;sup&gt;a&lt;/sup&gt;</td>
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<td><strong>Total Nucleobases</strong></td>
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Results are represented as the mean values ± standard deviations (N = 3).
ALTERNATIVE USES FOR FISH BY-PRODUCTS

NOVEL USES (HIGH VALUE)
- Improves IBS Symptoms
- Extends Athletic Endurance
- Treats Diarrheal Disease in Infants

TRADITIONAL PRODUCTS (LOW-VALUE)
- Used as Feed (Aquaculture)
- Used in Agriculture (Fertilizer)

SUPPLEMENTS
BABY FORMULA
FISH MEAL
THANKS/ACKNOWLEDGEMENTS
OSU Sensory and Consumer Science for Seafood
OSU FIC SEAFOOD RESEARCH

ANN COLONNA
SENSORY & CONSUMER RESEARCH PROGRAM
DIRECTOR, ann.colonna@oregonstate.edu
Research to date

• General consumer test (2016) – Coho and Black cod
  • Sensory evaluation (blind taste test)
  • Testing with seafood analytics CQR tool
• Seafood Watch Blue Ribbon Task Force Chefs (2018) – Black Cod
  • Sensory test & questionnaire
  • Focus group
• Seafood retailers/wholesalers (2019) – Sockeye salmon
  • Sensory test & questionnaire
  • Focus group
• General consumer test (2019) - Scallops
  • Sensory evaluation (blind taste test)
FRESH (NEVER FROZEN) VS. FROZEN, SENSORY EVALUATION SUMMARY - COHO/BLACK COD

**BLACK COD**

- **FROZEN:**
  - Preferred in Overall Liking, Flavor, Texture, Quality and Purchase Intent

- **FRESH (NEVER FROZEN):**
  - Fishier Aroma, Softer in Texture, more Moist/Oily

**COHO SALMON**

- **EQUAL (parity) in Overall Liking, Texture Liking, Quality and Purchase Intent**

- **FROZEN:**
  - Preferred in Appearance, rated more Firm

- **FRESH (NEVER FROZEN):**
  - Fishier Aroma, more Moist/Oily
Figure 8. Comparisons using coho salmon (*Oncorhynchus kisutch*). (Fresh red) and frozen fresh (blue) measured with a Certified Quality Reader (CQR) manufactured by CQ Foods (Detroit Michigan). Comparisons were made between measures of the certified quality number (CQN) and between predictions (made from CQN) of days on ice and shelf life remaining.
OUTREACH WITH CHEFS

- 2018 – Monterey Bay Aquarium Seafood Watch Blue Ribbon Task Force
- June 27th – Sustainable Seafood PDX with Chef Vitaly Paley
  - 2 day program on Fresh vs. Frozen with group of chefs from across the US

![Bar chart showing chefs' overall liking and purchase intent for fresh and frozen black cod.](chart.png)
CHEFS’ FOCUS GROUPS RESULTS

• Chefs DESPISED tasting unseasoned fish!

• “if handled correctly” or “stored correctly” is a really common sentiment. **Quality** is the most important.

• The information on the card during the sensory test did not influence them, but the presentation on the consumer results generated a lot of interest.

• Want to like frozen, but need assurance of **quality**

• A lot of discussion about “access” to “fresh” fish—based on where they are located, and perceptions of people/customers not liking frozen in places with fresh options (e.g., Florida, Hawaii)

• Challenges around having a good source, a steady supply, consistent shipping, etc.
CHEFS’ FOCUS GROUP DISCUSSIONS

• Chefs were interested in promoting frozen. Even those who had been skeptical.

• Research needed: More research is needed on how different species of fish freeze (and for how long), and how the quality of the freezer impacts this.

• Quality Assurance/Traceability/Rating: A rating system, would be useful to know the quality and traceability of the frozen product. How do we ensure a “frozen” standard?

• How Chefs learn: They need to taste and handle the product. They will listen to respected chefs over research results.

• Training staff/servers: Information needs to be conveyed quickly (~1 minute), in easy to understand and simple sound bites.
SEAFOOD RETAILERS
SOCKEYE SALMON

Focus Groups - Asked questions on their perceptions of frozen fish, purchasing behavior, customers, and demographics.

