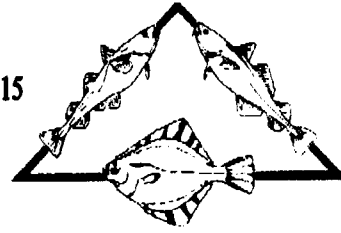


Groundfish Data Bank

Alaska

PH: 907-486-3033 FAX: 907-486-3461 P.O. BOX 788 - KODIAK, AK. 99615

Julie Bonney, Executive Director jbonney@gci.net
Katy McGauley, Fisheries Biologist agdb@gci.net



Supplemental information regarding Proposal 102 (close remaining state waters in the Kodiak management district to non-pelagic trawl fishing).

Trawl gear has changed dramatically over the last five years – Gear is not hard on bottom

Middle water doors replace bottom doors: "Bottom trawlers 'Go Green'"

Excerpts: "flying doors high keeps nets off seabed"

"There are tremendous benefits in this way of fishing and, in Kodiak, around 70% of the fleet fishing in flatfish and cod are using this rig now."

See Fishing New International, March 2009, "Bottom trawlers 'Go Green'", pages 29 and 30.

Sweep modifications: Trawl Sweep modifications will be required in the CGOA for all trawl vessels that target flatfish starting this February (2014). The purposes of the Trawl Sweep modifications are to:

- (1) *Reduce unobserved crab mortality:* Trawl sweep modifications reduce unobserved crab mortality from the sweeps from about 5% to nearly zero for bairdi crab.
- (2) *Reduce impact of the sweeps on bottom habitat:* Trawl sweep modifications resulted in a decrease of the trawl sweep contact with the seabed by about 90% in the BS and anticipated to be 75% in the GOA. The sweep modifications have proven effective on reducing effects on sea whips (a long-lived species of primary concern), basketstars, sponges, and polychaete siphons.

See Pages 46 - 48 "Area Closures for *Chionoecetes bairdi* Crab Protection in Gulf of Alaska groundfish Fisheries", September 2010 Public Review draft. (<http://www.npfmc.org/wp-content/PDFdocuments/bycatch/GOAcrab.pdf>)

See page 40, 58, Council GOA Trawl Sweep modification Analysis (http://www.npfmc.org/wp-content/PDFdocuments/conservation_issues/trawlmods412.pdf).

Westside section – Lowest crab abundance of any of the surveyed sections within the Kodiak district

The Kodiak District for tanner crab is subdivided into eight sections: Northeast, Eastside, Southeast, Southwest, Semidi Island Overlap, Westside, North Mainland, and South Mainland. The Westside section has the lowest crab abundance of any of the surveyed sections. The likelihood of interaction with crab within this area is low. Areas with the highest amounts of crab are adjacent to areas with the most amount of bottom trawling (Eastside and Southeast).

Why the area was left open in 1999 by the Board of Fisheries

- (1) Winter trawling is very dangerous without having to fish areas that are more exposed. With all of our Bays in Kodiak closed to trawling, the remaining State Waters should be left available to the Kodiak trawl fleet for safety.
- (2) This area is important fishing area for flatfish (particular rock sole), cod and bottom pollock.
- (3) No science to suggest trawling has prevented crab stocks from rebuilding.

