

5112 Ropeless Goals (replace the line and float):

- Recover the trap or trawl
- Mark the location for the fisherman
- Help searching if the gear is moved (storm or dragging)
- Allow for and improve fisheries enforcement
- Inform both mobile and fixed gear fishermen of positions
- Easy to use and reuse (no tools required)
- Very Long useful life in very harsh environments
- Limit consumables to batteries and O-rings (everything is reused)
- Leave nothing behind and do no harm



**22.5 inch release cage with 250 feet
line capacity**



**48 inch release cage with 800 feet
line capacity**

RFS Surface Components

EdgeTech BLEAT (Bluetooth Low Energy Acoustic Transceiver) Deck Unit

- Portable or permanent installation on boat
- Portable powered by “C” cell batteries
- Installed powered by boats 12 VDC
- Dunking or Hull mounted Transducer
- Blue tooth connection to Trap Tracker application



Introduction

Key features of the 5112 Ropeless fishing system:

- Release Cage uses the same materials and dimensions as common lobster traps.
- Rope basket can be scaled up or down to fit more or less line.
 - 22 inch Release cage capacity 250 feet 3/8 Poly Dac rope
 - 48 inch Release cage capacity 800 feet 3/8 Poly Dac rope
 - 48 inch 24 inch tall cage capacity 1200 feet 1/2 Poly Dac rope
- Release Cage can be made by fishermen or trap manufacturers, there is no need to purchase from EdgeTech.
- The Release is re-armed with a screw-on link that takes seconds and can be done while wearing gloves.

5112 Release Key Features:

- Highly resistant to corrosion (Nickel Aluminum Bronze Alloy)
- Designed to stand up to extreme environments
- Expected Useful Life: 15-20 years
- Easy to re-arm with reusable screw-on Release link (no tools)
- Uses 9-volt replaceable batteries:
 - Life: 1 year, (alkaline) 3000 replies, 100 releases
 - Life: 2 year (Lithium), 6000 replies, 200 releases
- Batteries and Anodes can be purchased locally

5112 Acoustic Release

Full Transponder and Release that returns information, such as:

- Range
- Release ID
- Tilt Status
- Release Confirmation
- Battery Status
- Ambient temperature

5112 Ropeless Fishing System



MECHANICAL SPECIFICATION:

- **Release Mechanism:** Motor driven push off mechanism
- **Release Load Rating:** 112kg (250lbs)
- **Lifting Load Rating:** 225kg (500lbs)
- **Depth Rating:** 500 meters (1640ft)
- **Exposed Materials:** Nickel Aluminum Bronze Alloy, Buna-N, ULTEM and Nylon

Acoustic Specifications:

- **Command Frequencies:** 17.5kHz to 18kHz
- **Command Codes:** Expanded Acoustic Command System (XACS)
Over 1 billion unique codes
- **Transmit Source Level:** 190 dB re 1 μ Pascal at 1 meter
- **Receiver Sensitivity:** -78 dB re 1 μ Pascal at 1 meter



EdgeTech Trap Tracker app

- Available for both Android and IOS
- Syncs with the cloud and other devices
- Stores history for all units
- Reads ID tags for easy input
- Includes charts and displays positions

5112 Ropeless Fishing System



System Operation

7:40

LTE

< Back

#88CE999A8A

Edit

Unit Details

Serial Number

88CE999A8A

Model Number

5112

Date Manufactured

Jul 2, 2019

Date New Battery

Release Command

88CE999A8B

Status Command

88CE999A8A

Last Status

No data available

Operational Details

Deployed

Yes

Date/Time

Aug 15, 2019 7:38:49 AM EDT

Trapline Begin

41° 46' 60" N, 70° 45' 10" W

Trapline End

41° 46' 60" N, 70° 45' 10" W

RECOVER

System Operation:

Setting out:

The 5112 Ropeless release system is attached to either end of a trawl.

The system is chosen from the equipment list or a NFC tag attached to the cage is read by using the App.

When the 1st pot is set out the lobsterman pushes the **Start Trap Line** button on the Trap Tracker app and the release ID, and position of the trap is logged on the device and to the cloud data base.

When the last trap in the trawl hits the water the lobsterman pushes the **Finish** button on the App and the serial number and position is logged in the App and cloud data base.

