ICE ANCHOR SYSTEM

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ABSTRACT
An ice anchor system, configured to secure items to a layer of ice formed at the surface of a body of water, is provided. The layer of ice has a bottom surface. The ice anchor system includes an anchor configured to seat against the bottom surface of the layer of ice. The anchor has a fin. A line is attached to the anchor and a float is slidably attached to the line. The float has a buoyancy. The anchor is configured for a substantially vertical orientation for insertion through an opening in the layer of ice and the fin is configured to urge the anchor into a substantially horizontal orientation for seating against the bottom surface of the layer of ice. The buoyancy of the float is configured to maintain the seating of the anchor against the bottom surface of the layer of ice.
ICE ANCHOR SYSTEM

RELATED APPLICATIONS

[0001] This application claims the benefit of U.S. Provisional Application No. 61/345,724, filed May 18, 2010, the disclosure of which is incorporated herein by reference.

BACKGROUND

[0002] In certain instances it is desired to secure items, such as for example, ice fishing shanties and hunting blinds, to a layer of ice formed at the surface of a body of water, such as a lake or pond. Conventional methods of securing items to a layer of ice involve forming holes in the layer of ice and inserting threaded “T” shaped anchors into the formed holes. A securing member, such as for example, a rope or line, subsequently connects the ice fishing shanty to the T-shaped anchor.

[0003] While effective, the conventional methods can be difficult, time-consuming and can require more than a single person to accomplish. It would be advantageous if ice anchors could be improved.

SUMMARY OF THE INVENTION

[0004] The above objects, as well as other objects not specifically enumerated, are achieved by an ice anchor system configured to secure items to a layer of ice formed at the surface of a body of water. The layer of ice has a bottom surface. The ice anchor system includes an anchor configured to seat against the bottom surface of the layer of ice. The anchor has a fin. A line is attached to the anchor and a float is slidably attached to the line. The float has a buoyancy. The anchor is configured for a substantially vertical orientation for insertion through an opening in the layer of ice and the fin is configured to urge the anchor into a substantially horizontal orientation for seating against the bottom surface of the layer of ice. The buoyancy of the float is configured to maintain the seating of the anchor against the bottom surface of the layer of ice.

[0005] According to this invention there is also provided an ice anchor system configured to secure items to a layer of ice formed at the surface of a body of water. The layer of ice has a bottom surface. The ice anchor system includes an anchor configured to seat against the bottom surface of the layer of ice. The anchor has a fin. A rod is attached to the anchor and a span member is attached to the rod. The span member is configured to extend beyond an opening in the layer of ice. The anchor is configured for a substantially vertical orientation for insertion through an opening in the layer of ice and the fin is configured to urge the anchor into a substantially horizontal orientation for seating against the bottom surface of the layer of ice. The span member is configured to seat against an upper surface of the layer of ice and further configured to maintain the seating of the anchor against the bottom surface of the layer of ice.

[0006] According to this invention there is also provided an anchor configured for securing items to a layer of ice formed at the surface of a body of water. The anchor includes a body having opposing end segments. At least one of the end segments has a fin. The body is configured for a substantially vertical orientation for insertion through an opening in the layer of ice and the fin is configured to urge the anchor into a substantially horizontal orientation for seating against the bottom surface of the layer of ice.

[0007] Various objects and advantages of the construction insert will become apparent to those skilled in the art from the following detailed description of the preferred embodiment, when read in light of the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] FIG. 1 is a side view, in elevation, of a first embodiment of an ice anchor system.

[0009] FIG. 2a is a plan view of a portion of the ice anchor system of FIG. 1 illustrating an anchor.

[0010] FIG. 2b is a side view, in elevation of a portion of the anchor of FIG. 1 illustrating a fin.

[0011] FIG. 3 is a side view, in elevation, of a hole formed through a layer of ice.

[0012] FIG. 4 is a side view, in elevation, of a first step in deploying the ice anchor system of FIG. 1.

[0013] FIG. 5 is a side view, in elevation, of a second step in deploying the ice anchor system of FIG. 1.

[0014] FIG. 6 is a side view, in elevation, of a third step in deploying the ice anchor system of FIG. 1.

[0015] FIG. 7 is a side view, in elevation, of a fourth step in deploying the ice anchor system of FIG. 1.

[0016] FIG. 8 is a side view, in elevation, of a final step in deploying the ice anchor system of FIG. 1.

