

Alaska Seafood Marketing Institute

Date: April 30, 2024

To: ASMI Board of Directors

From: John Burrows, ASMI Seafood Technical Program Director

Program Update: Activities from 4/2023

Program Objectives

- Support efforts that ensure safe, quality Alaska seafood products reach the consumer.
- Position program as the lead technical and scientific information source for seafood quality, safety, nutrition and health benefits, and sustainability.
- Encourage projects that incorporate innovative approaches to developing seafood products from Alaska.
- Provide outreach to educate and inform the market, trade, and consumers on the technical aspects of Alaska seafood.
- Promote the developing seafood technical field and promote studies with Alaska seafood.

Background

The goal for the program is to connect with the industry and provide resources to industry, trade and consumers in multiple technical categories including: seafood safety, seafood quality, nutrition, utilization, traceability, sustainability, and promoting innovative opportunities for Alaska seafood. An important component of the technical program is to provide support for the marketing programs on technical matters and to aid in developing technical materials for all of the programs.

Seafood Technical Program Overview



Applied Investigations

Research opportunities related to the quality and value of Alaska seafood

- seafood safety, nutrition, and quality
- quality processing, utilization



Supplied Materials

Outreach and educational material related to Alaska seafood

- develop content, materials and provide guidance for technical topics to industry, trade, and consumers
- develop materials for industry on quality and processing techniques



Trade Education

Outreach and educational opportunities in seafood technical issues for the industry

- support educational opportunities to promote the seafood technical field

Projects

Projects of interest for the technical program were determined by direction from the seafood technical committee and other ASMI committee requests.

Applied Investigations

- **National Oceanic and Atmospheric Association (NOAA) Saltonstall-Kennedy (SK) Grant- Increasing Market Access and Consumer Confidence with Trusted Nutrient and Contaminant Data and Outreach for Alaska Seafood**

- The technical program's application for a NOAA SK Grant to collaborate with the Alaska Department of Environmental Conservation (ADEC) in developing a database housing nutrient/contaminant data specific to Alaska seafood species was successful. This multi-year project was awarded \$298,450.00 for the project, which began in September in 2021. We are working to develop a comprehensive, current, and defensible nutrient and contaminant dataset for Alaska seafood and disseminate the results through an extensive outreach strategy. The project is being evaluated by a representative technical advisory committee guiding the project and will employ consumer-marketing surveys in various markets for Alaska seafood. S-K Grant Program objectives will be fulfilled by increasing consumer and trade confidence in Alaska seafood resulting in increased market demand. Completion of this project will improve global public relations, satisfy trade requests for information, and encourage collaboration between the state of Alaska and federal agencies to share data on Alaska seafood safety and nutrition information. Additionally, the project will generate marketing and outreach opportunities that can position the Alaska seafood industry to better compete in global markets and both positively differentiate and improve confidence in Alaska seafood products. The nutrient and contaminant data will be valuable to the Alaska seafood industry, researchers, public health initiatives, state and federal government agencies, and consumer marketing programs. The project has identified suitable laboratories for contracts, formed and held several meetings of the Technical Advisory Committee (TAC), determined analyses to be performed for both contaminant and nutrition analysis, and identified/begun sourcing species samples for inclusion. After All-Hands 2021, the project's initial laboratory for nutritional analysis backed out of the project due to the State's non-negotiable indemnification clause. A second nutrition lab was identified through an extensive outreach process and has now signed on. Extensive dialogue with the USDA has been had to ensure proper housing of the nutrition data. Similar discussions with DEC leadership has been had regarding the project's potential implications in terms of the fish monitoring program budget and establishment of necessary infrastructure to repeat the study's