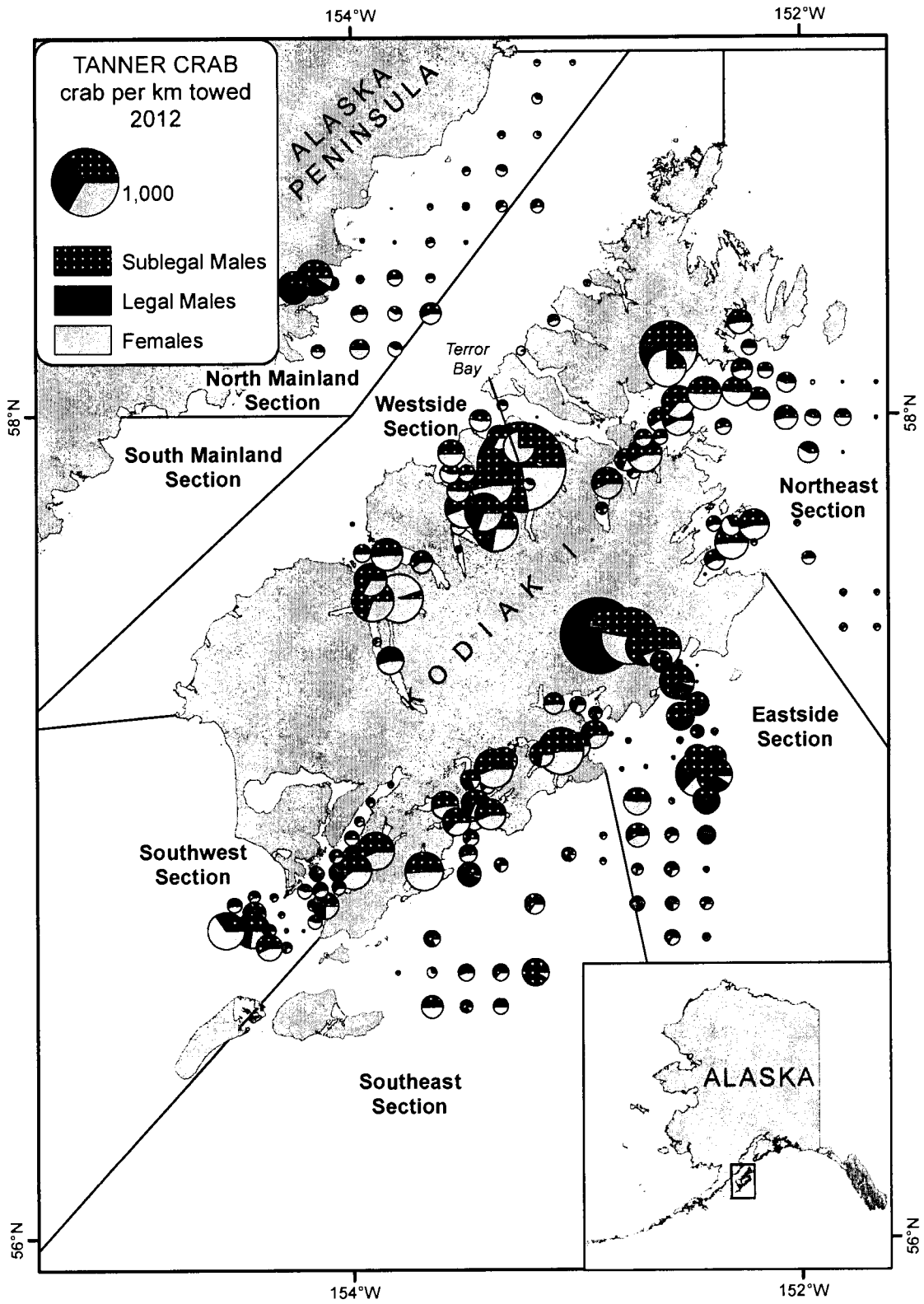


Figure 4.—Tanner crab per kilometer towed in the 2012 Kodiak bottom trawl survey.

It started

"THREE or four years ago we started to play with this [spreading bottom trawls with pelagic doors] in the flume tank and some of the skippers caught on to this idea very quickly," says Elías Ólafsson of the Seattle trawl gear company Dantrawl.

He tells *FNI* that it was a small group of trawler skippers from Newport, Oregon, who set the ball rolling and, although there was a process of refining the initial ideas, there were no major problems to begin with.

"It just worked. The thinking for many years has been that bottom doors are needed to open a bottom trawl. But doors are there to spread the gear – they don't have to be on the bottom and there are advantages in keeping them off the ground."