[0017] FIG. 9 is a second embodiment of an ice anchor system.

[0018] FIG. 10 is a plan view of a second embodiment of an anchor.

[0019] FIG. 11 is a side view, in elevation, of the anchor of FIG. 9.

[0020] FIG. 12 is a side view, in elevation, of a third embodiment of an anchor.

[0021] FIG. 13 is a side view, in elevation, of a first step in deploying the anchor of FIG. 12.

[0022] FIG. 14 is a side view, in elevation, of the anchor of FIG. 12 illustrated in a deployed condition.

[0023] FIG. 15 is a side view, in elevation, of another embodiment of an anchor for an ice anchor system.

DETAILED DESCRIPTION OF THE INVENTION

[0024] The present invention will now be described with occasional reference to the specific embodiments of the invention. This invention may, however, be embodied in different forms and should not be construed as limited to the embodiments set forth herein. Rather, these embodiments are provided so that this disclosure will be thorough and complete, and will fully convey the scope of the invention to those skilled in the art.

[0025] Unless otherwise defined, all technical and scientific terms used herein have the same meanings as commonly understood by one of ordinary skill in the art to which this invention belongs. The terminology used in the description of the invention herein is for describing particular embodiments only and is not intended to be limiting of the invention. As used in the description of the invention and the appended claims, the singular forms “a,” “an,” and “the” are intended to include the plural forms as well, unless the context clearly indicates otherwise.

[0026] Unless otherwise indicated, all numbers expressing quantities of dimensions such as length, width, height, and so forth as used in the specification and claims are to be understood as being modified in all instances by the term “about.” Accordingly, unless otherwise indicated, the numerical properties set forth in the specification and claims are approximations that may vary depending on the desired properties sought to be obtained in embodiments of the present invention. Notwithstanding that the numerical ranges and parameters setting forth the broad scope of the invention are
approximations, the numerical values set forth in the specific examples are reported as precisely as possible. Any numerical values, however, inherently contain certain errors necessarily resulting from error found in their respective measurements.

[0027] The description and figures disclose an ice anchor system configured for securing items to a layer of ice formed at the surface of a body of water. The term “ice”, as used herein, is defined to mean frozen water. The term “anchor”, as used herein, is defined to mean any structure, mechanism or device used to secure an item to a layer of ice.

[0028] Referring now to FIG. 1, a first embodiment of an ice anchor system is shown generally at 10. Generally, the ice anchor system 10 is configured to secure various items, including the non-limiting examples of ice fishing shuttles and hunting blinds, to a layer of ice formed at the surface of a body of water, such as for example, a lake. The ice anchor system 10 is configured to be easy to install, by a single person, adjustable and reusable. The ice anchor system 10 includes an anchor 12, a line 14, a float 16, a first clip 18 and a second clip 20.

[0029] Referring again to FIG. 1, the anchor 12 is configured for insertion through an opening, such as for example, a hole in a layer of ice formed at the surface of a body of water. The body of water can be any body of water, including the non-limiting examples of a lake, pond or river. The anchor 12 is further configured to be seated against a bottom surface of the layer of ice.

[0030] As shown in FIG. 1, the anchor 12 includes a first end segment 22, a center segment 24, a second segment 26 and a cleat 28. Referring now to FIG. 2a, the center segment 24 is centered about a first axis A. The first end segment 22 is centered about a second axis B. The first end segment 22 extends from the center segment 24 such as to form an angle α between the first axis A and the second axis B. In the illustrated embodiment, angle α is in a range of from about 5° to about 40°. However, in other embodiments, angle α can be less than about 5° or more than about 40°.

[0031] Referring again to FIG. 1, the second end segment 26 extends from the center segment 24 and is centered about a third axis C. The second end segment 26 also forms an angle β between the first axis A and the third axis C. In the illustrated embodiment, angle β formed by the second end segment 26 and the center segment 24 is the same as, or similar to, the angle α formed by the first end segment 22 and the center segment 24. However, it should be appreciated that in other embodiments, angles α and β can be different from each other. As will be explained in more detail below, the angles α and β facilitate deployment of the ice anchor system 10 through an opening in the layer of ice.

