Appendix A. Final Report to the Consortium for Wildlife Bycatch Reduction, *Maine Lobstermen's Association*

Maine Lobstermen's Association
Final Report to the Consortium for Wildlife Bycatch Reduction
Program Year: April 2007 through December 2008

Introduction

This report summarizes field and lab tests carried out on experimental fishing ropes produced by the *Consortium for Wildlife Bycatch Reduction* for preliminary evaluation by the Maine lobstermen's Association. The goal of the Consortium is to support the research and development of bycatch reduction methods for non-target species involving collaborations between engineers, wildlife biologists and fishermen. Field tests by Maine lobstermen were undertaken to initially evaluate the practicality of fishing with new types of ropes before supporting widespread trials. Under the current project cycles 5 gear types were evaluated by 10 fishermen

The Maine Lobstermen's Association (MLA) continued the field testing of several types of experimental groundlines and endlines developed by the Consortium for Wildlife Bycatch Reduction. The ropes that were field tested are outlined in Table 1. Instructions on how to deploy these ropes and completed logsheets evaluating the performance of experimental gear are presented in Appendix A. Appendix B has the results of tests carried out on ropes by rope engineers Hank McKenna (independent consultant) and Dave Richards of Southwest Ocean Services.

General Methods

All field trials coordinated by the MLA were conducted by active commercial lobstermen on a working lobster boat to test real-world operational feasibility of experimental gear. The ropes were fished using a standard protocol designed to accommodate the variety in gear configurations, hauling schedules, depth and bottom type. Lobstermen were required to maintain a logsheet to monitor the number of times this gear is hauled, as well as record general information on how and where the gear is being fished.

Trawls of four or more traps were deployed with a minimum of three sections of experimental groundline between traps. Gear deployed as pairs or triples required a minimum three sets of gear to be deployed. The minimum length of groundline in the experimental deployment was five Fathom. The gear was fished for as long as possible over the course of a normal fishing season, and therefore was set and shifted over the course of the year. Lobstermen were asked to deploy at least 3 sections of rope so that one could be removed each year for laboratory testing to allow for a maximum 3 year field trial. At the end of the field season, one section of rope (min 30 ft) must be returned to MLA to be sent away to a lab to test for breaking strength and elongation testing. Rope

that became badly chaffed or parted off was sometimes removed before the end of the fishing season, but a sample still was submitted to the rope engineers.

Breaking strength was measured using a consistent methodology employed by Southwest Ocean Services of Texas. Three pieces were tested from each rope sample supplied by MLA. Each section was cut to an equal length and spliced. Ropes were cycled to 20% of break load elongation measured at approximately 50% and at break. The breaking strength of sink rope was tested on capstans, spliced and with bowline.

A sample of the metallocene rope was sent out for specific gravity testing. Specific gravity was measured by taking approximately 3 feet of rope and weighing it to the nearest gram. The rope was then placed in a graduated container and filled with fresh water at room temperature. Before submersion, the rope was disassembled to facilitate the removal of entrained air, and then agitated underwater to ensure that all air was removed. The volume of displaced water was then measured in cubic centimeters. Since 1 cu cm of water = 1gm, dividing the specimen weight in grams by the volume yields the specific gravity. This procedure was repeated to test for accuracy.

Table 1
Overview of Consortium for Wildlife Bycatch Reduction Ropes
Field Tested by MLA

Rope Type	Date produced	Amount produced	Amount distributed by MLA	Rope Type	Description
Metallocene braided Sinking Rope	August 2007	6 coils	5.5 coils	Ground line	3/8" cream colored braided coated exterior with a twisted center
Time Tension Line Cutters	--	--	7 units	Endline	Time tension line cutters developed by Blue Water Concepts
Weak Line	July 2008			Endline	5/16" barium sulfate weak rope with a breaking strength of 1200 lbs
Redeployment of Previous Ropes					
Barium Sulfate Batch 2	August 2006	10 coils	10 coils	Ground line	3/8" gray polypropylene line infused with $BaSO_4$
Metallocene polyethelene A	March 2006	3000 feet	3000 feet	Ground line	3/8" green braided rope which was tightly wrapped. A braided metallocene polyethelene outer sheath over braided polyester inner core.

Time tension line cutters (TTLC) were field tested aboard working commercial lobster vessels to determine the operational feasibility of the device during normal fishing. Lobstermen were required to maintain a logsheet to show the method gear deployment and general fishing information during TTLC trials. The time tension line cutter (TTLC) was attached to the trap end of the vertical line approximately one fathom above the gangion to ensure it could jump through the hauler. Lobstermen were advised to splice toggles in their line just below the TTLC, with a length equal to the distance between the TTLC and the gangion, to serve as a line to jump the TTLC over the hauler. Further rigging advice was provided by an instruction sheet from MLA, however, lobstermen were encouraged to develop their own rigging methods as appropriate.

Sinking Groundlines: Metallocene Braided Sink Rope (2007 production)

In August 2007, Norm Holy produced a new braided metallocene sinking line. This rope was initially developed before NMFS implemented its mandatory groundline rule as a sinking groundline with potential to withstand abrasion greater than existing ropes. The rope is a highly durable 3/8" diameter braided rope, manufactured with a 75% polyester and 25% polypropylene inner twisted core, overbraided with a metallocene polyethelene, with a marine coating on top. MLA received delivery of 5 ½ coils of this rope in September 2008.

The six coils of rope were distributed to lobstermen in the Downeast area in October 2007, specifically targeting areas known to have hard bottom. Two coils were distributed to lobstermen in Cutler, 1 on Beals, 1 in Bass Harbor and 2 on Matinicus Island. The rope was primarily fished on hard bottom in a variety of depths and gear configurations.

The biggest challenge in fishing this rope was handling on deck. The marine coating on the exterior combined with the tight weave of the braid made this rope extremely stiff. Almost all of the lobstermen who fished it reported that it did not coil easily and therefore was dangerous on deck. It made large loops and caught on itself causing it to abrade. One lobsterman likened it to "fighting a cobra to get it coiled". Several lobstermen reported that once the marine coating chaffed off, the strength of the rope was affected and the rope parted. Other comments included issues of slippage in the hauler due to the coating as well as slippage between the inner twisted and outer braided portions of the rope. A lobsterman from Matinicus reported that the rope performed extremely well once it softened up and it was quite durable on hard bottom.

Table 2 Overview of Deployment of Metallocene Braided Sink Rope							
Zone	Depth (Fathom)	Bottom Fished	Gear configuration	# Hauls	# Years Deployed	Durability	Handling
A	48	mud, gravel, rock	10 trawl	14	1	2	2
A	48	mud, gravel, rock	10 trawl	40	2	1	1
A	35	Rocky ledge	4 trawl	15	1	2	1
A	5 to 75	Rocky	20 trawl	24	1	2	1
C	10 to 25	Rocky	pairs	20	1	3	3
C	10 to 25	Rocky	pairs	55	2	3	3
C	3 to 60	Rocky	pairs	25	1	2	1
B	25 to 42	Gravel	pairs	125	1	2	1
ZONES: Refer to State of Maine Marine Lobster Management Zones							
RATING SYSTEM: 1 (terrible) = hard to imagine a worse rope; 2 (poor) = worse than most ropes I have used in the past; 3 (average) = as good as most ropes I have used in the past; 4 (good) = fishes better than most ropes I have used in the past; 5 (excellent) = hard to imagine a better rope for what I used it for.							

Overall, the rope received an average rating for fouling, but fouling is not generally an issue with groundlines because they are fished at depth. The rope was also consistently noted as being quiet in the hauler. The rope was rated "poor" for chafing, kinking and durability, and received its worse rating, averaging a score less than 2 (poor) for general handling.

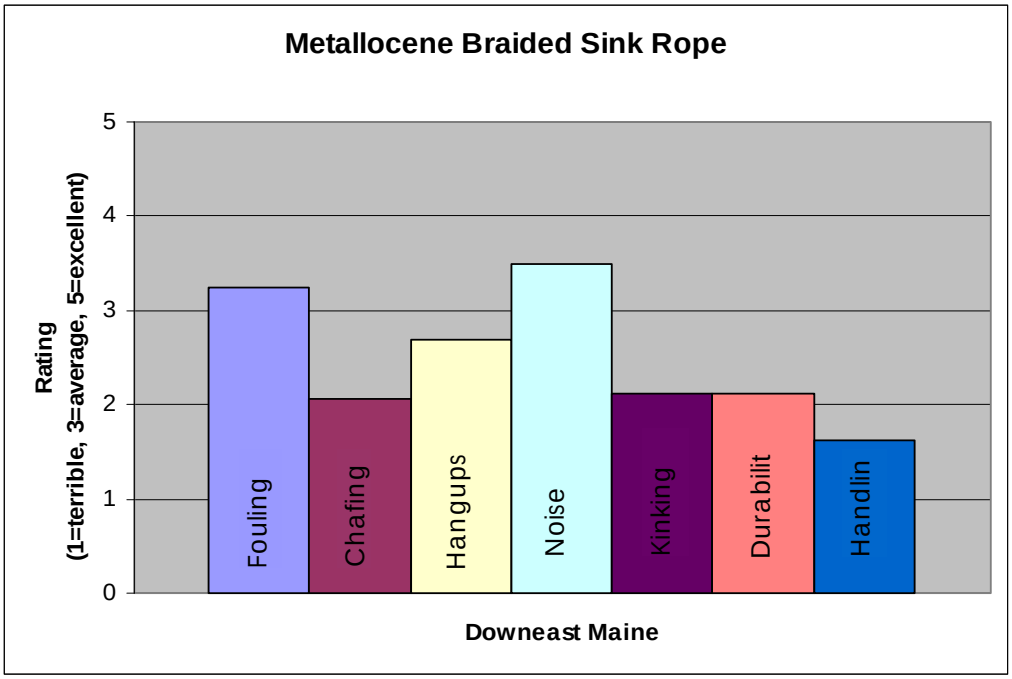

Figure 1. Performance assessments of experimental groundline by participating lobstermen.

There were several changes made to the 2007 production of rope compared to the previous 2006 run. Specifically, the diameter and tightness of the braid were different, and the 2007 rope had the addition of a waxy marine coating as opposed to a smooth Teflon coating used in the 2006 rope. In addition, the inner core of the 2007 rope was twisted rather than braided as it was in the 2006 rope. These changes appeared to translate directly into creating a very stiff rope which caused safety issues on deck.

The 2006 run seemed appropriate for soft bottoms in western Maine with good durability but that there are presently no incentives to switch to this rope given other ropes now on the market. The newer run has durability and handling issues that make it inappropriate for wide spread use in lobster fishing in the Gulf of Maine.

Time Tension Line Cutter (TTLC)

The MLA field tested seven time tension line cutters along the Maine coast. A TTLC is a reusable device added to the vertical line at its trap end. Less than two feet long, the device is designed to release a cutting blade that will sever the line tied to it after a pre-set number of minutes of a large sustained load, such as one that might be exerted by an entangled whale. In 2006, the Consortium supported testing of TTLCs at the University of New Hampshire's Center for Ocean Engineering. These tests determined that in general TTLCs perform predictably as designed under simulated conditions. The objective of having lobstermen fish with TTLCs was to evaluate their operational feasibility.

The MLA received delivery of 8 time tension line cutter (TTLC) units from National Marine Fisheries Service gear specialist John Higgins in October 2008 and met with Ben Brickett of Blue Water Concepts in Eliot, ME who invented the units. Mr. Brickett provided a demonstration of how the units could be rigged and fished. The MLA then developed an instruction sheet to aid lobstermen in rigging the TTLC's in their gear, as well as a logsheet to rate the performance of the TTLC during deployment (Appendix B). Information on the time and tension settings of each individual unit were obtained from Blue Water Concepts and included on the instruction sheet so that lobstermen had an idea of how they might perform on their gear.

Seven of the eight TTLC's were distributed to lobstermen along the Maine coast in October 2008 (Table 3). Most of the TTLC's were fished during the end of the

2007 fishing season and were not redeployed again in 2008. Everyone was able to successfully fish with the TTLC, however, none reported getting used to fishing with it. All lobstermen were able to successfully get the TTLC through the hauler with a jump rope, but it slowed down their fishing time. Though the device added only a few minutes to hauling each trap, lobstermen reported that the additional time would be significant if the TTLC were deployed on all gear. Successfully hauling the TTLC required that the gear be properly marked as a warning that the device was nearing the hauler so that it could be jumped through onto the vessel.