procedures in-house going forward. In October 2023, substantial progress was made in sample acquisition, with partial samples obtained for 9 of the 11 currently included species. While gaps remained, agreements with industry members have been made to satisfy all necessary sampling events, which include all macro-regions (I.E., Bering Sea/Aleutians, Gulf of Alaska, Southeast Panhandle) of commercial harvest for the included species. Challenges have persisted in sourcing, as even when purchasing product, shipments have often arrived with samples/species previously agreed to being unavailable. Since November, we have worked with numerous industry members to plug gaps. A 12 month no-cost extension was approved, and we are on schedule to finish the project as originally outlined. **Despite shortcomings in the purchased product deliveries compared to what was requested, we are on track to have the full 60-specimens per species for 9-11 key commercial species depending on how shipments now en route are comprised. We are slightly under budget for the lab work, but have been told by NOAA this is a non-issue. For a couple species, there has been serious limitation in availability for regional availability, leading us to source additional product from commercial areas we had previously pulled from. Because these are still commercial fishing locations and reflect the market of current availability, this is defensible for any data outputs. To date, we now have extensive data for most species included for nutrients, contaminants, and radionuclides. To this point, hypothesized outcomes of systemic sampling having less contaminants compared with the opportunistic sampling ADEC was performing previously has held true. All data will be present on the ASMI website, with contaminants listed on ADEC web pages and nutrients submitted to federal databases.**

- **Oregon State University-Foundation for Food & Agriculture Research Grant: Recovery of Nutritional Food from Seafood Byproducts**
 - The technical program contributed matching funds (**\$10,000 USD**) to the forthcoming study to recover protein from various seafood processing by-products with the purpose of developing viable, marketable food items. The study is set to occur over a span of three years with a total funding of \$667,570, half of which is comprised of matching funds. ASMI's matching fund is one of several supplied, with other contributing entities including Oregon State University, OSU's Food Innovation Center, Pacific Seafood Group, Seafood Industry Research Fund, Trident Seafoods, and the West Coast Seafood Processors' Association. The researchers (comprised of experts in food chemistry, nutrition, food processing, product development, and sensory evaluation) will extract, purify, characterize functionality, and assess the nutritional content of the protein isolates of various species. The study seeks to reduce discard of edible proteins from seafood processing, increase percentage of harvest

utilization for human consumption, provide additional viable revenue streams to processors/harvesters, and increase protein availability. The nutritional efficacy and health impact of the generated protein isolates will be assessed in an animal model compared to protein isolates such as whey and soy. Subsequently, seafood protein isolate will be utilized to develop multiple prototype products including dietary supplement products, novel food products, and food aid fortification formulations, with the culinary potential for products containing seafood protein isolates being assessed by a panel. FFAR recently issued full approval and released their funds (October 2021), and results of early stages are forthcoming. In March of 2023 OSU's primary researchers on the project and the students assisting presented early results for pollock which had numerous promising outcomes such as high quality protein recovery from pollock and whiting processing to date. As of October, some of the barriers to inclusion of extracted wastewater protein in fish stick product have been overcome. Optimization of the extraction process chief amongst them, which was accomplished through testing of various sizes of nylon membranes. Different variations of formulation of fish stick were created, using multiple percentages of protein precipitate. Color difference compared to standard fillets were noted but corrected with inclusion of calcium chloride. The precipitates showed remarkable ability to gel with fillets. Another intriguing finding was that despite a lack of antioxidants and cryoprotectants being included in the fish sticks, this gelling ability remained and functional/flavor qualities remained despite freeze and thaw. Despite the precipitates having an elevated moisture content, non-blind sensory analysis at OSU's Food Innovation Center (FIC) yielded positive results with fish sticks being made and tested at various percentages of precipitate concentration, with the 10% formulation performing best. The next stage of the project is to up-scale production and perform a formal tasting at the FIC. **As of April 2024, a 12-month NCE was instituted by the project leads at OSU, and graduate students responsible for previous portions have moved on after degree completion, leading to new students joining for the next sections. Due to some challenges observed with high moisture content in the protein concentrate, the team began drying of the wet protein concentrate and tested the dried protein isolate inclusion in the fish stick production, resulting in a more appealing end-product with no issues found throughout the formulation and cooking process. With reduced moisture content, the inclusion levels of dried isolate were reduced to 0.5 and 1% of fillet weight, which matches the protein content of 10 and 20% of wet isolate inclusion, respectively. 1% of the dried isolate inclusion was able to increase the protein content of fish sticks by 0.5 g per serving. The goal downstream is to further purify the protein isolate to allow increasing the protein content of fish sticks by 1g per serving to produce value-added products that utilize byproduct-derived protein. The researchers are currently preparing in vivo animal trials to**

1) test the nutritional efficacy of the protein isolate in supporting growth and

2) investigate the potential impact on metabolic health in the animal model.

