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1986

NORWAY

A major player in the U.S. fishing industry



Norway's ties to American fishermen run deep, both technologically and culturally. The names of Norwegian gear manufacturers are as common to U.S. fishermen as are the names and accents of fellow skipper and crewmen. Seattle, more than any other domestic port, has been influenced by Norwegian-Americans. Our special eight-page section on Norway by Field Editor Kris Freeman leads off with a look at this connection.



Norway's varied fleet produces enough seafood to account for 10%-12% of that nation's exports to the rest of the world. Exported along with seafood is the fishing gear and technology for which Norway is famous. Additionally, the United States has benefitted from a large number of Norwegian fishermen who immigrated from ports such as Aalesund (left photo) and are helping to develop the American fisheries.

Story and photos by
KRIS FREEMAN

Norway is a land of water and rock — pine-covered mountains that slide straight into the sea. From the air it looks as though somebody dropped Norway and broke it; the coast shattered into innumerable islands and the interior dented into sharp, snow-covered peaks.

One city on the island-dotted southwest coast is Aalesund. There, a statue of a deckhand is wrapped deep in fog as a 33' gillnetter pulls up to the dock to sell the night's catch of mackerel. The day's first commuter ferries begin arriving at the pier. As in many Norwegian cities, the primary logistical problem is getting from one island to another.

The people of Aalesund are working on a more direct method of traversing their

home fjord — burrowing two giant tunnels to connect three islands by underwater freeway. On my visit there, residents would proudly drive me up to a viewpoint overlooking the gray sea, hazy sky and maze of green islands to point out the route of the tunnel, two-thirds complete.

Since the tunnel has yet to break through on the airport side, I took the ferry into Aalesund this August, a mode of transportation that was familiar to me since my home of Seattle is also linked to many islands by public boat service.

It was my first trip to Norway. I am not Norwegian, but stepping off the Aalesund ferry was strangely like coming home. It wasn't just the scenery, which looks like

Washington state, all water and conifers, or the ferry ride, or the many fishing boats. It was people. Almost everywhere I went I ran into someone who knew somebody I knew back in the states.

"Oh, from Seattle." The Aalesund skipper softens a bit toward the stranger taking photos of his 48' gillnetter. "My sister lives in Seattle," he says through a translator. "My brother-in-law Sverre Johanson is the processing boss on the Golden Alaska."

"Bob Jensen," says the salesman at an electronics company. "We sold him one of our new color sonars." And the fellow who owns the Sea Wolf? "Bob Watson," I answer. My escort from the Norwegian export council grows increasingly puzzled. "You talk about this Bob and this Fred and

this Sverre," he says. "You know these fishermen?"

The Norwegian-American connection runs deep and long. A bronze statue of Leif Erickson — who historians say may have been the first European to discover the new world — stands in Ballard's Shilshole Bay, facing the wrong ocean but fostering Norwegian pride nonetheless.

I'm a native of Ballard, a small north Seattle neighborhood that is home to many recent and not-so-recent immigrants from Norway, Sweden and Denmark. I went to school with a lot of kids named Johnsen and Jensen and Johanson and was confronted with the concept of herring for breakfast early in life. So Scandinavia seemed much more familiar to me than it

Norwegian shipyards handle quite a bit of work for vessels owned by U.S. fishermen. At the Myklebust Mek. Versted A/S yard, two hours south of Alesund, three oil supply boats await conversion to fishing vessels for duty off Alaska.



might to someone from, say, San Diego.

In addition, I spent much of my time in Norway traveling in an area called Sunnmøre, a remote area of the southwest coast of Norway that is the original home to many of the Norwegians in Ballard or to their parents or grandparents.

Check around at the Norse Club or the Deep Sea Fishermen's Union in Ballard and you'll find more than a few fishermen from Alesund, the factory trawler capital of southern Norway, or from Maløy, a tiny village not too far to the south but so inaccessible that one Norwegian I spoke to referred to it as the "end of the world."

It is not just that my neighbors are from Sunnmøre, but that they keep going back. And they take their children with them. Ask a Norwegian when he emigrated and he'll tell you how many times he's bought a ticket home. "Fifteen times in 40 years," says an old tugboat captain, pointing out his home village on one of two large maps of Norway posted in the new Leif Erickson Lodge in Ballard. "Twelve times since 1930," says a New Bedford grandmother I met on the Aalesund ferry, coming from perhaps her last visit home.

Business is business

Ballard Norwegians take their business back to the old country as well. "This boat was insured and financed in Norway," declares a skipper with the highly appropriate name of John Johannessen during the recent christening of a new

Taking care of business

Norway is much too cold to grow its own food and so for centuries has traded fish for grain. Although oil buys most of the groceries now, the government still considers a healthy fishing industry to be a high priority. Seafood accounts for 10% to 12% of the nation's exports.

Norway's concern for the health of its fishing industry stems from several reasons. One is that fishing is traditional. Another is a need to maintain as many local food supplies as possible. A third reason is a government policy of support for industries that will maintain population in Norway's remote regions.

As a result, Norwegian skippers enjoy some financial supports that their American cousins do not. For example, Norwegian skippers are generally astonished at the idea of paying 10% of the value of a vessel for one year's P&I insurance — conservative rates in Alaska these days. To insure the 102' longliner Holmeset Senior, valued at \$1.3 million, owner/skipper Jarle Holmeset and his partner and brother, Arnstein, pay a rate of just over 2%. Insurance for catch and crew runs \$7,700 a year — about what a U.S. factory trawler will pay for a single deckhand.

If a fisherman is injured at sea or even on shore, the government pays his medical expenses plus a monthly salary equivalent to his average income over the past three years. Fishermen can also retire with a government pension, just like shore-side workers.

Until recently, fishermen were also guaranteed a minimum income. There isn't a minimum wage, fisheries bureaucrats explain. But the government does support fish prices, which amounts to the same thing since Norwegian deckhands are paid by crew share.

