

A white research vessel with a red stripe and the name 'SKARSJØ' and registration 'N-62-VV' is sailing on a blue body of water. The vessel has two masts with various equipment. In the background, there are large, rugged mountains covered in snow under a cloudy sky. The scene is lit with warm, golden light, suggesting late afternoon or early morning.

Whale of a Fish Tale

Story and photos by
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In northern Norway, a whale once reviled and a fishery once decimated found salvation on the tail of a fish. Unless it's a red herring, that same fish is rewriting this happily-ever-after tale of whales, fishermen, scientists, and ecotourists.

“Noorderlicht, Noorderlicht . . . Leonora here,” Per Ole Lund radios from the bridge of his converted fishing boat. He leans out of a small window to scan the horizon for orcas but spots nothing.

As Lund sets out under stormy skies on a frigid Arctic morn in late November, the Dutch schooner *Noorderlicht* is already somewhere outside Tysfjord, Norway’s second deepest fjord, also looking for orcas. In the little daylight afforded by a sun gone south for two months, Lund searches with furrowed brow for the distinctive, single spout of the toothed whale.

“How are you?” answers a far-off voice from the *Noorderlicht*.

“I’m okay, but no whales,” Lund reports.

“No whales here, and we hear there are no whales in Tysfjord,” comes the dejected reply.

The radios have been crackling all morning from Tysfjord to the Lofoten Islands. Against a background of spectacular snowy peaks, two rigid, inflatable boats full of tourists zip across the waves into the fjord, while the *Leonora* prowls Tysfjord’s gray waters toward the open sea.

It is a typical day, and the race is on to satisfy dozens of tourists, each having paid \$135 to see the mesmerizing circus of killer whales, playing and preying in their cartoonish black-and-white suits. In the past, Lund had only to push off from shore near the town of Storjord to see the creatures. Yet, like the darkness that grows longer each winter day, Lund’s future here seems increasingly gloomy.

“I’ve been here fourteen years,” reflects Lund. “After so many years, I feel like [the orcas] are family. But they are like cats. They come when they want, not when we want.” Lund is an expert on where and how to find orcas, but in 1992, when he began the safaris, few locals gave him credit for anything but foolishness.

“People were thinking he’d just lost a screw in his head,” says Tiu Simila, a Finnish marine biologist who was early on the scene in the late 1980s, when the whales unexpectedly popped up. “Who would want to come here in winter?”

Back then, Storjord was just another fishing village in Tysfjord. It was the kind of place where fishermen shot whales first and asked questions later, especially if those whales were preying upon their herring stock, which col-

lapsed in 1969. In the 1970s, a government-sponsored orca cull paid bounties of about \$600 per whale, and 275 animals were killed in one day alone. The International Whaling Commission banned such hunts in 1982.

Just six years later in 1988, three million tons of herring suddenly began wintering in the Vestfjord system, which includes Tysfjord. That number represented virtually the entire population of herring in the northeastern Atlantic, known as Norwegian spring-spawning herring. With them arrived hundreds of orcas.

It was a fluke, but not of the whale kind. Massive overfishing had caused the 1969 crash in the herring population. The decimated remnants of the population abandoned traditional open-ocean wintering grounds and took refuge in several small fjords along the northern Norwegian coast. When their numbers surged and they unexpectedly began wintering in Vestfjord, the result was a high concentration of whales chasing an explosion of fish in a confined area. The extraordinary scenario lasted more than 15 years, but orcas were not on the guest list—at first.

With easy access to an abundance of whales in one place

for months on end, scientists rushed to the scene to study the orcas. Over a span of 20 years, Simila and others compiled a comprehensive *Who’s Who* of killer whales. Dorsal fin shape and scars in the saddle patch, the gray stripe behind the fin, helped identify more than 500 individuals and 40 families.

In 1991, British cinematographer Peter Scoones was the first to film orcas performing the underwater ballet called carousel feeding, in which a pod circles and herds herring into a tight school and then swims through the mass, slapping their tails to stun as many fish as possible. In 2000 and 2001, scientists from the Institute of Marine Research in Bergen tracked several whales via satellite from winter to summer, confirming that orcas follow the migrating herring, their favorite prey, as they circle the Norwegian Sea.

But what researchers reveled in, fishermen reviled. Their proprietary attitude arose during the late 1950s, when herring was gold—the greatest single biomass in the ocean—and those who fished it ruled the ocean—so-called “herring kings.” It was a time before fisheries scientists and regulators. The North Atlantic resembled the Wild West with fish-

As whale-watch season peaks in November in Tysfjord, Norway, a curious female orca (below) pokes her head up to human-watch. Tour guide Chantal Forsa (right) points with excitement aboard the boat *Leonora*. Orcas are disappearing from Norway’s fjords as their main prey, herring, make a spectacular recovery but winter farther offshore, luring whales and Lofoten Islands fishing boats (pages 46-47) to the open sea, leaving ecotourism adrift.