Zebrafish were selected as a model due to their rapid development, cost effectiveness, and genetic similarity to humans. Zebrafish share many metabolic pathways and genes with humans including lipid metabolism, glucose homeostasis, and insulin signaling, which makes them an efficient model for studying human metabolic health. We are testing the pilot diet for the animal trial and preparing the animal study protocol to be approved by The Institutional Animal Care and Use Committee to be able to initiate the study.

- **University of Connecticut/Seafood Industry Research Fund – Alaska Salmon Consumption and Reduced Inflammation for Breast Cancer Survivors –**
 - o We collaborated the Seafood Industry Research Fund (National Fisheries Institute) to support a study by the University of Connecticut to gather key information regarding dietary fish consumption patterns in breast cancer survivors experiencing symptoms of persistent pain and fatigue. The 2-year investigation uses the USDA dietary guidelines as a basis to assess the consumption of more fish consumption for improved dietary intake patterns for breast cancer survivors. Consumption of omega-3 fatty acid in fish, and not in supplements, is encouraged as a component of the Nutrition and Physical Activity Guidelines for cancer survivors. A specific aim of the project will be to look at the effects of high and low DHA diets on inflammatory load and persistent pain and fatigue severity for breast cancer survivors. There are 180+ participants in the study who have personalized meal plans of frozen Alaska salmon fillets 2-3 times a week for a period of 6 weeks. Due to COVID closures from February 2020-December 2020, the study's latest recruitment phase was delayed and the finalization is now expected in May 2022 (a no-cost extension for data synthesis was granted) with a larger sample size than initially scoped (over 180 participants instead of 150). However, due to ASMI's continued support of the project, ASMI will be a named contributor on the secondary follow-up study examining the effects of seafood consumption of the gut microbiome in this same survivor group. Our feasibility study entitled: "Feasibility of Investigational Procedures and Efficacy of a Personalized Omega-3 Dietary Intervention in Alleviating Pain and Psychoneurological Symptoms in Breast Cancer Survivors" was published in February, 2023 in Pain Management Nursing, available [here](#). Here, we reported that BCS in the high omega-3LC group had a significant decrease in pain ($p < .01$), perceived stress ($p < .05$), sleep ($p < .001$), depression ($p < .001$), and fatigue ($p < .01$) related to the fish intervention.

- A significant effort was focused on the baseline dietary data for the full set of participants, we have a manuscript under review entitled: “Dietary consumption patterns in breast cancer survivors: Evaluation of diet, supplements and clinical factors” –we have submitted to the Journal of the Academy of Nutrition and Dietetics. Of particular interest to ASMI and SIRF is that the majority of the BCS self-reported that although they consume fish (95.8%; n=91), when shellfish was excluded, participants consumed an average 0.16 (± 0.26) servings daily, with 61.5% (n=59) consuming 0 servings. This finding of low fish consumption is an area of interest given the high symptom burden (depression, sleep disturbance, pain and fatigue) in our cohort at baseline. Further compounding this issue of low fish consumption, the omega-6 to omega-3 ratio was high in the diets of the BCSs in our cohort ($M=7.96\pm 3.28$) and this highlights a need for improved fish consumption. **This baseline dietary study that had also been submitted to Clinical Nutrition in October of 2023, and we received notice on January 3, 2024 that the article was not aligned with the journal and therefore declined. After careful review of reviewer’s comments, the article is now under review by the European Journal of Oncology Nursing.**
- Substantial efforts focused on cleaning and analyzing the gut microbiome data in a subset of 46 BCS. We developed an abstract for presentation at the American Oil Chemists Society Meeting in April 2023 (accepted) but needed to postpone due to unforeseen circumstances. We plan to present this year and are currently working on the accompanying manuscript. To date, our results highlight that at baseline (prior to initiating the intervention) fish consumption was significantly associated with alpha diversity ($p=0.02$, mean servings/week (<1/wk, 11.8 ± 6 ; 1/wk 11.4 ± 6.5 ; 2/wk 11.9 ± 3.9 ; ≥ 3 /wk 21.0 ± 8.6). Bifidobacterium was significantly higher in BCS with reported fish consumption >1 serving per week ($p=0.03$). The Center for Epidemiological Studies Depression scale total score was significantly lower in BCS with reported fish consumption >1 serving per week compared to <1 serving/wk ($p=0.04$, <1/wk 13.9 ± 10.8 ; >1/wk 9.5 ± 7.3). This finding highlights the need for further education and outreach with BCS promoting increased fish consumption for better gut and psychological health.
- **Our manuscript on nutrition, immune and gut microbial patterns in breast cancer survivors will be submitted this summer. A brief overview of our findings is as follows:**
 - We are concluding data analysis/developing the manuscript (planned submission Summer 2024) related to the baseline gut microbiome data for 45 breast cancer survivors included in the later cohort where stool samples were collected and funded under ASMI. Our interest has been in evaluating the dietary data (including omega-3 fatty acids and omega-6 to omega-3 ratio) in conjunction with the salivary cytokine data representing inflammatory response, and gut microbiome. To better understand

