

HOW FOOD MANUFACTURERS HAVE RESPONDED TO THE COVID-19 PANDEMIC—PART 1

Seafood manufacturers have demonstrated adaptability to protect workers and avoid closing, despite supply shortages and changing public health guidance

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Small food manufacturers, defined as those with less than 500 full-time employees, have experienced significant challenges to operate and supply food during the COVID-19 pandemic. Federal guidance to protect food employees from COVID-19 was provided to U.S. meat and poultry processors before it was developed and relayed to seafood processors. To better support small manufacturers in Georgia, the University of Georgia Marine Extension and Georgia Sea Grant conducted free, onsite COVID-19 assessments at seven seafood processing and distributing facilities through the first five months of 2021. By compiling and adapting checklists developed from the U.S. Food and Drug Administration (FDA), the U.S. Occupational Safety and Health Administration (OSHA), and the U.S. Centers for Disease Control and Prevention (CDC), a comprehensive tool was developed to facilitate assessments. Completed assessment reports and recommendations, along with answers to a brief follow-up questionnaire conducted three to seven months later, are summarized in this article.

Manufacturers demonstrated remarkable adaptability to protect workers and avoid closing, despite the emergence of supply shortages and continually changing public health guidance. Except for three companies that temporarily suspended onsite inspections of (foreign) suppliers, the pandemic did not negatively affect the safety of seafood processed in or distributed by these facilities. Although only seafood facilities were assessed, information gleaned from this effort is relevant to any food manufacturer.

Reason for Project

In early 2020, it became apparent that SARS-CoV-2 was the cause of a global pandemic. By mid-March/early April, society and industry lockdowns were occurring in the U.S. Some meat and poultry processors that employed hundreds to thousands of people on processing lines were forced to close because of COVID-19 outbreaks among workers, which led to food shortages in grocery stores. During April and May 2020 alone, 16,233 COVID-19 cases were reported in 239 U.S. meat and poultry processing facilities across 23 states.¹ Information, and sometimes conflicting recommendations, were released almost daily from multiple public health and food agencies on how to prevent illnesses. However, with scant research and knowledge on how the virus spreads among humans, food manufacturers were unsure which advice to follow and how to practically and effectively protect employees and consumers.

Federal agencies and state health departments responded to food plant closures by providing occupational hazard assessments, toolkits, and/or checklists to help critical infrastructure industries gauge their risks, beginning with and directed toward industries with large workforces and where the virus was likely to quickly spread. In early March 2020, OSHA collaborated with the U.S. Department of Health and Human Services (HHS) to publish Bulletin 3990, Guidance on Preparing Workplaces for COVID-19.² While this publication was not specific to food production, it recommended that employers develop an infectious disease preparedness and response plan to prevent the spread of COVID-19. Also, the publication provided some of the first advice on how to protect employees and customers.

In April 2020, OSHA and CDC focused on the food industry and jointly issued Interim Guidance to Protect Workers in Meatpacking and Processing Industries.³ Using that guidance, CDC and OSHA then developed their Facility Assessment Checklist for Evaluation of Coronavirus Disease (COVID-19) Assessment and Control Plans for Meat and Poultry Processing Facilities and released it early June 2020.⁴ Since no guidance was issued specifically for seafood, processors had to follow or adapt recommendations supplied to meat and poultry manufacturers or look for information elsewhere.

On July 27, 2020, CDC and OSHA released their interim guidance and Checklist for Seafood Processing Worksites: Align Your COVID-19 Assessment and Control Plan with CDC/OSHA Protection Guidance⁵ in response to increasing COVID-19 outbreaks and cases within seafood processing facilities, especially at-sea factory trawlers, where employees work and live together.⁶ On August 4, 2020, FDA and OSHA released their Employee Health and Food Safety Checklist for Human and Animal Food Operations During the COVID-19 Pandemic publication,⁷ which was also relevant to seafood processors.

Since the availability of COVID-19 rapid response funds from the National Sea Grant was announced in spring 2020, prior to the issuance of any COVID-19 guidance specific to seafood facilities, the University of Georgia Marine Extension and Georgia Sea Grant submitted a proposal for and received funds to address this gap of support for the seafood industry in Georgia.

