GILLNET GEAR CHARACTERISTICS LOG

This log contains detailed questions about the gear fished. Complete a new log for each uniquely configured gear (as defined below) **hauled** during a trip. These unique configurations may be based on variables such as number of nets per gear, floatline length, anchor weight, *etc*. Any changes in these fields will require completion of a new Gillnet Gear Characteristics Log. Number each gear configuration sequentially.

If the gear is set out and hauled more than once during a trip, do not complete a new Gillnet Gear Characteristics Log for the multiple hauls. Rather, record on the Gillnet Haul Log which gear numbers are being hauled. In addition, record any other information necessary to understand the manner in which the gear was set/hauled in COMMENTS.

If the vessel has two or more identical gears which are hauled separately, complete only one Gillnet Gear Characteristics Log and record the consecutively assigned numbers of all identical gears described in GEAR NUMBER(S) (#1). See the gillnet definitions below and GEAR NUMBER(S) (#1) for more information on defining and numbering gears.

If information is unavailable or unknown to any question except a "No/Yes" question, record a dash (-) in the field. If the answer to a "No/Yes" question is unknown, record a "9" on the line next to the code for "No" to indicate that the field was not skipped, but the answer is unknown. If a field relates to a question to which you previously answered "No", leave the field blank.

This log should be used to describe all types of gillnet gear except Pelagic Drift Gillnet.

Become familiar with the following definitions.

DEFINITIONS

Gillnet: A vertical wall of netting, typically stretched between a weighted leadline on the bottom and a floatline, with or without floats, on the top to support it vertically in the water column.

Space: A space greater than or equal to 2.5 feet between nets, continuous from the floatline to the leadline. This space may be caused by the way in which the net bridles are attached.

Bridles: The trailing ends of the floatline and leadline on an individual net.

Gear: A gillnet, or series of gillnets connected by bridles, with or without spaces in between, commonly referred to as "the string".

Dropline: A line that connects the floats on the water's surface to the mainline/floatline. Droplines are used along the entire string to suspend the gear in the water column.

Tiedown: A line used between the floatline and the leadline as a way to create a pocket or bag of netting. It is the working height of the net.

Buoyline: A line that connects the buoy(s) at the surface to the gear (anchor or net) fishing in the water below.

Groundline: A line that connects a gillnet or gillnet bridle to an anchor or buoyline.

Weak link: A breakable component of gear that will part when subject to a certain tension load.

INSTRUCTIONS

For instructions on completing the Header Fields **A-D**, refer to the Common Haul Log Data section of the NEFSC Observer Program Manual.

GEAR INFORMATION

NOTE: Record in COMMENTS any calculations used to answer any of the following questions.

1. GEAR NUMBER(S): Record the consecutive number(s) assigned to each uniquely configured gear hauled and for which characteristics are described. See the definition of gear in the introduction.

NOTE: If two or more identical gears are used, assign consecutive numbers to each gear and record all of these numbers on one Gillnet Gear Characteristics Log.

Example: The first uniquely configured gear is

"1", and its characteristics will be recorded on one Gillnet Gear Characteristics Log. The next two **identical** gears are "2, 3", and their identical characteristics will be recorded on a second Gillnet Gear Characteristics Log.

2. NUMBER OF NETS: Record the **total** number of individual nets used in this gear, i.e. string.

NET CHARACTERISTICS

NOTE: The questions asked in this section only, describe a **single, average net**, from the many that may be put together to make up this gear. Since each gear is not always made up of uniform nets, provide an **average**, when necessary.

3. LENGTH: Record, in whole feet, the **average** horizontal distance of a net on this gear, as measured along the floatline. This information may be obtained from the Captain.

NOTE: If there is a space between two nets, **do not** include this distance in the net length.

4. HEIGHT: Record, to the nearest tenth of a foot, the **average** height of a net in this gear. This value is obtained by measuring the length of the endline on the end of a net where the meshes are attached. This information may be obtained from the Captain.

5. MESH COUNT, VERTICAL: Record the **average** number of vertical meshes of a net in this gear. This information may be obtained from the Captain.

GEAR CHARACTERISTICS

NOTE: The following fields characterize the **entire gear, *i.e.* the string**, and not just one net.

6. HANGING RATIO: Record the **average** fractional ratio of the length of the floatline for one net to the length that the net would be if it was taken off the floatline and stretched out. This value can be calculated by counting 10 or 12 meshes horizontally, measuring the length of the floatline they are attached to, and comparing that distance to the stretched out length of the meshes. This information may be obtained from the Captain.