Sensory test with 3 different Alaskan Sockeye salmon samples (given the season start, all caught within a few days):

• Frozen direct from fisherman X
• Fresh direct from fisherman X
• Fresh from local retailer
RETAILERS PREFERRED FROZEN

Retailers OVERALL LIKING Mean Scores
where 9=like extremely, n=20

- Frozen Copper River Sockeye: 7.25
- Fresh Sockeye - Grocery: 6.5
- Fresh Copper River Sockeye: 6.45

Retailers Purchase Intent Distribution
Scores where 5=would definitely buy, n=20

- Frozen Copper River Sockeye: 3.9
- Fresh Sockeye - Grocery: 3.5
- Fresh Copper River Sockeye: 3.35
RETAILER’S FOCUS GROUP RESULTS

• Most retailers prefer to buy fresh seafood
• Both trust and quality are extremely important. When asked if they prefer to buy fresh or frozen, quality is what they mention.
• Customers perceive fresh as higher quality, and fresh as a sign of local
• Customers use within 1-2 days, so go for fresh, and if frozen, for portioned
• Customers purchase seafood for taste and health
• A labeling system could help
FRESH (NEVER FROZEN) VS. FROZEN SENSORY EVALUATION SUMMARY – SCALLOPS (2019)

- Samples provided by Alaska Weathervane Seafoods
- Frozen Alaskan Scallops preferred to Fresh never frozen

Where do you get your information about the freshness of the seafood you buy? Check all that apply.

n=98

- From my seafood retailer: 82
- Environmental organizations: 45
- From social media: 29
- Don't notice info about freshness: 11
NEXT STEPS

• Research resumption plans submitted to university Approval granted July 1st

• First Sensory Test – September 8th, 9th, 10th, 11th – Outdoor consumer testing, In Home Use consumer testing, Virtual Focus Groups, Online surveys

• Secured a NOAA Saltonstall-Kennedy (SK) Grant for $300K (Jamie Doyle, Oregon Sea Grant & Tyson Rasor, Ecotrust)

Consumer Acceptability and Shelf life of Frozen Seafood for Market Success
Alaska Seafood Contaminant and Nutrient Data
American consumers continue to be concerned about seafood contamination, labor issues

By Christine Blank
May 20, 2020

Americans’ concerns regarding seafood include issues of forced labor, contamination of antibiotic, heavy metals, and plastics, and overfishing, a new survey has found.

Industry still struggling to overcome fear of mercury contamination

By Jewel Fraser
June 7, 2018

Tainted seafood fears spread as Japan plant leaks

By ASSOCIATED PRESS
PUBLISHED: March 30, 2011 at 12:00 a.m. | UPDATED: August 28, 2017 at 9:53 a.m.

TOKYO — Fears about contaminated seafood spread Wednesday despite reassurances that radiation in the waters off Japan’s troubled atomic plant pose no health risk, as the country’s
It is important for the State of Alaska and the Alaska seafood industry to have a comprehensive contaminant and nutrient database.

There are no comprehensive datasets for either contaminants or nutrients for seafood produced from the State of Alaska.

The Alaska Seafood Marketing Institute is working alongside the Alaska Department of Environmental Conservation Fish Monitoring Program to procure funding and implement this project.
## Collaborative Opportunities for Outreach Material

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<th>ASMI DOMESTIC</th>
<th>SEA GRANT</th>
<th>ADEC</th>
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<td>• Food Safety: Shellfish Safe Handling for Retail/Foodservice</td>
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OUTREACH
Upcoming Outreach Material

**WHITE PAPERS**
- Sustainability

**FACT SHEETS**
- Frozen Quality
- Fisheries Management
- Roe
- Species

**VIDEO**
- Frozen Quality
- Seafood Nutrition
SEAFOOD NUTRITION UPDATES
2020-2025 DGA

Jennifer McGuire, MS, RD
November 2020
# 2020 Dietary Guidelines Advisory Committee Timeline