the relationship of nutritional and immune factors with microbial communities, we performed a descriptive analysis of the BCS cohort's demographic and clinical characteristics, nutritional intake, cytokine levels, and gut microbiome. Operational Taxonomic Units (OTUs) or microorganisms grouped according to DNA sequence similarity on the genus level, were selected based on a specific filtering criterion for the microbiome data to ensure relevance and robustness in further analyses. Highlights of specific findings are as follows:

- **the dietary balance of Omega-6 to Omega-3 fatty acids may influence gut microbiota composition differently, affecting these specific bacterial groups**
- **There was also a significant correlation between Vitamin D levels and various OTUs from bacterial families and genera.**
- **Omega-3 or ratio data did not show a significant association in terms of ordination**
- **Significant associations were not identified between omega-3 or ratio and bacterial modules.**
- **These findings highlight the intricate interactions among dietary intake, immune response, and the gut microbiome, laying the groundwork for a deeper exploration of how these dynamics affect human health.**

- **Oregon State University Food Innovation Center/University of Maine –Chef Sensory Evaluation of Frozen Alaska Seafood**

- ASMI partnered with the Food Innovation Center at Oregon State University **to conduct a sensory evaluation of frozen Alaska seafood with chef participants.** Test data was collected using the Compusense data acquisition systems. Sensory test results were analyzed at the 95% confidence level and raw and summarized data is available in a summary report. Event timing was originally scheduled for Fall of 2019 and delayed due to COVID pandemic. Due to the technical committee's request of avoiding of directly comparing fresh and frozen product, the initial study design was reevaluated to include solely frozen product evaluation. An event to gather chef responses in Washington DC during September 2021 had been scheduled but was upended by the continuing pandemic. In the fall, ASMI and OSU set a tentative Spring 2022 timeline to begin, and with an understanding that gathering sufficient chefs was the study's greatest hurdle (n=40) and aiming to partner with a culinary entity in regions less saturated by Alaska seafood. A suitable partnership was found with the Dr. Matthew Highlands Pilot Plant at the University of Maine. This facility features a state of the art commercial kitchen, specialized food product development equipment, a kitchen lab, sensory evaluation stations, and a proven ability to run seafood studies with chefs as the

sample size, as they recently completed a study evaluating an umami fish sauce made from invasive green crab. The manager of the plant is a former White House chef accustomed to high quality seafood prep even going so far as to get seafood HACCP certification, and is President of the Downeast Chapter of the American Culinary Federation. Working with our research partners, an event at O'Maine Studios in Portland Maine was set up, titled the "Seafood Quality and Innovation Summit" to draw chefs and seafood producers. On March 20th 2023, 62 study participants attended the event which included sensory evaluation of Pacific halibut, sockeye, keta, and yellowfin sole. Testers were unaware of the species or the once-frozen nature of the products. A team of seafood-savvy chefs and culinary students under their tutelage simply prepared and the samples. Evaluations of the product were on average in the 'excellent' range, and through consultation with ASMI committee members we were able to tailor the questionnaire to obtain actionable marketing data relating to chefs as seafood consumers in addition to sensory questions. **Currently, the researchers are working on publication of the data. In March, ASMI Technical presented the study's data in a session at Seafood Expo North America, which was well-received. As a result, we have had speculative communication from culinary entities looking to add to or follow up this study by repeating its basic parameters in the Chicago Metropolitan area.**