Table 3 Overview of Deployment of Time Tension Line Cutters (Zones refer to State of Maine Lobster Management Zones)

Zone	Town	Unit #	Tension lbs/min	Time 70°F/min	Time 50°F/min	Rigging	Fathom vertical line	Fathom Depth	Bottom type
A	Cutler	47	200	5 to 9	7 to 10	15 trawl	120	45	Gravel
A	Cutler	52	300	5 to 9	7 to 10	15 trawl	120	48	Rocky, gravel
B	Bass Harbor	62	300	5 to 9	7 to 10	Pairs	was not fished		
C	Matinicus	73	300	5 to 9	7 to 10	Pairs	45	35	Mud to hard
C	Matinicus	76	300	5 to 9	7 to 10	no logsheet returned			
D	So Thomaston	38	300	5 to 9	7 to 10	Pairs	30	20	Gravel
E	Boothbay	69	200	5 to 9	7 to 10	6 trawl	37	35	Mud, cobble
F	Yarmouth	UNH	--	--	--	5 trawl	15	12	Gravel

The biggest challenge in fishing the TTLC occurred during the setting back of lobster gear. Lobstermen worried that the 1) TTLC might get tangled in other traps on deck, 2) the jump rope and toggle might get tangled in other ropes and traps on deck, 3) the TTLC gets tangled in the groundlines on deck and 4) and finally that the jumper rope and TTLC might get hung up on the rail. These all present danger for a lobsterman fishing alone as well as to a sternman working at the side or stern of the boat who could easily be pulled over board in gear tangled up in this device. So, it was not necessarily that the device itself presented a safety hazard, rather it was the interaction of the TTLC and jump rope with other gear on deck that is considered dangerous.

All lobstermen who fished the TTLC expressed concern over deploying the device at full scale on their boats. Fishing a single TTLC was manageable, but having one on each set of gear would likely be problematic. Most lobstermen believed this device held the most promise in areas where larger trawls are fished rather than on smaller sets of gear such as pairs and triples.

Weak Endlines

During the summer 2008, the MLA picked up 4 coils of barium sulfate weak line from Seaside Rope in Warren Maine, with an estimated breaking strength of 1200 lbs. The MLA expected the rope batch would consist of 3/8" diameter rope, similar to that which was produced in 2006. However, the 2008 weak rope was produced at a diameter close to 5/16". This is similar to the weak rope that was tested in 2005 and it was determined to be too small for the hauler to "grab" and was not operationally feasible.

Therefore, only one coil of weak rope was distributed in Casco Bay to determine if it could be run through the hauler. The rope slid deep into the hauler causing it to jam. Therefore, it was determined that this rope was too small to be operationally feasible and the three additional coils were not distributed.

Since the weak rope is a sinking rope, it must be tested by splicing a piece of floating rope on the bottom portion of the line to prevent it from immediately getting hung up on the bottom and parting off. The 2008 weak rope was deployed on a triple which was rigged with a strong endline on the other side. As in the previous field trials, the gear was hauled from the weak endline. However, due to the operational concerns of running the rope through the hauler, it was not fished under challenging conditions.

Due to the strong tides, currents, wind and weather common along the Maine coast, gear cannot predictably be hauled every time from just one end of the gear. If weak lines are deployed in the fishery, it will be necessary to reliably haul from the weak end in strong tides, wind and currents when the other end may not be safe or accessible to haul.

Redeployment
Barium Sulfate ($BaSO_4$) Sinking Groundline (2006 production)

Barium sulfate groundlines were produced for testing through the Consortium for Wildlife Bycatch Reduction and distributed to the industry by MLA in 2005 and 2006. In previous trials of this rope, it did not perform well in the Midcoast and Downeast Maine, but it showed promise as a viable sinking rope for Southern Maine. In 2007 and 2008, lobstermen from York and Yarmouth continued to field test this rope.

Table 4 Overview of Lobstermen Evaluation of $BaSO_4$ Sink Rope								
Zone	Depth	Bottom	Chafing	Hangups	Noise	Kinking	Durability	Handling
F	12 to 14	mud, gravel, rock	3	2.5	3	2	3	2.5
G	8 to 16	mud, gravel, rock	3.5	2	3	3	3	3
1= terrible; 3=average; 5=excellent								

Overall, the rope continued to perform well, but both lobstermen reported visible signs of wear. This level of visual wear was reported as more than would normally be seen during a 3rd fishing season, though neither reported issues with its durability.

Redeployment
Metallocene Polyethelene Braided Sinking Groundline (2006 production)

The 2006 3/8" tightly wrapped inner core of braided polyester with an outer sheath of braided metallocene polyethelene was deployed for its 3rd season in York, ME. The lobsterman reports that this rope does not yet show signs of wear and rated it above average for chaffing and durability. The only issue experienced with this rope is some minor slippage in the hauler due to its small diameter.

Other Activities

The MLA did quite a bit of outreach to lobstermen to coordinate this project and to inform them of the ongoing research on experimental ropes with a goal of helping to develop whale safe gear. The MLA organized a seminar during the 2008 Maine Fishermen's Forum on sinking rope, and gave a presentation at the May 2008 North Atlantic Large Whale Take Reduction Team meeting in Baltimore, MD (Appendix C).

Appendix A

Instructions to Lobstermen
and
Summary of 2007-2008 Rope Deployments

MAINE
Lobstermen's Association, Inc.
21C Western Avenue, Box 1 • Kennebunk, ME 04043
Phone: 207-967-4555 • Fax: 866-407-3770
www.mainelobstermen.org

TO: Maine Lobstermen fishing experimental gear for
Consortium for Wildlife Bycatch Reduction

FR: Patrice McCarron

October 10, 2007

Thank you so much for participating in this experimental gear testing project through the Consortium for Wildlife Bycatch Reduction. You should have received two pieces of gear testing:

1. 3/8" metallocene braided sinking rope (2007 production is cream colored)
2. time tension line cutters (for placement on vertical lines)

The goal is to test this gear over the course of 3 fishing seasons for both operational feasibility and durability. The gear should be deployed at your earliest convenience. If you haul your gear out for the winter, it should be stored away from the sunlight. One piece of groundline will be removed after each fishing season to test the breaking strength (durability) of the rope.

3/8" Metallocene Braided Sinking Groundline

This is a highly durable 3/8" diameter braided rope, manufactured with an inner core comprised of a twisted 75% polyester and 25% polypropylene, overbraided with a metallocene polyethelene, with a marine coating on top. It is hoped that this rope will prove to be durable enough to resist rapid chaffing on hard bottom.

To ensure that this gear can be tested over the course of three fishing seasons, you are asked to deploy it according to the following protocols:

- At least 3 sections of groundline must be deployed to allow testing over 3 years.
- At the end of each fishing season, we will ask to retrieve one section of groundline (minimum 30 foot section) to be sent away to a lab to test for breaking strength and elongation testing. This will happen each year for 3 years.
- The remaining sections of groundline should be redeployed for each of the following two fishing seasons. This will allow ongoing evaluation of the rope after each fishing season over a 3 year time span.
- The minimum length of groundline must be 5 Fathom, but can be as long as you like

- The gear should be fished for as long as possible over the course of your normal fishing season. Therefore it should be set and shifted as you would normally fish your gear. You must maintain the logsheet to monitor the number of times this gear is hauled, as well as record general information on how and where the gear is being fished.
    - Trawls of 4 or more traps should be set with a minimum of 3 sections of experimental groundline between traps. You only need to set one trawl with the experimental rope, but you are welcome to set more.
    - Pairs or triples require three sets of gear to be deployed. You are welcome to set more than that if you'd like.
- If the rope is badly chaffed or parts off, please keep a sample of that rope so it can be shared with the scientists to show how the rope failed. This is very important!

Time Tension Line Cutter (TTLC)

The time tension line cutter (TTLC) was developed to minimize serious injury to whales due to entanglement in vertical lines. If a whale encounters a vertical line, the device will cut the rope after a set time period and allow the whale to swim free without serious injury. The device is programmed to cut the line at a predetermined force (ranging from 200 to 300 lbs) after a predetermined time period (after 5 to 9 minutes of force is applied).

This gear has been tested extensively in a lab environment and will cut the rope after a set force is applied to it over a time period. However, further field testing must be conducted to determine the operational feasibility of the device during normal fishing. More detailed rigging instructions are included in your packet.

- The time tension line cutter (TTLC) should be attached to the trap end of the vertical line above the gangion. Place the device with enough space above the gangion to ensure it can jump through the hauler (usually 1 to 1.5 Fathom from the gangion)
- The TTLC must be placed properly, with the fat end (the end with the biggest hole) facing the buoy.
- An end of vertical line should be attached to each end of the TTLC

To ensure that the TTLC can pass safely through the hauler, you are advised to:

- Splice a toggle line just below the TTLC, with a length equal to the distance between the TTLC and the gangion. This line will be used to jump the TTLC over the hauler.
- Tie a square knot or keep knot of some kind just above the TTLC, to warn you that the TTLC is approaching the hauler.
- Use a cleat (regular cleat, cam cleats or rig a self clearing cleat) for the keep knot to use in jumping the TTLC over the hauler.

The TTLC is rigged to allow for your gear to be hauled under normal strain and time conditions without setting off the device. However, if your line is hung down, or there is a lot of strain on the line and the gear is hauling slowly, check the condition of the

device. If you observe a gap in the device of ¼", you should take the load off the rope. It will automatically reset once the strain is off the line, but this is not immediate. The device will cut the line when the gap reaches ½" in width.

Logsheet

Please keep the enclosed logsheets on your boat and track the number of times you haul the groundline and the time tension line cutter. If you do not deploy the experimental groundline and TTLC on the same piece of gear, you should keep a separate logsheet for each. If they are deployed on the same gear, please make a note of it on the logsheet. Complete the logsheets when you take the gear out of the water, so we can document how the gear performed (or did not perform!) for you.

If the gear is badly damaged, chaffed or parts off, please keep a sample so it can be sent back to the scientists to show how it failed. This is very important!

Lost Tags and Traps

MLA has made arrangements with Maine DMR to replace any tags lost due to experimental testing. If you are fishing this gear and lose your traps, please contact the MLA and I will be sure to get those traps and tags replaced immediately. MLA has money budgeted to replace lost gear if that is an issue for you. Just call the office and we'll take care of it.

Compensation

You are asked to fish both the braided sinking groundline and the time tension line cutter (on the same gear deployment or separately) over the course of the fishing season or for as long as the gear holds up. Once you have completed this experiment (either the gear fails or your fishing season is over), please send your completed logsheet to the MLA Office. The MLA will make arrangements to collect one groundline sample (minimum 30 foot section) from you to send to the lab for strength testing.

Please store the gear away from sunlight for redeployment next year. Once we receive your logsheet and rope samples, you will be compensated for your participation in this project.

Please call me at 967-4555 with any questions or concerns. Thanks so much for your help with this project.

2007-2008 Logsheet Summary																
Lobsterma	Place	Zone	Rope	ID	Yrs Fi	# Hau	Depth	Bottom	Gear	Fouling	Chafing	Hangups	Noise	Kinking	Durability	Handling
John Droui	Cutler	A	07 braid	1	1	14	48	mud, grave	10 trawl	3	2	3	4	2	2	2
John Droui	Cutler	A	07 braid	1	2	40	48	mud, grave	10 trawl	5	1	3	3	1	1	1
Kristan Por	Cutler	A	07 braid	2	1	15	35	rocky ledge	4 trawl	3	2	3	3	3	2	1
Bill Look	Beals	A	07 braid	6	1	24	5 to 75	rocky	20 trawl	3	1.5	2	3	2	2	1
Robert You	Matinicus	C	07 braid	5	1	20	10 to 25	hard sharp	pairs	3	3	3	4	3	3	3
Robert You	Matinicus	C	07 braid	5	2	55	10 to 25	hard sharp	pairs	3	3	3	4	3	3	3
Tad Miller	Matinicus	C	07 braid	3	1	25	3 to 60	hard	pairs	3	2	2.5	4	2	2	1
Jim Dow	Bass Harb	B	07 braid	4	1	125	25 to 42	gravel	pairs	3	2	2	3	1	2	1
David Cous	So Thomas	D	TTLC	38	1	5	20	gravel	pairs							
Kristan Por	Cutler	A	TTLC	47	1	10	42 to 45	gravel	15 trawl							
Jim Dow	Bass Harb	B	TTLC	62												
Larry Knap	Boothbay	E	TTLC	69	1	136	35	mud and c	6 trawl							
John Droui	Cutler	A	TTLC	52	1	14	48	mud, grave	15 trawl							
Elliott Thor	Yarmouth	F	TTLC	UNH	1	3	12	gravel	5 trawl							
Tad Miller	Matinicus	C	TTLC	73	1	25	30 to 40	mud to har	pairs							
Pat White	York	G	06 braid	A	3	26	8 to 15	mud, grave	pairs	3	5	3	4	3	4	3
Elliott Thor	Yarmouth	F	08 weak	1	1	5	7	mud	triple	3	3	3	3	4	2	2
Elliott Thor	Yarmouth	F	06 BASO4		3	65	12 to 14	mud, grave	5 trawl	3	2.5	3	2	3	2.5	3
Pat White	York	G	06 BASO4		3	26	8 to 16	mud, grave	pairs	3.5	2	3	3	3	3	3
									Gear	Fouling	Chafing	Hangups	Noise	Kinking	Durability	Handling
									07 braid	3.25	2.0625	2.6875	3.5	2.125	2.125	1.625
									06 braid	3	5	3	4	3	4	3
									08 weak	3	3	3	3	4	2	2
									06 BASO	3.25	2.25	3	2.5	3	2.75	3

Time Tension Line Cutter (TTLC) Logsheet

Name: David Cousens

TTLC Serial #: ~~CFT 8~~ 38 **Date Logsheet Completed:** 12/14/07

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HOW WAS THE TTLC FISHED?