He continues: "Some of our customers complained that the doors were hard to keep stable on rough ground and, when the doors aren't stable, the trawl isn't in its perfect fishing mode."

"So, by getting the doors off the bottom, we eliminate that instability. That way the trawl stays steady in a

constant fishing mode and fishes better."

Dantrawl's Fiske and Conquest designs have been popular with the Alaska trawlers using this type of rig, which Elías Ólafsson attributes to the way these trawls are designed with many similarities to pelagic trawls.

"About 80% of those trawlers using mid-water doors to spread bottom trawls are using our trawls and the Conquest trawl in particular lends itself very well to this type of rigging."

Elías Ólafsson points out that, with conventional bottom gear, the doors account for roughly 25% of the drag of the gear as a whole, but this proportion falls to only 10% with pelagic doors flown off the bottom.

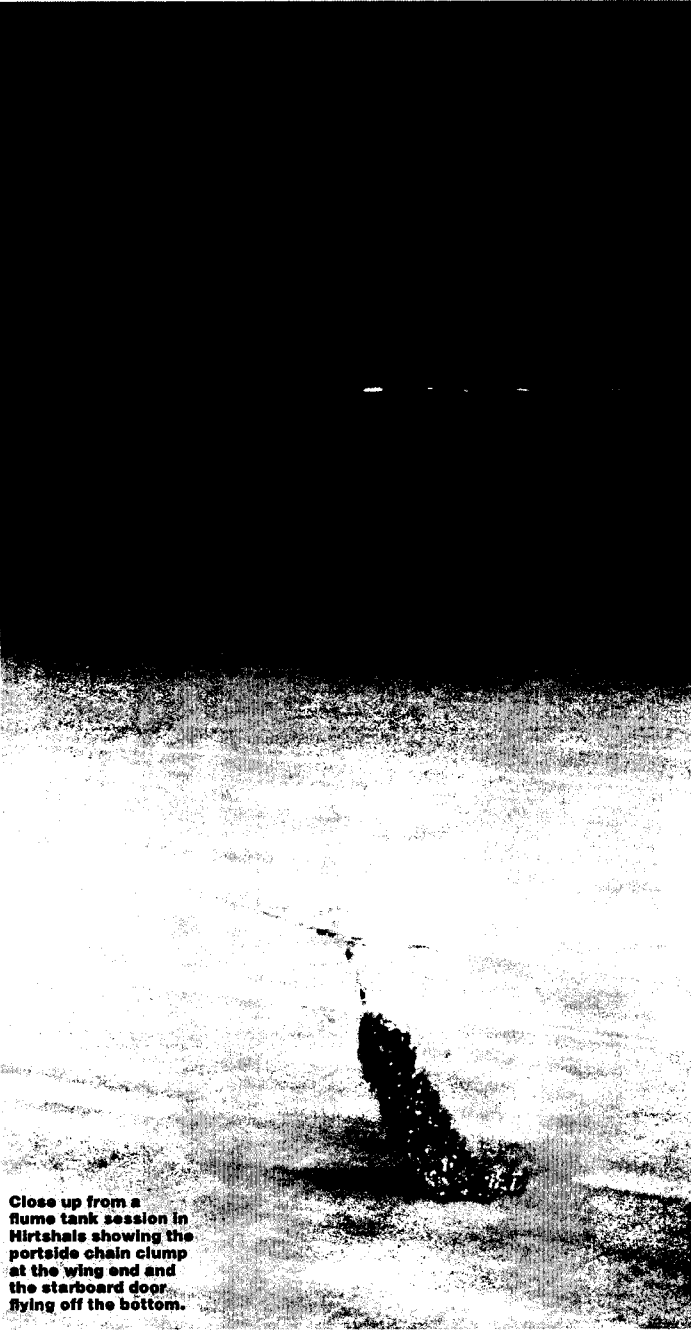
"The result is that the gear is more effective. It fishes better and more economically. There are advantages for trawlers that do both bottom and pelagic fishing, as one set of doors will do both jobs."

