

Streamer Lines to Reduce Seabird Bycatch in Longline Fisheries

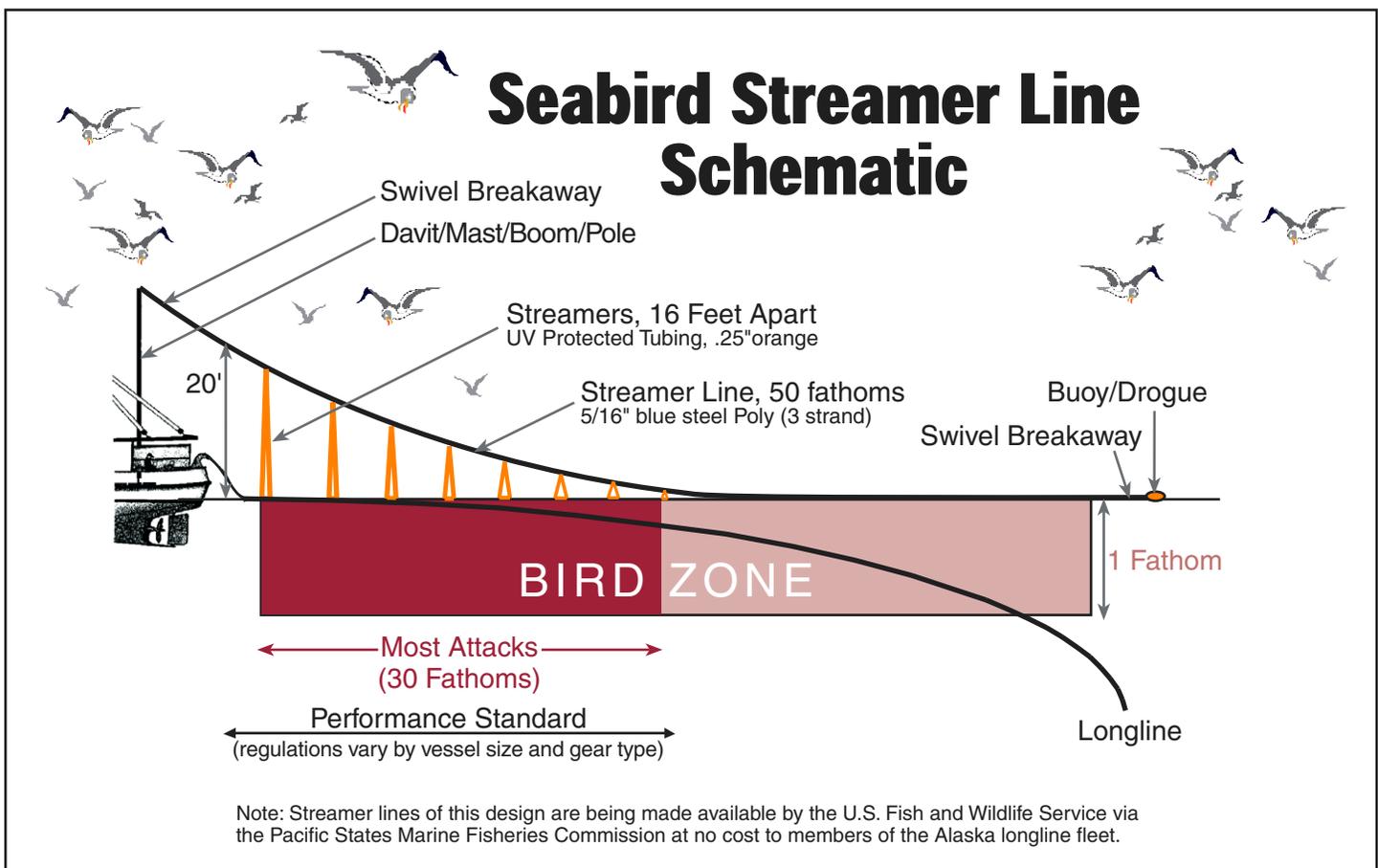
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A collaborative study with industry testing seabird bycatch deterrents in the Alaska sablefish and Pacific cod fisheries showed that streamer lines, a bird-scaring device applicable to a wide range of vessels, reduced seabird bycatch dramatically. Streamer lines deployed in pairs reduced bycatch by 88% to 100%. Single streamer lines were less effective, but still reduced seabird bycatch by 71% to 91%. New Alaska regulations (2003) require most longline vessels to tow streamer lines as a seabird bycatch deterrent.