How was your gear rigged *(singles, triples, trawls/specify #)*? pairs

Length of vertical line *(in Fathom)*? 30

General Location/Area Fished: Penobscot Bay

Depth Range Fished *(in Fathom)*: 20

Typical Bottom Type Fished: gravel

avg % of time on bottom types: ledge, rocky, cobble, gravel, mud, sand, mixed (please define)

During Which Months was the TTLC Fished: Nov. + part of Dec.

Estimated Number of Times TTLC was Hauled: 5

HOW WAS THE TTLC RIGGED?

How far from the trap was the TTLC spliced in (*in Fathom* **)?** 3 fathom

Did you use a knot to warn you that it was coming? *(please describe)*

on the jump rope

Did you use a jump rope? How long was the jump rope *(in Fathom)*?

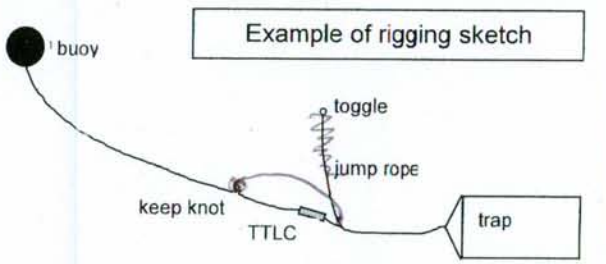
yes 2 fathom

Did you use a toggle or floatation on the jump rope? no

Did you tie jump rope off to a cleat or other device? *(please describe)*

no tied jump rope to vertical line with slack in it

Please sketch how your TTLC was rigged into your vertical line and describe how it was rigged



IS THE TTLC OPERATIONALLY FEASIBLE?

How much EXTRA time (on average) did it take you to haul your gear when you first rigged the TTLC? *(in minutes)* 30 seconds

How much EXTRA time (on average) did it take you to haul your gear once you figured out how to fish the TTLC? *(in minutes)* 30 seconds

How many hauls did it take you to get comfortable hauling the TTLC? 3

Did you ever observe a gap on the TTLC between the two plastic sections? *(specify how often and size of gap)* Small one every time 1/8"

Do you think you could successfully fish the TTLC on your gear? *(why or why not)* maybe, but probably to costly for pairs.

PLEASE FEEL FREE TO PROVIDE ADDITIONAL COMMENTS ON THE BACK

Time Tension Line Cutter (TTLC) Logsheet

Name: Kristan Porter

TTLC Serial #: 47 **Date Logsheet Completed:** 12-30-2007
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HOW WAS THE TTLC FISHED?

How was your gear rigged *(singles, triples, trawls/specify #)*? double ended 15 trap trawl

Length of vertical line *(in Fathom)*? 120 F

General Location/Area Fished: Gran Manan Channel

Depth Range Fished *(in Fathom)*: 42-45 F

Typical Bottom Type Fished: gravel, sand, mud
avg % of time on bottom types: ledge, rocky, cobble, gravel, mud, sand, mixed (please define)

During Which Months was the TTLC Fished: Oct - Nov 07

Estimated Number of Times TTLC was Hauled: 10 hauls

HOW WAS THE TTLC RIGGED?

How far from the trap was the TTLC spliced in *(in Fathom)*? 1 F

Did you use a knot to warn you that it was coming? *(please describe)*
changed color of rope

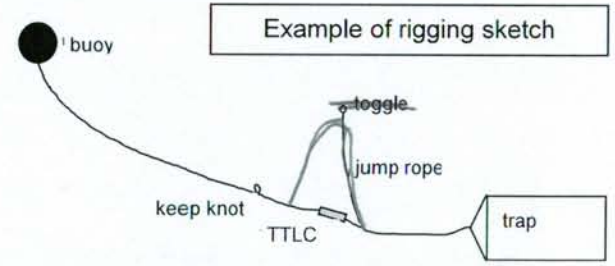
Did you use a jump rope? How long was the jump rope *(in Fathom)*?
yes ; 2 F

Did you use a toggle or floatation on the jump rope? NO

Did you tie jump rope off to a cleat or other device? *(please describe)*
tied onto davit

Please sketch how your TTLC was rigged into your vertical line and describe how it was rigged

as pictured;
but tied around it, so if it broke
would still have both ends



IS THE TTLC OPERATIONALLY FEASIBLE?

How much EXTRA time (on average) did it take you to haul your gear when you first rigged the TTLC? *(in minutes)* 1 minute

How much EXTRA time (on average) did it take you to haul your gear once you figured out how to fish the TTLC? *(in minutes)* none

How many hauls did it take you to get comfortable hauling the TTLC? never got comfortable

Did you ever observe a gap on the TTLC between the two plastic sections? *(specify how often and size of gap)* yes 1/2" (never closed)

Do you think you could successfully fish the TTLC on your gear? *(why or why not)* maybe w/ more development

PLEASE FEEL FREE TO PROVIDE ADDITIONAL COMMENTS ON THE BACK

setting back was an issue, with any tangles, would need more time & tension.

Gap in TTLC - never closed.

was still open @ 1/2" for months after hauled out of H_2O. Finally closed on its own after several months.

Time Tension Line Cutter (TTLC) Logsheet

Name: Jim Dow

TTLC Serial #: 62 **Date Logsheet Completed:** Dec 2008

Embossed on the side, may also be written in blaci

HOW WAS THE TTLC FISHED?

How was your gear rigged *(singles, triples, trawls/specify #)*? pairs

Length of vertical line *(in Fathom)*? _____

General Location/Area Fished: _____

Depth Range Fished *(in Fathom)*: _____

Typical Bottom Type Fished: _____

avg % of time on bottom types: ledge, rocky, cobble, gravel, mud, sand, mixed (please define)

During Which Months was the TTLC Fished: _____

Estimated Number of Times TTLC was Hauled: _____

HOW WAS THE TTLC RIGGED?

How far from the trap was the TTLC spliced in (*in Fathom***)?** _____

Did you use a knot to warn you that it was coming? *(please describe)*

_____

Did you use a jump rope? How long was the jump rope *(in Fathom)***?**

_____

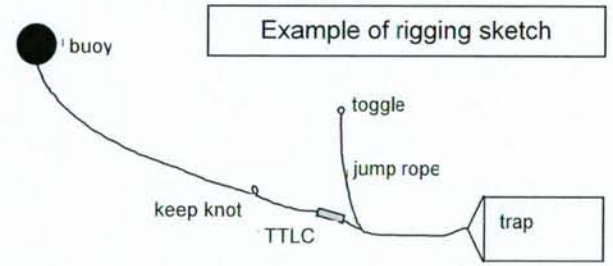
Did you use a toggle or floatation on the jump rope? _____

Did you tie jump rope off to a cleat or other device? *(please describe)*

_____

Please sketch how your TTLC was rigged into your vertical line and describe how it was rigged

Rigged TTLC but didn't trust it so never put it in the water.



IS THE TTLC OPERATIONALLY FEASIBLE?

How much EXTRA time (on average) did it take you to haul your gear when you first rigged the TTLC? *(in minutes)* _____

How much EXTRA time (on average) did it take you to haul your gear once you figured out how to fish the TTLC? *(in minutes)* _____

How many hauls did it take you to get comfortable hauling the TTLC? _____

Did you ever observe a gap on the TTLC between the two plastic sections? *(specify how often and size of gap)* _____

Do you think you could successfully fish the TTLC on your gear? *(why or why not)* _____

PLEASE FEEL FREE TO PROVIDE ADDITIONAL COMMENTS ON THE BACK

207-633-5339

Time Tension Line Cutter (TTLC) Logsheet

Rec'd 3/5/08 & 12/16/08

Name: LARRY KNAPP

TTLC Serial #: _____ **Date Logsheet Completed:** _____
Embossed on the side, may also be written in blaci

HOW WAS THE TTLC FISHED?

How was your gear rigged *(singles, triples, trawls/specify #)*? 6 trap tuns

Length of vertical line *(in Fathom)*? 37 fth

General Location/Area Fished: SE Dammariscove IS

Depth Range Fished *(in Fathom)*: 35 fth

Typical Bottom Type Fished: mud + cobble
avg % of time on bottom types: ledge, rocky, cobble, gravel, mud, sand, mixed (please define)

During Which Months was the TTLC Fished: Nov - July 08

Estimated Number of Times TTLC was Hauled: 111 + 25

HOW WAS THE TTLC RIGGED?

How far from the trap was the TTLC spliced in *(in Fathom)*? / /

Did you use a knot to warn you that it was coming? *(please describe)*
no

Did you use a jump rope? How long was the jump rope *(in Fathom)*?
yes 3 Fth

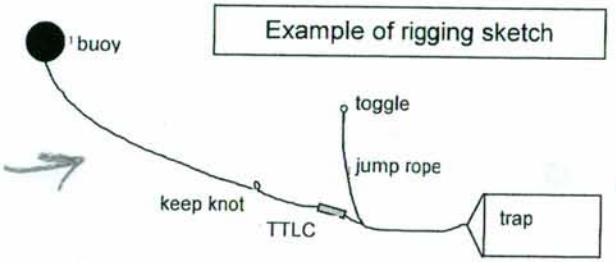
Did you use a toggle or floatation on the jump rope? no

Did you tie jump rope off to a cleat or other device? *(please describe)*
yes

Please sketch how your TTLC was rigged into your vertical line and describe how it was rigged

changing from one line to another, rope jumps out of hauler was awkward.

SAME as →



IS THE TTLC OPERATIONALLY FEASIBLE?

How much EXTRA time (on average) did it take you to haul your gear when you first rigged the TTLC? *(in minutes)* 1-2 min

How much EXTRA time (on average) did it take you to haul your gear once you figured out how to fish the TTLC? *(in minutes)* _____

How many hauls did it take you to get comfortable hauling the TTLC? not yet / never

Did you ever observe a gap on the TTLC between the two plastic sections? *(specify how often and size of gap)* no

Do you think you could successfully fish the TTLC on your gear? *(why or why not)* It would be an added mess in congested area →

PLEASE FEEL FREE TO PROVIDE ADDITIONAL COMMENTS ON THE BACK

Jumper line tough when gear tangled; tough to get into chute

would need to reconfigure

block & hauler

Rd Feb 5 '08

Time Tension Line Cutter (TTLC) Logsheet

Name: John Drouin

TTLC Serial #: 52 **Date Logsheet Completed:** Jan ~30, 08

Embossed on the side, may also be written in blaci

HOW WAS THE TTLC FISHED?

How was your gear rigged *(singles, triples, trawls/specify #)*? 15 trap trawl

Length of vertical line *(in Fathom)*? 120

General Location/Area Fished: 5 miles off cutler

Depth Range Fished *(in Fathom)*: 48

Typical Bottom Type Fished: rocky / gravel / mud mix

avg % of time on bottom types: ledge, rocky, cobble, gravel, mud, sand, mixed (please define)

During Which Months was the TTLC Fished: mid October - January

Estimated Number of Times TTLC was Hauled: 14

HOW WAS THE TTLC RIGGED?

How far from the trap was the TTLC spliced in (*in Fathom*)? 1

Did you use a knot to warn you that it was coming? *(please describe)*

tied in rope to cleat off

Did you use a jump rope? How long was the jump rope *(in Fathom)*?

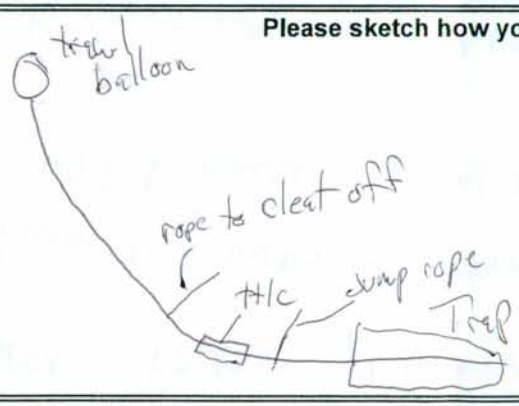
Yes, 1 1/2 fa.

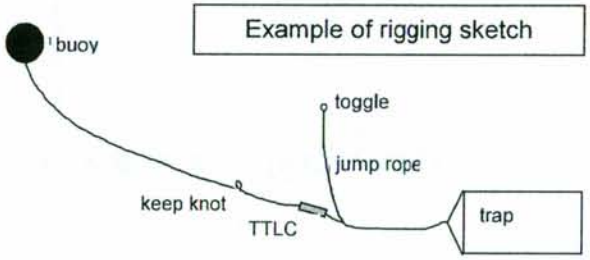
Did you use a toggle or floatation on the jump rope? No

Did you tie jump rope off to a cleat or other device? *(please describe)*

tied to cleat on davit

Please sketch how your TTLC was rigged into your vertical line and describe how it was rigged





IS THE TTLC OPERATIONALLY FEASIBLE?

How much EXTRA time (on average) did it take you to haul your gear when you first rigged the TTLC? *(in minutes)* less than 1 minute.

How much EXTRA time (on average) did it take you to haul your gear once you figured out how to fish the TTLC? *(in minutes)* No extra time

How many hauls did it take you to get comfortable hauling the TTLC? didn't get comfortable.