Example: If the stretched out distance of the meshes is two times the length of the floatline, record "1/2".

TWINE SIZE

7. NUMBER: Record the twine size number (industry standard) of the net webbing used in this gear. This information may be obtained using a twine size measuring tool provided by the NEFSC Observer Program or contractor. This information may also be obtained from the Captain. **An average should not be recorded here.** See Appendix Q. Conversion Tables to convert twine diameters to the corresponding industry standard twine size.

NOTE: This number should reflect the total diameter of the net webbing, and not the diameter of an individual strand which may be twisted with other strands to create the net webbing.

NOTE: If more than one twine size is used within one gear, record 998, combination, and indicate the twine sizes used in COMMENTS.

8. ACTUAL OR ESTIMATED: Record whether the number recorded in TWINE SIZE NUMBER (#7) is an actual or an estimated value by circling the appropriate letter code:

A = Actual.
E = Estimated.

NOTE: An **actual twine size number** is obtained using a twine size measuring tool provided by the NEFSC Observer Program or contractor. An **estimated twine size number** is provided by the Captain.

9. NUMBER OF STRANDS: Record the number of strands of twine in the net webbing used in this gear. **An average should not be recorded here.** This is not the same as the number of filaments. If more than one number is used, record the number of strands used

in the greatest number of nets in this gear. If more than one number is used AND each number is used in an equal number of nets in the gear, record a dash (-) and indicate the numbers of strands in COMMENTS. This information may be obtained from the Captain.

NOTE: This number should reflect the total number of individual strands used to make up the net webbing.

Example: Monofilament nylon has one strand. Multi-strand, multi-filament and monotwist will consist of multiple strands of nylon.

10. MATERIAL: Record the material of the net webbing used in this gear by placing an "X" next to the appropriate code:

0 = Unknown.
1 = Nylon.
9 = Other, record the net webbing material on line 10A.

NOTE: This information may be obtained from the Captain.

NOTE: If more than one net material is used in the string, check other and indicate the materials used on the line provided.

NOTE: Gillnets are typically made of monofilament nylon.

11. FLOATLINE MATERIAL: Record the material of the floatline used in this gear by placing an "X" next to the appropriate code:

0 = Unknown.
1 = Floating (with a foam core).
2 = Twisted Polypropylene.
9 = Other, record the floatline material on line 11A.

12. LEADLINE WEIGHT: Record, to the nearest tenth of a pound, the weight of the leadline used in **an average net** of this gear. This information may be obtained from the Captain.

NOTE: If all nets are not a uniform length, record the leadline weight per net as a weighted average and describe in COMMENTS.

Example: A gear has 5 nets. Three nets have a leadline weight of 80 lbs each. Two nets have a leadline weight of 70 lbs each. Leadline weight for the gear should be recorded as:

$[(80*3) + (70*2)] \div 5 = 76.0$ lbs

FLOATS

13. USED?: Record whether floats are used on this gear by placing an "X" next to the appropriate code:

0 = No.
1 = Yes.

14. DISTANCE BETWEEN: Record, in whole feet, the **average** distance along the floatline between floats used on this gear. This information may be obtained from the Captain.

TIEDOWNS

15. USED?: Record whether tiedowns are used in this gear by placing an "X" next to the appropriate code (See Figure 1):

0 = No.
1 = Yes, **all** nets.
2 = Yes, but **not all** nets; record the number of nets using tiedowns in COMMENTS.

16. LENGTH: Record, to the nearest tenth of a foot, the average length of the tiedowns used in this gear. This information may be obtained from the Captain (See Figure 1).

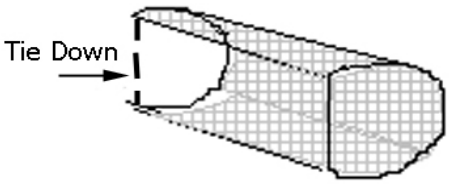

Figure 1. Gillnet with tiedowns.

SPACE(S) BETWEEN NETS

17. USED?: Record whether there is (are) any continuous space(s) **greater than or equal to 2.5 feet** between the nets in this gear by placing an "X" next to the appropriate code:

0 = No.
1 = Yes, describe the space(s) in COMMENTS.

18. NUMBER: Record the **total** number of spaces

used between the nets in this gear.

19. WIDTH: Record, to the nearest foot, the **average** width of the space(s) used between the nets in this gear. This should be a weighted average.