[0032] Referring again to the embodiment illustrated in FIG. 1, the anchor 12 is made from a polymeric material, such as the non-limiting example of polypropylene. In other embodiments, the anchor 12 can be made from other materials or combinations of materials, including the non-limiting examples of polyethylene, aluminum or other metallic material and wood. Optionally, the anchor 12, or portions of the anchor 12, can have a high-visibility color coating, such as for example fluorescent orange, to facilitate the visibility of the anchor 12.

[0033] Referring now to FIGS. 1 and 2a, the first end segment 22, center segment 24 and second end segment 26 have a generally rounded structure providing for a generally circular cross-sectional shape. However, as will be explained in more detail below, in other embodiments, the first end segment 22, center segment 24 and second end segment 26 can have other cross-sectional shapes, including the non-limiting example of a more squared structure providing a generally rectangular cross-sectional shape.

[0034] Referring again to FIG. 2a, the first end segment 22 is optionally bifurcated to form lobes 30a and 30b. Similarly, the second end segment 26 is optionally bifurcated to form lobes 32a and 32b. The lobes 30a and 30b form optional notch 34. The lobes 32a and 32b form optional notch 36. The notches 34 and 36 are configured to provide a stop to which the line 14 can be wrapped around when the ice anchor system 10 is not in use. In other embodiments, the anchor 12 can include other structures, mechanisms or devices (not shown), such as the non-limiting example of brackets, for wrapping the line 14 when the ice anchor system is not in use.

[0035] Referring again to FIG. 2a, the anchor 12 has a length L. The length L of the anchor 12 is a function of a diameter of an opening, such as for example, a hole, in the layer of the ice. In one embodiment, the length L of the anchor 12 is such that the first end segment 22 and the second end segment 26 each extend a minimum distance of 2.0 inches beyond the opening in the layer of ice. For example, an opening in the ice having an approximate diameter of 10.0 inches results in a minimum length L of the anchor 12 of approximately 14.0 inches. In another example, an opening in the layer of ice having an approximate diameter of 6.0 inches results in a minimum length L of the anchor 12 of approximately 10.0 inches. While the above-mentioned examples provide for the first end segment 22 and the second end segment 26 each extending a minimum distance of 2.0 inches beyond the opening in the layer of ice, it should be appreciated that in other embodiments, the first end segment 22 and the second end segment 26 can each extend a minimum distance of more or less than 2.0 inches beyond the opening in the layer of ice.

[0036] Referring again to FIG. 1, the second end segment 26 includes an optional weight 38. The weight 38 is configured to cause the anchor 12 to pivot about the cleat 28 such that the second end segment 26 hangs lower than the first end segment 22 as the anchor 12 enters the opening in the layer of ice. In one embodiment, the weight 38 is formed within the anchor 12 as the anchor 12 is formed. In other embodiments, the weight 38 can be added to a previously formed anchor 12. The weight 38 can have any desired structure and can be made from any desired materials. In the illustrated embodiment, the weight 38 is in a range of from about 1.0 ounce to about 5.0 ounces. However, in other embodiments, the weight 38 can be less than about 1.0 ounce or more than about 5.0 ounces. In still other embodiments, the anchor 12 can be balanced such that no weight 38 is required.

[0037] Referring again to FIG. 2a, the first end segment 22 and a portion of the center segment 24 are illustrated. The first end segment 22 includes an upper surface 40. The upper surface 40 forms a fin 41 having a substantially flat portion. As will be explained in more detail below, the fin 41 is configured to rotate the anchor 12 about the cleat 28 such that the first end segment 22 and the second end segment 26 are in a generally horizontal plane as the anchor 12 moves in an upward direction toward a bottom surface of the layer of ice.

[0038] Referring again to FIG. 1, the cleat 28 is configured to allow a connection between the anchor 12 and the line 14. In certain embodiments, the cleat 28 can be formed integral to the anchor 12 as the anchor 12 is formed. In other embodiments, the cleat 28 can be added to a previously formed anchor 12. The cleat 28 is positioned to form a fulcrum about which the first and second segments, 22 and 26, pivot. In the illustrated embodiment, the cleat 28 is positioned in the approximate center of the length L of the anchor 12. In other embodiments, the cleat 28 can be positioned at any point
along the length L of the anchor 12 sufficient to form a fulcrum about which the first and second end segments, 22 and 26, pivot. The cleat 28 can have any desired structure and can be made from any desired materials.