Did you ever observe a gap on the TTLC between the two plastic sections? *(specify how often and size of gap)* Once, about 1/4"

Do you think you could successfully fish the TTLC on your gear? *(why or why not)* No. It made setting back out the trawl difficult

PLEASE FEEL FREE TO PROVIDE ADDITIONAL COMMENTS ON THE BACK

over

not redeployed in 2008 due to safety concerns.

at times because the cutter would catch the groundline. We would have to hold on to the cutter or endline to avoid a fouled mess. If the trawl was fouled when it came up, the cutter was in the way in order to clear the tangle.

4/25/08 – Follow-up interview

Hauling was extremely cumbersome. it was easily tangled up & fouled up w/ other trawls nearby.

Biggest concern - redeploying back into the.
very dangerous bc they pick w/ a large danforth anchor

other major concern: due to gear density, device is easily tangled up in other areas & could easily part the line due to tension caused from tangle.

Time Tension Line Cutter (TTLC) Logsheet

Name: Elliott Thomas

TTLC Serial #: 10 thru UNH Sea Grant **Date Logsheet Completed:** Dec 2008

Embossed on the side, may also be written in blaci

HOW WAS THE TTLC FISHED?

How was your gear rigged *(singles, triples, trawls/specify #)*? 5 trap trawl

Length of vertical line *(in Fathom)*? 15 F

General Location/Area Fished: Cow Island Casco Bay

Depth Range Fished *(in Fathom)*: 12 F

Typical Bottom Type Fished: gravel

avg % of time on bottom types: ledge, rocky, cobble, gravel, mud, sand, mixed (please define)

During Which Months was the TTLC Fished: Sept 2008

Estimated Number of Times TTLC was Hauled: 3

HOW WAS THE TTLC RIGGED?

How far from the trap was the TTLC spliced in (*in Fathom***)?** 1 F

Did you use a knot to warn you that it was coming? *(please describe)*

NO

Did you use a jump rope? How long was the jump rope *(in Fathom)*?

yes; 2 F

Did you use a toggle or floatation on the jump rope? NO

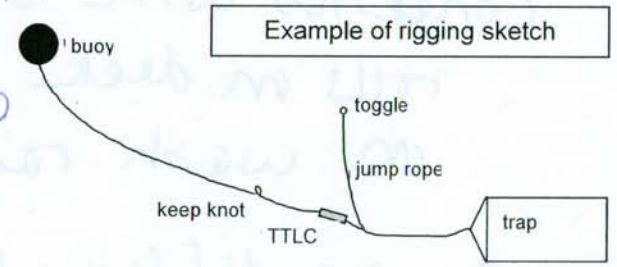
Did you tie jump rope off to a cleat or other device? *(please describe)*

no, switched ropes in block

Please sketch how your TTLC was rigged into your vertical line and describe how it was rigged

Rigged according to diagram, but no keep knot. only rigged one set of gear; hauled it 3x in same day but couldn't get used to it & had safety concerns so took it out.

(OVER FOR COMMENTS)



IS THE TTLC OPERATIONALLY FEASIBLE?

How much EXTRA time (on average) did it take you to haul your gear when you first rigged the TTLC? *(in minutes)* 1-2 minutes

How much EXTRA time (on average) did it take you to haul your gear once you figured out how to fish the TTLC? *(in minutes)* didn't get used to it

How many hauls did it take you to get comfortable hauling the TTLC? never used to it

Did you ever observe a gap on the TTLC between the two plastic sections? *(specify how often and size of gap)* NO

Do you think you could successfully fish the TTLC on your gear? *(why or why not)* no; safety concerns due to fishing alone

PLEASE FEEL FREE TO PROVIDE ADDITIONAL COMMENTS ON THE BACK

Elliott Thomas
TTLC pg 2

Comments

Fishes alone so had concerns with regard to safety of device.

Concerns with getting TTLC through hauler, very dangerous coming up & jumping block.

Concerns with setting gear back, TTLC is heavy & rolls on deck, could roll down boat & hang up on wash rail

It is difficult to manage everything & control these issues when you fish alone.

A smaller device would work better, this is most appropriate for long trawls be deal w/ less endlines over time. But a TTLC on both endlines would be very challenging when setting gear back. Would be a real mess in high density gear areas.

Can make it work; but not operationally feasible c full scale fishi

Time Tension Line Cutter (TTLC) Logsheet

Name: Tad Miller

TTLC Serial #: 73 **Date Logsheet Completed:** Dec 2008

Embossed on the side, may also be written in blaci

HOW WAS THE TTLC FISHED?

How was your gear rigged *(singles, triples, trawls/specify #)*? pairs

Length of vertical line *(in Fathom)*? 45 F

General Location/Area Fished: around Matinicus Island

Depth Range Fished *(in Fathom)*: 30 - 40 F

Typical Bottom Type Fished: mud to hard bottom

avg % of time on bottom types: ledge, rocky, cobble, gravel, mud, sand, mixed (please define)

During Which Months was the TTLC Fished: Oct - Dec 07

Estimated Number of Times TTLC was Hauled: ~25 (2x lwk)

HOW WAS THE TTLC RIGGED?

How far from the trap was the TTLC spliced in (*in Fathom***)?** 1 F

Did you use a knot to warn you that it was coming? *(please describe)*

keep knot & marked the buoy

Did you use a jump rope? How long was the jump rope *(in Fathom)*?

yes 1.5-2 F

Did you use a toggle or floatation on the jump rope? yes - dble toggle

Did you tie jump rope off to a cleat or other device? *(please describe)*

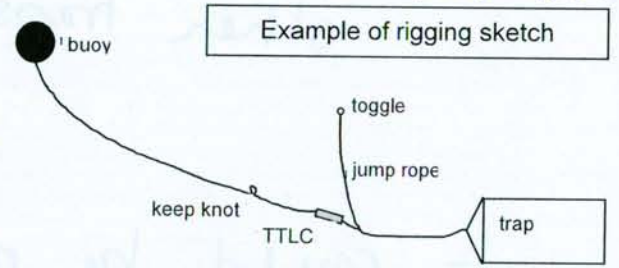
NO; held jumper over top of hauler & pulled out

Please sketch how your TTLC was rigged into your vertical line and describe how it was rigged

line & snapped jump rope in.

Rigged as shown here →

Example of rigging sketch



IS THE TTLC OPERATIONALLY FEASIBLE?

How much EXTRA time (on average) did it take you to haul your gear when you first rigged the TTLC? *(in minutes)* 1-2 minutes

How much EXTRA time (on average) did it take you to haul your gear once you figured out how to fish the TTLC? *(in minutes)* 1-2 minut

How many hauls did it take you to get comfortable hauling the TTLC? never got used to it

Did you ever observe a gap on the TTLC between the two plastic sections? *(specify how often and size of gap)* NO

Do you think you could successfully fish the TTLC on your gear? *(why or why not)* NO (over) →

PLEASE FEEL FREE TO PROVIDE ADDITIONAL COMMENTS ON THE BACK

Tad Miller TTLC
pg 2

Issues

- Really slowed down fishing

- Setting back is dangerous.
Fish 10 pairs on 10 pairs off; had to make sure TTLC trap come on board last so could go over last. Put TTLC on top of trap so it didn't bounce around boat, but Jump rope & toggle caught other gear & was very dangerous for Sternman. Jump rope could cause other traps to fall & take sternman overboard.

- could be more viable on a 10-20 trap trawl, but would be difficult to work with so much tension on line

- Not feasible to fish on every pair, would be too dangerous on deck setting gear back.

Rec'd Feb 5 '06

Experimental Rope Gear Handling Assessment

If you fished more than one type of experimental rope, please fill out a separate sheet for each rope type

How was the rope fished?

Name: John Drouin

Experimental Rope Type: 3/8 Metallocene Braided Sinking Groundline
NEAq sink (light grey), Hyliner lopro (silver/grey with red tracer), Other (please name

How was gear fished? (pairs, triples, trawls, etc): trawls

How many sets of gear was the rope fished on? 1 trawl - 10 traps

Amount of rope fished *(total length for all sets in Fathoms)*? 200 (20 fbe)

General Location/Area Fished: 5 miles off Cutler

Depth Range Fished *(in Fathom)*: 48

Typical Bottom Type Fished: gravel / mud / rocky
average % of time on bottom types: ledge, rocky, cobble, gravel, mud, sand, mixed (please defin

During Which Months was the Rope Fished: Mid October - January

Estimated Number of Times Rope was Hauled: 14

Number of Hauls

Place a tick mark each time the rope is hauled.
If you have rope deployed on multiple sets of gear, place a tick mark each time you haul through the gear.

~~||||~~
~~||||~~
||||

How did you like the rope?

Please rate the rope on the following characteristics on a scale of 1 to 5 by circling the number that best describes the performance of the rope.

1 (terrible) = hard to imagine a worse rope; **2 (poor)** = worse than most ropes I have used in the past; **3 (average)** = as good as most ropes I have used in the past; **4 (good)** = fishes better than most ropes I have used in the past; **5 (excellent)** = hard to imagine a better rope for what I used it for.

Scale: 1 = terrible 2 = poor 3 = average 4 = good 5 = excellent						Comments
Fouling	1	2	(3)	4	5	rope would foul on board boat. Wouldn't coil coming off hauler
Chafing	1	(2)	3	4	5	
Hangups	1	2	(3)	4	5	
Noise	1	2	3	(4) +	5	
Kinking	1	(2) -	3	4	5	rope would straighter out when setting trawl, if it wasn't knotted up
General Durability	1	(2) -	3	4	5	
General Handling	1	(2) -	3	4	5	

Any Other Comments *(please note anything significant while rope was being fished)*: Seemed that once the outer shield chafed through, the rope wouldn't last much after that

12/10/08

Experimental Rope Gear Handling Assessment

If you fished more than one type of experimental rope, please fill out a separate sheet for each rope type

How was the rope fished?

Name: John Drouin

Experimental Rope Type: 3/8 metallocene braided sink (cuan)
NEAq sink (light grey), Hyliner lopro (silver/grey with red tracer), Other (please name

How was gear fished? (pairs, triples, trawls, etc): trawls

How many sets of gear was the rope fished on? 1 trawl of 10 traps

Amount of rope fished *(total length for all sets in Fathoms)*? 200 (20 F between)

General Location/Area Fished: 5 miles off Cutler

Depth Range Fished *(in Fathom)*: 48 F

Typical Bottom Type Fished: gravel / mud / rocky
average % of time on bottom types: ledge, rocky, cobble, gravel, mud, sand, mixed (please defin

During Which Months was the Rope Fished: May - Dec 08

Estimated Number of Times Rope was Hauled: 40

Number of Hauls

Place a tick mark each time the rope is hauled.
If you have rope deployed on multiple sets of gear, place a tick mark each time you haul through the gear.

hauled 1/wk thruout
hauled 1/5d Oct-Dec

~ 40 hauls

How did you like the rope?

Please rate the rope on the following characteristics on a scale of 1 to 5 by circling the number that best describes the performance of the rope.

1 (terrible) = hard to imagine a worse rope; **2 (poor)** = worse than most ropes I have used in the past; **3 (average)** = as good as most ropes I have used in the past; **4 (good)** = fishes better than most ropes I have used in the past; **5 (excellent)** = hard to imagine a better rope for what I used it for.

Scale: 1 = terrible 2 = poor 3 = average 4 = good 5 = excellent						Comments
Fouling	1	2	3	4	(5)	no growth on rope; typical c this depth
Chafing	(1)	2	3	4	5	outer coating wore off; inner rope split w/in 2 hauls → over
Hangups	1	2	(3)	4	5	did not hang down
Noise	1	2	(3)	4	5	avg.
Kinking	(1)	2	3	4	5	probably ok for pairs / triples, but too much line →
General Durability	(1)	2	3	4	5	chafed throughout for 2 hauls
General Handling	(1)	2	3	4	5	too stiff

Any Other Comments *(please note anything signficant while rope was being fished)*:

Chafing - where rope parted, tied to 2 ends together & continued to fish.

Kinking - on deck w/ trawls. Rope would bowtie / Figure 8 loops on deck; did not coil off the hauler. Had to haul slowly & kick rope down to keep it on deck.

12/10/08

Experimental Rope Gear Handling Assessment

If you fished more than one type of experimental rope, please fill out a separate sheet for each rope type

How was the rope fished?

Name: Kristan Porter

Experimental Rope Type: braided metallocene sink (cream)
NEAq sink (light grey), Hyliner lopro (silver/grey with red tracer), Other (please name

How was gear fished? (pairs, triples, trawls, etc): 4 trap trawl

How many sets of gear was the rope fished on? 2 sets of gear

Amount of rope fished *(total length for all sets in Fathoms)*? 160 F

General Location/Area Fished: Machias Seal Isl

Depth Range Fished *(in Fathom)*: 35 F

Typical Bottom Type Fished: rocky bottom w/ ledge
average % of time on bottom types: ledge, rocky, cobble, gravel, mud, sand, mixed (please defin

During Which Months was the Rope Fished: Oct - Dec 2007

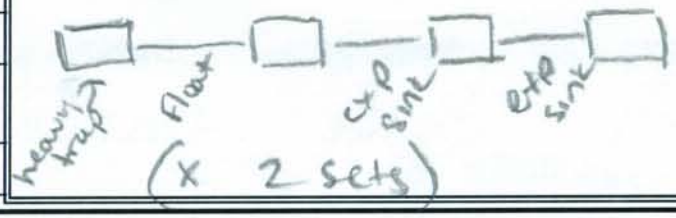
Estimated Number of Times Rope was Hauled: 15

Number of Hauls

Place a tick mark each time the rope is hauled.
If you have rope deployed on multiple sets of gear, place a tick mark each time you haul through the gear.

hauled 15x

Fished the heavy trap w/ Float rope, then sink



How did you like the rope?