Example: A gillnet string has ten nets with 9 spaces. Three of these spaces are approximately 3.5 feet wide and 6 spaces are approximately 4.5 feet wide. The average width for these spaces should be recorded as:

[(3*3.5) + (6*4.5)] ÷9 = (10.5+27) ÷9 = 37.5 ÷9 = 4.2

Round 4.2 to 4 feet.

DROPLINES

20. USED?: Record whether droplines are used in this gear by placing an "X" next to the appropriate code:

0 = No.
1 = Yes.

21. LENGTH: Record, in whole feet, the length of the droplines used in this gear. This length is the distance from the floats (at the water's surface) to the nets. This information may be obtained from the Captain.

ADDITIONAL WEIGHTS

22. USED?: Record whether any additional weights are used on the leadline of this gear by placing an "X" next to the appropriate code:

0 = No.
1 = Yes.

23. WEIGHT: Record, in whole pounds, the **total** weight of the additional weights used on the leadline of this gear. Do **not** include the weight of the leadline itself.

ANCHOR

24. USED?: Record whether any anchor(s) are used on this gear by placing an "X" next to the appropriate code:

0 = No.
1 = Yes.

25. NUMBER: Record the number of anchor(s)used on this gear.

26. WEIGHT: Record, in whole pounds, the **total** weight of the anchor(s) used to hold this gear in place. This information may be obtained from the Captain.

27. WEIGHT - ACTUAL OR ESTIMATED: Record whether the weight recorded in ANCHOR WEIGHT (#26) is an actual or an estimated value by circling the appropriate letter code:

A = Actual.
E = Estimated.

28. TYPE(S): Indicate which type(s) of anchor(s) are used on this gear by placing and "X" next to the appropriate code:

0 = Unknown.
1 = Danforth-style.
2 = Dead Weight (*i.e.* railroad tracks, mushroom weights, pile of leadline tied together).
8 = Combination, record all anchor types used in the COMMENTS.
9 = Other , record the anchor type on line 28A.

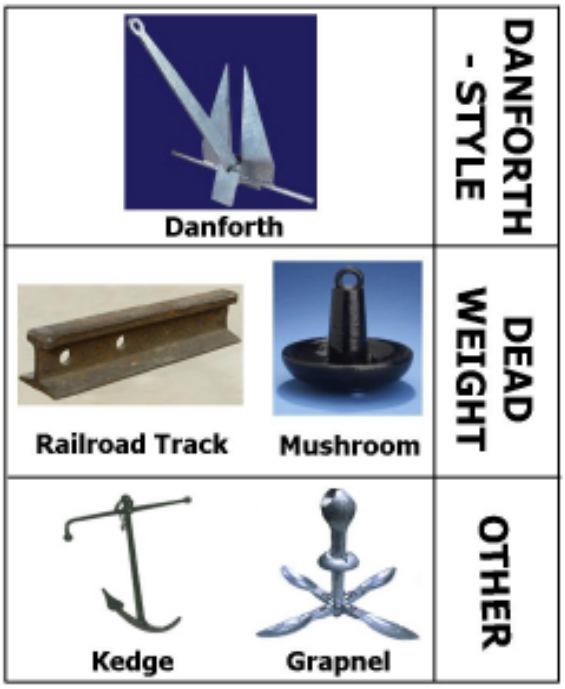

Figure 2. Examples of common anchor types.

29. SECURING METHOD(S): Indicate the manner in which this gear is secured by placing an "X" next to the appropriate code:

1 = None.
2 = Ocean Bottom.
3 = Vessel and Ocean Bottom.
4 = Tied to Vessel Only.

ACTIVE MARINE MAMMAL DETERRENT DEVICES

An "active" marine mammal deterrent device is a device which emits sound which may be detected by a marine mammal.

30. USED?: Record whether "active" marine mammal deterrent devices (*i.e.* pingers) were on this gear **when it was set** by placing an "X" next to the appropriate code:

0 = No.
1 = Yes.

31. NUMBER: Record the number of active marine mammal deterrent devices (*i.e.* pingers) on the gear **when it was set**. This information may be obtained from the Captain if the set is not observed.

32. FREQUENCY: Record the frequency of the active marine mammal deterrent devices used on this gear in kilohertz (kHz). If more than one frequency of active deterrent device is used, record the frequency of the majority of the active deterrent devices on the gear. If an equal number of different frequency active deterrent devices are used, record the highest frequency used. This information may be obtained from the Captain.

Example: 10kHz.