[0039] In still other embodiments, the cleat 28 can be replaced by an aperture (not shown) through which the line 14 can be passed and secured. In some embodiments, the aperture can be formed such as to be generally perpendicular with the center segment 24. However, it should be appreciated that the aperture can be formed at an angle relative to the center segment 24.

[0040] As shown in FIG. 1, one end of the line 14 is connected to the cleat 28 and the other end of the line 14 is connected to a structure (not shown) to be secured to a layer of ice. In the illustrated embodiment, the line 14 is made from a non-water absorbing polymeric material, such as for example nylon and has a diameter in a range of from about 0.125 inches to about 0.50 inches. In other embodiments, the line 14 can be made from other non-water absorbing materials, such as for example metallic cable, and can have a diameter less than about 0.125 inches or more than about 0.50 inches.

[0041] Referring again to FIG. 1, the float 16 includes an aperture 44 that extends from one end of the float 16 to the other end of the float 16. The aperture 44 is configured to allow the line 14 to pass through the float 16 and further configured to provide a friction fit with the line 14. The friction fit provided by the aperture 44 is configured to permit the float 16 to move along the line 14 when sufficient force is applied to the float 16, but substantially prevents the float 16 from moving along the line 14 without the applied sufficient force.

[0042] In operation, the float 16 is moved along the line 14 to a position where it floats on the surface of water within the opening in the layer of ice. In that position, the float 16 is configured to maintain the anchor 12 in a seated position against the bottom surface of the layer of ice. In the illustrated embodiment, the float 16 has a cylindrical shape and is made of a high density polymeric foam. In other embodiments, the float can have other desired shapes, including the non-limiting shape of a cube, and can be made from other desired materials.

[0043] Referring again to FIG. 1, the line 14 extends through the float 16 and optionally forms a loop 46. The loop 46 in the line 14 is maintained by the first clip 18. In certain embodiments, the first clip 18 is configured to slide along the line 14 thereby allowing the size of the loop 46 to be adjustable. The first clip 18 can be any structure, mechanism or device configured to maintain and adjust the size of the loop 46 in the line 14.

[0044] The second clip 20 is engaged with the loop 46 formed in the line 14 and is configured for connection with one or more structures (not shown) to be secured to the layer of ice. While the illustrated embodiment shows the second clip 20 to have the structure of a ring or a loop, it should be appreciated that in other embodiments, the second clip 20 can have any desired structure. While the embodiment illustrated in FIG. 1 shows the line 14 forming the loop 46, it should be appreciated that in other embodiments the line 14 can be connected to a structure to be secured to the layer of ice without forming the loop 46.

[0045] Referring now to FIGS. 3-8, the operation of the ice anchor system 10 will be discussed. In a first step as shown in FIG. 3, an opening 50 is formed in a layer of ice 52 at the surface of a body of water 54. The opening 50 can be formed by any conventional method, including the non-limiting examples of drilling or chipping. Alternatively, a previously formed opening (not shown) can be used. The opening 50 can have any desired opening dimension D and the layer of ice 52 can have any thickness T. The layer of ice 52 has a bottom surface 56 and a top surface 58. The bottom surface 56 and the top surface 58 of the layer of ice 52 are not required to be smooth and can have any amount of roughness or voids. The body of water 54 within the opening 50 has a surface 60.

While the opening 50 illustrated in FIG. 3 is generally perpendicular to the layer of ice 52, it should be appreciated that in other embodiments the opening 50 can be formed at an angle with respect to the layer of ice 52.

[0046] Referring now to FIG. 4 in a next step, the ice anchor system 10 is readyed for deployment. The line 14 is attached to the cleat 28 and supports the anchor 12. The line 14 is also positioned through the aperture 44 in the float 16. The weight 38 positioned in the second end segment 26 causes the anchor 12 to pivot about the cleat 28, thereby rotating the first end segment 22 and resulting in a substantially vertical orientation of the anchor 12.

[0047] Referring now to FIG. 5, the anchor 12 suspended by the line 14 and in the substantially vertical orientation, is configured to pass through the opening 50 in the layer of ice 52.

