

Supplemental Materials

Supplement 1: Exemplifying quotes showing factors determining resilience	
Structural factors	
Basic theme	Quotations and synthesized examples
Outlets to redistribute oversupply (e.g., food banks)	Example: some ASNs partnered with food banks or school meal programs to distribute unsold catch to alternative markets.
Access to financial capital	“And then we got one of those like small business loans so we were thinking about – like for our fishing business – we’re thinking about using some of that to get a [refrigerated] van. And then we could do deliveries for restaurants and stores.”
Media attention	"With the publicity that we've been getting from those articles I've been getting phone calls and emails and people are actually getting together with friends, with neighbors, and putting in larger orders."
Established online presence (e.g., website, social media)	“We quit doing our farmers market because of COVID, and just being afraid to send out employees out there on the early onset of the pandemic and now as we’ve gone forward — most of the markets have stayed open but we’ve been so busy online... probably will be making a pivot away from doing farmers markets and sticking to serving the online customer base.”
Processing capacity	“Really direct connection between producer and consumer. And having that really direct connection takes out a lot of variability or uncertainty. You know the more hands you put in the middle the more uncertainty there is. Right? The more, you know, you just don’t know for example if this processor or that processor is going to shut down. Or if you’re dealing with wholesalers or distributors in between you just don’t know, you can’t control those things. The direct relationship between the fishing family and the end consumer builds trust, builds flexibility on the part of the customer.”
Appropriate location to sell products (e.g., dockside, retail location, online store)	“A lot of the folks you were talking to you have like, the built in markets or they deliver into larger cities, so selling off their boat or using like existing infrastructure, existing fish markets, to sell and they're just seeing a change in your clientele from that format, but they have that direct-to-consumer already built in. We don't have that out here in BC, in general too, our fishermen are spread really, really far apart across the coast, unless you go into and your home port is Vancouver or potentially

	Victoria, you don't really have the same access to the public.”
Local workforce availability	"I think it's more difficult for some of the other processors who don't normally fly their crews in until this time of the year to make sure they have full crews and the complete capacity to quarantine as needed, so I'm not sure that all of them will operate at full capacity this year."
Closed/delayed fishing seasons	Example: due to lack of processing capacity, some fisheries were unable to open, or had delayed openings due to no market in which to sell product.
Dependence on single market (e.g., exports, restaurants)	"Cold storages are full, it's a big issue with fisherman in the sense that you can't go out and fish because there's nobody that's going to buy the fish right now."
Lack of access to fishing grounds	"We're still waiting on tickets. The 7th is my current goal date but because of the whole social distancing and getting into western Alaska — <i>RavnAirline</i> who bought <i>PenAirline</i> went bankrupt so <i>Alaska Airlines</i> is the only company flying in at this point besides the real small shuttles. With the social distancing they've got the middle seat given up, so less people can fly — by a third and they're completely booked out until the middle of June — not even the middle, like the 20th the last I looked. And I keep waiting for another jet to be put on the schedule and it hasn't been happening."
Logistical challenges transporting product	Example: those ASNs that typically shipped fish overnight to customers struggled with unreliable postal service, resulting in ruined product arriving at customer doorsteps.
Weak brand presence or consumer awareness of ASN business	"My story is a little bit different in that I'm coming from mostly just wholesaling to the cruise industry. Very little, if any, direct marketing. And now, even in so far as in not having any social media presence, there's no website yet, I don't have a logo yet. All of that was sort of pressing. This winter was when I was going to develop a logo, develop a website. I don't have any of that done yet. But I never really needed to."
Price uncertainty from processors or other seafood buyers	"There's two smaller fish buyers and in Cordova both of those fish buyers help keep the price up by about two dollars. The first open we'd heard they were gonna have \$3/pound like Ocean Beauty and Trident and that is just... it's like [normally] eight or nine bucks a pound for the first opener. So [the price] was horrible. But within moments of that announcement then the other local fishermen-owned buyers just said, "No. We're going to do five [\$/lbs]."

Geographic access to markets	"...in BC, in general too, our fishermen are spread really, really far apart across the coast, unless you go into and your home port is Vancouver or potentially Victoria, you don't really have the same access to the public."
Response diversity	
Social factors	
Strong relationships with harvesters, processors, and others in seafood supply chain	"For a long time I've felt really passionate about connecting fishing communities coast to coast. There's a lot that can be learned from each other. And I think there's a lot of strength when fishermen just network and connect with each other, share ideas on how to take care of your catch, how to market your catch, how to stay safe on the water, what's possible as far as family dynamics, gender dynamics on the water."
Strong harvester-consumer relationships	"And a lot of them have told me like they are so refreshed, it feels so great for them to talk with the person who is catching the fish in Alaska and they get a different story when they go to different fishmongers as far as what's sustainable and what's not. It's not just that an Alaskan fisherman is fun to talk to and convinces you to buy the fish, it's that fisherman really know their product. We really know our role in the marine ecosystem and we've spent a lot of time contemplating how we feel about it and whether it's worth it."
Strong relationships with higher levels of seafood community organizations (e.g., Local Catch Network, Slow Food, co-ops)	"I just really think during this time being involved in some of the national things that I've been involved with - you know the Local Catch and the Slow Fish, and being on a couple different COVID groups- seeing what everybody else is doing, it's really beneficial and it's helpful...if I didn't have this network, it would probably be a lot more, really more scary."
Control over price points or subscription lengths to meet customer needs	"We've actually dropped the prices on a lot of things. I know like tuna and salmon went from being like \$14.00, \$15.00 to now everything is like \$10.00/lb and some of the whole fish is cheaper, whole or a couple dollars less fillet, just again people are I think wanting to move stuff but also make sure that people are able to buy because as much as we're struggling, so are the people that are supporting us."
Access to diverse fisheries/fishing seasons	"We've been fishing prawns and salmon for a while now, but we picked up swimming scallops just a few years ago just for the sake of diversifying. Fishermen really can't just survive on just a single fishery so it's always a good idea to diversify, think outside the box."