These subsidies are being phased out in response to the worldwide increase in whitefish prices and an overall change of policy by Norway's Socialist government. Yearly subsidies were cut by half in 1987 but they're still enormous — over \$100 million. Most of this money is being used to retire surplus vessels or to support new ventures like development of the scallop fishery, which recently began to harvest virgin beds of the

Svalbard and Jan Mayen islands near Greenland.

To support Norway's extensive system of social services, fishermen hand over 30% to 40% of their pay in income tax and lose another substantial chunk of their disposable income through a sales tax that ranges from 20% to 25% throughout Scandinavia. High taxes fuel a lively black market in salmon and other goods as well as a major industry in one-day "international" tax-free cruises with cheap liquor.

Many Norwegian fishermen earn the median full-time Norwegian income of about \$23,000 a year. That's the average annual crew share on Holmeset's longliner for approximately eight months at sea. Holmeset says this is equivalent to about two years work on a standard nine to five shore-side schedule.

Shares are divided up after expenses are paid, which run about \$50,000 per trip on Holmeset's boat. That includes food, fuel (currently running about 58¢/gal. compared to \$1.25 two years ago), bait, spare hooks and line. That means the crew has to salt and freeze some 40 tons of fish on each six-week trip to break even. As a result, Holmeset is not fond of recent vessel quotas instituted in the Barents Sea cod fisheries. Each vessel is limited to 250 round tons of fish per season, not much for the average 100' to 140' automated longliner with a 12-man crew.

Despite the carefully regulated nature of Norwegian fishing, there are still fortunes to be made on the slime line. I was told stories of young crewmen coming ashore with wads of thousand-kroner bills hanging out of their shirt pockets. "Some of the guys hire a helicopter to take them to the hotel from the boat," says a shipyard worker. "One guy forgot to take his sunglasses out to the boat, so he hired a helicopter to go and get them."

And then there are the busts. Lofoten cod fishermen have had a bad year as have the 100-plus mackerel and capelin seiners. In Norway, as in Alaska, you can make enough money for a year in a matter of weeks or fish six months for nothing.

At 128', Karakim Stolem's seiner is relatively small among the fleet of Norwegian seiners that target primarily on fish for meal and oil. Filling the vessel's 380-ton-capacity hold can take anywhere from a few hours to two weeks.



American-built vessel. They buy Norwegian winches and floats and hooks, sometimes even time in Norwegian shipyards — that is, if the price is right. Home country loyalties aside, there are many Norwegian fishermen who would buy their gear from Hong Kong if the quality were equivalent and the discount deep enough.

In that respect they are not too different from their uncles and cousins in the fishing fjords of Sunnmøre. It turns out that the folks from Aalesund are not unlike the typical Ballard fisherman who owns \$5 million worth of crab boats and one sport coat. Like their Ballard cousins, well-to-do Sunnmøre fishermen display their status on their wrists. Instead of gold king crab watches, however, the fishermen wear Rolexes.

There are other similarities between the Norwegian fishermen of Aalesund and Ballard. One is their attitude toward marine mammals. For generations the Norwegians have done what many an Alaskan would like to do — hunt and skin seals. This attracted the attention of Greenpeace.

Naval architect Lars Eldoy remembers the day a group from Greenpeace in rubber rafts buzzed an Aalesund sealing vessel at the dock, boarded and chained themselves to the crew's nest. The skipper ignored them, continuing to take on supplies. Just after nightfall he headed out to sea. In March in Aalesund, as the locals say, the weather isn't good. After the Greenpeaceers bounced around the top of the mast long enough to get good and seasick, the skipper cut them down and dropped them off on the nearest dock.

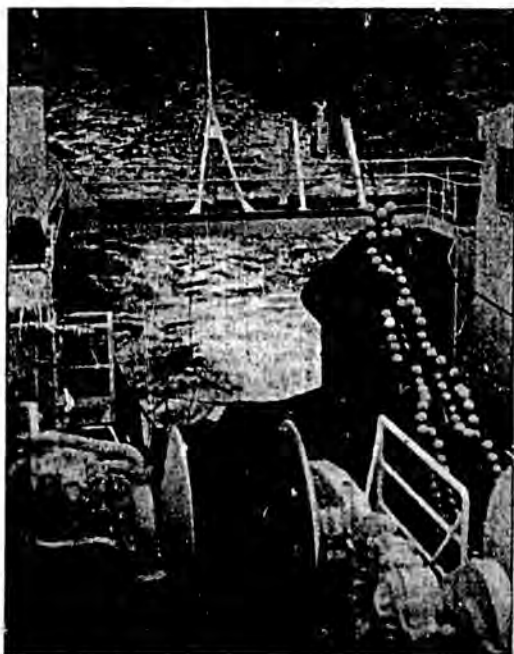
Greenpeace has never been back. But most of the old wooden sealing boats are tied up just the same, casualties of shrinking quotas and a declining market for seal pelts. As a result, Norwegian coastal fishermen have noticed a corresponding increase in the seal population. This, combined with a decrease in the capelin stocks that are an important component of the seal's diet, have driven the seals inshore where they cause the usual problems — eating fish off hooks and out of nets, scaring the fish and tearing web.

Greenpeace is an ally, however, when it comes to fighting the industrial pollution and wholesale dumping that have turned much of the Baltic Sea into a fishery wasteland. Greenpeace has also sided with fishermen in disputes with the oil industry in this "Kuwait of the North." Although Norway's 25,000 fishermen make up nearly 1% of the population, they are outnumbered two to one by workers in oil and related industries. And oil has made Norway rich since it first began exporting North Sea crude in 1972.