5112 Ropeless Fishing System



System Operation

2:58 LTE

< Back #88CE999A8A Edit

Unit Details

Serial Number 88CE999A8A

Model Number 5112

Date Manufactured Jul 2, 2019

Date New Battery

Release Status 9A8B 9A8A

Last

No d

Oper

Depl

Date

Recovered At 41° 46' 59" N, 70° 45' 10" W

Range 0m

Temperature 75°F

Catch Quantity 1

Trap Count 1

DEPLOY

Deploy Traps

Start Trap Line

Use Single Trap Point

Cancel

7:37 LTE

< Back #88CE999A8A Edit

Unit Details

Serial Number 88CE999A8A

Model Number 5112

Date Manufactured Jul 2, 2019

Date New Battery

Release Status 9A8B 9A8A

Last

No d

Oper

Depl

Date

Recovered At 41° 47' 0" N, 70° 45' 10" W

Range 0m

Temperature 75°F

Catch Quantity 0

Trap Count Not Set

DEPLOY

End Trap Line

7 sec

Finish

Cancel

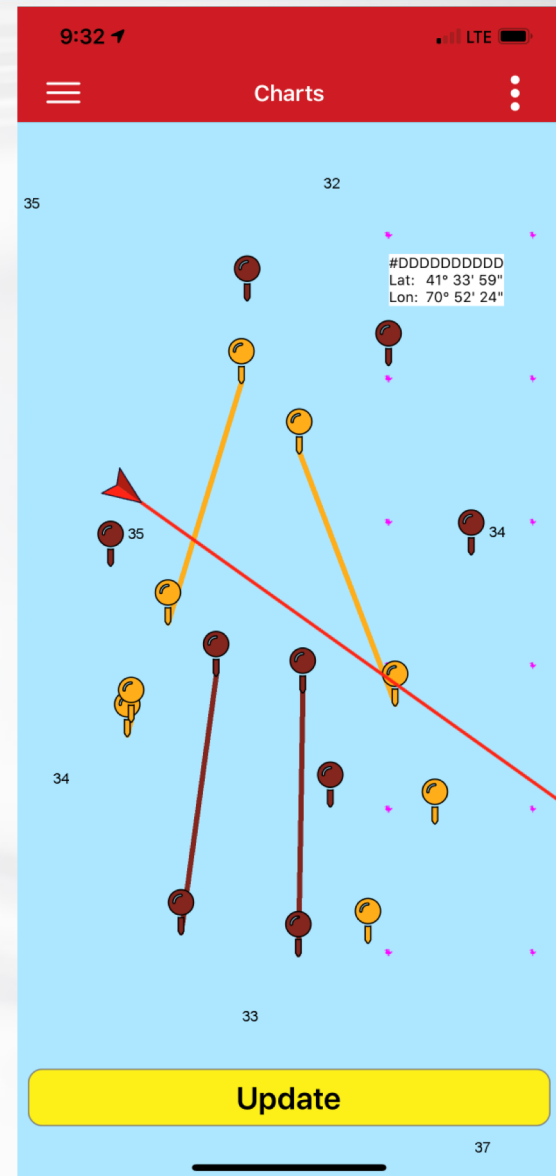
5112 Ropeless Fishing System



System Operation:

Trap Tracker Chart Display

Pressing the Update button will pull in updated information from the fisheries Cloud database. This will display the location of other 5112 cages within 5 miles of the device's current position. The system pulls in data of units within 25 miles but only displays other fishermen's units within 5 miles of current location.



System Operation:

Retrieving gear:

To retrieve traps the lobsterman using the app proceeds to the area where the trawl is set. The dunking transducer is put over the side and the lobsterman sends the **Recover** command.

The acoustic release will respond to the release command, sending release confirmation, range and temperature, this information is updated in the app and in the cloud. Then the top floatation cover of the cage will float to the surface with the line attached to the bridle of the release cage. (The ascent rate is about 4 feet per second).

The lobsterman can then recover the top float and haul in the release cage just like he would a normal end trap and recover the rest of the trawl.

5112 Ropeless Fishing System



Maintenance:

5112 release is designed to be inexpensive to maintain and to be extremely Rugged and reliable for a 15-20 year life.

The exposed materials are Nickel Aluminum Bronze Alloy, Buna-N, ULTEM and Nylon. EdgeTech releases manufactured from the same materials are still in the field after over 25 years of continuous use.

9 volt battery's and zinc anodes can be purchased off the shelf locally.

The Release link is not a sacrificial link and can be reused thousands of times. There are no consumables with each deployment. We leave nothing behind.

Testing:

Some of the parameters we tested were:

- Release Cage attitude and stability
- Descent rate
- Ascent rate
- Communication reliability and range performance
- Ease of use

The systems were tested many times at depths ranging from 30-100 feet with a 100% recovery rate. Multiple systems were also deployed very close to each other to confirm that they do not interfere with each other.