[0048] Referring now to FIG. 6, the anchor 12 is lowered into the body of water 54 by the line 14 until the first end segment 22 of the anchor 12 clears the bottom surface 56 of the layer of ice 52. Once the first end segment 22 of the anchor 12 clears the bottom surface 56 of the layer of ice 52, the line 12 is pulled in a generally upward direction indicated by the arrows 62. Pulling the line 14 in the generally upward direction 62 causes the body of water 54 to push against the fin 41 having the substantially flat portion. The force of the body of water 54 against the fin 41 causes the anchor 12 to rotate in the counterclockwise direction (indicated by the arrow 64) about the cleat 28. The line 14 continues to be pulled in the generally upward direction 62 until the first and second end segments, 22 and 26, seat against the bottom surface 56 of the layer of ice 52 as shown in FIG. 7.

[0049] Referring again to FIG. 7, once the first and second end segments, 22 and 26, are seated against the bottom surface 56 of the layer of ice 52, the float 16 is moved in a downward direction (indicated by the arrow 66). The float 16 is moved in a downward direction until the float 16 rests tightly upon the surface 60 of the body of water 54 within the opening 50 as shown in FIG. 8. In this position, the buoyancy of the float 16 is configured to maintain the seating of the first and second end segments, 22 and 26, of the anchor 12 against the bottom surface 56 of the layer of ice 52. Once the anchor 12 is seated, the line 14 can be used to secure structures or items to the ice anchor system 10.

[0050] Removing an installed ice anchor system 10 simply involves undoing the installation steps described above in reverse order. While not shown, it is within the contemplation of this invention that the surface of the anchor 12 in contact with the bottom surface 56 of the layer of ice 52 can include projections, coatings or fins configured to improve the contact with the bottom surface 56 of the layer of ice 52. Examples of projections can include teeth or cogs. Non-limiting examples of coatings can include slip-resistant materials. Examples of finishes can include serrations or cross-cut patterns.

[0051] As described herein, the ice anchor system 10 advantageously provides many benefits over conventional ice anchors, although all benefits may not be present in all circumstances.

[0052] First, the ice anchor system 10 can be easily installed by a single person. Second, the ice anchor system 10
can be installed without the use of special tools. Third, the ice anchor system 10 can be installed and reused many times. Fourth, the ice anchor system 10 can be installed with the installer being in a generally upright stance and without the need for the installer to be in a bent over position or kneeling position. Fifth, the ice anchor system 10 only requires an ice thickness that is safe for human weight. Many conventional “screw-in anchors” require at least five inches of ice thickness. Sixth, there is no maximum ice thickness for the ice anchor system 10. Seventh, the ice anchor system 10 can reuse an opening previously formed in the layer of ice. Conventional “screw-in anchors” require a new hole to be drilled with each use. Finally, the ice anchor system 10 cannot be “lost” by accidently dropping components down an opening in the layer of ice.

[0053] While certain embodiments of the ice anchor system 10 have been described above, it should be appreciated that other embodiments of the ice anchor system have been contemplated. Another embodiment of an ice anchor system is shown in FIG. 9, generally at 110. In this embodiment, an anchor 112 includes a cleat 128. The cleat 128 is connected to a threaded rod 115 that extends in a generally upward direction through an aperture 144 in a span member 117. The span member 117 extends beyond an opening 150 in a layer of ice 152 and is seated against an upper surface 158 of the layer of ice 152. In certain embodiments, the span member 117 is a length of angle iron. In other embodiments, the span member 117 can have other forms and shapes, including the non-limiting example of a dish. The anchor 112 and the span member 117 can be held in place by a fastener 119. In the illustrated embodiment, the fastener 119 is a threaded nut. However, the fastener 119 can have other desired forms including quick-release mechanisms. As shown in FIG. 9, a line 114 can be connected to the threaded rod 115 in any desired manner. The line 114 can then be connected to other structures as described above.

[0054] Yet another embodiment of an anchor 212 is illustrated in FIGS. 10 and 11. In this embodiment, the anchor 212 includes a first segment 222a connected to a second segment 222b. The first segment 222a includes an end segment 222 having a plurality of angled surfaces 270a-270c. The plurality of angled surfaces 270a-270c is configured to form a fin 241. Similarly, the second segment 222b includes an end segment 226 having a plurality of angled surfaces 272a-272c. The plurality of angled surfaces 272a-272c is configured to form a fin 243. The fins 241 and 243, are configured to function in the same, or similar manner to the fin 41 discussed above and illustrated in FIG. 2b. While the embodiment illustrated in FIGS. 10 and 11 show a quantity of three angled surfaces, 270a-270c and 272a-272c, configured to form fins, 241 and 243, is should be appreciated that in other embodiments, more or less than three angled surfaces can be used to form the fins.