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Materials and Approach

Partnering with Good Shepherd Consulting LLC, the University of Georgia Marine Extension and Georgia Sea Grant developed a tool to facilitate onsite assessments of seafood facilities. Although guidance and checklists had been developed by various U.S. agencies for meat, poultry, and other food processors, none were specific for seafood until CDC and OSHA released their interim guidance and Checklist for Seafood Processing Worksites: Align Your COVID-19 Assessment and Control Plan with CDC/OSHA Protection Guidance in July 2020.⁵ While this resource was applicable to seafood processors, some of it was irrelevant to Georgia companies because they did not provide employees with housing or transportation, so questions related to housing and transportation to work were deleted from the checklist. Since the CDC/OSHA checklist covered facility environment only and

not food safety, the assessment team incorporated the food safety checklist (pages 11–16) from FDA/OSHA's Employee Health and Food Safety Checklist for Human and Animal Food Operations During the COVID-19 Pandemic⁷ into the assessment tool.

The final, 22-page tool, titled, "Georgia Seafood Processing Facility Assessment Checklist for Evaluation of Coronavirus Disease (COVID-19) Control Plan," which was used during the assessments, is outlined below in the order in which it was assembled:

- A. Introductory page summarizing purpose of assessment and assurance that company name/information will not be divulged, along with space to record the assessment date; company name; facility address; primary contact's name, title, and phone number; and assessors' names.
- B. Page 2 (Section 1: Assessment) of "Checklist for Seafood Processing Worksites: Align your COVID-19 Assessment and Control Plan with CDC/OSHA Worker Protection Guidance."⁵
- C. Pages 11–16 (Food Safety Checklist) of FDA/OSHA's Employee Health and Food Safety Checklist for Human and Animal Food Operations During the COVID-19 Pandemic.⁷
- D. Pages 3–6 (Section 2: Preventing Introduction of COVID-19 into the Worksite) of CDC/OSHA's Checklist for Seafood Processing Worksites,⁵ but omitting questions about offshore worksites and congregate housing on page 3 and employer-furnished living spaces on page 6.
- E. Page 7 (Section 3: Engineering Controls) of CDC/OSHA's Checklist for Seafood Processing Worksites.⁵
- F. Pages 8–12 (Section 4: Administrative Controls) of CDC/OSHA's Checklist for Seafood Processing Worksites,⁵ but omitting specific face mask questions on page 10, except for the first and last ones. Three questions were added to page 10: (1) Does the company provide face coverings, and can employees bring their own to work? (2) Have you added outdoor tents or additional rooms to accommodate employee social distancing during breaks? (3) What are you doing to encourage employee COVID-19 vaccinations? (Since COVID-19 vaccines were not available in Georgia until mid-February 2021, and then only for people ≥ 65 years old and healthcare workers, this question was added after the first three assessments were completed.)
- G. Page 13 (Section 5: Personal Protective Equipment) of CDC/OSHA's Checklist for Seafood Processing Worksites.⁵
- H. Since previous experience with Georgia companies did not uncover any employer-sponsored shared living situations, the questions on pages 14–16 (Section 6: Special Considerations for Shared Living Spaces) of CDC/OSHA's Checklist for Seafood Processing Worksites were deleted.⁵ However, two original questions were added: (1) Are you aware of any shared living arrangements with your employees? (2) If so, is this arrangement employer-provided?

Facility Selection

In September 2020, a list of 50 seafood wholesalers in Georgia was compiled based on previous working/collaborating relationships. To reflect the diversity of companies with wholesale fish dealer licenses in Georgia, the list included processors located at the coast and inland (most seafood wholesalers are located in metropolitan Atlanta); ones with as few as 12 and up to 500 employees; and distributors that did no seafood processing at their facility. Printed and digital copies of a letter of invitation were sent to the 50 companies for free onsite COVID-19 assessments, but no replies were initially received. From November 2020–January 2021, the assessment team contacted approximately ten of the companies

via phone or email explaining the purpose and importance of their involvement, and seven companies eventually agreed to participate.