Changes in demand	“Some of them are returned customers and some of them really do just want to help the local businesses that are taking a hard hit from this. So we’ve seen about thirty percent new customers every weekend, whereas before it was pretty much we had regulars.”
Diverse product offerings (e.g., fresh, frozen, value-added, non-seafood products, underutilized species)	“I don’t have to touch the fish at all. It’s just frozen. So we’re kind of taking that angle with it, that frozen is a great way to preserve catch and take pressure off of fisherman to meet local, fresh market demands. And, [it] allows fishermen to pick their weather and not have to be too driving the price down and all of that. I think it’s really helpful to be promoting frozen as a great way to eat seafood.”
COVID-19 quarantine restrictions (e.g., mobility, physical distancing)	Example: quarantining restrictions, such as stay-at-home orders, helped in making ASN connection to customers more important and reliable (e.g., someone is home to receive a door-to-door seafood delivery), but also challenged ASNs in that maintaining appropriate hygiene standards, etc. required extra time and effort and sometimes interfered with the person-to-person relationships formed through ASN direct sales.
Economically stressful fishing season	Example: some harvesters felt economic pressure to take part in their fisheries, even if they weren’t confident about keeping themselves and their crews and/or families safe from possible COVID-19 transmission.
Individual factors	
ASN core philosophies and values (e.g., low carbon footprint)	“Yeah it’d be great to do that with FAS – Frozen At Sea – fish that our friends catch that we wouldn’t have to have vacuum packed, sent to us and then rip open a package and smoke it. Which is what I think a lot of companies end up doing, but part of our goal is to just have the lowest carbon footprint, the lowest waste possible.”
Diverse distribution methods (e.g., home deliveries, curbside, pickup points)	"I've been pretty emotionally attached to our buying club model... people pre-order online and then we deliver and drop it at one drop site and people come pick up and so we will be reopening them in the fall, or that's the plan, so a combination between the buying club and the farmers markets. And looking at the kind of new purchasing model of customers in the way COVID is allowing an opportunity to pivot, and people — in my opinion people are going to be okay with it that you're not going to be at those physical locations and that kind of like the new way of business is going to be more delivered to your door."

Diversity in subscription commitment lengths and volume	“And I’ve started to relax that a little bit with deliveries... I didn’t actually restrict [purchase volume] on the website. If people wanted they actually could order smaller amounts and it would come through and I would just work them in along the delivery route.”
Diverse ordering access points (e.g., direct messaging, online ordering, pre-order)	Example: ASNs found it helpful to have multiple ways for customers to access and order their products, particularly through social media outlets.
Decision making based on human factors (e.g., workforce safety)	"We quit doing our farmers market because of COVID, and just being afraid to send out employees out there on the early onset of the pandemic. Now as we’ve gone forward most of the markets have stayed open but we’ve been so busy online that we’ve just kind of — probably will be making a pivot away from doing farmers markets and sticking to serving the online customer base."
Willingness to innovate (e.g., moving markets online)	“We need to get some more of the apps, the Local Catch, or Fish Line, there’s even some regionally that have shown some interest. it’s gonna take some- and I think this pandemic may jolt some people to take advantage of these because we’ve noticed - we used to get resistance from people.”
Personal connection to fishing area	“But we definitely have been missing Alaska and it's really weird to just not be fishing like the King opener was this week, King salmon opener is sort of our main opener for trolling. And yeah so it’s definitely a little strange being so disconnected.”
Voluntary decision not to fish	Example: some ASNs decided to not fish in 2020 due to the uncertainty of traveling safely to the fishing grounds, price that would be offered for their fish, and uncertainty about health care availability in fishing hub communities.
Social and emotional tolls of dealing with the uncertainty of COVID19	"I do feel like I have a right to get to our fishing boat and go catch fish. And as fishermen we are essential workers. But do I want to exercise that right? Do I want to put my kids on an airplane, fly myself and my partner and my kids up [to Alaska] and be a vector for this town that I love so much?"
Uncertainty about risks of fishing (e.g., health risks to self and to community)	"Somebody could actually say, one of the member tribes could actually say that, you know, there's too much loss of life and fishing might not be an option...it was really made aware that this is really a could be real possibility, you know, lack of testing and no vaccine, they could really say well it's not worth the loss of lives for the fishing to happen."
Oversupply of product	“So, we fish in February. We already had our fishing season, we stocked up based off of what we thought we

	<p>were going to sell this year. This time of year in march everyone is changing over their spring menus, looking at their summer menus, this is when our sales start to wrap up. And everything has grinded to a complete halt. So we've gone out, we've fished, we put all of that upfront money – scallops in general is a really heavy financial cost up-front, because we pay for our fuel and our food and our boat. We also pay our deckhand wages, we have custom processing, we have third party service providers for managing, monitoring our quota, we have cold storage fees and shipping fees. So we pay all of that right upfront without ever selling anything, and then we hope to recuperate our costs throughout the year as we sell our product. So right now we basically have a lot of product sitting in cold storage that we may not ever be able to sell with restaurants being shut down.”</p>
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