[0055] Referring again to the embodiment shown in FIGS. 10 and 11, the end segments 222 and 226 having the angled surfaces 270a-270c and 272a-272c can form points 274a, 274b, 276a, and 276b. In certain embodiments, the points 274a, 274b, 276a, and 276b can be advantageously used as a chisel for forming a new opening in a layer of ice or clearing newly formed ice from a previously formed opening.

[0056] Another embodiment of an anchor 312 is illustrated in FIG. 12. In this embodiment, the anchor 312 includes a first end segment 322, a center segment 324, a second end segment 326 and a cleat 328. In the illustrated embodiment, the first end segment 322, center segment 324 and second end segment 326 are the same as, or similar to the first end segment 22, center segment 24 and second end segment 26 discussed above and illustrated in FIG. 1. However, in other embodiments, the first end segment 322, center segment 324 and second end segment 326 can be different from the first end segment 22, center segment 24 and second end segment 26.

[0057] Referring again to FIG. 12, the cleat 328 includes a first end 370, a second end 372 and a connector 374. As shown in FIG. 12, the first end 370 has a height that is higher than the height of the second end 372. However, it should be appreciated that in other embodiments, the height of the second end 372 can be higher than the height of the first end 370.

[0058] The connector 374 is configured to connect the first end 370 with the second end 372. As a result of the differing heights of the first end 370 and the second end 372, the connector 374 forms an incline with respect to a generally horizontal line.

[0059] Referring now to FIGS. 13 and 14, the operation of the anchor 312 will be discussed. Referring to FIG. 13 in a first step, an ice anchor system 310 is readied for deployment. A line 314 is attached to the cleat 328 via ring 376. In the illustrated embodiment, the line 314 is the same as, or similar to, the line 14 discussed above and illustrated in FIG. 1. In other embodiments, the line 314 can be different from the line 14.

[0060] The ring 376 is configured to connect the line 314 with the cleat 328. The ring 376 is further configured to slide along the length of the connector 374 from the first end 370 to the second end 372 of the cleat 328. In certain embodiments, the ring 376 is made of a metallic material, such as the non-limiting example of stainless steel. However, the ring 376 can be made of other materials, including reinforced polymeric materials.

[0061] One end of the line 314 is passed through a float 316 in the same manner as discussed above. As the anchor 312 is raised, the ring 376 slides along the downward incline of the connector 374 toward the second end 372 until the ring 376 is positioned at the intersection of the second end 372 and the connector 374. In this position, the anchor 312 is unbalanced and the unbalanced weight of the anchor 312 causes the first end 370 of the anchor 312 to pivot about the ring 376 until the anchor 312 is in a substantially vertical orientation.

[0062] Referring again to FIG. 13, the anchor 312, suspended by the line 314 and in the substantially vertical orientation, is able to pass through an opening 350 in a layer of ice 352. The anchor 312 is lowered by the line 314 until the second end segment 326 of the anchor 312 clears a bottom surface 356 in the layer of ice 352. Once the anchor 312 clears the bottom surface 356, the line 314 is pulled in a generally upward direction in the same manner as discussed above. Pulling the line 314 in an upward direction causes the ring 376 to move along the connector 376 in a direction away from the second end 372 and toward the first end 322 until the anchor 312 is in a generally horizontal position. The line 314 continues to be pulled in the generally upward direction until the first end segment 322 and the second end portion 326 seat against the bottom surface 356 of the layer of ice 352 as shown in FIG. 14.

[0063] Referring again to FIG. 14, once the first end portion 322 and the second end portion 326 are seated against the bottom surface 356 of the layer of ice 352, the float 316 is moved in a downward direction until the float 316 rests tightly upon the surface 360 of the body of water 354 within the opening 350 as discussed above. Once the anchor 312 is seated, the line 314 can be used to secure structures or items to the ice anchor system 310. Removing an installed ice anchor system 310 simply involves undoing the installation steps described above in reverse order.
Another embodiment of an anchor 412 is illustrated in FIG. 12. In this embodiment, the anchor 412 includes one or more illumination apparatus 480 and one or more illumination ports 482. The combination of the illumination apparatus 480 and the illumination ports 482 is configured to illuminate the body of water under the bottom surface of the layer of ice as may be needed for fishing at night. The illumination apparatus 480 can have any desired types and configurations of power supplies and on/off switches. In the illustrated embodiment, the illumination apparatus 480 and the illumination ports 482 are formed within the anchor 412 as the anchor 412 is formed. In other embodiments, the illumination apparatus 480 can be added to a previously formed anchor 412. While the embodiment illustrated in FIG. 15 is shown to have a quantity of two illumination apparatus 480, it should be appreciated that any desired quantity of illumination apparatus 480 can be used.