<table>
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<td>2018</td>
<td>February 28-March 30: Call for comments on the topics and supporting scientific questions</td>
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<td>2019</td>
<td>September 6-October 9: Call for nominations to the 2020 Dietary Guidelines Advisory Committee</td>
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<td>Open public comment period during the Advisory Committee’s work †</td>
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<tr>
<td>2020</td>
<td>Summer 2020: Call for comments on Scientific Report ‡</td>
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**Legend:**
- Open public comment period
- † Tentative timeline
- ‡ Will include opportunity for oral comments

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**Participate!**
2020-2025 Dietary Guidelines for Americans DietaryGuidelines.gov
Seafood during pregnancy is associated with better brain development for babies. Pregnant women should eat seafood 2-3 times each week.

Caretakers should feed babies good sources of omega-3s like seafood starting at ages 6-12 months.

Among adults, dietary patterns that include seafood are associated with heart health, healthy weight, lower risk of certain cancers, lower risk of dementia, and lower risk of death.
SCIENTIFIC REPORT OF THE 2020 GGAC: CONCERNS

https://beta.regulations.gov/comment/FNS-2020-0015-26339
Comments to FDA on Alternative Seafood

November 12, 2020

ASMI SEAFOOD TECHNICAL COMMITTEE

Lisa Weddig
Vice President, Regulatory and Technical Affairs
National Fisheries Institute
Labeling of Foods Comprised of or Containing Cultured Seafood Cells

Request for Information

published
October 7, 2020
comments due
March 8, 2021

Scope of Comment Request

It is about this:

It is not about this:
FDA Looking For Information

- Names or statements of identity for “cultured seafood cell” foods.
  - Including role of FDA’s Seafood List

- Consumer understanding of existing terms used to describe “cultured seafood cell” foods.
  - Including studies or data

- Assessing material differences between “traditional” seafood and “cultured seafood cells” foods.
  - Including attributes such as nutrients, texture, aroma
Some Points to Consider

FDA already has specific laws, regulations and policies defining the determination of a food’s “statement of identity”.

For example

- Crab flavored surimi based products are labeled as “imitation crabmeat” or “crab flavored seafood, made with surimi, a fully cooked fish protein”

- Breaded fish sticks made from minced fish must be identified as “made from minced fish” to distinguish them from fish sticks made with whole flesh

Can “cultured seafood cell” fish be filleted?
Some Points to Consider

FDA already has specific laws, regulations and policies on declaring added ingredients.

For example

The law requires that a food which is “fabricated” from two or more ingredients list the name of each such ingredient on the label.

How will the ingredients that are used to “fabricate” these products be listed on the label?
Some Points to Consider

“Cultured meat/poultry cell” products will be regulated by USDA-FSIS.

FDA and FSIS must adopt consistent labeling policies for “cultured cell” products to protect “traditional” products and to avoid consumer confusion.
Questions?

Lisa Weddig

lweddig@nfi.org
FDA Traceability Federal Comment
September 21, 2020: FDA Announces FSMA Rule to Advance Traceability of Foods

Bruce Odegaard
Seafood Products Association
End to End Food Traceability

• Track a food at every step of the supply chain
• Limited to certain foods
• Standardized approach to traceability record keeping
FSMA section 204

• Enhancing Tracking and Tracing of Food and Recordkeeping
  
  ☐ Instructs the FDA to develop additional recordkeeping requirements for certain food to help establish clear tracing of a food products source when needed to address **food safety risk**.

  ☐ Continue to improve the ability to rapidly and accurately identify foods that may be causing illness.
Access to Records of Key Data Elements

- Pinpoint the exact source of foods involved in outbreaks
- Help to remove potentially unsafe products from the market more quickly
- Recent outbreaks tied to fresh produce like leafy greens and papayas among others.
Harmonizing Approaches

• Lack of harmonized system of traceability from farm to fork that is universally understood and utilized.
• Tracking and tracing specific food products through the supply chain is often impeded by lack of data.
Standardized Approach

• Data elements and information companies must establish and maintain along with information they must send to the next entity in the supply chain.

• Considerations for the existing standards that industry groups have already adopted.