Onsite Assessments and Recommendations

Using the Georgia assessment tool, seven assessments were conducted between January 8 and May 12, 2021; two or three assessors visited each facility. The facility's completed assessment tool and recommendations for facility adjustments were emailed within one week of each assessment.

Follow-Up Survey

A nine-question survey, which will be further discussed in Part 2 of this article, was developed to evaluate the effectiveness of the completed assessment tool and recommendations. Questions were answered via phone call or email within approximately three to seven months after the assessments were completed.

Results

Some of the more salient findings are summarized below and described in Tables 1–3 and Tables D, E, F, and G.

Sections A and B of Georgia Assessment Tool—Facility Demographics

Table 1 contains data for these sections. All facilities were licensed by the Georgia Department of Agriculture as wholesale fish dealers. Three of seven (43 percent) facilities were single, independently owned operations, while four of seven (57 percent) were owned by a corporation with at least one other seafood processing or distributing facility in a different U.S. state.

Two (29 percent) were seafood distributors only. During active processing, the number of workers at the seven facilities ranged from 20 to 300 (average of 110 and median of 50). The three corporate facilities plus one independent facility had written COVID-19 assessment and control plans. The person serving as the "qualified worksite COVID-19 coordinator" (QWC) varied widely, but in two facilities the Chief Operating Officer (COO) was identified as the QWC. Facility C also owned and operated eight retail stores, so many COVID-19 precautions taken at their distribution facility were also implemented at their retail stores to protect shoppers and approximately 650 retail workers.

Facility	A	B	C	D	E	F	G
Assessment date (month-day-year)	1-8-2021	1-27-2021	2-10-2021	2-23-2021	3-2-2021	3-17-2021	5-12-2021
Independent or corporate-owned facility	Independent	Corporate	Independent	Corporate	Corporate	Independent	Corporate
Type of facility	Processor	Processor	Distributor	Processor	Processor	Processor	Distributor
Number of employees	20–25 when processing (December–May); 6 in off-season	25	50	300	275	39	63
Qualified worksite coordinator for COVID-19 assessment and control planning	Owner	Chief Operating Officer (COO)	Not formally identified, but Human Resources Manager did most work	Vice President of Technical Services	Environmental Health and Safety Manager	COO/Partner	Operations/Office Manager
Written COVID-19 control plan?	No	No	Yes	Yes	Yes	No	Yes

TABLE 1. Facility Demographics and Basic COVID-19 Control Information

Section C—Food Safety Checklist

Table 2 contains data for this section. The checklist had four components on which companies were assessed, including food safety or Hazard Analysis Critical Control Points (HAC-CP) plan, personnel, suppliers and incoming ingredients, and current Good Manufacturing Practices (GMPs). Regarding HACCP or other food safety plans, only two facilities made significant changes. Facility E added a production line and additional production days to meet growing demand for their products. Facility F pivoted from supplying foodservice clients (wholesale) to direct-to-consumer sales (retail) to stay in business when restaurants closed; seafood HACCP plans are not required for retailers.

Concerning personnel, facilities C, D, and E previously cross-trained employees in HAC-CP and British Retail Consortium (BRC) and as preventive control qualified individuals (PCQI), as well as in other critical production roles. Facility E, however, needed more HAC-CP-trained workers for critical control point and BRC record reviewing. Facilities C, D, and G (43 percent) used workers from temporary employment agencies when needed.

Regarding suppliers and incoming ingredients, facilities D, E, and G (43 percent) temporarily or indefinitely suspended visits to/in-person audits of their suppliers, but relied on other verification controls or pre-approval of vendors to ensure safety. Facility F had difficulty sourcing hand sanitizer, but finally found a reliable local supplier.

All facilities made changes to GMPs by either hiring new workers or designating existing workers to disinfect frequently touched non-food-contact surfaces. Facilities D and E (29 percent) compiled a written list of surfaces at their facility to ensure that none were missed. Four facilities (C, D, E, and F) began using new chemicals specifically to eliminate SARS-CoV-2. Facility G installed touchless soap and paper towel dispensers in all restrooms, and facility C added touchless handles on the inside of all restroom doors (corporate distribution center and eight retail stores). Facilities C and G instituted no-visitor policies, which caused C to temporarily suspend pest control services and G to indefinitely discontinue contracted cleaning services. All other facilities that allowed visits from vendors required that they follow the same COVID-19 protocols as employees.