A torsk is a torsk

Not only does English permeate the airwaves, but all Norwegian school children begin studying it at the age of 10 and continue until graduation. As a result, Norwegian adults under the age of 40 understand some English even if they're too out of practice to feel comfortable speaking it.

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Typical of many inshore boats is Lorentz Johanson's 48' gillnetter Olav Dalen, which is powered by a 180-h.p. engine. Johanson, like so many other Norwegians, is related to people working in the U.S. seafood industry.

Population pressure is one major reason for Norway's extensive regulatory system. Back before the turn of the century, 30,000 fishermen fished Lofoten cod. An old photo in Oslo's Maritime Museum shows their open skiffs jammed into the mouth of a fjord awaiting the opening gun, just like a pack of gillnetters crowding the line in Bristol Bay. I suspect many of the Norwegian fishermen who emigrated to the United States were just trying to get away from the crowd.

Aalesund native Per Slinning spent a year and a half in Ballard during 1978-79, attending high school and the University of Washington. When he returns for Fish Expo this year he will see something else that

looks familiar, a model of Seattle's new Fisherman's Memorial. The monument — a 28' granite pillar covered with sinuous bronze fish — will be a good deal more impressive than the statue in Aalesund. But at heart the idea is the same.

Atop the pillar will be a young deckhand in oilskins struggling with a halibut. Like the boy in Aalesund's statue, he is a symbol of the thousands of young men who have chased the cod and halibut on both sides of the Pole, not only of those who never came back but also of the fishermen who lived to marry Scandinavian sweethearts and to grow old drinking coffee, chewing snoose and telling fish stories of the far Northwest of America. □

And it's usually not too difficult to find a translator on the street. Nevertheless, conducting an interview was still a challenge.

"They're catching torsk," says yet another one of my guides, pointing to a longliner offloading at a pier near Aalesund.

"Right, cod," I say, having carefully studied the list of Norwegian fish names in my Berlitz guide.

"No," he says, "not cod, torsk."

"But cod is torsk . . . isn't it?"

"Yes, cod is torsk but this is torsk."

"Cod?"

"No, TORSK, not torsk."

Turns out cod is the English name for torsk. And torsk (or tusk or cusk depending on your preference) is the English name for another species (Latin name *Brosme brosme*) that Norway's longliners harvest along with white ling and haddock during the summer season. The cod fishery takes place in the winter when the fish congregate for spawning.

Automation helps

On board, the longliner's cook served meatballs, potatoes and peas covered with dark, glossy gravy — the Norwegian equivalent of a meatloaf dinner. Most of the crew were offloading the catch of frozen and salted torsk, ling, halibut and Atlantic pollock. Half were bound for furlough, to be replaced by the six-man relief crew, and half would stay on for another six-week trip.

The schedule on this 102' deep-sea longliner is similar to that of an Alaskan blackcod boat or joint-venture vessel. The difference is that the Norwegians consider eight months sea duty a year a vacation while most Alaskans, especially those with experience in king crab, view it as something akin to imprisonment.

Skipper Jarle Holmeset, son and grandson of fishermen, remembers the days he trawled for pollock out of the Faroe Islands. On the weekend of his wedding in 1970 he got home on Thursday, married on Saturday and left on Monday. He says his wife likes the current system of two trips on, one off, much better although at the end of the six-week leave she's ready to boot him out of the house. The advent of automated longlining is one reason hook-and-line fishermen can afford to take a little more time off than they used to. Of eight 100'-plus longliners in the Holmesets' small home village of Hareim, seven have automated baiting and hauling systems.

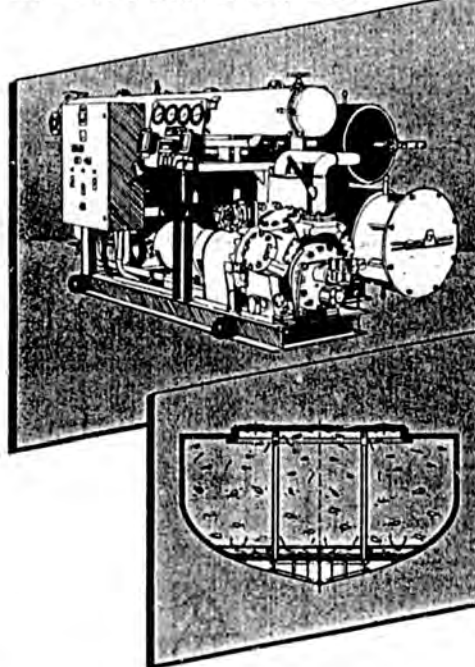
However, some of the fishermen's shorter hours are by mandate rather than choice. Because of closures and vessel quotas, Holmeset can't fish as much as he would like. Alaskan longliners have only recently been reined in compared to their Norwegian cousins. Norway actually held the first longline derby common now on American halibut and blackcod grounds where a season can be measured in hours. The government instituted time and area closures in 1814 and has been adding to them ever since.

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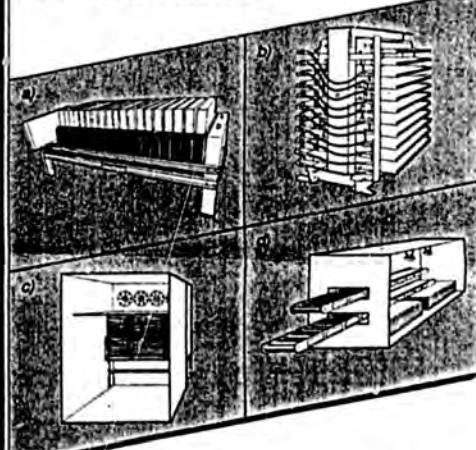
To preserve the good quality of fresh fish, it must be cooled to a temperature as close to -1°C (30.2°F) as possible after catching.

