

# Transporting the Catch



Kelly Mould's Miss Mocha

Once a catch leaves a boat, the responsibility of maintaining freshness and quality of the catch is out of the fisherman's hands.

BY DAVID MCRAE

Commercial fishermen may well be experts at catching fish, but keeping the catch fresh during transport to the consumer or to the processing plant is the most critical component in delivering the end product to paying customers. Today's consumers are highly attuned to freshness, quality and product appearance. Declining quality has a negative effect on the value of the catch, so the driving force behind getting the fish to market in a timely fashion is simple: profit.

Three types of fish products require transport: frozen, fresh and live. Frozen-at-sea products offer the greatest flexibility during transportation due to their extended shelf life. Fresh fish is packed in ice or refrigerated to slow deterioration and has a very limited shelf life. Live products such as prawns, crab, sea urchins, groundfish and shellfish are the most challenging due to their fragile state.

Whether fishermen or off-loaders are responsible for unloading fish from the hold, at some point the responsibility of maintaining freshness and quality leaves the fisherman's hands. Some fishermen do retain the responsibility of keeping the catch fresh until the final sale; they take on the task of transportation themselves, including unloading and trucking, in an effort to maintain the highest quality and the highest price. Transporting the catch may include packing vessels, custom unloaders, trucking and sometimes aircraft. These links in the transportation chain must all be coordinated to keep the catch moving and fresh.

## Ocean Packers

Fish packers transport the product from the fishing grounds to the off-loading facilities. These vessels face many of the same challenges as the fishermen do, such as coping with weather and mechanical failure.

To learn more about what it takes to run a successful fish packer I talked with Mike Featherstone, owner of the *Ocean Ranger* and president of Pacific Underwater Harvester's Association (PUHA). During the summer months, the 65' *Ocean Ranger* packs salmon and in the winter months she packs sea urchins, which is when Mike earns the main source of his income. She can handle 110,000 pounds of slushed salmon and 70,000 pounds of live sea urchins. Because Mike operates his packer in the North Coast he says maintaining freshness is a big challenge with sea urchins because not only do they have to be kept cool during transport, they also have to be kept from getting so cold they freeze.

Currently, Mike is working with V&V Refrigeration in Richmond to develop a chilling fan system that will work primarily with sea urchins, but also for salmon. "Sea Urchins are our biggest business," says Mike. "In the past little emphasis was placed on the care of the product during transit onboard the packers. The sea urchin packing practices have come a long way in moving toward delivering a higher quality product. Just the way we are handling the sea urchins that are loaded on the deck is making an immense difference in the quality of the product," he states.

Sea urchins are inter-tidal creatures and may live out of water for a few days if conditions are kept optimal. Cold and heat are both enemies of freshness, and some packers still cover their loads with just one flimsy blue tarp. According to Mike, "You don't want them freezing or cooking in the sun, and protection from fresh water is also a must." Mike claims that exposure to rain kills the product and deterioration begins rapidly once the animal is no longer alive. "We now cover our deck load of sea urchins with burlap to help keep the product moist, then enclose them with insulating



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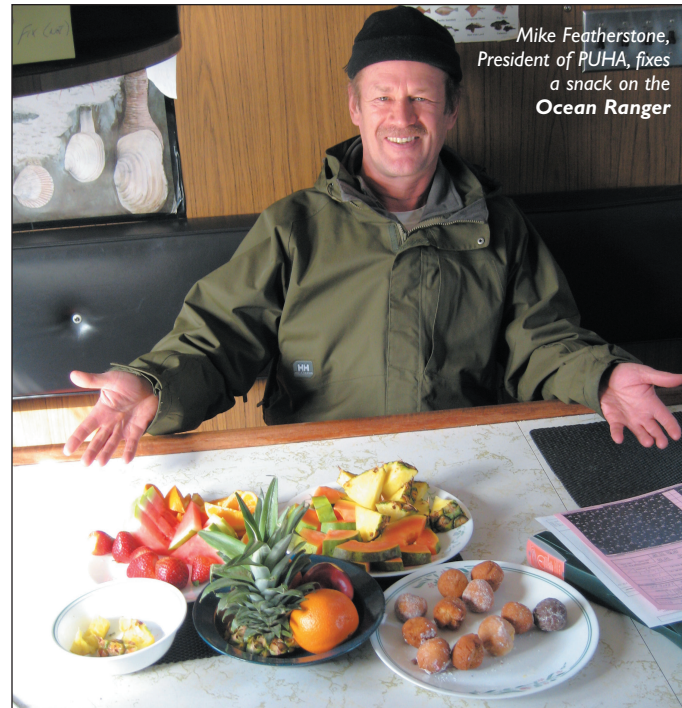
## ★ transporting the catch

blankets to help stabilize the temperature, and finally we cover the entire load with insulating tarps and netting to hold everything down against the wind and to keep the rain off.”