- **Oregon State University- Consumer Acceptability and Shelf-life Assessment of Frozen Seafood**
 - o ASMI technical is supporting a forthcoming study by OSU which is funded by a Saltonstall-Kennedy Grant **to determine shelf life (nutrient density, oxidation, texture) and consumer acceptability of three frozen seafood species stored in two different freezer types (commercial/industrial and home), and to develop and pilot educational outreach efforts about frozen seafood.** The project timeline is two years from January 2021-January 2023 (though a 1 year extension was granted), with the shelf life testing over an 18-month period. ASMI is supporting by serving as a member of the study's Technical Advisory Committee. The three species have been chosen by the advisory committee, two of which (coho salmon and sablefish) are relevant to Alaska seafood. As of September 2023, 3, 6, and 12, 18 month-evaluations have occurred in both sensory and non-sensory tests, with overall positive feedback on product quality and acceptability among the 360 individuals surveyed, noting no notable quality loss among the samples through the first 12 months for most species, and only minor loss afterwards. Sablefish has improved acceptance to 12 months, and held at that acceptance level since. **As of December 2023, the reporting data was finalized and submitted to the NOAA SK managers, and researchers are in the process of publishing their findings.**

Additionally, based on findings from sablefish in particular, follow-ups are being planned to expand on the reasoning behind the increased sensory acceptance over time.

- Sustainable Packaging Survey and Brochure

- Information on sustainable packaging was a consistent ask for the Seafood Technical Program. ASMI Technical created a summary document of our current knowledge and circulated it, but it was based on some dated information. While initial discussions led to recommendation of the development of a guidance document for industry members describing the various types, grades, compositions, and properties of more sustainable packaging material so that industry members have a navigable road map without any pressure to change operations, conversations with industry members and SeaGrant in particular changed this. SeaGrant had a similar effort but found publicly available knowledge and technology lacking, resulting in the drafting of a simple one-pager meant for industry which will be shared with ASMI Technical. **However, greatest effort on this topic has been in working with committee member Chris Sannito of University of Alaska and Sea Grant on a project developing all-encompassing and novel food packaging systems specifically for seafood which are both recyclable and are able to prevent contamination from known compounds of concern. This effort is being supported by both private and public entities, and all parties involved other than ASMI are bound by NDA's, which ASMI is honoring. At time of last report, we had a tentative plan to unveil this effort at All-Hands, but the company in question creating this technology has had to push this timeline to Fall 2024**

-SK Grant Applications

- ASMI Technical contributed to the submission of 4 SK Grant pre-proposals for the current cycle (projects which would begin in Fall 2024), all of which were encouraged to submit full proposals.
- ASMI Technical staff would serve as one of the Principal Investigators (PI) on all but one.
- The first project is aimed at creation of a 'next steps' for value-added specialty products utilizing Alaska seafood, evaluating existing product creation methodologies from high-value sectors and products developed at the Iceland Ocean Cluster based on the Alaska federal delegation's interest in extending work of this type. The project would seek to evaluate which products/processes could be most readily implemented in Alaska based on current processing as well as create a determination matrix for analyzing fiscal prudence of any processing or infrastructure extensions required to generate any of the products. Re-shoring of value-added processing will be an aspect evaluated by the research partners for this project, the Alaska Fisheries Development Foundation (AFDF). In the final

- proposal, ASMI would partner with McKinley Research, AFDF, the Iceland Ocean Cluster, and the UAF Alaska Blue Economy Center but lead the overall effort.
- The next, being written jointly by ASMI Technical and International would create branding and marketing around pet food made from Alaska seafood in addition to the evaluation criteria proposed in the previous project. Pet food could theoretically be a piece of the previous project as well, so these submissions were made to ensure ASMI may use grant funding for pet food efforts if either this project or the previous are funded.
 - The third ASMI application is for creating a campaign around frozen seafood. While not a listed PI, ASMI Technical would be highly involved in a supporting role due to the research and materials we have completed on this product category. This one is no longer in the running for funding.
 - ASMI Technical staff is also a listed PI on an application from Oregon State University using a handheld electronic device to create data on seafood quality and traceability. ASMI Technical would be using this technology to evaluate this technology's suitability in controlling for chalky halibut.
 - **Full proposals for the value-added and pet food projects are in the final consideration stages for funding, making in through a technical and a marketing panel review. We anticipate news of whether either will be funded in May of 2024.**