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Researchers aim for better gear and lower operating costs

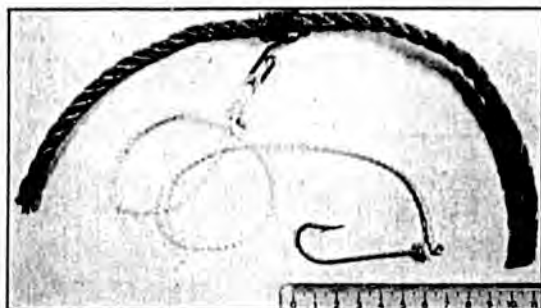
New projects at Norway's Fishery Technology Research Institute (Norwegian acronym FTFI) reflect Norway's shift in emphasis from catch efficiency to cost efficiency.

Increasing catches and gear efficiency is less important now that Norway's fishing capacity exceeds its resources, says institute director Anders Endal. "In the future, there won't be any [additional] fish to catch. So we have to make more of what we catch and catch it with less expense," he says.

With that in mind, gear researchers are experimenting with minced and artificial baits to supplement declining supplies of whole, natural bait fish, and the vessel division is working with microchips instead of hull models.

Artificial bait

FTFI has begun to test a product that's become popular with sport anglers — artificial bait. So far, the results are promising. During an April research cruise, polyurethane (flavored with a few amino acids) appeared to attract cod as effectively as shrimp. This research is of great interest to Norwegian longliners who have watched



the price of their preferred natural bait — squid — quadruple in a few years.

Currently, Norwegians import food-quality squid from Poland and the U.S.S.R. at up to \$2.25/lb. They used to

pay just 60¢/lb. for smaller Norwegian-caught squid, but catches have declined in recent years. Many longliners have switched over to mackerel as a bait for ling and haddock, but nothing works like squid for

FTFI researchers are experimenting with the use of swivel connections between ganglions and heavy "Alaska-style" longlines (top left). They point to the success that swivels have had when used with monofilament main lines (lower left), which tangle and break easily. FTFI also helped Mustad test its new E-Z Baiter hook (top right).



catching cod. That is, possibly, until now.

Catch rates on hooks threaded with artificial bait were equal to those of hooks set with whole, boiled shrimp. The polyurethane attracted fewer cod than natural bait, but the cod that bit were larger so that the total poundage from both types of sets was about equal. At the same time, fewer haddock were caught on the hooks baited with man-made chow.

FTFI biologist Asmund Bjordal speculates that the artificial bait caught larger fish because the pieces used were so big. The 2-gram sheets tested expanded to 18 grams in water, swelling to the size of a cigarette lighter. Big cod could handle the bait, but smaller fish, like haddock and young cod, evidently spurned the artificial bait for something more bite size.

Bjordal declined to name the source of the artificial bait but did say that his department was cooperating with the University of Florida on the research.

In other bait news, a chopped-herring longline bait developed by FTFI is ready for commercial production. The herring is sewn into a small nylon pouch or "teabag." The herring teabags were as successful in catching haddock, tusk and ling as traditional baits. Cod was the only major

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longline species that preferred a firmer mouthful, shunning the teabags for chunks of mackerel and squid.

Hooks and swivels

FTFI often coordinates its gear research with that of private companies, testing specific products like Mustad's new E-Z Baiter hook. Results from this type of product research are made public.

The researchers found that hooking gangions to the groundline with a swivel (similar to those on the Mustad "Quick Snap" line) increased catch rates. That's because the gangions don't tangle and break as often, says Bjordal, who has observed longline action during experiments with the help of an underwater camera.

Norwegian coastal fishermen, particularly those in the Lofoten, have used gangion swivels for quite some time on monofilament-suspended longline rigs. Monofilament has the advantage of being difficult for fish to see. However, it is difficult to work with and tangles and breaks easily. It can't be used with an Autoline system and takes some skill to hand bait because it's quite stiff. (Some Lofoten fishermen use monofilament for groundlines as well as gangions.)

Bjordal says Lofoten fishermen often suspend their longlines, using the same gear for both midwater and bottom operations. They snap floats to the groundline for suspended sets, floating the hooks anywhere from a few fathoms to 30 or 40 fathoms below the surface.

The difference in FTFI's research is that Bjordal is attaching gangions to heavier Alaska-style groundlines. He's found that

much of the twisting on standard gangions occurs as the fish is being hoisted to the surface. Not only does the fish swim in circles trying to free itself, but as it arches and curves its body, the upward momentum and friction of the water spin it around the hook like a propeller blade. The torque causes the line to shorten and twist up on itself, making it easier to snap.

Big-mesh seines

Steinar Olsen of the FTFI gear division reports that he and his researchers are experimenting with large mesh in purse seines. Large mesh is inserted from the corks to the headline in the areas of the seine that hit the water last and come out first. Standard mesh is retained in the bunt of the net.

Two nets are being tested. The first was built for one of Norway's giant mackerel seiners, which reports that it doesn't seem to be losing any fish through the large web. One third of the seine was constructed from 6"-8" diamond mesh instead of the usual 1"-1 1/2" mesh.

"I personally think you could go much bigger, but the fishermen won't go for it," says Olsen. He would like to try 20"-24" or even 3' mesh. The division's 41' experimental vessel has just started work with a much smaller seine partially made from 5"-6" hexagonal mesh.

The idea behind big-mesh seines is similar to that of rope and supermesh trawls. The big mesh herds, rather than confines, the fish. The fish only try to escape the seine when they become crowded and see the web closing in around them, says Olsen. He adds that more underwater observation of fish behavior is needed to determine the mesh-size limit on various seines.

The big meshes are intended to save

materials, making seines less expensive to build and lighter to handle. That's the same idea behind seines made of hexagonal web, which sinks faster and is less expensive than conventional webbing, according to FTFI tests. Hexagonal seines are beginning to become popular among Norwegian seiners, says Olsen.