33. BRAND(S): Indicate which brand(s) of active marine mammal deterrent devices are used on this gear by placing an "X" next to the appropriate code:

0 = Unknown.
1 = Dukane.
2 = Airmar.
3 = Fumunda.
8 = Combination, record all brands in the COMMENTS.
9 = Other, record the brand on line 33A.

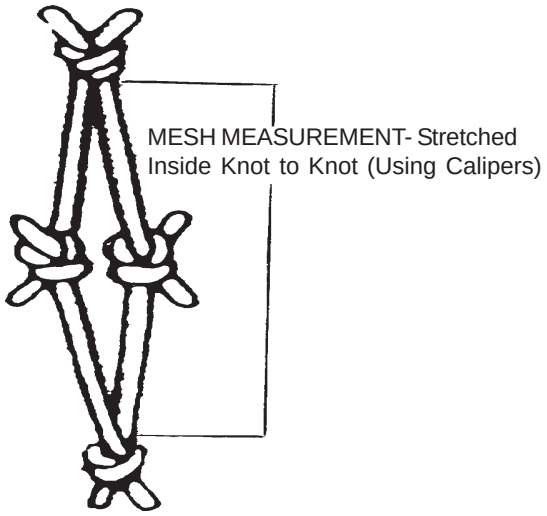

Figure 3. Measuring Mesh Size.

PASSIVE MARINE MAMMAL DETERRENT DEVICES

A "passive" marine mammal deterrent device is a device which may provide reflection of marine mammal echolocation signals or be detected visually. If used, describe in the COMMENTS.

34. USED?: Record whether "passive" marine mammal deterrent devices were on this gear **when it was set** by placing an "X" next to the appropriate code:

0 = No.
1 = Yes.

Example: Net material that is designed to be more acoustically visible to marine mammals.

35. NUMBER: Record the number of passive marine mammal deterrent devices on the gear **when it was set**. This information can be obtained from the Captain if the set is not observed.

NOTE: If some or all of the nets in the gear are made from material that is designed to be more acoustically visible to marine mammals, record the **number of nets** within the gear made from this material.

MESH SIZE

NOTE: Whenever possible complete field #'s 36 and 37. Field #38 may be completed when information for field #'s 36 and 37 is not available. Do not complete all three fields.

36. NUMBER OF NETS AT EACH MESH SIZE: Complete the table by recording the number of nets, and their corresponding mesh size, to the nearest hundredth of an inch. This value may be obtained by measuring a stretched mesh using calipers. This measurement should be taken inside, from knot to knot, stretched in the direction in which the mesh is hung. See Figure 2 and Appendix P. Vernier Caliper Instructions for further information. This information may also be obtained from the Captain.

NOTE: If this information is unavailable, complete MESH SIZE RANGE (#38) instead.

NOTE: If this information is obtained from the captain, make sure the value given is stretched length, not bar length. Stretched length is approximately twice the bar length. Ex: 1.25 in. mesh bar length, would equal approximately 2.50 in. mesh stretched.

Example: 3 nets at 6.25 inch mesh, 3 nets at 6.50 inch mesh.

# NETS	MESH SIZE in.
1	5.28
4	5.25
1	5.03
4	5.00

(A) / E
A / (E)
(A) / E
A / (E)

37. ACTUAL/ESTIMATED: Indicate whether the net mesh size(s) recorded in NUMBER OF NETS AT EACH MESH SIZE (#36) is (are) an actual or estimated measurement(s) by circling the appropriate letter:

A = Actual.
E = Estimated.

NOTE: An **actual** mesh size measurement is obtained using calipers. See NUMBER OF NETS AT EACH MESH SIZE (#36) for measurement instructions. An **estimated** mesh size measurement is provided by the Captain.

NOTE: The observer should obtain **at least** one actual measurement per mesh size category, for each unique gear configuration. If the observer is unable to obtain (an) actual measurement(s), record the reason in COMMENTS.

Example: The Captain states that in a string of 10 nets, 5 are at 5 inches and 5 are at 5.25 inches. Using calipers, the observer should take at least one mesh size measurement from a net in the 5 inch mesh size section and at least one other measurement from a net in the 5.25 inch section.

38. MESH SIZE RANGE: Record, to the nearest hundredth of an inch, the minimum and maximum mesh sizes used in this gear. This information may be calculated as described above, or obtained from the Captain.

NOTE: Do not complete this field if you have completed field #36.