Life in the Lofoten Islands (above, left) has always revolved around fisheries and whales. Devastated in the 1970s by the collapse of the herring stock, islanders now fish under more rigid rules, sharing an annual harvest (left) of one million tons among several nations. In the last sunrise before two sunless months of winter, dockhands (above, right) await fresh fish at the Lofoten Pelagiske herring packing factory in Svolvær.

ermen riding roughshod across its waves on the awesome new maritime workhorse, the industrial trawler.

In ten short years, these high-seas cowboys lassoed 14 million tons of herring down to 50,000 tons. By 1969, they had depleted the very substance of their wealth. The economic results were devastating. In Iceland and Norway, entire communities became ghost towns and fishing fleets were marooned.

Fishermen left the herring in a pickle, but mercifully ignored them for years. Undisturbed, the fish replenished themselves, feeding all summer in the northeastern Atlantic and Barents Sea, fasting all winter in the Norwegian Arctic, and spawning each spring farther south along the coast. The herring abandoned their traditional wintering grounds between Iceland and Norway, suddenly appearing in the Tysfjord region. And the voracious killer whales followed, each eating as much as 150 pounds of herring in a day.

But where many saw red, Lund saw green. With Simila's help, he took a group of visiting Swedish journalists on his first official orca tour. In the wake of a media storm, word

rapidly spread. With his business under way, he and Simila both benefited, she with a platform for research, and he with a platform for profits.

As ecotourists streamed in from all over the world, Storfjord's small hotel and food shop sprawled into a complex of 50-plus hotel rooms, loft apartments, cabins, and a modern grocery store. Lund and others joined together to form an umbrella whale-watch company, Orca Tysfjord, to handle bookings, lodging, equipment, and logistics.

Almost overnight, whale hunting took on a new meaning. When word of the orcas' return spread through town each season, it was greeted with glee instead of shotguns. All went well for more than a decade, but just as others were catching on, Lund began thinking of moving on.

"It can change, but I feel it is over," says Lund. "We hope it's not happening, but I have no good feeling. There are ten million tons of herring out at sea, but not so much here in Tysfjord like there used to be."

Scientists agree. Recent research has shown that herring are wintering farther and farther offshore in rapidly increas-

ing numbers. The only fish visiting Tysfjord these days are the older ones, ages nine and up.

Some fishermen complain that big trawlers are plundering the confined waters of Tysfjord each winter, depleting fjord-imprinted fish and selecting for more elusive, offshore stock. Trawlers, they say, should fish the high seas and leave the calm, protected fjords to smaller boats. Though the herring stock is growing at the rate of one million tons per year, Tysfjord's share has shrunk as its fish have become older, and younger generations flourish farther offshore.

There may also be a more natural explanation. Records show that new generations of herring periodically choose new wintering grounds. This may be an adaptation to confuse predators that expect to find herring in the same spot each year, or it may simply relate to changing environmental factors.

"It is easy to make models that show history, but it is difficult to make them predict the future," says Reidar Tøresen, a senior scientist at the Institute of Marine Research. "We measured ten million tons of herring in the open ocean west and north of the Lofoten Islands this season, but only sixty thousand tons in the fjords. We don't really know why herring choose to winter where they do. It is a big mystery."

Heike Vester, a fiery young German marine biologist who is new to the scene, agrees. "There are mathematical models that predicted no herring here this year, but we saw one hundred whales this week," she proclaims. Vester recently founded her own marine ecotourism company, Ocean Sounds, in the Lofoten Islands. The company supports research on orcas, seals, cod, and herring by using underwater microphones, called hydrophones, to record sound. "I believe nature is much more complex than any models can predict," Vester says. "I believe orcas will always come into the fjords, because there are always herring."

Vester's recordings reveal a startling underwater conversation among many species, including the herring. When trapped in fishing nets, herring communicate with pops and squirts squeezed from their swim bladders. Through this signal, the herring coordinate into a mass dive, forceful enough to capsize a boat. This behavior was depicted in the Disney film, *Finding Nemo*. However, the film's directors skipped the part about the bubbly language scientists affectionately call "farting."

Herring put on airs with whales, too. Using a screen of air bubbles, the fish confuse the carousel-feeding orcas and then jet straight down into the dark depths. But while orcas are just as chatty, they are also astute listeners, using their sonar to echolocate the fish.

Vester worries about the effects of engine and sonar noise from fishing boats, submarines, and military ships on marine life. A recent test of submarine-hunting sonar by a Norwegian naval frigate scattered Tysfjord's orcas for five days. Military officials say the testing is necessary to establish environmentally-friendly sonar practices.