Please rate the rope on the following characteristics on a scale of 1 to 5 by circling the number that best describes the performance of the rope.

1 (terrible) = hard to imagine a worse rope; **2 (poor)** = worse than most ropes I have used in the past; **3 (average)** = as good as most ropes I have used in the past; **4 (good)** = fishes better than most ropes I have used in the past; **5 (excellent)** = hard to imagine a better rope for what I used it for.

Scale: 1 = terrible 2 = poor 3 = average 4 = good 5 = excellent						Comments
Fouling	1	2	(3)	4	5	not an issue @ this depth
Chafing	1	(2)	3	4	5	outer coating wore off, chafed thru to core →
Hangups	1	2	(3)	4	5	no hangups
Noise	1	2	(3)	4	5	Quiet
Kinking	1	2	(3)	4	5	average
General Durability	1	(2)	3	4	5	rope chafed to core
General Handling	(1)	2	3	4	5	terrible; wouldn't coil on deck & shot down the wash board. Had to haul slow & kick the rope down. Safety hazard.

Any Other Comments *(please note anything signficant while rope was being fished)*:

Other: rope would slip in the hauler under strain, didn't tie very well. Didn't like the rope, esp handling on deck was dangerous so didn't redeploy in zone

Chafing - I cut the rope & tied together
B4 it parted to prevent loss
of gear.

Jan 2009

Experimental Rope Gear Handling Assessment

If you fished more than one type of experimental rope, please fill out a separate sheet for each rope type

How was the rope fished?

Name: Bill Look

Experimental Rope Type: cream braided sink rope
NEAq sink (light grey), Hyliner lopro (silver/grey with red tracer), Other (please name

How was gear fished? (pairs, triples, trawls, etc): 20 trap trawls

How many sets of gear was the rope fished on? 2

Amount of rope fished *(total length for all sets in Fathoms)*? 760 F (20 F tailors)

General Location/Area Fished: off Beals Island ME

Depth Range Fished *(in Fathom)*: 5F to 75 F

Typical Bottom Type Fished: rocky
average % of time on bottom types: ledge, rocky, cobble, gravel, mud, sand, mixed (please defin

During Which Months was the Rope Fished: Nov 07 - Feb 08

Estimated Number of Times Rope was Hauled: 24

Number of Hauls

Place a tick mark each time the rope is hauled.
If you have rope deployed on multiple sets of gear, place a tick mark each time you haul through the gear.

hauled approx
2 x 1wk
Nov & Dec
1 x 1wk
Jan & Feb

How did you like the rope?

Please rate the rope on the following characteristics on a scale of 1 to 5 by circling the number that best describes the performance of the rope.

1 (terrible) = hard to imagine a worse rope; **2 (poor)** = worse than most ropes I have used in the past; **3 (average)** = as good as most ropes I have used in the past; **4 (good)** = fishes better than most ropes I have used in the past; **5 (excellent)** = hard to imagine a better rope for what I used it for.

Scale: 1 = terrible 2 = poor 3 = average 4 = good 5 = excellent						Comments
Fouling	1	2	(3)	4	5	too deep to foul - not an issue
Chafing	(1	2)	3	4	5	rope chafed quickly
Hangups	1	(2)	3	4	5	experienced some hangups
Noise	1	2	(3)	4	5	
Kinking	1	(2)	3	4	5	tangled & kinked on deck
General Durability	1	(2)	3	4	5	Chafed quickly; took it off bc afraid it would part
General Handling	(1)	2	3	4	5	didn't coil, tangled easily on deck, couldn't splice & was difficult to knot. Some slippage in hauler sleeves.

Any Other Comments *(please note anything signficant while rope was being fished)*:

Experimental Rope Gear Handling Assessment

If you fished more than one type of experimental rope, please fill out a separate sheet for each rope type Dec 2008

How was the rope fished?

Name: Robert Young

Experimental Rope Type: cream braided sinking rope
NEAq sink (light grey), Hyliner lopro (silver/grey with red tracer), Other (please name

How was gear fished? (pairs, triples, trawls, etc): pairs

How many sets of gear was the rope fished on? 17

Amount of rope fished *(total length for all sets in Fathoms)*? 150 F (9 F tailors)

General Location/Area Fished: around Matinicus

Depth Range Fished *(in Fathom)*: 10 to 25 F

Typical Bottom Type Fished: hard sharp bottom
average % of time on bottom types: ledge, rocky, cobble, gravel, mud, sand, mixed (please defin

During Which Months was the Rope Fished: Oct - Dec 2007 (~20 times hauled)

Estimated Number of Times Rope was Hauled: April to Dec 2008 (~55 times hauled)

Number of Hauls

Place a tick mark each time the rope is hauled.
If you have rope deployed on multiple sets of gear, place a tick mark each time you haul through the gear.

How did you like the rope?

Please rate the rope on the following characteristics on a scale of 1 to 5 by circling the number that best describes the performance of the rope.

1 (terrible) = hard to imagine a worse rope; **2 (poor)** = worse than most ropes I have used in the past; **3 (average)** = as good as most ropes I have used in the past; **4 (good)** = fishes better than most ropes I have used in the past; **5 (excellent)** = hard to imagine a better rope for what I used it for.

Scale: 1 = terrible 2 = poor 3 = average 4 = good 5 = excellent						Comments
Fouling	1	2	(3)	4	5	not an issue for groundline
Chafing	1	2	(3)	4	5	outer coating chafed off; inside line intact
Hangups	1	2	(3)	4	5	no more than expected
Noise	1	2	3	(4)	5	very quiet
Kinking	1	2	(3)	4	5	
General Durability	1	2	(3)	4	5	
General Handling	1	2	(3)	4	5	rope stiff at first, but softened up; reverse

Any Other Comments *(please note anything signficant while rope was being fished)*: coil every so often to keep it on deck. Rope slipped when liners started wearing out.

comments →

Robt Young
pg 2

Handling:

rope was difficult to knot, so it took a big knot which would get spit out of hauler

Rope couldn't be spliced.

Rope was stiff like cable to start but it softened up. Didn't coil like normal rope, but was able to do a reverse loop when coiling every so often & able to keep it in the pile that way.

Uses dogbone plastic spinner with a ~~sac~~ sacrificial strap to tie warps in

liked this rope better than 1/2" CN sink rope he tested.

Experimental Rope Gear Handling Assessment Dec 2008

If you fished more than one type of experimental rope, please fill out a separate sheet for each rope type

How was the rope fished?

Name: Tad Miller

Experimental Rope Type: cream braided sink rope
NEAq sink (light grey), Hyliner lopro (silver/grey with red tracer), Other (please name

How was gear fished? (pairs, triples, trawls, etc): pairs

How many sets of gear was the rope fished on? 20

Amount of rope fished *(total length for all sets in Fathoms)*? 200F (10F between)

General Location/Area Fished: around Matinicus Island

Depth Range Fished *(in Fathom)*: 3 - 60 F

Typical Bottom Type Fished: mostly hard bottom
average % of time on bottom types: ledge, rocky, cobble, gravel, mud, sand, mixed (please defin

During Which Months was the Rope Fished: Oct - Dec 2007

Estimated Number of Times Rope was Hauled: 25

Number of Hauls

Place a tick mark each time the rope is hauled.
If you have rope deployed on multiple sets of gear, place a tick mark each time you haul through the gear.

How did you like the rope?

Please rate the rope on the following characteristics on a scale of 1 to 5 by circling the number that best describes the performance of the rope.

1 (terrible) = hard to imagine a worse rope; **2 (poor)** = worse than most ropes I have used in the past; **3 (average)** = as good as most ropes I have used in the past; **4 (good)** = fishes better than most ropes I have used in the past; **5 (excellent)** = hard to imagine a better rope for what I used it for.

Scale: 1 = terrible 2 = poor 3 = average 4 = good 5 = excellent						Comments
Fouling	1	2	(3)	4	5	not an issue
Chafing	1	(2)	3	4	5	chafed on itself (over)
Hangups	1	(2)	3	4	5	got hung up a bit
Noise	1	2	3	(4)	5	very quiet
Kinking	1	(2)	3	4	5	general handling & kinking on deck was a problem
General Durability	1	(2)	3	4	5	didnt trust rope due to abrasions & chafing
General Handling	(1)	2	3	4	5	over -

Any Other Comments *(please note anything signficant while rope was being fished)*:

→D

Tad Miller
P92

Handling:

Rope was very stiff to handle, & was like fighting a cobra to get it coiled.

It was laid so tight that it made big loops & went off deck. Each loop would stand up & pull the other rope with it. It made puckers & hauled out the other rope. This caused it to abrade where the rope was pulling on itself, also caused some kinking.

Couldn't be spliced & was difficult to knot bc it was so stiff.

The waxy coating slipped in the hauler, but not an extreme problem.

Experimental Rope Gear Handling Assessment

If you fished more than one type of experimental rope, please fill out a separate sheet for each rope type

How was the rope fished?

Name: Jim Dow

Experimental Rope Type: Cream braided sink rope
NEAq sink (light grey), Hyliner lopro (silver/grey with red tracer), Other (please name

How was gear fished? (pairs, triples, trawls, etc): Pairs

How many sets of gear was the rope fished on? 12

Amount of rope fished *(total length for all sets in Fathoms)*? 180 F (15 F between)

General Location/Area Fished: Long Island Channel

Depth Range Fished *(in Fathom)*: 25 - 42 F

Typical Bottom Type Fished: gravel
average % of time on bottom types: ledge, rocky, cobble, gravel, mud, sand, mixed (please defin

During Which Months was the Rope Fished: Jan 2008 - Jan 2009

Estimated Number of Times Rope was Hauled: 125

Number of Hauls

Place a tick mark each time the rope is hauled.
If you have rope deployed on multiple sets of gear, place a tick mark each time you haul through the gear.

Hauls approx 10 x / month

How did you like the rope?

Please rate the rope on the following characteristics on a scale of 1 to 5 by circling the number that best describes the performance of the rope.

1 (terrible) = hard to imagine a worse rope; **2 (poor)** = worse than most ropes I have used in the past; **3 (average)** = as good as most ropes I have used in the past; **4 (good)** = fishes better than most ropes I have used in the past; **5 (excellent)** = hard to imagine a better rope for what I used it for.

Scale: 1 = terrible 2 = poor 3 = average 4 = good 5 = excellent						Comments
Fouling	1	2	(3)	4	5	not an issue
Chafing	1	(2)	3	4	5	outer coating chafed off.
Hangups	1	(2)	3	4	5	hung down & parted off
Noise	1	2	(3)	4	5	Quiet in hauler
Kinking	(1)	2	3	4	5	kinked on deck due to handling issues
General Durability	1	(2)	3	4	5	wearing out faster than usual rope
General Handling	(1)	2	3	4	5	horrible (see back)

Any Other Comments *(please note anything signficant while rope was being fished)*:

Jim Dow - pg 2

Handling Comments

Rope doesn't ~~co~~ coil on deck, it is all over the boat & very difficult to set back out.

The braided outer casing is on top of a twisted inner rope. The outer chafed off & then the braided rope is not attached to inner twisted rope so the rope would slide & bunale up.

Braided Green

Experimental Rope Gear Handling Assessment

If you fished more than one type of experimental rope, please fill out a separate sheet for each rope type

How was the rope fished?

Name: Pat White

Experimental Rope Type: green braided (2006 rope)
NEAq sink (light grey), Hyliner lopro (silver/grey with red tracer), Other (please name

How was gear fished? (pairs, triples, trawls, etc): Pairs

How many sets of gear was the rope fished on? 12

Amount of rope fished *(total length for all sets in Fathoms)*? 120 F (10 F between)

General Location/Area Fished: off York ME

Depth Range Fished *(in Fathom)*: 8 - 17 F

Typical Bottom Type Fished: rock mud & gravel
average % of time on bottom types: ledge, rocky, cobble, gravel, mud, sand, mixed (please defin

During Which Months was the Rope Fished: June - Nov 08

Estimated Number of Times Rope was Hauled: 26

Number of Hauls
Place a tick mark each time the rope is hauled.
If you have rope deployed on multiple sets of gear, place a tick mark each time you haul through the gear.

How did you like the rope?

Please rate the rope on the following characteristics on a scale of 1 to 5 by circling the number that best describes the performance of the rope.

1 (terrible) = hard to imagine a worse rope; **2 (poor)** = worse than most ropes I have used in the past; **3 (average)** = as good as most ropes I have used in the past; **4 (good)** = fishes better than most ropes I have used in the past; **5 (excellent)** = hard to imagine a better rope for what I used it for.