Geoff Krause of Exploration Unlimited is currently conducting a temperature profiling study focusing the on sea urchin transportation chain to determine the effects of temperature change on the product. In the past Kraus has also completed a logistics study evaluating the handling and transportation of the product. Mike Featherstone has witnessed many of the inefficiencies that occur during transportation that Kraus has documented and he feels the quality of sea urchins depends greatly on the shape and size of the sea urchin bags (mesh bags with a quick release on either end). The conclusion is for sea urchin bags to be standardized throughout the fleet. Right now there are bags of every shape and size in use, but there is an optimum size that permits maximizing packer loads with the least amount of damage to the product.

Featherstone is looking forward to Krause’s presentation on current temperature profiling as well. The outcome of Kraus’s study will provide considerable information on how we want to proceed in the future to achieve a higher quality product.

I also asked Mike what services are provided for fishermen by his packer. “We do everything we can from towing vessels in for repair to delivering grocery orders. The quality of the product heavily depends on a smooth running fleet,” explains Mike. For this reason, the sea urchin packing fleet devotes much of its time to providing complete services to the fishing fleet. “Many of the vessels are on the grounds for weeks or months at a time.



Mike Featherstone,  
President of PUHA, fixes  
a snack on the  
Ocean Ranger

They are dependent on us for all their needs such as food, water and fuel,” he says, “and we do the best job possible to help these guys keep their fishing operations running smoothly.”

Custom off-loaders are located all over the coast. Since



Ocean Ranger crew tarping a load of sea urchins


## transporting the catch

September 2006 I have been unloading sea urchins at Cove Fisheries in Port Hardy, a full-service unloading facility. Some of the species handled are salmon, groundfish, sea urchins, sardines, halibut and hake. Peter Toftem has been involved with Cove Fisheries for 18 years. Seven years ago, Canadian Fish put the business up for sale and Peter was quick to take over the business. Cove has 20-25 employees during the peak of the season and 10-12 regular employees. The winter months are slow, which allows time for renovations, modifications and facility modernization. Last winter the company installed a new washhouse, and this winter Peter and his crew will be undertaking an expansion and upgrade to the dock facilities at Cove. I questioned Peter about what it takes to keep the fish fresh and moving once unloading begins, and asked him to describe some of the techniques he and his crews use to minimize the impact of transportation on the fish.

"I have to give credit to Terry Roland and Brian Moore for keeping the show running smoothly," says Peter. "Those two guys make the whole operation come together. As for unloading, we have three hyabs and four forklifts to keep things moving fast. Down on the dock we have a Trans-Vac fish pump capable of pumping 40,000-50,000 lbs. of fish an hour. We also have a large covered area to keep the fish out of the rain and sun." Toftem describes his business as catering to the needs of the fishermen. "There is a safe place to park

your vehicles, and there is no problem leaving your vessel at our docks if you need to get away for a couple of days. Onsite we also provide showers and laundry facilities, and bait and ice sales are available. We can produce 50 tons of ice a day. Basically," concludes Toftem. "When it concerns keeping the product fresh it is our job to get the fish off the vessels and into the trucks as fast as possible."

At the other end of Vancouver Island in Victoria, William Strong has been in business for three years off-loading tuna and prawn vessels. I often see Will and his unloading crew working during the hottest summer days. I asked William some of the challenges he faces to keep the product fresh and frozen, and he is quick to give the Canadian fisherman credit for keeping the fish fresh: "I am always impressed by the quality of fish onboard the Canadian vessels when compared to vessels of other nationalities. My job involves getting the fish from the boat to the truck in the shortest time possible. The vessels notify me usually 12 to 24 hours ahead of their arrival. I have a crew of 8-10 unloaders. We can off-load 7,000 to 15 000 lbs. an hour," he reports. "Once the tuna are on the dock they are loaded into lined fibre totes and then into the refer truck as fast as possible, which takes between five and 10 minutes. The processors account for 75% of my business; the other 25% are fishermen. Unloading is monotonous work, but I enjoy the business, because it keeps me at home and off the water," he adds.



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## transporting the catch

### Trucking

Most fish are landed in locations far removed from consumers or major city centers, which means a complex transport chain that must be in place to ensure fresh product reaching market quickly. Once the packers unload the fish on the dock, transport companies take it to a processing plant or cold storage facility. Graham Cook, owner of C-Force Transportation in Port Hardy, explains this next phase in transporting fish products.

C-Force specializes in transporting fresh and frozen wild fish, and Graham proudly states "C-Force doesn't haul any farm fish," adding: "Our transportation services are available throughout Vancouver Island with most of the product ending up in Vancouver."

Cook's start in the transportation industry began in Port Hardy at the Seagate dock, unloading sea urchins more than 20 years ago. Today his company has 17 employees and operates year-round. He states they are primarily a one-way carrier. Fish are shipped down Island and empty totes shipped back up. At peak times, C-Force moves 20 trailers a day off the Island. I asked Graham what it takes to keep the fish fresh. "It depends, on the treatment of the load and the request of the customer," he says. "Essentially, the customer will provide a temperature setting for the refer depending on the product. Each species shipped requires a different temperature, such as halibut, salmon, chum salmon, slushed salmon, and frozen fish where the refer is set to the lowest possible temperature."