TABLE 2. Food Safety Related Changes/Needs

Facility	A	B	C	D	E	F	G
Food safety or HACCP plan	Had to find new supply of a common food-grade additive; adjusted times workers clock in and timing of ingredient additions to ensure safety of in-process product	No changes, other than discontinuing processing of product that was used on self-service bars	No changes; management is cross-trained in PCQI and HACCP	No changes; facility has multiple approved vendors	Increased demand for products required adding a new production line and more production days (from four 10-hour days to five)	Changes made when facility switched to direct-to-consumer sales and deliveries to stay in business when restaurants closed	Facility only distributes and does not process seafood, so no changes needed
Personnel	No changes needed; if workers are ill, can hire previous workers or friends of current workers	Temporarily used employees from another corporate facility when workers were ill; workers also willing to work longer hours when coworkers are sick	Management cross-trained in HACCP and PCQI; temporary workers used; both temps and coworkers extend hours to cover duties of absent workers	Several workers cross-trained in HACCP and PCQI and provide backup for key personnel; temporary staff also used; work, equipment, and personnel flow altered	Product demand required hiring more workers and cross-training to overstaff critical roles; needed more HACCP-trained workers to review/monitor CCP and BRC records; if vital workers absent, plant will shut down instead of compromising food safety	No food safety personnel changes needed; one worker switched from sales to production manager; added sales staff and truck drivers	New QC manager hired at corporate office in California; temporary workers used; they receive required food safety and personal hygiene training
Suppliers and incoming ingredients	Product specification obtained for new alum supplier	No changes needed	No changes needed; if products are unavailable, facility does not sell until available again	Temporarily suspended onsite vendor audits and used other verification controls	Corporate onsite audits suspended, but rely on pre-approved vendors with GFSI status; overstocked some food and COVID-19 supplies in anticipation of shipping port shutdown, which did not occur	Had difficulty obtaining hand sanitizer	Onsite visits/audits suspended; vendors provided copies of HACCP or NARPC plans
Current GMP requirements	Service providers must follow same COVID-19 protocols when onsite as workers; increased cleaning of frequently touched surfaces	Workers trained on hand hygiene to prevent COVID-19; service providers follow COVID-19 protocols; frequently touched surfaces cleaned four times daily	Lots of hand hygiene training; no-visitor policy suspended pest control service for a while; installed touchless handles on restroom doors; added broad-spectrum sanitizer to eliminate SARS-CoV-2 on frequently touched surfaces and received training to use it	Hired contractor to provide employee training and conduct additional testing of frequently touched surfaces; evaluated disinfectant contact times and made changes; trained workers on changes; compiled written list of frequently touched surfaces, which are disinfected twice daily	Added new disinfectant for frequently touched (non-food-contact) surfaces; compiled written list of surfaces by area and hired two new workers to clean those surfaces	Required COVID-19 protocols for staff and vendors; used disinfectant fogger when positive COVID-19 case reported; assigned one worker to clean frequently touched non-food-contact surfaces	Dismissed office cleaning service to avoid exposure to COVID-19; workers handle cleaning duties; installed touchless soap and paper towel dispensers in all bathrooms; needed to switch to disinfectant with less contact time for frequently touched surfaces and compile a list to ensure cleaning

Section D—Preventing Introduction of COVID-19 into Worksite

Table D contains data for this section of the tool, which analyzed how facilities prevented the introduction of COVID-19 into the workplace using five components:

1. Quarantining before entering worksite
2. Testing of workers
3. Screening and monitoring of workers
4. Managing sick workers
5. Handling return to work after being exposed to or recovering from COVID-19.

No facilities required any new employees, permanent or temporary, to quarantine before starting work. Facility A made one employee who had close contact with a person who tested positive (but was asymptomatic) quarantine after returning from vacation.