Scale: 1 = terrible 2 = poor 3 = average 4 = good 5 = excellent						Comments
Fouling	1	2	(3)	4	5	
Chafing	1	2	3	4	(5)	extremely durable, no signs of wear
Hangups	1	2	(3)	4	5	
Noise	1	2	3	(4)	5	silent
Kinking	1	2	(3)	4	5	a little kinki
General Durability	1	2	3	(4)	5	very good
General Handling	1	2	(3)	4	5	under tension gets jammed in hauler due to small diameter

Any Other Comments *(please note anything signficant while rope was being fished)*:

Endeno

Experimental Rope Gear Handling Assessment

If you fished more than one type of experimental rope, please fill out a separate sheet for each rope type

How was the rope fished?

Name: Elliott Thomas

Experimental Rope Type: 2008 weak rope
NEAq sink (light grey), Hyliner lopro (silver/grey with red tracer), Other (please name

How was gear fished? (pairs, triples, trawls, etc): triple

How many sets of gear was the rope fished on? one

Amount of rope fished *(total length for all sets in Fathoms)*? 9F

General Location/Area Fished: off Cousins Island Yarmouth ME

Depth Range Fished *(in Fathom)*: 7 F

Typical Bottom Type Fished: mud
average % of time on bottom types: ledge, rocky, cobble, gravel, mud, sand, mixed (please defin

During Which Months was the Rope Fished: Sept - Nov 2008

Estimated Number of Times Rope was Hauled: 5

Number of Hauls

Place a tick mark each time the rope is hauled.
If you have rope deployed on multiple sets of gear, place a tick mark each time you haul through the gear.

How did you like the rope?

Please rate the rope on the following characteristics on a scale of 1 to 5 by circling the number that best describes the performance of the rope.

1 (terrible) = hard to imagine a worse rope; **2 (poor)** = worse than most ropes I have used in the past; **3 (average)** = as good as most ropes I have used in the past; **4 (good)** = fishes better than most ropes I have used in the past; **5 (excellent)** = hard to imagine a better rope for what I used it for.

Scale: 1 = terrible 2 = poor 3 = average 4 = good 5 = excellent						Comments
Fouling	1	2	(3)	4	5	
Chafing	1	2	(3)	4	5	
Hangups	1	2	(3)	4	5	put it on mud bottom to avoid hang downs
Noise	1	2	(3)	4	5	
Kinking	1	2	3	(4)	5	
General Durability	1	(2)	3	4	5	Afraid to haul rope under any strain
General Handling	1	(2)	3	4	5	diameter of rope was too small, slid too

Any Other Comments *(please note anything signficant while rope was being fished)*: deep into hauler & Jammed hauler.

Comments →

Elliott Thomas
08 weak rope
pg 2

Diameter of this rope was a real problem from an operational standpoint on the boat bc it jammed in the hauler. But, the rope could work @ a proper diameter of 3/8" or 7/16". This rope was close to ~~5/16~~ 5/16".

Would like to see certified break strength results distributed with the rope to give greater confidence in what exactly is being fished. Need to know when it will break to fish on harder bottom & fish if it gets hung down.

Fished it conservatively on mud bottom & never hauled the ~~one~~ strong enough. But, in Casco Bay trawl needs to be able to be hauled from either end, depending upon tides, current & weather, & hauled with line under tension.

BaSO4 sink - YR3

Experimental Rope Gear Handling Assessment

If you fished more than one type of experimental rope, please fill out a separate sheet for each rope type

How was the rope fished?

Name: Elliott Thomas

Experimental Rope Type: BaSO4 sink (05 & 06)
NEAq sink (light grey), Hyliner lopro (silver/grey with red tracer), Other (please name

How was gear fished? (pairs, triples, trawls, etc): 5 trap trawls

How many sets of gear was the rope fished on? 4

Amount of rope fished *(total length for all sets in Fathoms)*? 300 F (15 F between)

General Location/Area Fished: off Long Island, Casco Bay

Depth Range Fished *(in Fathom)*: 12-14 F

Typical Bottom Type Fished: Mix mud, gravel & hard
average % of time on bottom types: ledge, rocky, cobble, gravel, mud, sand, mixed (please defin

During Which Months was the Rope Fished: April to Nov 2008

Estimated Number of Times Rope was Hauled: 65

Number of Hauls

Place a tick mark each time the rope is hauled.
If you have rope deployed on multiple sets of gear, place a tick mark each time you haul through the gear.

How did you like the rope?

Please rate the rope on the following characteristics on a scale of 1 to 5 by circling the number that best describes the performance of the rope.

1 (terrible) = hard to imagine a worse rope; **2 (poor)** = worse than most ropes I have used in the past; **3 (average)** = as good as most ropes I have used in the past; **4 (good)** = fishes better than most ropes I have used in the past; **5 (excellent)** = hard to imagine a better rope for what I used it for.

Scale: 1 = terrible 2 = poor 3 = average 4 = good 5 = excellent						Comments
Fouling	1	2	(3)	4	5	
Chafing	1	(2)	3	4	5	starting to show wear beyond what is normal for age of rope
Hangups	1	2	(3)	4	5	
Noise	1	(2)	3	4	5	noisy under strain
Kinking	1	2	(3)	4	5	
General Durability	1	(2)	3	4	5	starting to wear
General Handling	1	2	(3)	4	5	handles well.

Any Other Comments *(please note anything signficant while rope was being fished)*:

Ba S04 - yr 3

Experimental Rope Gear Handling Assessment

If you fished more than one type of experimental rope, please fill out a separate sheet for each rope type

How was the rope fished?

Name: Pat White

Experimental Rope Type: Ba S04 (05 & 06 batches)
NEAq sink (light grey), Hyliner lopro (silver/grey with red tracer), Other (please name

How was gear fished? (pairs, triples, trawls, etc): pairs

How many sets of gear was the rope fished on? 20

Amount of rope fished *(total length for all sets in Fathoms)*? 200 F (10 F between)

General Location/Area Fished: off York ME outside 9 or 10 F

Depth Range Fished *(in Fathom)*: 8-16 F

Typical Bottom Type Fished: rock, mud & gravel
average % of time on bottom types: ledge, rocky, cobble, gravel, mud, sand, mixed (please defin

During Which Months was the Rope Fished: June - Nov 08

Estimated Number of Times Rope was Hauled: 26 (once/wk)

Number of Hauls

Place a tick mark each time the rope is hauled.
If you have rope deployed on multiple sets of gear, place a tick mark each time you haul through the gear.

How did you like the rope?

Please rate the rope on the following characteristics on a scale of 1 to 5 by circling the number that best describes the performance of the rope.

1 (terrible) = hard to imagine a worse rope; **2 (poor)** = worse than most ropes I have used in the past; **3 (average)** = as good as most ropes I have used in the past; **4 (good)** = fishes better than most ropes I have used in the past; **5 (excellent)** = hard to imagine a better rope for what I used it for.

Scale: 1 = terrible 2 = poor 3 = average 4 = good 5 = excellent						Comments
Fouling	1	2	3	4	5	not an issue w/ groundline
Chafing	1	2	3	4	5	Fuzzed up on gravel bottom
Hangups	1	2	3	4	5	not an issue w/ short 10 F tailers
Noise	1	2	3	4	5	
Kinking	1	2	3	4	5	
General Durability	1	2	3	4	5	
General Handling	1	2	3	4	5	

Any Other Comments *(please note anything signficant while rope was being fished)*:

Appendix B

How to Rig a Time Tension Line Cutter
and
TTLC Logsheet

How to Rig a Time Tension Line Cutter (TTLC)

<u>To Tie the TTLC into your Buoy Line</u>: You will be cutting your buoy line and threading one end into the TTLC from the top, and the other from the bottom. The gray end of the TTLC, which has the big hole on top (Figures 1 and 2), should face up towards the buoy. From the top, thread the rope through the large hole and out the side (Figure 3). Then threat the rope through the side hole (just below where the rope comes out) through the device to the other side (Figure 4). Then wrap the rope around the device, tuck under loop (Figure 5) and pull tight (Figure 6). You can fish the TTLC with this rigging. If you are not comfortable with this rigging, you can just add a knot (Figure 7), or you can double wrap it (Figure 8) or double wrap it with a knot (Figure 9). Repeat the same with your vertical line from the bottom of the TTLC.

Figure 1

Figure 2

Figure 3

Figure 4

Figure 5

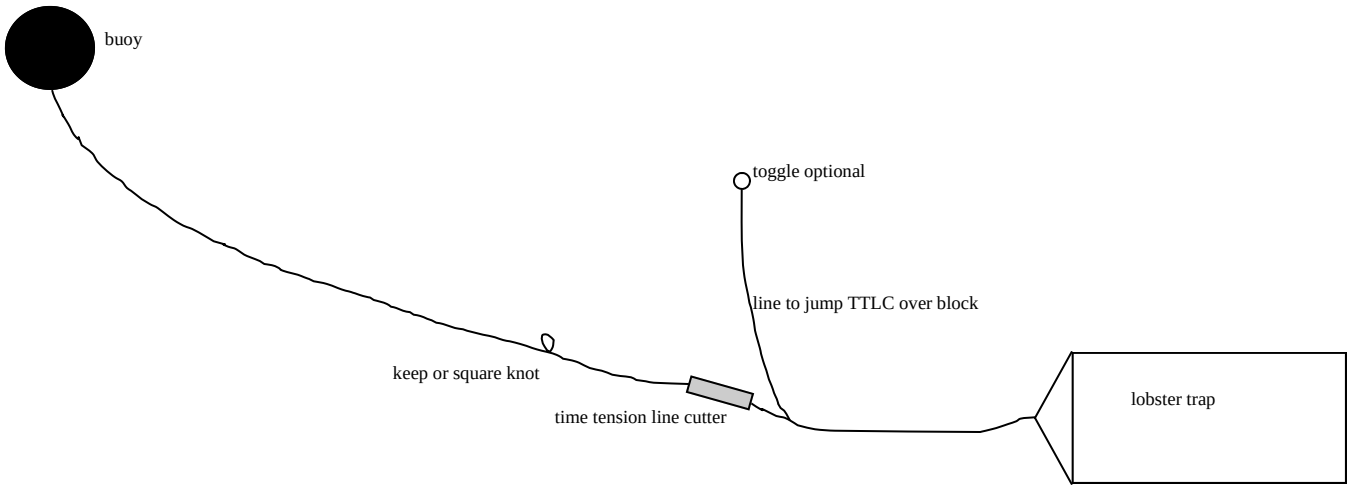
Figure 6

Figure 7

Figure 8

Figure 9

<u>How to Fish the TTLC:</u> When placing the TTLC on your buoy line, it should be placed about 1 to 1.5 Fathom from the trap to allow you to rig it to "jump the block". The following is a suggested rigging setup, but you can rig it in whatever way safely works for you:



The square knot or keep know will warn you that the TTLC is headed for the block. It is recommended that you either cleat off the keep knot, use a cam cleat or rig a self clearing cleat that works for your boat. The person who designed the TTLC says it should only add 20 seconds to your hauling to get the TTLC over the block and the trap on board.

Prepared by the Maine Lobstermen's Association (October 2007)

Information on Pressure and Time Settings for Time Tension Line Cutter (TTLC)

The researcher/TTLC inventor can not locate the data sheet with the records of the exact times for which these TTLC's are rigged. These devices are set to cut at between 5 to 9 minutes when tested at 70 degrees F. If they are used in water temperatures of 50 degrees F or less, you can typically add 5 minutes to each cut time. Therefore, all of these units should have a time range of at least 7 to 10 minutes with full line tension capability.

Given that we do not know the exact setting for cut time, be sure to check the "gap" that begins to form when the line is under tension (between the gray and white section of the device). If the gap gets to be more than 3/8", let off on the strain of the rope as it is getting close to cutting the rope which occurs when a 1/2" gap is reached.

Remember, the timer for these devices begins when the minimum line tension is reached. The minimum line load in order to achieve a cut is as follows, according to serial number of TTLC:

TTLC Settings			
TTLC serial #	Tension in lbs/minute	Time 70 F In minutes	Time 50 F In minutes
38	300	5 to 9	7 to 10
47	200	5 to 9	7 to 10
52	300	5 to 9	7 to 10
61	300	5 to 9	7 to 10
62	300	5 to 9	7 to 10
69	200	5 to 9	7 to 10
73	300	5 to 9	7 to 10
76	300	5 to 9	7 to 10

If you would like more information on how these devices work, how to rig them or anything else, you can contact Ben Brickett, who invented the TTLC.

Ben Brickett
BBrick1997@aol.com
207-332-0191

Time Tension Line Cutter (TTLC) Logsheet

Name: _____

TTLC Serial #: _____ **Date Logsheet Completed:** _____

Embossed on the side, may also be written in blac

HOW WAS THE TTLC FISHED?

How was your gear rigged *(singles, triples, trawls/specify #)***?** _____

Length of vertical line *(in Fathom)***?**_____

General Location/Area Fished: _____

Depth Range Fished *(in Fathom)***:**_____

Typical Bottom Type Fished: _____

avg % of time on bottom types: ledge, rocky, cobble, gravel, mud, sand, mixed (please define)

During Which Months was the TTLC Fished: _____

Estimated Number of Times TTLC was Hauled: _____

HOW WAS THE TTLC RIGGED?