39. COLOR: Record the color of the net webbing used in this gear by placing an "X" next to the appropriate code:

00 = Unknown.
01 = Clear.
02 = White.
03 = Pink.
04 = Black.
05 = Green.
06 = Blue.
07 = Multi-color, record all net webbing colors on line 38A.
08 = Red.
09 = Orange.
10 = Purple.
98 = Combination, record all net webbing colors on line 38A.
99 = Other, record the color on line 38A.

NOTE: "Multi-color" = 07, should be used **only** if more than 1 color of webbing is used within **one** net.

NOTE: "Combination" = 98, should be used if more than 1 color of net is used within this gear.

Example: A string of 20 nets, 10 of which are red and 10 of which are blue would be coded 98, and "10-red, 10-blue" recorded on line 39A.

SURFACE SYSTEM

NOTE: The surface system refers to the configuration of high flyers and buoys at the surface of the water. See Figure 3.

40. NUMBER OF HIGH FLYER(S): Record the **total** number of high flyer(s) used on this gear.

41. NUMBER OF BUOY(S): Record the **total** number of surface buoy(s) used on this gear. These buoy(s) may be referred to as tide buoy(s) and are connected to the buoyline.

42. LENGTH OF LINE BETWEEN HIGH FLYER(S) and BUOY(S): Record, in whole feet, the **average** length between the high flyer(s) and buoy(s) which are attached to the same buoyline. This length may be obtained from the Captain.

43. TYPE CODE: Indicate the type of line used between the high flyer(s) and buoy(s) on this gear by recording the most appropriate code from the list below, and in Appendix L. Material / Other Codes:

0 = Unknown.
1 = Sinking / Neutrally Buoyant.
2 = Floating.
8 = Combination, record all line types used in the COMMENTS.
9 = Other, record line type in the COMMENTS.

NOTE: This information may be obtained from the Captain.

44. DIAMETER: Record, in inches, the **average** fractional diameter of the line between the high flyer(s) and buoy(s) used on this gear. This information may be obtained from the Captain.

Example: 5/8 inches.

GROUNDLINE

45. USED?: Record whether groundline is used on this gear by placing an "X" next to the appropriate code:

0 = No.
1 = Yes.

46. LENGTH: Record, in whole feet, the **total** length of the groundline used on this gear. This information may be obtained from the Captain.

47. TYPE CODE: Indicate the type of groundline used on this gear by recording the most appropriate code from the list below, and in Appendix L. Material / Other Codes:

0 = Unknown.
1 = Sinking / Neutrally Buoyant.
2 = Floating.
8 = Combination, record all groundline types used in the COMMENTS.
9 = Other, record groundline type in the COMMENTS.

NOTE: This information may be obtained from the Captain.

48. DIAMETER: Record, in inches, the **average** fractional diameter of the groundline used on this gear. This information may be obtained from the Captain.

Example: 3/8 inches.

BUOYLINE

49. NUMBER OF BUOYLINE(S): Record the number of buoyline(s) used on this gear.

50. LENGTH: Record, in whole feet, the **average** length of the buoyline(s) used on this gear. This information may be obtained from the Captain.

51. TYPE CODE: Indicate the type of buoyline(s) used on this gear by recording the most appropriate code from the list below, and in Appendix L. Material / Other Codes:

0 = Unknown.
1 = Sinking / Neutrally Buoyant.
2 = Floating.
8 = Combination, record all buoyline types used in the COMMENTS.
9 = Other, record buoyline type in the COMMENTS.

NOTE: This information may be obtained from the Captain.

52. PERCENT OF TYPE: Record the **average** percent of buoyline type (sinking/ neutrally buoyant to floating) used on this gear. This information may be obtained from the Captain.

NOTE: This field should only be completed if Combination is selected for Buoyline Type Code (#51), otherwise dash '-' the field.

Example: The Captain states that he has 75% sinking line and 25% floating. This should be recorded as '75/25'.

53. DIAMETER: Record, in inches, the **average** fractional diameter of the buoyline(s) used on this gear. This information may be obtained from the Captain.

Example: 5/8 inches.

WEAK LINKS

NOTE: Please reference the NOAA Northeast Regional Office's outreach supplement titled 'Techniques for Making Weak Links and Marking Buoy Lines' for an explanation of weak link types.

54. USED ON SURFACE?: Record whether any weak links are used on the surface system of this gear by placing an "X" next to the appropriate code:

0 = No.
1 = Yes.

55. NUMBER: Record the **total** number of surface system weak links used on this gear. This information may be obtained from the Captain. See Figure 3.