None of the facilities were high-density workplaces, so they were not required to follow CDC guidance for testing when a COVID-19 case was discovered or for surveillance testing. Facility B required negative COVID-19 test results before new temporary and transferred employees started work. Facility D offered free, voluntary, twice-monthly surveillance testing at their worksite. Facility E had a formal testing strategy for determining who should be tested for COVID-19 based on type of contact with an infected worker. Two companies (29 percent) did not require negative COVID-19 tests for symptomatic employees to return to work; instead, facility C required 14 days of quarantine, and facility E allowed a doctor's note to document it was safe for the employee to return in lieu of a negative test. The majority (facilities A, B, D, F, and G) required a negative COVID-19 test for symptomatic employees to be allowed back into the worksite.

Regarding screening and monitoring workers, all facilities educated employees about the symptoms of COVID-19 infection and the importance of staying at home when sick, and continued to keep them informed when new information about testing, symptoms, vaccinations, etc. was divulged. All companies performed some sort of employee screening for COVID-19 symptoms; two required employees to self-check at home before leaving for the worksite, while five conducted onsite checks. Of the five companies conducting onsite screenings, two allowed employees to self-check, while the other three used screeners to take employees' temperatures and ask if they had other symptoms. These three companies had the largest number of workers (63 to 300).

All facilities required symptomatic employees to stay home. If employees learned of a positive COVID-19 test result or began exhibiting symptoms while at work, they were required to immediately leave the premises. None of the facilities maintained healthcare providers onsite to monitor or treat workers, although facility D contracted with a nurse practitioner to be onsite twice monthly to conduct voluntary COVID-19 surveillance tests. Two facilities (D and E) maintained working relationships with local healthcare providers to which they could refer sick employees. Facility E contacted sick employees every 2–3 days to check on how they were doing.

All companies performed their own contact tracing to notify workers within close contact (≤ 6 feet for ≥ 15 minutes) of an employee with COVID-19 symptoms and/or a positive test. Exposed employees could then be tested, quarantine, and/or self-monitor for symptoms. Local public health officials were overwhelmed and could not help with contact tracing. However, all facilities cooperated with public health officials when asked.

All companies disinfected work areas of infected employees. Facility G contracted with an

outside cleaning company to come into the facility to disinfect work areas when an infection was reported. Facility E had a detailed, written, three-tiered emergency action plan that could dictate a two-day disinfection production shutdown, if warranted.

Facilities varied on how they handled employees' return to work after being exposed to or recovering from COVID-19. Two facilities (one independent, facility A, and one corporate, facility G) were not aware of CDC's critical infrastructure guidance on when and how employees exposed to or who tested positive for COVID-19 should continue or return to work. The remaining five facilities either followed CDC's guidance or had more stringent practices requiring quarantining/isolating for 10–14 days after symptom onset, positive test, or exposure. (CDC guidance initially specified that ill or infected asymptomatic employees should isolate for 14 days after symptom onset/positive test, but reduced this period to 10 days as long as no fever was present for 24 hours and other symptoms improved.)