How far from the trap was the TTLC spliced in (*in Fathom***)?** _____

Did you use a knot to warn you that it was coming? *(please describe)*

_____

Did you use a jump rope? How long was the jump rope *(in Fathom)***?**

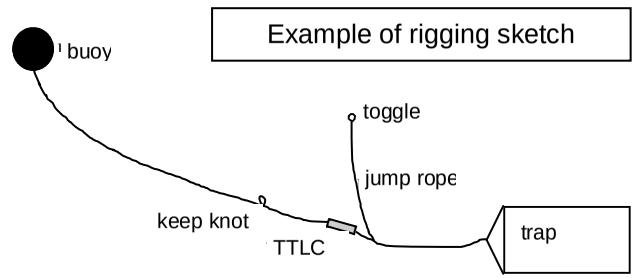
_____

Did you use a toggle or floatation on the jump rope? _____

Did you tie jump rope off to a cleat or other device? *(please describe)*

_____

Please sketch how your TTLC was rigged into your vertical line and describe how it was rigged



IS THE TTLC OPERATIONALLY FEASIBLE?

How much EXTRA time (on average) did it take you to haul your gear when you first rigged the TTLC? *(in minutes)* _____

How much EXTRA time (on average) did it take you to haul your gear once you figured out how to fish the TTLC? *(in minutes)* _____

How <u>many hauls</u> did it take you to get comfortable hauling the TTLC? _____

Did you ever observe a gap on the TTLC between the two plastic sections? *(specify how often and size of gap)*_____

Do you think you could successfully fish the TTLC on your gear? *(why or why not)* _____

_____

PLEASE FEEL FREE TO PROVIDE ADDITIONAL COMMENTS ON THE BACK

Appendix C

Presentation to ALWTRT in May 2008
And
MLA Progress Reports

Maine Lobster Industry Field Testing of Experimental Vertical Lines

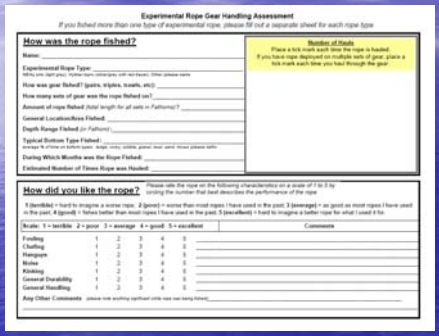
ALWTRT, Baltimore, MD
April 28 to May 1, 2008

Patrice McCarron
Maine Lobstermen's Association

Project Overview

- Consortium for Wildlife Bycatch Reduction
  - managed by New England Aquarium
  - ropes developed by Better Gear
  - field tested by MLA, lobstermen are compensated
- Overview of gear field tested by MLA
  - Vertical Lines
    - glow rope (fished in 2005)
    - stiff rope (fished in 2006)
    - weak rope (fished in 2005-2007, scheduled for 2008)
    - TTLC (fished in 2007, potential for 2008)
  - Sinking Groundlines
    - barium sulfate rope (fished 05-07)
    - metallocene rope (fished 06-07, scheduled for 2008)

Data Collection



Experimental Rope Gear Handling Assessment

If you fished more than one type of experimental rope, please fill out a separate sheet for each rope type

How was the rope fished?

Name: _____

Experimental Rope Type: _____

How was gear fished? (pairs, triples, trawls, etc): _____

How many sets of gear was the rope fished on?: _____

Amount of rope fished (total length for all sets in Fathoms)? _____

General Location/Area Fished: _____

Depth Range Fished (in Fathoms): _____

Typical Bottom Type Fished: _____

During Which Months was the Rope Fished: _____

Estimated Number of Times Rope was Hauled: _____

Number of Hauls

Place a tick mark each time the rope is hauled.
If you have rope deployed on multiple sets of gear, place a tick mark each time you haul through the gear

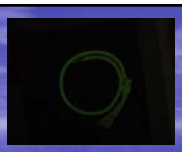
How did you like the rope? Please rate the rope on the following characteristics on a scale of 1 to 5 by circling the number that best describes the performance of the rope.

1 (terrible) = hard to imagine a worse rope, **2 (poor)** = worse than most ropes I have used in the past, **3 (average)** = as good as most ropes I have used in the past, **4 (good)** = fishes better than most ropes I have used in the past, **5 (excellent)** = hard to imagine a better rope for what I used it for.

Scale: 1 = terrible 2 = poor 3 = average 4 = good 5 = excellent						Comments
Fouling	1	2	3	4	5	
Chafing	1	2	3	4	5	
Hangups	1	2	3	4	5	
Bitter	1	2	3	4	5	
Kinking	1	2	3	4	5	
General Durability	1	2	3	4	5	
General Handling	1	2	3	4	5	

Any Other Comments (please note anything significant while rope was being fished): _____

Glow Rope



- Luminescent Polypropylene (float) line
  - recharges via UV exposure
- Fished at 4 sites in 2005
  - southern Maine (York and Yarmouth)
  - Midcoast Maine (Yarmouth and Cushing)
  - Downeast Maine (Cutler)

Glow Rope

Operational Evaluation of Glow Rope

Site	Length*	Noise	Handling	Fouling	chaffing
York 1	6F/14F	--	--	--	--
York 2	10F/2 sinkers	--	--	After 2 wks	--
York 3	6F/14F	--	Good	--	--
Yarmouth 1	10F/5F	Noisy under load	Good	No, not fished at surface	--
Yarmouth 2	7F/8F	Noisy under load	Good	No, not fished at surface	--
Cushing	10F/10F	--	--	--	--
Cutler	50F/30F	Very loud	Did not pile well	--	After 6 hauls

*Length shows composition of buoy line (glow rope/sink rope); glow rope fished on bottom of line with sink rope on top

Glow Rope Issues

- Rope performance issues
  - never observed glowing through water
  - fouling at surface interfered with luminescence
  - chaffing on hard bottom
  - some handling and noise issues
- Loses luminescence, likely due to crushing of glow particles in the hauler
  - possible solution to encapsulate glow particles in glass, but very expensive
- No research on whale behavior and glow rope

Stiff Rope

- Rubber Sections Over Inner Core of Rope
  - Rope A:
    - 6" sections of 3/8" outer diameter rubber* sleeve
    - strung over a 3/16" inner core of braided polyethylene (4800 lb br strength)
  - Rope B:
    - 6" sections of 7/16" outer diameter rubber* sleeve
    - strung over a 3/8" inner core of twisted polypropylene (2300 lbr strength)
  - Rope C:
    - 6" sections of 1/2" outer diameter rubber* sections
    - strung over a 5/16" inner core of braided polyethylene (8000 lb br strength)
- Fished at 3 sites in 2006
  - Rope B fished in York (southern Maine)
  - Ropes A and C fished in Yarmouth (midcoast Maine)

* EPDM rubber hardness of 60

Stiff Rope

Operational Evaluation of Stiff Line

	Rope A	Rope B	Rope C
	Yarmouth	York	Yarmouth
Fouling	--	3	1
Chafing	--	3	3
Hang ups	2	3	--
Noise	5	3	5
Kinking	3	3	2
Durability	2	3	2
Handling	1	1	2

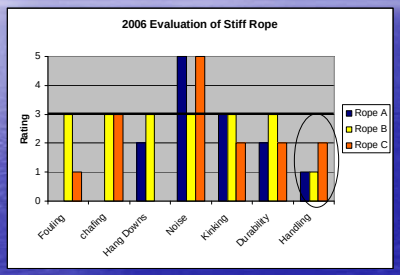
1=terrible, 3=average, 5=excellent

Stiff Rope in Hauler

Stiff Rope

excellent

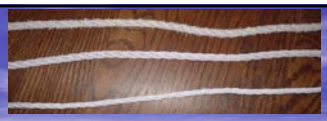
terrible



Stiff Rope Issues

- Rope performance
  - rubber casings split from inside out due to friction from inside rope
  - inside rope slipped and stretched causing gaps between rubber sections
  - difficult handling
    - doesn't coil on deck
    - can't be easily shortened or lengthened
    - cumbersome to fish especially when moving gear
- Rubber sections may pose a risk to whales in baleen

Weak Rope



- Weak sink line -- polypropylene infused with barium sulfate
- Fished with float rope spliced into bottom 1/3 to prevent hang downs

2005 Rope	2006 Rope
5/16" BaSO4 sink line	3/8" BaSO4 sink line
~600 lbs estimated breaking strength	1,000 lb estimated breaking strength (target was 800 lb)
Tested at 4 sites York, Yarmouth, Cushing, Cutler	Tested at 10 sites York, Yarmouth, Harpswell, Cushing (x2), Tenants Harbor, So Thomaston (x2), Cutler (x2)

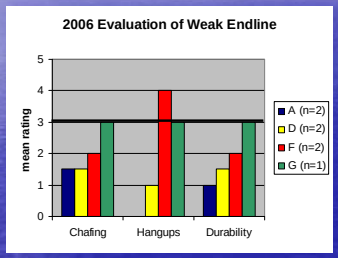
Weak Endlines

Operational Evaluation of 2006 Stiff Line				
	Downeast Zone A	Midcoast Zone D	Southern Zone F	Southern Zone G
# Responses	2	2	2	1
Fouling	1	3	3	3
Chafing	1.5	1.5	2	3
Hang ups	--	1	4	3
Noise	--	3.5	3.5	3
Kinking	1	3.5	4	3
Durability	1	1.5	2	3
Handling	1	3	4	3
1=terrible, 3=average, 5=excellent				

Weak Endlines

excellent

terrible



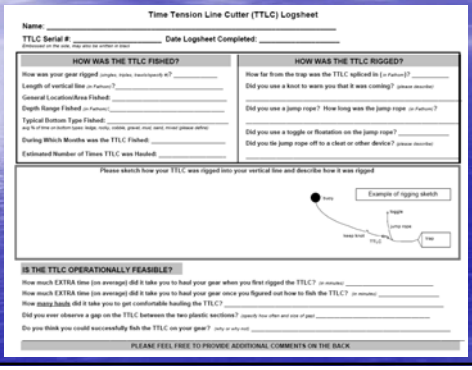
Weak Line Issues

- Worked best in southern Maine
  - Need further research to determine potential in trawl fishery in southern Maine
- Not feasible in midcoast or downeast Maine
  - severe chaffing, durability and hangdown issues
  - parted off before rope was hauled downeast
  - parted off after one haul midcoast
- Not much support amongst lobstermen

Time Tension Line Cutter

- Developed by Blue Water Concepts, lab tested at UNH
- Fished at 7 sites in 2007
  - 3 in Downeast (Cutler, SW Harbor)
  - 4 in Midcoast (Matinicus, So Thomaston, Boothbay)

TTLC Logsheet



Time Tension Line Cutter (TTLC) Logsheet

Name: _____

TTLC Serial #: _____ Date Logsheet Completed: _____

(Embossed on the sole, may also be written or blank)

HOW WAS THE TTLC FISHED?	HOW WAS THE TTLC RIGGED?
How was your gear rigged (singles, triples, trawl/specify #)? _____	How far from the trap was the TTLC spliced in (in Fathom)? _____
Length of vertical line (in Fathom)? _____	Did you use a knot to warn you that it was coming? (please describe) _____
General Location/Area Fished: _____	
Depth Range Fished (in Fathom): _____	Did you use a jump rope? How long was the jump rope (in Fathom)? _____
Typical Bottom Type Fished: _____ (avg % of time on bottom types: ledge, rocky, cobble, gravel, mud, sand, mixed (please define))	
During Which Months was the TTLC Fished: _____	Did you use a toggle or floatation on the jump rope? _____
Estimated Number of Times TTLC was Hauled: _____	Did you tie jump rope off to a cleat or other device? (please describe) _____

Please sketch how your TTLC was rigged into your vertical line and describe how it was rigged

Example of rigging sketch

buoy

toggle

jump rope

TTLC

trap

IS THE TTLC OPERATIONALLY FEASIBLE?

How much EXTRA time (on average) did it take you to haul your gear when you first rigged the TTLC? (in minutes) _____

How much EXTRA time (on average) did it take you to haul your gear once you figured out how to fish the TTLC? (in minutes) _____

How many hauls did it take you to get comfortable hauling the TTLC? _____

Did you ever observe a gap on the TTLC between the two plastic sections? (specify how often and size of gap) _____

Do you think you could successfully fish the TTLC on your gear? (why or why not) _____

PLEASE FEEL FREE TO PROVIDE ADDITIONAL COMMENTS ON THE BACK

TTLC Rigging

How to Rig a Time Tension Line Cutter (TTLC)

To Tie the TTLC into your Buoy Line: You will be cutting your buoy line and threading one end into the TTLC from the top, and the other from the bottom. The gray end of the TTLC, which has the tag hole on top (Figures 1 and 2), should face up towards the buoy. From the top, thread the rope through the large hole and out the side (Figure 3). Then thread the rope through the side hole (just below the tag hole) and back down through the large hole (Figure 4). Pull the rope tight. To make sure the device, look under loop (Figure 5) and pull tight (Figure 6). You can fish the TTLC with this rigging. If you are not comfortable with this rigging, you can just add a knot (Figure 7), or you can double wrap it (Figure 8) or double wrap it with a knot (Figure 9). Repeat the same with your vertical line from the bottom of the TTLC.