• Striving to make the proposed requirements compatible with what is already adopted.
Requirements for those who Manufacture, Process, Pack or Hold Food on the List

• Establish and maintain records associated with specific Critical Tracking Events (CTEs): growing, receiving, transforming, creating, and shipping.

• For each CTE, entities would be required to establish and maintain records containing Key Data Elements (KDEs). Examples of KDEs include the traceability lot code, the date the product was received, the date the product was shipped, and a product description.

• The traceability lot code is an important KDE throughout the supply chain intended to establish critical linkages that will help to facilitate rapid traceback and trace forward investigations during foodborne illness outbreaks and recall events.

• In addition, those subject to the rule would also be required to create and maintain records related to their internal traceability program, which would help regulators better understand a firm’s recordkeeping practices and traceability operations.
Electronic or Paper but;

• In addition, the proposal states that in the event of a foodborne illness outbreak, a product recall, or other threat to public health, the FDA could require that firms submit, within 24 hours, an electronic sortable spreadsheet containing relevant traceability information for specific foods and date ranges.

• More generally, the FDA encourages all food businesses to maintain their traceability records electronically whenever possible, to expedite the identification of traceability information when needed to address threats to public health.
Food Traceability List

- The proposed rule would only apply to foods that are on the FTL, which includes foods that have listed foods as ingredients.
- The proposed rule includes several exemptions, including that the additional traceability records would not be required after a kill-step (a process that significantly minimizes pathogens in a food) is applied to a food, but documentation of the kill-step application would have to be established and maintained.
Designation of the Food Traceability List Using the Risk-Ranking Model for Food Tracing

September 2, 2020
https://www.fda.gov/media/142282/download
Model is Based on Data and Information Relevant for Seven Criteria

- (C1) Frequency of outbreaks and occurrence of illness
- (C2) Severity of illness
- (C3) Likelihood of contamination
- (C4) Growth potential
- (C5) Manufacturing process contamination probability and industry wide intervention
- (C6) Consumption
- (C7) Cost of illness
Designation of the Food Traceability List Using the Risk-Ranking Mode for Food Tracing (2020 Version)

https://www.fda.gov/media/142282/download
Identifying Commodities

- The commodities and associated commodity-hazard pairs produced by the Model were ranked.
- Commodities with associated commodity-hazard pairs with criteria scores in the moderate to strong range were considered for inclusion on the List.
- The risk scores for commodity hazard pairs associated with each commodity, and the individual criterion scores (criteria 1 through 7 or C1 through C7) for each commodity-hazard pair.
- A commodity was included on the Food Traceability List if its risk score, aggregated across all associated hazards, was 330 or higher in the Model. This commodity risk score corresponds to, for one or more associated commodity-hazard pairs, the equivalent of at least two criterion scores each equal to 9 (criterion scores were “strong”) and the remaining five criterion scores each equal to 3 (criterion scores were “moderate”), providing evidence for a significant public health risk.
- A commodity was also included on the Food Traceability List if the outbreaks and illnesses (C1) and cost of illness (C7) criterion scores for one or more associated commodity hazard pairs were “strong” (criterion scores of C1 and C7 each equal to 9), also providing evidence of a significant public health risk.
- The scores for many of the commodities on the Food Traceability List met both conditions.
Mollusks, Bivalves

• Includes all species of bivalve mollusks, such as oysters, clams, mussels, etc.; does not include scallop adductor muscle.
Crustaceans

Includes all crustacean species, such as shrimp, crab, lobster, crayfish, etc.
Finfish, including smoked finfish

• Includes all finfish species, such as cod, haddock, Alaska pollack, tuna, mahi mahi, mackerel, grouper, barracuda, salmon, etc.; except does not include siluriformes fish such as catfish.
Comments

• The proposed rule and draft Food Traceability List are available for public comment for a 120 days from the date of publication. The FDA will also be holding three public meetings during the public comment period.
These public meetings are intended to facilitate and support the public's evaluation and commenting process on the proposed rule.