Small boat autolining

Norway's big boat longline fleet is almost fully mechanized with Mustad Autoline systems. But these rigs are far too costly for small coastal vessels, says Olsen. He and FTFI researchers are testing a less complicated Canadian system that costs only \$1,500-\$2,300 compared to \$80,000-\$160,000 for a full-fledged Mustad system.

The Mustad system is very precise, says Olsen. It takes a hook, holds it, puts on the bait and releases it. The system Olsen is experimenting with is a snag baiter. "The Norwegians abandoned this idea. The Canadians didn't. With a reasonable slush of water and bait, there will be bait on about 90% of the hooks when they leave the tray," he says.

There's a trick to the proportion of bait and water and to the shape of the tray to make the system work, says Olsen. "If you don't aim for perfection, you can make things much cheaper. If you can get by with 80%-90% of the hooks baited, it's still a great help. If you want 100% baiting, then you have to go to a more expensive system."

Info management

In 1986, "National Fisherman" reported that the FTFI vessel division was concentrating its efforts on fuel efficiency and stability programs. Those projects are now

complete, and through the use of computer programs, the division is shifting its focus from design and construction to operations, i.e., helping skippers run more cost-efficient operations as opposed to catch-efficient ones.

The division is mapping various good and bad fishing practices in an attempt to draw up an information bank and "Expert" computer programs for fishermen. Endal describes the new programs as "decision support systems to help fishermen estimate or calculate the results of a set of decisions, to fish here or there." The expert programs will draw on the experience of Norwegian highliners and will cover things like long-range budget planning as well as day-to-day tactical decisions.

"There is a great difference between good and bad fishermen in their ability to collect, manipulate and use information," says Endal. "Even if they do it on an intuitive level, what is intuition? The baby in the cradle has no intuition on how to fish." The programs are operating on the assumption that since fishing knowledge is acquired, it can also be shared.

Endal says he's heard concerns from the fleet that expert programs would eliminate the differences between fishermen so they would all become equal. Endal doesn't think that would happen. "There would still be a large difference between good and bad fishermen. Even the best fishermen should be able to benefit [from the programs]."

The division has also begun an artificial intelligence project that Endal declined to discuss in detail. This work could eventually link computer programs directly with sounders, sonars and other electronics.

—K. Freeman

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Can a skipper working in one of the world's toughest fisheries be so certain?

The answer is that not only him, but fishermen worldwide have come to rely on the many years of experience which have gone into the development of Polyform quality. After all, there is a lot hanging on a Polyform buoy. Valuable gear and catch might easily be lost if the buoy cannot be relied on.



Polyform A series

The first Polyform buoy was developed over 30 years ago, and its construction was based on a unique idea.

Continual product development over the years has made Polyform the world's leading supplier of floats for a wide range of applications.

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— always dependable

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- hundreds of years of marine experience in some of the most hostile waters anywhere
- a modern, high-tech based industry



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Polyform A.s
Soelvroken A.s
Scanmar A.s
ScanRope A.s
Selma A.s
Ulstein Trading Ltd. A.s

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FOR FURTHER INFORMATION PLEASE CONTACT:
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Two Embarcadero Center, Suite 2910
San Francisco, California 94111
Tel: + 1 415 986 0770
Telex: 340940 norkoms slo
Telecopy: + 1 415 986 6025

PRODUCT DIRECTORY

Making floats right

A Polyform worker methodically shreds a flawed buoy at the Polyform packing room, cutting it to pieces with a large knife. The PVC scraps, like others piled in small stacks here and there through the Polyform factory, will be returned to the recycling bin for reincarnation into a perfect Polyform buoy.

This failed buoy was not outwardly flawed. But while checking it prior to packing, the Polyform inspector detected a slight thin spot and rejected it. Any variation in buoy wall size is unacceptable, according to Polyform.

"It is a well-known saying that a chain is no stronger than its weakest link," reads a Polyform brochure. "This also applies to a buoy. The importance of even wall thickness cannot be emphasized enough. The Polyform production process, contrary to some imitations, fully controls every inch of thickness in the buoy." When comparing products, Polyform says fishermen should remember that a heavier buoy probably has thicker walls and will last longer.

Polyform buoys are recognizable by their blue, rib-reinforced ropeholds. The blue PVC is stronger and harder than the rest of the buoy, yet still flexible enough to run through a powerblock, says Polyform. In addition, the ropehold and body of the buoy are molded in one process, which means that the ropehold cannot be ripped off from the rest of the buoy.

Polyform buoys are available in a wide range of sizes, shapes and colors, including fenders and buoys molded with a central channel to fit a longline flagpole. The popular A series is widely used by crab fishermen in Alaska.

Contact: Polyform A/S, P.O. Box 2025, N-6021 Aalesund, tel.: 47 71 20038.

Keeping tabs on your trawl

Simrad's new FS 3300 Trawl Surveillance Sonar consists of a headrope-mounted color scanning sonar. The system operates in the same way as a standard sonar except that instead of displaying a horizontal picture of the area around your vessel, it provides a vertical picture centered on your trawl. This picture shows the shape of the trawl opening and the quantity and type of fish entering it, as well as objects in the water column. The sonar's focus can be narrowed and targeted on the area just below the headrope for better fish monitoring.

The system also is equipped with sensors for monitoring depth, temperature and the amount of catch in the cod end.

Simrad's surveillance system provides the fisherman with information on the optimum geometry of the trawl opening under various conditions; the position of sand clouds; the position of the footrope in relation to the seabed; trawl parameters such as height and width; temperature; and depth to headrope. Information from the Simrad sonar can also help ensure that the bulk of the potential catch is actually entering the net and not escaping over or under the headrope or through the wings.

Simrad's other recent development is an echo sounder that produces a hard color record on color recording paper. This combines the easy-to-access, permanent record of black and white paper machines with the detailed definition of color sounders. A variety of screen displays are available, including an echo for bottom strength. While the main picture gives you the contour of the bottom, the echo strength graph on the bottom of the screen will tell you whether you're over mud or rock.