Materials

A streamer line, also called a bird line or tori line, is a 50-fathom (or 90 meter) line that extends from a high point near the stern of the vessel to a drogue (usually a buoy with a weight). As the vessel moves forward the drogue creates tension in the line producing a span from the stern where the streamer line is aloft. The aloft section includes streamers made of UV protected, brightly colored tubing spaced every 16 feet (5 meters). Streamers must be heavy enough to maintain a near-vertical fence in moderate to high winds. Individual streamers should extend to the water, to prevent aggressive birds from getting to the groundline. When deployed in pairs – one from each side of the stern – streamer lines create a moving fence around the sinking groundline eliminating birds.

The research program used a 5/16-inch Blue Steel Poly as the backbone of the streamer line for its handling attributes, assuming the gear would be hauled by hand. The streamers were affixed by pushing the tubing through the twist of the poly streamer line minimizing hardware, cost and weight. Each individual streamer was cut at twice the required length and doubled over creating two strands of tubing at each streamer. Incorporating breakaways (weak-links) of about 100 to 200 pound tensile strength into the streamer line is highly recommended should the streamer line foul on the groundline. Break-aways at the drag buoy are a minimum precaution. Swivels at each end of the streamer line reduce wear and prevent twists in the backbone line.



Performance

The distance streamer lines are aloft behind the vessel - *performance standard* - is specified in new Alaska regulations. *Adherence to the performance standard is critical for two reasons: it maximizes the efficiency of the line as a seabird deterrent and prevents hang-ups on the groundline.* In general, Alaska seabirds feed within one fathom of the surface – the seabird zone¹. Research has shown that groundlines are within a fathom of the surface and (vulnerable to seabird attacks) anywhere from 15 to 70 fathoms astern. The distance depends most on vessel speed, but propeller wash, weather, current and gear type also play a role. Because seabirds prefer to feed as close to the surface as possible, most seabird attacks occur within 30 fathoms of the stern. Performance standards are designed to protect this area and keep the line free of the groundline. Required performance standards vary by vessel size and gear type from 11 fathoms (20 meters) to 33 fathoms (60 meters) .

Performance standards can be met by manipulating the height at which streamers are attached to the vessel, the amount of drag at the end of the line, and the weight of streamer line materials. A simple way to gauge success at achieving the performance standard is to mark your streamer line at the appropriate distance using a plastic glove or similar marker.

Height above the water is the most critical factor in achieving performance standards. As a rule of thumb, attach the streamer line to the point that results in it being at least *20 feet* above the water at the stern. This could be an existing structure such as the mast, a boom or troll pole bracing. Buoy deck railings and hayracks do not provide sufficient height. The farther forward the attachment point on the vessel, the taller that point needs to be.

Be sure to attach a lazy line to the streamer line so that once it reaches its full height off the deck it can be easily retrieved. Dedicated longliners should consider installing streamer line poles or davits at the stern to simplify deployment and make operation more efficient.

Drag at the end of the streamer line is also important and varies with setting speed. An oblong, ribbed or “skid” buoy with about ten pounds of

weight attached tends to provide sufficient drag to achieve the performance standard in most conditions. Be sure to snug added weight as close as possible to the nose of the buoy. *Dangling weights can snag on the groundline.* Buoys can be inflated or deflated. Inflated buoys – sometime attached in series – increase disturbance as they bounce from side to side, scaring birds. Deflated and/or water filled buoys are preferred in some cases because they are less likely to float the gear off the bottom or tangle the gear should their streamer line hang up on the groundline. Other approaches have included cutting a buoy so that it becomes a sea anchor as it is towed, or drilling holes in the nose of the buoy so that it fills with water as it is towed. The combinations are endless.

If using a single streamer line, it is important that it be deployed from the windward side of the vessel so as to position the streamers above the sinking gear. For this reason, you need to be able to vary the attachment point to the vessel with wind direction when using single lines. One solution is to have streamer lines rigged from both sides and to deploy the windward streamer line as you set gear. Paired streamer lines have the advantage of working regardless of wind direction.

If bird interactions become particularly intense, there are several additional precautions that you can take. Research has shown that slowing the vessel while setting gear is highly effective at reducing the distance the groundline is exposed to birds. Adding weights to the groundline can also reduce gear exposure; however, many weights must be added to make a big difference. Weights added at skate junctions have little effect on the overall sink rate of the gear. Discarding fish heads parallel to the groundline, but outside the wake zone, can be effective at distracting birds away from sinking baits.

Using streamer lines for the first time requires thought and practice, but quickly becomes routine. Consider taking some time to place and practice deploying and retrieving streamer lines if this gear is new to your operation.

¹ Shearwaters are the exception – they dive frequently and can reach up to 35 fathoms.

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