Testing Results:

Tested Depth Ranges: 30-100 feet.

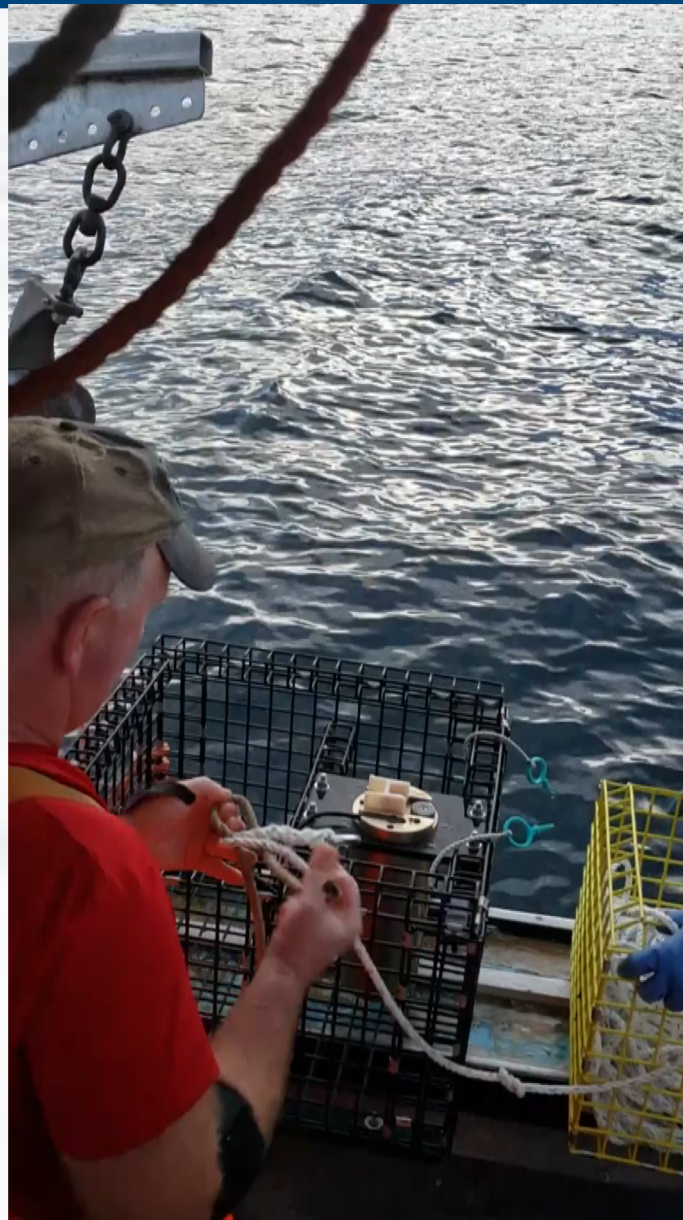
- There were no false or early releases
- Release Cages corrected their orientation *without fail* after descending 1-3 feet
- Descent rate was 2 feet per second
- Release Cages descended with less than a 2 degree variation on the long and short axis
- Communication distance of 2,000 meters maximum 1000+ meters in the worst conditions
- The Cages were easy to repack, re-arm, and re-deploy
- The System was reliable and stood up to back deck operations and many deployments



5112 Ropeless Fishing System



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Impact to Marine Mammals:

- The 5112 Release **only responds** to user sent commands while in the area. Therefore, there **will be little or no acoustic impact**.
- The medium frequency used in the XACS command structure quickly attenuates in the water.
- There is no chance of the system releasing, unless the releases specific release command is received. There are 1 billion unique commands which are extremely secure.

CONCLUSION

- Uses proven technology
- Low operating cost and little required maintenance
- Rugged, built to withstand extreme environments and abuse
- System controlled with deck box and the EdgeTech Trap Tracker Application
- Logs position of the start and end of trawls and synchs data with cloud data base to display on Trap Tracker App.
- Outputs position in GPX format for input to 3rd party Chart plotters
- Easy to use
- Communication reliability and range, to 2000 meters.
- Fisheries enforcement can be easily accomplished as every release has a universal address that can be queried by fisheries enforcement or other fishermen for release ID and range.
- Fisheries can also download all of the information in the cloud each week to keep records of all deployments and recoveries.(requires special access)

What you do underwater is your business...



Helping you do it better is ours.