The easy-to-use unit (with push-button controls) will interface with other CRT units and navigation instruments. As a result, it can print your current position on the paper record for better marking of fish spots.

Contact: Simrad Inc., 620 N.W. Bright St., Seattle WA 98107, tel.: 1-800-426-5565.

Splicing fid

The Selma splicing fid is a one-tool splice shop. Unlike many other tools that can only handle one kind of line, the Selma fid will successfully splice stranded, braided and double-braided rope as well as soft wire.

Made of highly polished stainless steel, Selma fids have a hollow opening which allows the rope to fit snugly inside. A sharp cleat inside the opening holds the rope in place so the fid can be used much like a needle. This simple modification reduces both time and energy while performing splices, says Selma.

Available in a complete range of sizes, Selma fid kits can be used to repair hollow-braided lines from 4 mm (.15") to 14 mm (.4") in diameter and three-strand ropes from 2 mm (.08") to 28 mm (1.1") in diameter. A special large needle can handle double-braided lines from 19 mm (.75") to 40 mm (1.5") in diameter. The smallest Selma needles can be used for winding rope ends or sewing sacks with twine. Because of the sharp internal cleat, the needles will sew with a single strand of twine, eliminating the need to thread twine through a needle eye. The needles can be purchased individually or in sets.

Contact: Selma Ltd., P.O. Box 51, N-8230 Suliijelma, tel.: 47 81 40640/60089.

Hooks, baiters and autolines

Mustad produces a total longlining system, from hooks and gangion, to baiting machinery. This allows O. Mustad & Son A/S to make good use of the information it obtains from longliners in Scandinavia and the United States.

The most recent result of the Mustad/longliner relationship is the E-Z baiter circle hook (see NF January 1987 p. 40.) The new hook combines some of the catching superiority of the circle hook with the straight shank needed to work with automated baiting and hauling systems.

Although Mustad routinely sells complete automated longline packages, it still takes care of individual parts sales too. In fact, that's the basis of the company's building-block modular operation. Mustad will custom design a longline system to fit any size vessel. A fisherman can start with a partially automated line with manual hook loading and later move up to complete mechanization.

The Mustad system can also be containerized to simplify removal and reinstallation on combination vessels. Mustad claims that only a few hours work are needed either way.

Mustad flew a technician to Seattle this October to assist in the installation of Auto-line systems on several blackcod longliners. This fits with its policy of offering professional installation service and assistance to all customers as well as crew, engineer and skipper training.

Contact: O. Mustad & Son Inc., P.O. Box 838, Auburn NY 13021, tel. (315) 253-2793.

Turnkey trawl systems

Ten Alaskan factory trawlers have ordered or installed auto trawl packages from Hydraulik Brattvaag in the last few years. They are the Northern Glacier, Royal Sea, F/T Northern Eagle, Arctic Storm, Dakota Creek 1, Dakota Creek 2, Aurora 1, Aurora 2, Aurora 3 and the Aleutian Speedwell.

Although the equipment supplied to each vessel varies slightly, the current basic package consists of: two trawl winches, pull 30-51 tons; two sweep line/net drum winches, 11-20 tons; two gilson winches, 18-38 tons; one cod end winch, 10-15 tons; two net drum winches, 15-20 tons; auxiliary/outhead winches; remote control from wheelhouse or trawl deck; tension control system

for trawl and sweep line winches; "Data-synchro" automatic trawl system; and pump units and accessories.

In the last few years, Hydraulik Brattvaag has installed its sophisticated "Data-synchro" autotrawl system on 97 vessels worldwide. The system is built on the same principal as the well-known Synchro 1000 and Synchro 1010 equipment. The Datasynchro system, however, further simplifies and improves trawl control. Wear on brake linings is greatly reduced through a hydraulic net-shooting operation. The Datasynchro system also permits shooting and hauling to be automatically controlled to maintain preset warp tension.

Hydraulik Brattvaag winches can be serviced by Foss Shipyard in Seattle and by Fritz Culver, Inc. in Covington, La.

Contact: Hydraulik Brattvaag A/S, N-6270

Brattvaag, tel.: 47 71 15500.