TABLE D. Preventing Introduction of COVID-19 into the Worksites

Facility	A	B	C	D	E	F	G
Quarantining before entering worksite	Not required except for one worker after vacationing and being exposed to someone who tested positive but was asymptomatic	Not required	Not required	Not required	Not required	Not required	Not required
Testing of workers	If workers have symptoms while onsite, they must leave work, be tested, and have negative results before they are allowed to return	Negative test required for temporary workers and those transferred from other corporate facility; negative test required for symptomatic workers to return; need faster results	No testing strategy or required testing, but symptomatic workers are encouraged to be tested	For faster test results, contracted with nurse practitioner for offsite testing of symptomatic workers and onsite voluntary surveillance (at first weekly, then bimonthly after county transmission rate dropped)	Developed relationship with a local lab and two other healthcare entities for tests; except for June 2020 free voluntary drive-thru PCR testing, no surveillance testing done, but workers can get a PCR test any time and must report results; testing strategy based on risk assessment by QWC and classifies workers into categories: primary contact symptomatic, primary contact asymptomatic, casual contact; symptomatic workers refusing tests must provide medical release from doctor	Symptomatic workers must have negative test to return to work	Sick workers or those who test positive must have negative test result to return to work; those in close contact to sick/positive coworker encouraged to be tested
Screening and monitoring workers	Workers self-monitor and told not to come to work with COVID-19 symptoms; symptomatic workers contact health care provider or local clinic	Daily onsite body temperature screening and not permitted to work if fever $\geq 100.4^\circ\text{F}$; sick workers sent home and cannot return without negative test; workers need info on sick leave and return-to-work policies	Workers self-screen before arriving onsite; employees know sick workers must contact human resources, isolate at home for 14 days, and are not allowed onsite during that period; encouraged to contact healthcare provider	Security guards screen and exclude workers with temperatures above 99.5°F at entrance; workers trained about other symptoms and do not come to work ill; sick workers inform supervisor and stay at or are sent home; CDC guidance followed when they return; security guard screens protected by partitions and masks	Workers trained about not coming to work with symptoms; facility began using facial body temperature screening equipment at outdoor security guard shed mid-March 2020; if temp $\geq 100.4^\circ\text{F}$, verbal screening for other symptoms; symptomatic workers sent home or to healthcare	Began daily onsite self-screening/reporting December 2020 (temperature, travel outside U.S., close contact with traveler outside U.S. or someone diagnosed with COVID-19, cold or flu-like symptoms last 14 days); stopped temperature screening in early March 2021	Verbal screening via video camera done before entering facility
Managing sick workers	Sick workers not allowed onsite; if symptoms develop onsite, they are sent to be tested and/or home to isolate; operations discontinued for the day while areas of facility affected are cleaned and sanitized; need written action plan to reinforce these policies	Sick workers immediately sent home and designated in close contact with ill worker are notified; intensive cleaning and disinfection of affected areas	Sick workers immediately sent home and designated employee weekly communicates with them while in isolation; informs others of close contact with ill worker; clean/disinfect all affected areas, tools, equipment	Sick workers sent home or for test and cannot return until negative results obtained; in-house tracing identifies close contacts and notifies them by phone; production paused while facility follows CDC guidance on cleaning and disinfecting when illness discovered	Sick workers not allowed inside; if symptoms develop at work, they are isolated and sent home for follow-up via phone with QWC or doctor; facility does in-house contact tracing, categorizing workers into three exposure groups and notifies them; firm uses CDC guidance for cleaning and disinfecting areas, tools, and equipment used by ill workers, and depending on number of illnesses/exposures, may shut down for at 2 days for cleaning using preapproved disinfectants on EPA's List N; QWC phones ill workers every 2–3 days to find out if they need food or other supplies	Sick employees not allowed onsite, sent home if become symptomatic; has action plan for sick employees, but not in writing; worker with COVID-19 in January 2021 had to isolate at home for 20 days and provide two negative tests within six days to return	Workers who develop symptoms onsite immediately sent home to isolate for 14 days and can only return with negative test; conducted own contact tracing; affected worksite areas were disinfected by hired contractor after worker illness
Returning to work after infection with or exposure to COVID-19	QWC needs to know of CDC's critical infrastructure guidance for workers exposed to COVID and criteria to discontinue home isolation; workers need guidance on when it is safe to return after positive test	Follows and sometimes exceeds CDC's guidance on when ill or exposed workers return; allows exposed workers onsite as long as they are asymptomatic	Outlined in COVID-19 action plan and with CDC guidance; symptomatic workers must isolate 14 days and provide doctor's note or negative test to return	Follows CDC's critical infrastructure guidance; initially required 14-day isolation for sick and exposed workers, but changed to 10 days after CDC revision	Medical release required for return; follows CDC guidance on letting exposed asymptomatic contacts work while protecting others; QWC monitors local transmission levels and plans ahead as outlined in facility's emergency action plan	More stringent than CDC guidance for infected employees except for not requiring them to consult healthcare provider; allowed worker with COVID-positive spouse onsite but required them to be frequently tested	Workers with symptoms or positive test must provide negative test results to return; not aware of CDC guidance

Part 2 of this article, to be published in the February/March 2023 issue, will discuss the assessments of the facilities themselves, including engineering and administrative controls, as well as personal protective equipment. It will also discuss the post-assessment survey responses received from facilities and the recommendations made based on the assessments and responses.

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