Not just chillin'

Onboard refrigeration options abound for boats large and small

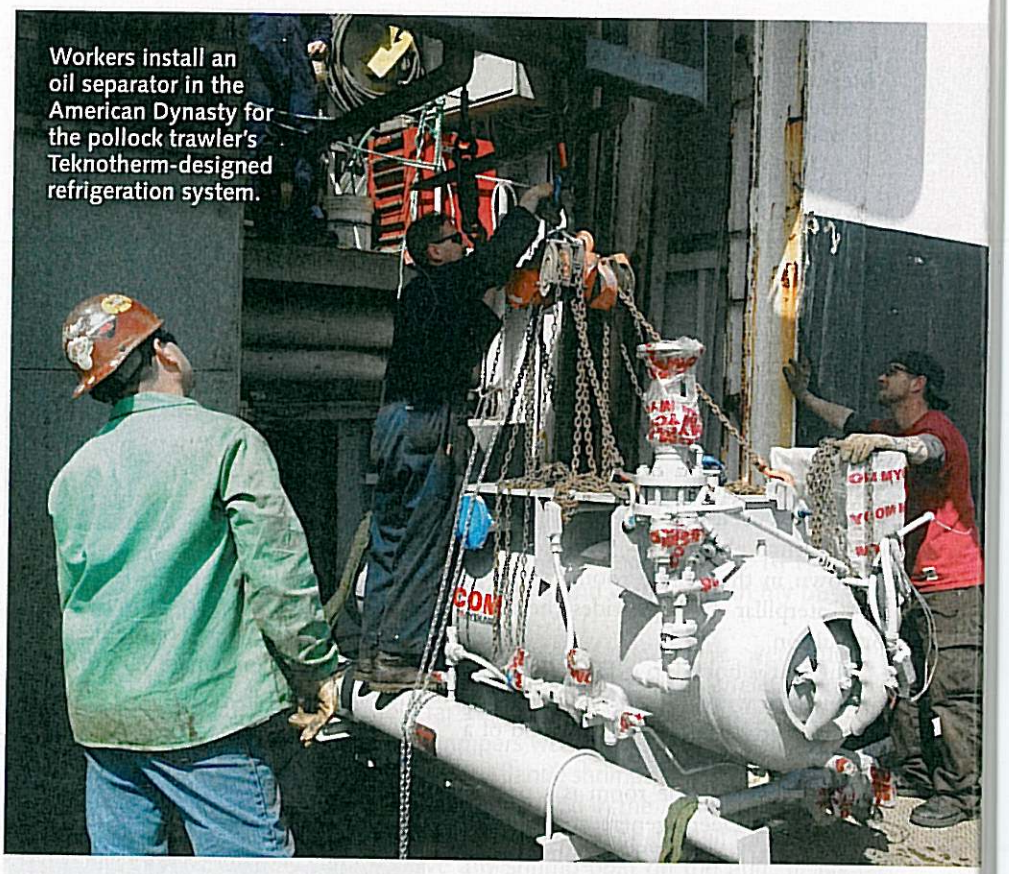
By Michael Crowley

A number of relatively recent types of refrigeration systems and installations help push up the quality of American seafood. They are designed for everything from Bristol Bay gillnetters to longliners to factory trawlers, and in a competitive marketplace, outfits don't hesitate to point out how their refrigeration system differs from others.

Dave Nowell isn't shy when it comes to extolling the importance of Pacific West Refrigeration's Turbo Chiller. "It's probably going to change the way marine chillers will be built in the future," he says.

When this Sechelt, British Columbia-based refrigeration company started bringing the Turbo Chiller to trade shows, Nowell says, "All the big refrigeration companies were laughing, but all of a sudden it has turned everyone's heads."

In a conventional chiller, the heat exchanging tubes run back and forth in a linear fashion. The Turbo Chiller's tubes are coiled, offering a couple of advantages: less welding and, Nowell says, "because it's coiled, the heat transfer is better than with straight back-and-forth tubes."



Workers install an oil separator in the American Dynasty for the pollock trawler's Teknotherm-designed refrigeration system.

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The coiled designed causes the refrigerant to swirl inside the titanium tubes. "That's the turbo effect," Nowell says, "and why we call it the turbo charger, rather than the conventional back-and-forth action where you get stratification."

That's not to say that coiled chillers haven't been around for a while. But those chillers, Nowell says, require "huge water flow because there's no type of baffling system."

Pacific West Refrigeration created a baffling system that allows water-flow patterns to be changed throughout the chiller. He says, "On coiled chillers you'd just pump water straight through, and it's kind of hard to get water to the coils."

In contrast, baffles in Pacific West Refrigeration's Turbo Chiller "hold the tubes in place and allow the water to go up and down through the chillers to get a good heat transfer rate. The water is also turning and getting more turbulence in there for better heat transfer."

Another benefit of the Turbo Chiller is that the baffles can be changed to fit a particular boat, "whereas on a standard chiller once you weld the chiller with the baffles it's a set design," Nowell says.

If a fisherman wants a 25-ton system to run 300 gallons per minute, "we'd put in baffles for that amount of water going through. If there's 500 gallons per minute going through, we'd put in less baffles, because there's more water flow," he says.

The Turbo Chiller has been used with refrigerated seawater systems and brine freezing. Brine freezing units have gone on a couple of West Coast tuna boats, while a number of RSW units are on Bristol Bay gillnetters.

Nowell's belief that Pacific West Refrigeration's "chiller is totally different from anything else out there" is why you shouldn't expect to see any cutaway drawings of the company's Turbo Chiller anytime soon. "If anyone wants to see the inside they have to buy the system. We are definitely not displaying it," he says.

PACIFIC WEST REFRIGERATION

Pacific West Refrigeration's Turbo Chiller sits easily inside the Vicki K, a Bristol Bay gillnetter.

Multitasking refrigeration

If you are upgrading or installing new