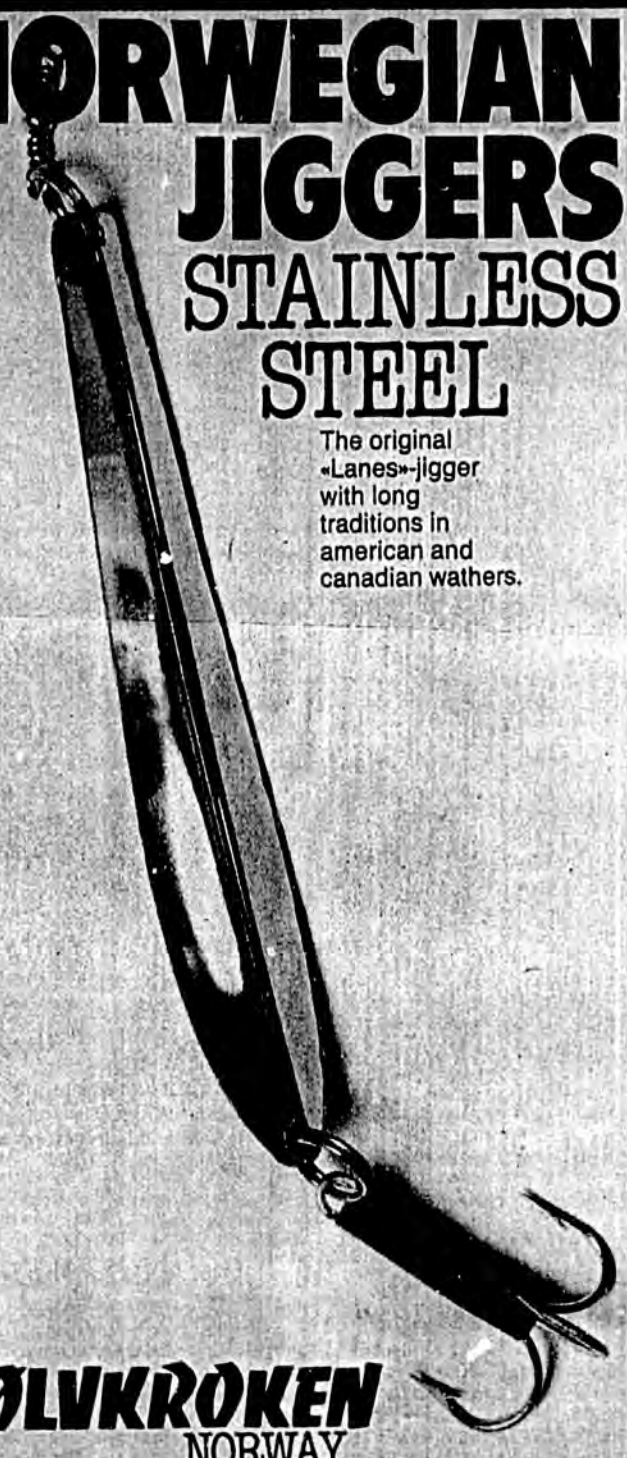
CP props and gearboxes

Ulstein's integrated gearbox and controllable-pitch propellers are being installed on the Alaska factory trawlers Snow King and Arctic Storm and the Nova Scotia vessel Atlantic Horizon. In addition, the systems are specified for a series of Icelandic trawlers under construction in the Ulstein shipyard.

The Ulstein integrated CPP/transmission system has several advantages, according to the manufacturer. First, all the complicated parts of the system are inside the vessel and more easily accessible for maintenance and repair. Second, the system is self-contained with no need for tanks or cooler pumps.

NORWEGIAN JIGGERS STAINLESS STEEL

The original
"Lanes"-jigger
with long
traditions in
american and
canadian waters.



SØLVKRØKEN NORWAY

Third, a fisherman only has to deal with one supplier and doesn't have to worry about incompatibilities between prop and gearbox.

The Ulstein Integrated system controls pitch with a mechanical connection via push-pull rods running from the gear box to the prop blades as opposed to a hydraulic system with a pump in the prop hub.

Two-speed PTOs are available to allow the shaft generator to run at a lower speed than the diesel when this would be more fuel efficient than lowering the pitch of the prop.

Ulstein CP Props are available to match any medium-speed engine from 300 h.p. to 10,000 h.p.

Contact: Ulstein Tradin Ltd. A/S, N-6065 Ulsteinvik, tel.: 47 70 10050.

Strong rope and cable

A ScanRope line recently held up to the largest recorded tow job in the world — a 12-million-ton iceberg. A 4600', 4"-diam-

eter Karat Maxi line from ScanRope was used by the support vessel Maersk Master to move the 1,000' berg away from a drillship. The 13-hour tow was performed during a blizzard and hurricane-force winds.

Alaska crab fishermen are familiar with Karat ropes under the brand name of Ice-line. Recently produced under license by Tubbs Cordage Co. of Orange, Calif., Ice-line is now available exclusively from ScanRope. The estalon fiber in Ice-line combines nylon's high strength with polypropylene's lightness and cost efficiency.

According to ScanRope, Ice-line is 90% stronger than polypropylene and 24% stronger than nylon in equal diameters. In equal strengths, Ice-line has a significantly smaller diameter. It also floats. This means less drag, an important consideration in any kind of pot fishing. With Ice-line, says ScanRope, your buoys will have their heads above water when you go looking for them.

For trawlers, ScanRope says Ice-line's ease of handling allows new speed and con-

trol. The rope also works easily in cold temperatures.

In addition, ScanRope is a major manufacturer of specialty cable, producing a range of top-quality wire ropes for trawlers. Cable in sizes including 6 x 7, 6 x 19, and 6 x 26 with either fiber or independent wire rope cores is available.

Contact: ScanRope A/S, P.O. Box 295, N-3101 Toensberg, tel.: 47 33 11670.

Trawl monitoring system

The Scanmar Teknisk sales staff vividly remembers the day a skipper called in late to say he needed a complete new set of trawl monitors — by the next afternoon. He'd lost his trawl and needed a replacement pronto. The staff worked through until they got the gear on the plane and then sat back to relax — until they got another call. Same skipper. When he got back to the spot where he'd lost his rig, he picked up signals

from the battery-operated Scanmar sensors on his transducer. Using them he was able to dredge up his old gear — as good as new. So he was wondering if he could return the new set of sensors since he didn't need it anymore.

Scanmar's hydroacoustic trawl monitoring system eliminates the need for costly and vulnerable cables and winches. Each rechargeable unit transmits directly. Signals are sent in codes customized for each vessel to avoid interference from other trawlers working nearby, and the units are activated by salt water to avoid unnecessary battery drain between sets. A variety of units are available to monitor temperatures, depth and amount of catch in the cod end.

Information from the monitors can be displayed both digitally and in color diagrams on Scanmar's new screen. The diagrams show the trawl's position in the water, allowing a skipper to see whether it is in contact with the bottom. The graphics also display the status of cod end catch monitors and the shape of the trawl mouth.

For seiners, Scanmar's system monitors the depth of the footrope and the rate of its descent. This allows a fisherman to purse the seine at the most opportune time, just below the school. It can help him avoid pursing the seine too fast, which can lift the footrope off the bottom, catching only the top half of the school.

Contact: Scanmar A/S, P.O. Box 44, N-3155 Aasgaardstrand, tel.: 47 33 31033.