56. TYPE CODE: Indicate the type of weak link(s) used on the surface system of this gear by recording the most appropriate code from the list below, and in Appendix L. Material / Other Codes:

0 = Unknown.
1 = Rope of Appropriate Breaking Strength.
2 = Off the Shelf.
3 = Overhand Knot.
4 = Hog Rings.
8 = Combination, record all weak link types used in the COMMENTS.
9 = Other, record the weak link type in the COMMENTS.

NOTE: This information may be obtained from the Captain.

57. USED ON STRING?: Record whether any weak links are used on the string (net panels) of this gear by placing an "X" next to the appropriate code:

0 = No.
1 = Yes.

58. NUMBER: Record the **total** number of weak links on the entire string (all net panels) used on this gear. This information may be obtained from the Captain. See Figure 3.

59. TYPE CODE: Indicate the type of weak link(s) used on the string (net panels) of this gear by recording the most appropriate code from the list below, and in Appendix L. Material / Other Codes:

0 = Unknown.
1 = Rope of Appropriate Breaking Strength.
2 = Off the Shelf.
3 = Overhand Knot.
4 = Hog Rings.
8 = Combination, record all weak link types used in the COMMENTS.
9 = Other, record the weak link type in the COMMENTS.

NOTE: This information may be obtained from the Captain.

COMMENTS

Record any additional information about this gear, *i.e.* a description of the space(s) between nets, methods of setting/hauling the gear. Be sure to include a description if a 'combination' or 'other 'code is used for one or more fields (i.e. surface weak link type: other = modified swivel). If more room is needed, use the back of this log, making sure to write "See Back" on the front of the log. Reference each comment with its corresponding field name.

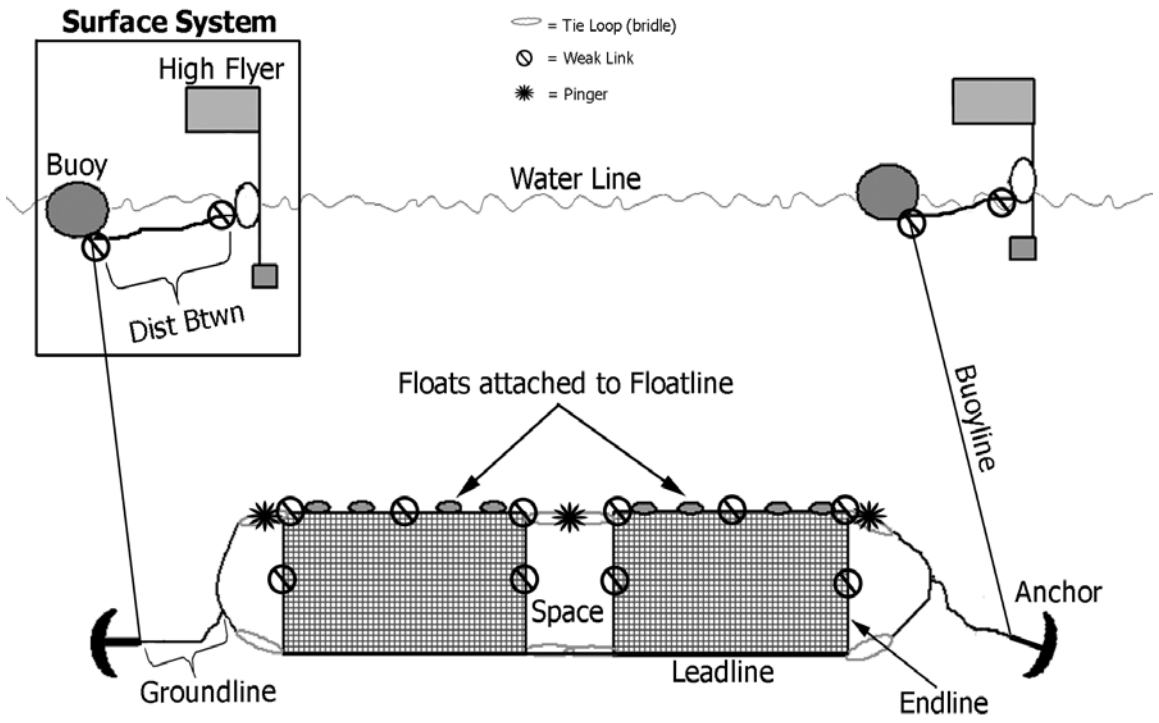

Figure 4. Typical gillnet gear configuration. Photo Credit: NOAA Fisheries Service Northeast Regional Office (Original image modified to include additional information).