Canned Salmon Parasite Study

- **ASMI Technical provided funding to help finalize and publish a study by the University of Washington measuring presence of nematodes in canned Alaska pink, sockeye, keta, and coho salmon. The study used only cans of Alaska fish, and used product canned from 1979 through 2019 as a way to capture a snapshot in time for each. Anisakid presence increased over time in keta and pink, but there was no change in coho or sockeye. The researchers speculate that predation habits or parasite preference may have been contributing factors.**
- The study is available online [here](#).

Speculative/Potential Discussions

- **ASMI Technical is in dialogues with faculty from the University of Washington regarding generation of studies on issues of particular importance to industry.**
 - **Dr. Jessica Gephart regarding bycatch mitigation**
 - **Dr. Chelsea Wood regarding parasites**
 - **To this point, it is more of a task force effort to identify knowledge gaps, but we are aiming to scope studies which will assist industry with either data or understanding of the evolving situations in both topics**

Supplied Materials

- **ASMI Species Fact Sheets**
 - The technical program is producing a new suite of Alaska seafood species fact sheets for buyers of Alaska seafood. We have completed the majority of Alaska species and will be moving forward to complete the few remaining species for which replacement fact sheets are needed and developing sheets for species not previously covered in this material suite. These are available in print to order as well as a download pdf on the .org website. **This year, pink salmon and bairdi crab were revisited due to recommendations from ASMI FoodAid and the ASMI Board respectively. Forthcoming species will include Pacific herring, sea cucumber, geoduck, and more.**

- **New Partnership: Alaska Department of Fish and Game**
 - ASMI Technical has initiated a more direct relationship with ADFG as a result of that organization's need for improved capability to reach stakeholders and consumers on fisheries topics and their lack of a communications team or budget. ASMI Technical is working with the Deputy Commissioner directly to craft messaging on such topics. This is essentially a restructuring of the ASMI Technical Fact Sheets (see below), where the order of completion of topics is being slightly altered to accommodate ADFG. For FY24, we will be working together to create a suite of materials, and as a result ASMI will get access to the robust data held by ADFG for use in ASMI materials, and for housing said data in a more public-facing format. We will also be identifying areas of collaboration which may require more funding and earmarking them as SK Grant projects for the next cycle. **2 sheets of material have been finalized for this project (crab management and Fukushima radiation) with bycatch mitigation currently in development.**

- **ASMI Technical Fact Sheets**
 - We are developing fact sheets on technical topics that relate to Alaska seafood. These are business-to-business and business-to-consumer fact sheets are for use by ASMI programs as well as industry and trade relations. We have completed hatchery, chalky halibut, and frozen quality sheets previously, as well as internal-use only jellied sablefish. **An internal only 'smaller specimens' draft was created but deemed as not needed at this time, though it may be revisited if questions on this topic return. ASMI is working with ADFG on fishery related sheets, with a crab management sheet, and an overview of Fukushima radiation and its irrelevance to the safety of Alaska seafood having been finalized (see Trade Education section below or partnership details above)**