Figure 1 Figure 2 Figure 3 Figure 4 Figure 5

Figure 6 Figure 7 Figure 8 Figure 9

How to Fish the TTLC: When placing the TTLC on your buoy line, it should be placed about 1 to 1.5 Fathom from the trap to allow you to rig it or bump the trawl. The following is a suggested rigging setup, but you can rig it in whatever way safely works for you.

buoy

trap

TTLC

jump rope

The square knot or bowy know will warn you that the TTLC is headed for the block. It is recommended that you either cleat off the bowy knot, use a cam cleat or rig a self-clearing cleat that works for your boat. The person who designed the TTLC says it should only add 20 seconds to your hauling to get the TTLC over the block and the trap on board.

Designed by Mona Fullerton – Scientist – October 2007

TTLC Issues

- Limited feedback from 2007 season
- One unit failed; didn't close after tension released
- Increased time to haul gear
  - 30 seconds to 2 minutes
  - hauling TTLC is cumbersome but doable on a small scale
- Operational concerns to scale up for all gear
  - Safety issues when gear is tangled in congested areas
- Safety issues setting back in downeast Maine with danforth anchors
- Jump rope and toggle add rope and flotation

Vertical Line Field Test Summary

- All tests very small scale as "proof of concept"
- Glow rope: concept failed due to crushing of glow particles in hauler and fouling issues
- Stiff Rope: concept failed due to handling issues and concern over interaction in baleen
- Weak Rope: concept failed on hard bottom/strong tide and current areas
  - Testing to continue in southern Maine
- TTLC: operational and unit reliability concerns
  - May warrant further testing

Thank You

Questions:

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Maine Lobstermen's Association
Progress Report
Consortium for Wildlife Bycatch Reduction
10/26/07

The Maine Lobstermen's Association has been corresponding with members of the Consortium with respect to the type and amount of gear to be tested during the 2007-2008 field season.

On September 23, MLA received delivery of 5 ½ coils of braided sinking metallocene rope. The MLA removed 40 feet from each coil; 30 feet has been sent to Southwest Ocean Services for breaking strength testing and 10 feet has been sent to Tension Technology Institute for specific gravity testing.

Of the 6 coils received, 5 have been delivered to lobstermen, and the last coil is scheduled for delivery the week of October 29th. Two coils were given to lobstermen in Cutler, 2 coils were given to lobstermen in Matinicus Island, one coil to a lobstermen in Southwest Harbor, and the last coil will be delivered to a lobsterman in Winter Harbor. Cutler was chosen for distribution because this area faces the strongest tides and currents in the state. Matinicus, Southwest Harbor and Winter Harbor were chosen because these areas are known to have extremely rocky bottom.

However, given the lateness of the season, most lobstermen are no longer fishing in the hardest bottom areas. Therefore, the rope will likely be deployed on less rough rocky, cobble, gravel or mud bottom during late fall and winter, and will hit the rocky bottom areas in the spring and summer. Lobstermen were given a letter asking them to fish this rope according to a 3 year deployment protocol and will submit a logsheet after each season (attached).

The MLA also met with Ben Brickett on October 10 to received training in the use of the time tension line cutters. Mr. Brickett was not able to supply the MLA with any units. The MLA then met with John Higgins from NMFS on October 11 and picked up 8 TTLC's. Six of these units were distributed with the sinking rope as described above. A seventh unit will be delivered to a lobsterman in Boothbay the week of October 29th. The eighth unit will likely go out with a lobsterman in southern Maine.

The MLA developed an instruction sheet to inform lobstermen how to deploy these devices (attached). Unfortunately, the MLA was supplied with units that were developed and programmed 3 years ago, and we do not have exact information on the time and tension they are set for. Ben Brickett provided us with the information he had, and we have included this in the instructions to lobstermen.

The MLA plans to develop a new logsheet to obtain information from lobstermen specific to the deployment of the TTLC's. This will be geared at getting information on how they were rigged, and their operational feasibility.

The MLA has not received any weak rope for deployment this year. Weak rope fished in previous seasons has been redeployed by at least two lobstermen in southern Maine.

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Maine Lobstermen's Association
Progress Report for the Consortium for Wildlife Bycatch Reduction
October 31, 2008

New England Aquarium Contract# 2535
April 1, 2007 through October 31, 2008

Fall 2007

The Maine Lobstermen's Association (MLA) received 6 coils of braided sinking metallocene rope. Following Bycatch Consortium protocols, the portions of the rope to Southwest Ocean Services for breaking strength testing and Tension Technology Institute for specific gravity testing.

The braided sinking rope was delivered to lobstermen to fish in downeast Maine. Specific sites in Downeast Maine were chosen due to the strong tides and extremely rocky bottoms that characterize this area of the coast.

- 2 coils to Cutler, ME
- 2 coils to Matinicus Island, ME
- 1 coil to Southwest Harbor, ME
- 1 coil to Beals, ME

Lobstermen were given a letter asking them to fish this rope according to a 3 year deployment protocol and submit a logsheet after each season.

The MLA received 8 time tension line cutters for distribution to lobstermen. Six of these units were distributed with the sinking rope as described above. The additional two units were distributed to lobstermen in Boothbay and South Thomaston, ME.

The MLA developed an instruction sheet to inform lobstermen how to deploy the TTLC devices and developed a logsheet to record information on the deployment.

Winter 2007 and Spring 2008

The MLA conducted outreach and follow-up with lobstermen to monitor the deployment of experimental gear.

Summer and Fall 2008

The MLA continued outreach with lobstermen to monitor deployments of experimental gear deployments.

MLA Executive Director presented an overview of the results of the field testing of experimental vertical lines at the April/May 2008 North Atlantic Large Whale Take Reduction Team meeting in Baltimore, MD.

The MLA picked up 4 coils of barium sulfate weak line from Seaside Rope in Warren Maine, engineered with a breaking strength of 1200 lbs. The MLA expected the rope batch would consist of 3/8" diameter rope, similar to that which was produced in 2006. However, the 2008 weak rope was produced at a diameter of 5/16". This diameter weak rope was tested in 2005 and it was determined to be too small for the hauler to "grab" and was not operationally feasible. One coil of weak rope was distributed in Casco Bay to determine if it could be run through the hauler, but again, it was determined that the diameter was too small to operationally feasible.

According the Bycatch Consoritum Protocols, portions of the rope have been set aside for strength testing and specific gravity testing.

The MLA has worked with lobstermen to complete logsheets on current deployments of experimental gear, and results will be included in Final Report. The MLA will also coordinate pickup of sections of field tested ropes for follow-up specific gravity and break strength testing.

Appendix D

Rope strength test results

Table 1. Breaking strengths for metallocene sinking groundline (2007 production). Three pieces were tested from each rope sample supplied by MLA. Each section was cut to length and spliced by Southwest Ocean Services. Ropes were cycled to 20% of break load elongation measured at approximately 50% and at break. Sink rope tested on capstans, spliced and with bowline.

Specimen	Dia.	Length	Overall Elon. 50%	Break Load	Overall Elon. Brk.	Break location	Type	Termination	No. hauls
J. Drouin coil #1	3/8"	34"	16.2%	2,538	21.3%	2-strand end of splice	sink	spliced eyes	2 seasons
J. Drouin coil #1	3/8"	34"	18.4%	2,616	25.7%	2-strand end of splice	sink	spliced eyes	
J. Drouin coil #1	3/8"	34"	17.1%	2,828	20.6%	3-strands at end of splice	sink	spliced eyes	
			Avg.	**2,661**					
J. Drouin coil #1	3/8"	84"		2,864		mid-line	sink	Capstan	2 seasons
J. Drouin coil #1	3/8"	84"		2,867		mid-line	sink	Capstan	
J. Drouin coil #1	3/8"	84"		2,453		capstan tangent	sink	Capstan	
			Avg.	**2,728**					
Kristan Porter coil #2	3/8"	34"	16.2%	2,967	24.3%	3-strands at end of splice	sink	spliced eyes	15 hauls
Kristan Porter coil #2	3/8"	34"	14.7%	3,333	24.6%	3-strands at end of splice	sink	spliced eyes	
Kristan Porter coil #2	3/8"	34"	16.8%	3,264	21.3%	2-strand end of splice	sink	spliced eyes	
			Avg.	**3,188**					
Kristan Porter coil #2	3/8"	84"		3,626		capstan tangent	sink	Capstan	15 hauls
Kristan Porter coil #2	3/8"	84"		3,061		capstan tangent	sink	Capstan	
Kristan Porter coil #2	3/8"	84"		3,216		capstan tangent	sink	Capstan	
			Avg.	**3,301**					
Jim Dow coil #4	3/8"	34"	19.1%	2,891	25.7%	2-strand end of splice	sink	spliced eyes	125 hauls
Jim Dow coil #4	3/8"	34"	14.7%	2,594	18.4%	2-strand end of splice	sink	spliced eyes	
Jim Dow coil #4	3/8"	34"	15.4%	2,894	22.1%	3-strands at end of splice	sink	spliced eyes	
			Avg.	**2,793**					
Jim Dow coil #4	3/8"	84"		2,539		capstan tangent	sink	Capstan	125 hauls
Jim Dow coil #4	3/8"	84"		3,373		capstan tangent	sink	Capstan	
Jim Dow coil #4	3/8"	84"		3,367		capstan tangent	sink	Capstan	
			Avg.	**3,093**					
NOTE: Only tested bowline strength on one coil - the percentage will be the same on all bowline knots									

Table 1 (cont'd).

Specimen	Dia.	Length	Overall Elon. 50%	Break Load	Overall Elon. Brk.	Break location	Type	Termination	No. hauls
Tad Miller coil #3	3/8"	34"	19.0%	3,059	24.3%	3-strands at end of splice	sink	spliced eyes	haul 25
Tad Miller coil #3	3/8"	34.75"	20.0%	3,016	24.5%	2-strand end of splice	sink	spliced eyes	
Tad Miller coil #3	3/8"	35"	19.0%	3,067	25.0%	3-strands at end of splice	sink	spliced eyes	
			Avg.	**3,047**					
Tad Miller coil #3	3/8"	38"		1,978		in knot	sink	Bowline knot	haul 25
Tad Miller coil #3	3/8"	38"		2,229		in knot	sink	Bowline knot	
Tad Miller coil #3	3/8"	38"		2,283		in knot	sink	Bowline knot	
			Avg.	**2,163**		61.4% of capstan break strength			
Tad Miller coil #3	3/8"	84"		3,462		mid-line	sink	Capstan	haul 25
Tad Miller coil #3	3/8"	84"		3,632		capstan tangent	sink	Capstan	
Tad Miller coil #3	3/8"	84"		3,472		capstan tangent	sink	Capstan	
			Avg.	**3,522**					
Robert Young coil #5	3/8"	35"	21.8%	2,943	27.5%	3-strands at end of splice	sink	spliced eyes	haul 75
Robert Young coil #5	3/8"	35"	21.4%	2,732	26.3%	2-strand end of splice	sink	spliced eyes	
Robert Young coil #5	3/8"	34"	16.1%	2,685	21.3%	3-strands at end of splice	sink	spliced eyes	
			Avg.	**2,787**					
Robert Young coil #5	3/8"	84"		2,456		capstan tangent	sink	Capstan	haul 75
Robert Young coil #5	3/8"	84"		2,463		mid-line	sink	Capstan	
Robert Young coil #5	3/8"	84"		2,875		mid-line	sink	Capstan	
			Avg.	**2,598**					
NOTE: Only tested bowline strength on one coil - the percentage will be the same on all bowline knots									

Table 2. Results of breaking strength tests for rope samples of experimental "weak" vertical line (2008 production). The fished sample experienced 5 hauls and was attached to a 3-trap trawl in 7m.

Specimen	Dia.	Length	Overall Elon. 50%	Break Load	Overall Elon. Brk.	Break location	Type
Elliott Thomas unfished	3/8"	34"	12.0%	1,091	20.0%	2 strands end of splice	weak
Elliott Thomas unfished	3/8"	33"	11.3%	1,200	17.0%	2 strands end of splice	
Elliott Thomas unfished	3/8"	34"	13.2%	1,231	18.0%	2 strands end of splice	
			Avg.	1,174			
Elliott Thomas fished	3/8"	34"	6.0%	1,137	12.0%	2 strands end of splice	weak
Elliott Thomas fished	3/8"	34"	10.0%	1,141	14.0%	2 strands end of splice	
Elliott Thomas fished	3/8"	34"	10.3%	1,121	19.1%	1-strand end of splice	
			Avg.	1,133			
Elliott Thomas unfished	3/8"	33"	8.5%	1,245	22.0%	1-strand end of splice	weak
Elliott Thomas unfished	3/8"	33"	9.0%	1,246	19.0%	2 strands end of splice	
Elliott Thomas unfished	3/8"	33"	11.0%	1,279	20.0%	1-strand end of splice	
			Avg.	1,257			