Plate freezers

Check the name on an Alaskan factory trawler's freezer and it might just be Kvaerner Kulde A/S. The Norwegian company, a leading supplier and highly specialized manufacturer of refrigeration and freezing equipment to the world fishing industry, has developed a new labor- and time-saving vertical plate freezer and a new heavy-duty, less expensive horizontal plate freezer.

The vertical freezer has features intended to ease handling. These include the possibility for mechanical top as well as front unloading. Kvaerner Kulde claims its freezers make manual unloading and handling of frozen fish blocks simpler and less tiring.

The freezers also feature a lifting device placed underneath the freezing station to allow easy access to blocks. Block thickness can easily be adjusted by the operator.

The new vertical freezer is available with varying numbers of freezing stations with 100 mm (4"), 75 mm (3") and 50 mm (2") thicknesses. The models are built to withstand the severe working conditions found at sea.

According to Kvaerner Kulde, the company's horizontal freezers meet industry requirements for durability and low maintenance, as well as superior plate strength and the ability to maintain absolute plate flatness.

Contact: Kvaerner Kulde A/S, P.O. Box 115, N-1301 Sandvika, tel.: 47 2 544960.

Gear makers' co-op

Three Norwegian gear suppliers — Scanmar, Mustad A/S and Hafi Ltd. — have combined their efforts to form the Norwegian Fishery Technology Group (NFTG). In addition to marketing their products together, representatives from the three companies will also collectively gather comments about their equipment from the fishermen they serve. "We want to be in good communication with fishermen, and we can do that better together than individually," says a NFTG representative. "This will not only improve the company's knowledge about market needs and requirements, but will also serve as input in furthering product modifications and product development."

Scanmar is known for its hydroacoustic fishing electronics and Mustad for its mechanized longline systems and hooks. Hafi Ltd., founded in 1982 by a netmaker and fishing skipper, offers a range of specialized, high-efficiency trawls and seines. Hafi develops, produces and markets complete fishing systems as well as provides installation and training services.

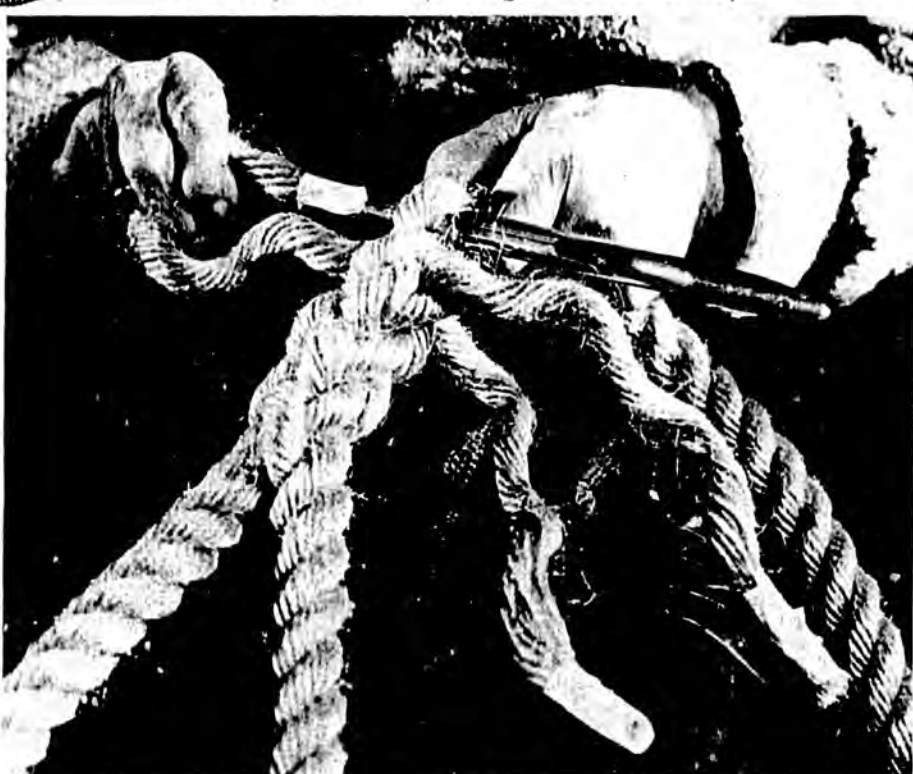
END OF NORWAY SUPPLEMENT



Revolutionary!

Selma fid (needle)

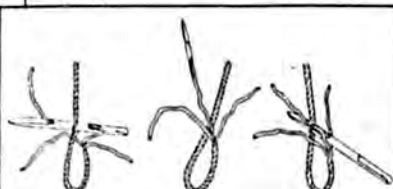
The only one for splicing all kinds of rope!



Splicing hollow braided lines

Selma fid (needle) for splicing double braid yacht line

Five golden eggs in one shell

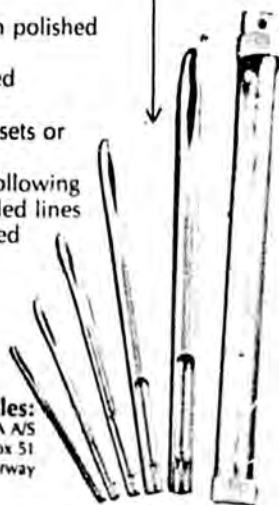


Three ways of splicing three-stranded rope.

Selma Fids (Needles) are made from high polished stainless steel. This is a Norwegian product and patented World Wide.

Selma Fids (Needles) are to be sold in sets or individually.

One set of Fids (Needles) is covering following area of line, twine or rope: Hollow braided lines - 3.5 up to 14 mm line dia. Three stranded twine or rope, 2 up to 28 mm dia.



One pkg. of five Selma tools — only \$39, — prepaid. (Also available a big splicing fid — inner dia. 22 mm. Only \$36 prepaid).

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