"If there was as much sound produced in the air as there

is in the water," says Vester, "there would be rules against it. But with underwater sound, no one cares."

Studies have shown that freshly-spawned herring suffer significant mortality from sonar, but fortunately fishermen generally stay away during spawning season because adults are thin from fasting by then. It isn't until the fish return from the sea, after a summer of gorging themselves, that they are commercially attractive and irresistible to orcas.

"The beginning of the season has been coming later and later each year," explains Paul Lillestøl, managing director of Lofoten Pelagiske, the region's largest herring-packing factory. "This year didn't start until October 19, when we had nice fat, fourteen-ounce herring. Now we're down to the eight-ounce size, and they closed the main fjord to big trawlers yesterday [November 22, 2006]. So that's it for the season." As much as fishermen protest, strong fisheries regulations have created record harvests and a herring stock that's growing by 10 percent each year.

"One big trawler told me they couldn't find the bottom because the herring were so much and so deep," Lillestøl marvels. "The herring actually looked like the bottom of the fjord."

Paradoxically, the richest waters in the world are the coldest, due in large part to 24 hours of sunlight. When eternal night becomes eternal day, frigid Arctic waters explode with life. Algae bloom like desert wildflowers, and zooplankton follow. While herring feast on *Calanus finmarchicus*, their favorite zooplankton, orcas feast on the prolific herring.

As daylight shortens in September, fattened herring seek warmer waters where they fast for seven months in a cloak of deepwater darkness, waiting to spawn in February and March. Throughout winter, the fish play cat-and-mouse with the orcas. The key to the fish's survival is timing and energy conservation. By day, they hide 600 to 1,200 feet below the surface, but swimming at these depths requires energy, since deepwater pressure squeezes the air from their swim bladders. Without their internal supply of air, they constantly fight to avoid sinking, and eventually they must surface to rest.

As much as summer's endless sunlight provides food, winter's long darkness provides shelter, allowing herring to almost float near the surface with their inflated swim bladders. During the few hours of dusky light each day, orcas prowl for any schools of herring slow to seek refuge in the ocean's dark depths.

The tall, straight dorsal fin of an adult male orca (opposite) plows through the Norwegian Sea at Tysfjord. In 20 years of study, scientists have identified more than 500 individuals and 40 families based on dorsal fin shape and the scars in the saddle patch, the gray stripe behind the fin. As orcas abandon Tysfjord's calm, accessible fjords to pursue herring in turbulent open seas, this rare scene may vanish.

"I think we should offer herring safaris along with the whale trips," says Chantal Forsa, with a laugh. A Swiss transplant, she has spent 14 seasons aboard the *Leonora* conducting orca tours with Skipper Lund. "At night the herring come to the surface, and the fishing boats haul in their nets. The sea looks like a silver city with millions of scales floating in the boats' spotlights."

For now, Forsa's customers are more interested in whales. Fifty Japanese and European tourists crowd along the bow railing, intensely scanning the seas for the vertical spray of water that advertises orcas. There is growing disappointment as the search drags on, and precious daylight fades, but Lund's perseverance is rewarded. He abruptly turns *Leonora* starboard and revs her engine.

Exclamations spread across deck as distant spouts erupt along the opposite shore. Minutes later, ghostly white patches stream underwater toward the ship. Shark-like dorsal fins break the surface, appearing on one side, then the other, then all around the *Leonora*. The whales swim so close that people are peering down into their blowholes. The orcas gracefully surface and dive alongside the bow, loudly breathing with jets of spray.

Lund nears shore where several pods of orcas have driven a mass of herring against a submerged cliff. As the engine quietly idles, the sounds of chattering and whistling whales

that have popped head-first out of the water to look around fill the icy air. They continue this behavior, called spyhopping, for almost an hour until Lund comes down on deck and whistles patiently back, a single, repetitive, plaintive pitch. One of the whales spyhops toward him.

"That's Anna," says Lund, "my special friend. We met in 1998. She was acting very strangely. I whistled and she whistled back. Then she came up next to the boat, and we looked each other in the eye."

Fortune has smiled on Lund this day, but he knows his 14-year adventure may be coming to an end. For now, there are herring and orcas in Tysfjord, but they may someday winter too far out and become too dispersed in the rough, open seas to pursue.

As Lund prepares to leave, a dozen or so black-and-white phantoms appear across the bow in the dusk. One of the tiniest, this year's baby, turns its flukes and lob-tails with what seems a wave. It is time. "This was great," he says, before reluctantly ascending to the bridge to steer homeward. "Just like the old days."

Writer/photographer Randall Hyman has trekked the globe for three decades covering stories about man and his environment, from koala fingerprinting in Australia to caiman poachers in Brazil and volcanic eruptions in Iceland.