"With the ground contact transferred from the doors to the weight at the bridle ends, there is less damage to the doors."

He comments that this could have far-reaching implications for when the environmental lobby focuses its attention more firmly on bottom trawling.

"Last year several of our customers ordered new doors to start towing their bottom gear with mid-water doors, but they were in a hurry to start, so we tried the mid-water/bottom rig using conventional high-aspect pelagic doors without a camber – and we couldn't get them to work properly."

"These doors weren't stable enough and it seems that the V-doors, like the Thyboron type 10 and type 15, have the stability to make this work. The multiple rigging possibilities with the Thyboron doors also provide more options and make it much easier to reach the optimum rigging."



Close up from a flume tank session in Hirtshals showing the portside chain clump at the wing end and the starboard door flying off the bottom.

From page 29 30 and 60 metres, depending on the grounds. Generally there is more wire used between the two on harder ground, allowing the doors to fly higher.

"We can hold the doors at 10 to 15 metres off the ground and they are very stable there although, when you turn, the inner door dips down a little. But you have to deal with it and spool in 30 metre of wire on that side until you've completed the turn and shoot it back."

Stornes's gear is rigged with between 30 and 60 metres of bridle between the weights and the wing ends, which also depends on the fishing grounds.

Pål Roaldsnes says: "The weights are 1100 kg. and

have been getting heavier – and we have another 150 kg. at each wing end to keep the footrope in line.

"We also have a 1.50 metre strop between the bridle ends and the chain weights."

This keeps the bridle end clear of the ground and helps the gear skim over the worst of the hard ground. Pål Roaldsnes comments that there have been noticeably fewer fasteners with this set up and the doors are not taking the heavy use they would normally get.

Like Jørgen Eriksen on *Claudia*, Pål Roaldsnes expects the cost of his fishing gear to fall with this system as the wear and tear on the trawl doors is

eliminated and transferred to the chain weights instead.

"The doors don't last long, especially in Norwegian waters on very hard ground. We expect a pair of doors to last a year and a half, possibly two years."

"One season's fishing in shallow water can be enough to finish off a pair of bottom doors. Ours have tended to last longer as we have also been fishing deeper on better grounds for some of the year."

"The key really is having depth sensors on the doors. We already have the trawl door angle sensors and should be getting Scanmar's prototype depth sensors as well.

"This is the critical measurement. When you know how high the doors are over the ground, you can control the rest," he says. He tells *FNI* that the logical next step would be to adapt this system for twin-rig trawling.

Pelagic option cuts costs

"It's been a lot of fun experimenting with this and it's exciting to be working with something new – as we haven't really seen any major developments since twin-rig trawling was introduced," says Pål Roaldsnes.

"The mate is always up in the wheelhouse well before

his watch starts. The crew like it as well as the pelagic doors are easier for them to handle than bottom doors, although we still need to make some changes on deck so the chain clumps have a secure bay to rest in with the gear on deck."

Pål Roaldsnes comments that pelagic trawling for saithe is also an attractive option and mid-water fishing for groundfish species may become possible as restrictions are being relaxed.

Mid-water trawling for groundfish was banned by Norway after some uncomfortable experiences in the 1970s when large volumes of immature fish caught in pelagic trawls were seen to be discarded.

The Marine Research Institute has successfully been carrying out its own pelagic trials using hex mesh trawls similar to those used in Mauretania.

Pål Roaldsnes tells *FNI* that the costs incurred in saithe fishing could be cut by 30 to 40% by switching to full-scale pelagic trawling.

"We would have to make changes on board to make this possible, maybe by adding RSW tanks to cope with larger volumes of fish and rigging the vessel to be able to handle large bags."

"You have to have a licence to use pelagic gear, but it hasn't been a problem and anyone who has asked for one to try it out has been issued with the licence."