Fish processors contract the majority of C-Force's services, while fishermen account for only 5% of the business. All C-Force trucks have



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load and specialty refer insurance in the event of trouble. Cook adds that the business is quite unpredictable and advance bookings rarely happen. As for the future, Cook smiles and says that as long as there is fishing, C-Force plans on being there to truck it.

### Do It Yourself

Onboard *The Second Wind*, a 32' dive vessel, John Lindsay has been involved in the dive industry since 1989 and his primary product is octopus for human consumption. John also harvests sea cucumbers and green sea urchins when the opportunity arises, and is well equipped, especially to handle octopus. On the deck is a self-contained freezer capable of handling 1,200 lbs. of frozen-at-sea (FAS) product a day, with a total capacity of 6,000 lbs.

John points out that octopus deteriorate rapidly once out of the water. "In the past I used ice and short fishing trips of two days to maintain freshness, but even under these conditions the oldest octopus onboard would show signs of deterioration by the time we got in." When he decided to market his catch as food rather than bait, acquiring a freezer

system was the only option, as quality is at a premium. Pacific West Refrigeration in Sechelt helped him design a quick-connect freezer for his vessel. John takes pride in the fact that he can quick-freeze his catch. It takes on average three hours to reach a -22° Fahrenheit core. "The freezer system really streamlines the operation and takes a lot of the grunt work out of the fishing," says John. Once full, the freezer can be lifted off the vessel and dropped on to a custom trailer. "The whole process takes about half an hour and if there is a hand-crank winch on the dock, I call in a hyab," he laughs.

"There is no hassle or extra cost for transportation to a cold storage facility, I don't have to buy ice and freezing the product at sea maintains the highest quality. If I bring the freezer down to - 40 prior to loading it on the trailer," says John, "it allows me up to seven days before the rise in temperature becomes a concern. This is the most economical way of handling the product and remaining independent of other transportation methods and storage facilities. I still time my deliveries to minimize the travel time and the time the freezer is not running. It's a very efficient operation," he adds.

### Fresh Fish

Kelly Mould is a BC fisherman with 34 years of experience catching over a half-dozen species. For the past 11 years, Kelly has been skipper of the *Miss Mocha*, a 35' aluminum gillnetter and dive vessel based out of Steveston, BC. Kelly insists that the best results when transporting salmon occur when handling the fish as little as possible. "Handling each fish only once prior to its arrival at the processing plant is the key to a high-quality product," says Kelly.

Onboard the *Mocha*, each fish is bled, gutted and cleaned. Next, the salmon are placed in totes full of slush for rapid cooling. "The faster you can get rigour mortis to set in the better your quality and the longer your shelf life," says Kelly. At unloading time the totes are removed from the *Miss Mocha* and loaded on a truck for the final leg of the trip to the plant. At the plant, Kelly is impressed with each fish as it is removed from the slush. "They come out straight as boards," says Kelly. If you want to deliver salmon of the highest freshness and quality, follow Kelly's advice and handle the fish only once, "and then get them cold fast."



John Lindsay and his dive vessel,  
*Second Wind*

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### Live Transport

Keeping the product alive during travel is perhaps the most difficult transportation method of all. Species that are frequently shipped live include crab, prawns, rock cod, lingcod and halibut. Essentially these species are placed in a portable aquarium onboard a vessel or truck. The common variables that affect the freshness are temperature, salinity, oxygen level and water purity.

Peter Kerr in Port Hardy, BC has been fishing for 20 years and the word on the coast is that he is one of the best at keeping fish alive aboard his live cod vessel, the *Chatham II*. "Some systems work for some species and others don't," explains Peter. "There are many variables in transporting live fish. Lingcod is likely the easiest to keep alive, while the deeper-water fish are more difficult."



It is common practice to pen the fish prior to transport. This allows time for their digestive systems to empty and reduces future contamination of their water supply. Penning also allows the fish time to decompress if they are from deep water and will enhance the survival rate. Fish density must be carefully monitored, according to Kerr. "Often an increase in density of just 5% may increase mortality by 25%. You really want to pay close attention to the density," says Kerr. "The way it works is the lower the fish density, the better the quality and the result is a higher price and a lower mortality rate."

Kerr is quick to mention the other critical factors, such as oxygen level, filtration and ventilation. The way the fish are placed in the tank is very important as well; they must be layered and not sitting on the bottom of the tank to permit optimal water circulation and eliminate the problem of the fish lying on top of each other. "Keeping the fish moving is another big one," Peter adds. "Movement by the vessel or truck causes the water to slosh around in the tank and this is a benefit, since it keeps the fish awake. If things are done right, it is possible to have the product alive for up to 100 hours."

"Once you are on the road," cautions Peter, "you want to make dang sure the ferries are running on time and nothing else is going to get in your way like rush-hour traffic. Time is not your friend when transporting live fish."



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