The principle and mode of operation of the ice anchor system has been described in certain embodiments. However, it should be noted that the ice anchor system may be practiced otherwise than as specifically illustrated and described without departing from its scope.

What is claimed is:

1. An ice anchor system configured to secure items to a layer of ice formed at the surface of a body of water, the layer of ice having a bottom surface, the ice anchor system comprising:
   - an anchor configured to seat against the bottom surface of the layer of ice, the anchor having a fin;
   - a line attached to the anchor; and
   - a float slidably attached to the line, the float having a buoyancy;
   wherein the anchor is configured for a substantially vertical orientation for insertion through an opening in the layer of ice and the fin is configured to urge the anchor into a substantially horizontal orientation for seating against the bottom surface of the layer of ice, and
   wherein the buoyancy of the float is configured to maintain the seating of the anchor against the bottom surface of the layer of ice.

2. The ice anchor system of claim 1, wherein the anchor includes a center segment attached to opposing end segments, wherein the opposing end segments form angles with the center segment, and wherein the angles are in a range from about 5° to about 40°.

3. The ice anchor system of claim 2, wherein the opposing end segments include lobes.

4. The ice anchor system of claim 1, wherein the anchor includes a cleat, and wherein the line is attached to the cleat.

5. The ice anchor system of claim 2, wherein one of the end segments includes a weight.

6. The ice anchor system of claim 2, wherein one of the end segments includes an illumination apparatus.

7. The ice anchor system of claim 1, wherein the anchor includes opposing first and second segments, wherein at least one of the first and second segments includes a plurality of angled surfaces, wherein the plurality of angled surfaces are configured to form a fin.

8. An ice anchor system configured to secure items to a layer of ice formed at the surface of a body of water, the layer of ice having a bottom surface, the ice anchor system comprising:
   - an anchor configured to seat against the bottom surface of the layer of ice, the anchor having a fin;
   - a rod attached to the anchor; and
   - a span member attached to the rod, the span member configured to extend beyond an opening in the layer of ice;
   wherein the anchor is configured for a substantially vertical orientation for insertion through an opening in the layer of ice and the fin is configured to urge the anchor into a substantially horizontal orientation for seating against the bottom surface of the layer of ice, and
   wherein the span member is configured to seat against an upper surface of the layer of ice and further configured to maintain the seating of the anchor against the bottom surface of the layer of ice.

9. The ice anchor system of claim 8, wherein the rod is a threaded rod.

10. The ice anchor system of claim 9, wherein the span member is held against the upper surface of the layer of ice by a fastener.

11. The ice anchor system of claim 2, wherein the span member is made of angle iron.

12. An ice anchor system for securing items to a layer of ice formed at the surface of a body of water, the anchor comprising:
   - a body having opposing end segments, at least one of the end segments having a fin;
   wherein the body is configured for a substantially vertical orientation for insertion through an opening in the layer of ice and the fin is configured to urge the anchor into a substantially horizontal orientation for seating against the bottom surface of the layer of ice.

13. The anchor of claim 12, wherein the anchor includes a center segment attached to opposing end segments, wherein the opposing end segments form angles with the center segment, and wherein the angles are in a range of from about 5° to about 40°.

14. The anchor of claim 12, wherein the opposing end segments include lobes.

15. The anchor of claim 12, wherein one of the end segments includes a weight.

16. The anchor of claim 12, wherein one of the end segments includes an illumination apparatus.

17. The anchor of claim 12, wherein the anchor includes a cleat, and wherein a line is attached to the cleat.

18. The anchor of claim 17, wherein the cleat has a connector configured to connect opposing ends, wherein the heights of the opposing ends is different from each other.

19. The anchor of claim 18, wherein a ring is configured to slide along the connector from one end of the cleat to the other end of the cleat.