- **We have revamped the existing technical topic sheet on hatcheries to include current data and correct outdated information.**
- **New Partnership: Roxana Ehsani, MS, RD, CSSD, LDN**
 - Roxana is an experienced dietitian operating primarily in the functional nutrition space focused on sports nutrition. She is on the medical review board of numerous prominent health organizations, is an Adjunct Professor of Sports Nutrition at Virginia Tech. She is a trained media spokesperson and has previously worked with the ASMI Communications Program. She will be assisting in the creation of new ASMI nutrition materials, developing functional recipes, and serving as a brand spokesperson.
 - Roxana has been invaluable in creating numerous nutritional materials (see below).
- **ASMI Website**
 - ASMI Technical continues to vet new information as it is added to the website, and to update existing material as information changes.
 - **We are currently in early stages of adding ADFG sheets, planning housing of ADF&G data, and the placement of data and messaging from the Nutrient and Contaminant Database project.**
- **ASMI Brochures**
 - An effort to overhaul the Shellfish Buyer's Guide continues, with the largest barrier being access to suitable imagery and information of less commonly marketed species. Work had paused on this until the October survey results which were recently released, allowing greater knowledge of how much space would be committed to discussing management and alternative species.
 - **The output of the sustainable packaging research project was initially a brochure of potential options for industry members wishing to switch to more recyclable/re-usable materials. We have worked with Sea Grant to establish an overview draft which is forthcoming despite relatively little information on the current tech being available outside of the ongoing direct research effort.**
 - **Bycatch brochure with ADFG is currently in development**
 - **The ASMI Roe brochure is being updated with new images and branding for purposes of modernization and ensuring current data.**
- **ASMI Quality Material**
 - We are developing associated tutorials on aspects of quality handling for different gear types and species (i.e. how to bleed, how to ice, how to transport) at the harvester level. The first project for this, a bleed tutorial, was previously completed, and discussions are underway for identifying relevant topic materials based on tech committee input. Based on

discussion with the Technical Committee, we are engaging with Dr. Christina DeWitt of OSU and the ASMI Technical Committee to adapt her materials for first receivers, as well as reaching out to vessel captains and tender operators for their needs on crew education since it is the committee's opinion that these are often the first training providers.

- **As a result of the SK Grant, new outreach materials related to lack of contaminants are being generated.**
- **We are in early stages of quality messaging aimed at harvesters connecting quality best practices with nematode mitigation, as well as revitalization of materials aimed at service counters at grocery retailers.**

- **ASMI Nutrition Material**

- As part of the SK grant, the new nutrient data developed will be used to update Alaska nutrition materials to reflect new values. This information will be used in outreach efforts and to differentiate wild, Alaska seafood from competitors harvested or farmed elsewhere.
- We are generating a video series applying dietetic knowledge to Alaska seafoods with RDN Roxana Ehsani
 - **We have finalized a video on [Seafood and Mercury](#) (with accompanying fact sheet) and on [Seafood and Pregnancy](#).**
 - **Additional forthcoming videos on**
 - **Seafood and healthy aging**
 - **DHA importance**
 - **Individual segments on micronutrients**
- **We have developed 3 new functional recipes based on wild Alaska sablefish.**
- **As a result of the SK Grant, new outreach materials related to the new nutritional data are being generated.**
- **Satellite Media Tour-We are working with 4Media group Inc. to generate a Satellite Media Tour with Roxana to speak about Alaska seafood and provide a platform to extend outreach of new nutrition data from the SK project. This allows our dietitian to interview with numerous local television stations in the US, reaching an estimated ~18 million viewers with ASMI functional nutrition talking points and comparing ASMI SK nutritional data to USDA species dat.**

- **Additional ASMI Materials**

- Working with other ASMI programs to develop consumer-aimed edits of new technical materials, especially video content, functional nutrition recipes, and quality-focused guides.