Left: Thyboren, Skjerve and Pål Roaldsen's Ole Kjørsgaard with a new pair of Type 15VF doors of the kind used in Norway, Greenland and Alaska for squaring bottom trawls.



reducing the angle attack to its minimal setting, it was possible to reduce spread – but not enough. "So a 5.50 sq. metre pair were ordered and delivered to Alesund in Norway by the skipper, Jan Bundgaard, with Thyboren's Jan Bundgaard on board. They quickly found that these doors were spreading too effectively. By shortening up the warps, adjusting the rigging to reduce the outward heel of the doors and

High seabed m trawls 'go

kipper Pål Roaldsen of the Norwegian vessel Stormes is cutting his operating costs by flying the ship's trawl doors high off the seabed while the trawl stays on the bottom.

He is fishing with a combination of a 10m pelagic trawl and a pair of 15VF trawl doors. Thyboren says the doors are able to fish as effectively as before, but with lower costs.

He reports that this gear combination offers great possibilities for trawling by keeping the doors off the bottom.

development for some time and trials have been taking place on a number of trawlers in Europe and the US. It could also be one possible way of combating the growing green lobby that is seeking to ban bottom trawling around the world.

The idea is that the usual demersal trawl is towed by a weight that keeps the baffle ends down, while a pair of pelagic trawl doors are lowered ahead of the weight and clear of the ground to provide spread.

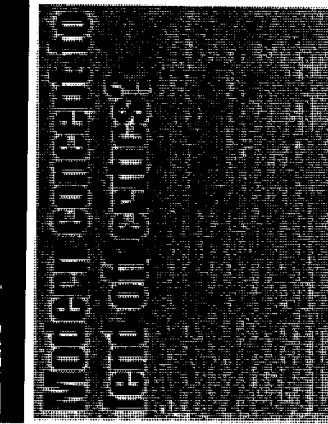
This approach to bottom trawling relies entirely on hydrodynamic force to open the gear, eliminating the need for ground shearing force and seabed damage.

Skjerve Roaldsen is convinced that this method could be used to reduce demersal trawling costs, as well as cutting the ground contact of fishing gears, including shrimp trawls towed at slow speeds.

He says: "We done some shrimp trawling in the past, and an expert on it. I'm sure this could be used on shrimp as well, but the doors would have to be larger to provide enough spreading force."

Ole Kjørsgaard of Thyboren trawl doors in Denmark reports that the demersal trawler Claudio has been successful in using the concept for shrimp trawling with the same type 15VF pelagic doors.

Her skipper Jørgen Eriksen says: "Our rigging was recommended by Thyboren's Jan Bundgaard. We have not touched a single shackle during



Speaking to FNI during a trip off the coast of Norway, Eriksen says that they are fishing on spawning saithe on some very rocky ground. "We are fishing on spawning saithe outside Alesund where the fish are on some very rocky ridges that we need to be able to get over." Discussing the ship's latest trip, he said: "They sailed last night from Alesund and immediately fished gear, with more spacers between the disks, it is not much heavier than a normal footrope.

with a pair of Thyboren's 6.50 sq. metre doors to replace a pair of conventional oval doors with a 9 sq. metre pair. Although the new gear is better, so far, it is too early to be conclusive.

Discussing the ship's latest trip, he said: "They sailed last night from Alesund and immediately fished gear, with more spacers between the disks, it is not much heavier than a normal footrope.

been working through and the switch to a single trawl from twin-rigging make a direct comparison between gears difficult, but he says there has been a 10% fuel saving by lifting the trawls off the ground and down-sizing them.

"With the single rig the pitch had been 65% to 70%, but with the semi-pelagic rig, we're towing at around 80%. So far with this gear we have been fishing in horrible weather. It will be easier to make a proper comparison between the gears when the weather is more normal.

"But they look like complaining the trip now in record time and have been getting some big hauls of 20 and 30 tonnes, which is very good fishing with such small trawl doors," says Pål Roaldsen.

Skimming the ground
STORMES has been using door to weight distances that vary between

How the system works page 30

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