**First Virtual Public Meeting**
November 6, 2020, 8:30 a.m. – 4:30 p.m. EST

**Second Virtual Public Meeting**
November 18, 2020, 9:30 a.m. – 5:30 p.m. EST

**Third Virtual Public Meeting**
December 2, 2020, 11:30 a.m. – 7:30 p.m. EST

Registration is required to attend one of the virtual meetings. Space is limited so please register early. For general questions about the meetings, contact Juanita Yates, FDA, Center for Food Safety and Applied Nutrition, email: Juanita.Yates@fda.hhs.gov.
Seafood Products Association

- Working Group
- Attend Meetings
- ASMI/SPA Talking Points
- Submit comments by January 21, 2021
Helpful Links

https://www.fda.gov/media/142282/download
Peru Market Access

Carolina Nascimento
ASMI South America OMR
November 2020
Why Peru?

- US$ 222 billion GDP, 7th largest economy in South America, 30 million people
- Well-established seafood industry: fish meal and consumer products
- More than 400 plants producing about 150 MT of finished products/day
- About 50 companies are experienced exporters of seafood for human consumption
- US - Peru Trade Promotion Agreement (TPA) got into force in Feb 2009 ($3.9 billion bilateral trade) + other 19 agreements
- Seafood is duty free
- Exports over $ 3.5 billion: China, Spain, USA, Korea, Japan
The Problem: Parasites

- Three containers of block frozen H&G Alaska pollock rejected
- Sudden growth of import numbers
- Negative prior experience with parasites
- Limited understanding of the Peruvian health authority – SANIPES – in regards to parasites and public health, as well as reprocessing of raw material
- Lack of a specific regulation
- Misconception: quality vs public health concern
The Strategy

• Work closely with Peruvian seafood industry
  • Developed strong relationship with the National Industry Association (SNI). Leading seafood companies are members of it.

• Work with Government Agencies in the U.S. and in Peru
  • PromPeru (Peru Export Promotion agency, under their Ministry of Economy)
  • Ministry of Production
  • NOAA
  • USDA/FAS post and U.S. Embassy in Lima.

• Lobby based on the economic interests and mutual benefits importing Alaska seafood into Peru could bring to both Peru and Alaska seafood industries
  • More Jobs, reduction of idle capacity, potential alternative to China

• Trade Mission to the market was key for having developments: showed our commitment to develop the market and overcome barriers together.
  • The right networking: U.S. Ambassador, SNI President, PromPeru Director, leading companies, SANIPES inspectors.
The Resolution

• Covid-19 pandemic, need of reactivating the economy: topic back to discussion

• Pilot Project to optimize health criteria for the processing of fishery products for direct human consumption for export purposes during 12 months (until Aug 15, 2021)

• Facilitated import procedures: no testing, no sampling, just regular foreign trade docs

• Raw material must be labelled as “MATERIA PRIMA, PROHIBIDA AL CONSUMO HUMANO INMEDIATO”-“RAW MATERIAL, PROHIBITED IMMEDIATE HUMAN CONSUMPTION” under the administrative responsibility of the operator in case of non-compliance
Next steps and expected outcomes

• Processing experience will base the creation of a long-term regulation

• For that, we need fish! Engaging Alaska seafood industry in the project is key

• 15 companies, 20+ plants signed up for the project

• Peruvians need:
  1. Technical training on how to process Alaska seafood and
  2. Gain more knowledge on the species, competitive advantages – business and marketing wise.

• Exports to the market can reach USD 3 million in one year (until Aug 2021)

• Projected ROI of 2,723%

• Projections point to the creation of 50,000 jobs in Peru in the next 5 years
Potential Partners in Peru

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<tr>
<th>Company Name</th>
<th>Description</th>
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<tr>
<td>ALIPROFRESCO S.A.C</td>
<td>Alimentos Procesados Frescos y Congelados S.A.C</td>
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<td>ARCOPA S.A - PESQUERA CANTABRIA</td>
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<td>JP Klausen South America</td>
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<td>PRODUMAR S.A.C.</td>
<td>(PROVEEDORA DE PRODUCTOS MARINOS S.A.C)</td>
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<td>SEAFROST S.A.C</td>
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<td>Grupo Nueva Pescanova (Novaperú)</td>
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<td>InterAtlanctic Fish (Peruvian Seafood)</td>
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RODGER PAINTER
ASMI 1981-2020