Trade Education

- Provided support for KSMSC training including:
 - o HACCP, Better Processing Control School, Alaska Seafood Processor Leadership Institute, Smoked Seafood School, and Sanitation Workshop.
- Provided federal comments:
 - o To FAS regarding *vibrio* regulations in the EU, Antibiotic use in hatcheries, proposed rules on fish products in Vietnam.
 - o **To NOAA regarding Draft Supplemental Programmatic Environmental Assessment (SPEA) for Fisheries Research Funded by the Alaska Fisheries Science Center**
- Member of the National Fisheries Institute and Seafood Products Association, serving on the latter's Technical Committee.
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- In addition to the ASMI technical sheets, we are working to create a suite of collaboratively produced technical fact sheets with entities such as ADEC and Sea Grant for industry outreach. We previously finalized ADEC's shellfish safety sheet and Sea Grant's parasites sheet. **This year, we have finalized ADFG/SeaGrant versions of crab management and Fukushima radiation fact sheets, with current work on bycatch ongoing. Due to the increased scrutiny around this issue, is taking more time than previous items. Currently drafts of a general brochure on the topic are available, and we anticipate an additional simplified 1-pager, as well as 1-pagers on different aspects of bycatch mitigation (such as on-board monitors, etc.).**
- **This summer we will begin conversations with ADFG about the scope and scale of an SK application to complete this effort with additional funds.**
- Engaged with industry members for education regarding new in-plant requirements for control of metal inclusion hazards by NOAA.
- Continued and ongoing discourse with NOAA/USDC on behalf of industry on numerous problematic topics including:
 - o Grade A specs and audits being applied inconsistently,
 - o Overseas storage time limits on SIP registered product for export,
 - o Alterations to the Approved Establishment Program.
- Worked with NFI to communicate with industry about duplicative requirements that industry might be subject to when subjected to the FDA's new traceability requirements.
- Supporting SeaGrant effort to revitalize 'Care and Handling of Salmon: The Key to Quality' for industry use.

- Provided edits for several chapters in 6th Edition of ‘The Seafood Harvester’s Direct Marketing Manual’
- Provided an overview to Good Housekeeping Mag regarding misconceptions around ‘sushi grade’ fish. The article is available [here](#).
- Provided letters of support to forthcoming research on climate impacts to nematode abundance in Alaska seafood.
- Forthcoming refresh of the underutilized product report w/McKinley Research (ASMI budget if SK proposal is unsuccessful).
- Working with AFDF on feasibility evaluation of reshoring Alaska value-added processing (ASMI budget if SK proposal is unsuccessful).
- Worked with domestic to welcome inbound familiarization trip for NYC culinary influencers.
- Sponsorship of Jae Park/OSU’s surimi school.
- Sponsorship of Seafood Nutrition Partnership’s (SNP) State of the Science Symposium.
- Provided insights for a blog on preparing frozen seafood for marthastewart.com, available [here](#).
- A follow up to the above article on how to store frozen fish was also published on marthastewart.com, available [here](#).
- Attended Food and Nutrition Conference & Expo in support of SNP and in seeking connections with Dietitians for continued dietetic voice in creation of ASMI Nutrition Materials.
- **Technical Director served as President of the Pacific Fishery Technologists, a group which meets annually to examine ongoing and needed research for commercial fishing efforts in the Pacific. The event was held in Sitka in late February and featured 30 research presentations on a myriad of research topics. As host, ASMI Technical used the opportunity to offer education to attendees about Southeast Alaska fisheries and hatcheries, including talks and tours offered by the Sitka Sound Science Center.**
- Sponsoring of University of Alaska’s Alaska Safety Alliance Project, which will create short videos about the various technical jobs in the seafood industry with aims of reaching children ages 7-14 regarding Alaska processing jobs such as:
 - Quality Assurance Technician/Manager
 - Electrician

- Refrigeration Technician/Engineer
- Seafood Plant/Production Manager
- **This video series was approved, completed, and is available online.**

Other Activities

- The technical committee met via Zoom in April 2024 to approve the budget and discuss projects for FY25.
- Created and/or updated internal ASMI talking points on technical topics. Depending on the topic, these talking points were either shared internally only with market representatives and ASMI staff or distributed to relevant members of industry and/or their supporting NGOs. Topics included:
 - Alaska seafood and radiological contamination (Fukushima),
 - Bering Sea opilio crab stock reduction,
 - Bycatch and fishery management
- ASMI Technical supports day-to-day vetting of information utilized and materials produced by ASMI marketing programs.
- ASMI Technical serves as the primary public contact on technical issues or questions being sought by market representatives, industry members, and the general public.
- ASMI Technical facilitated discussions with the Technical Committee and new technology developers, several of which are likely to be engaged for pilot programs. Technologies included:
 - New freezing tech (picoscopic silky ice, slush ice, supercooling),
 - Traceability metrics/solutions,
 - Quality Solutions,
 - New bioplastics from marine sources,
 - Biofuels from Alaska fisheries
 - Ropeless gear
 - Extensive conversations and work on new sustainable packaging (this effort is underway in a larger effort than allowed by a pilot program).