On-Demand Gear Research & Development

Northeast Fisheries Science Center
NOAA National Marine Fisheries Service

Tentative Federal Timeline

2025	NEFMC & MAFMC final action on alternative gear marking framework
2026	Rulemaking for alternative gear marking framework
2027 - 2029	Possible approval of gear marking and on-demand systems
2029	Next ALWTRP Regulation Deadline (in place by 12/31/2028)*

Currently, the only way to use on-demand rigged gear is to fish under a research permit. On-demand gear will not be available without a research permit until and unless both alternative gear marking and on-demand systems are approved. There are currently no plans to require on-demand fishing. Fishing with buoy lines will still be permitted outside Atlantic Large Whale Take Reduction Plan (ALWTRP) restricted areas.

**Deadline established by Congress in the Consolidated Appropriations Act, 2023*

Cost Outlook

- Currently on-demand devices that replace buoy lines cost several hundred to several thousand dollars. Vessel technology to communicate with those devices typically costs several thousand dollars.

- Digital gear locations can be displayed on mobile apps or directly on certain chartplotters. Receiving this information in real-time at sea requires a cellular or satellite internet connection, which have variable costs. Both broadband and Iridium satellite options are being developed.

- There may be solutions offered by the market that reduce the cost burden to individual fishermen, such as gear lending programs or third party funding.

- Some fishermen in Canada, California, and Massachusetts have purchased on-demand gear.

Mobile Gear Fishermen Cost Outlook

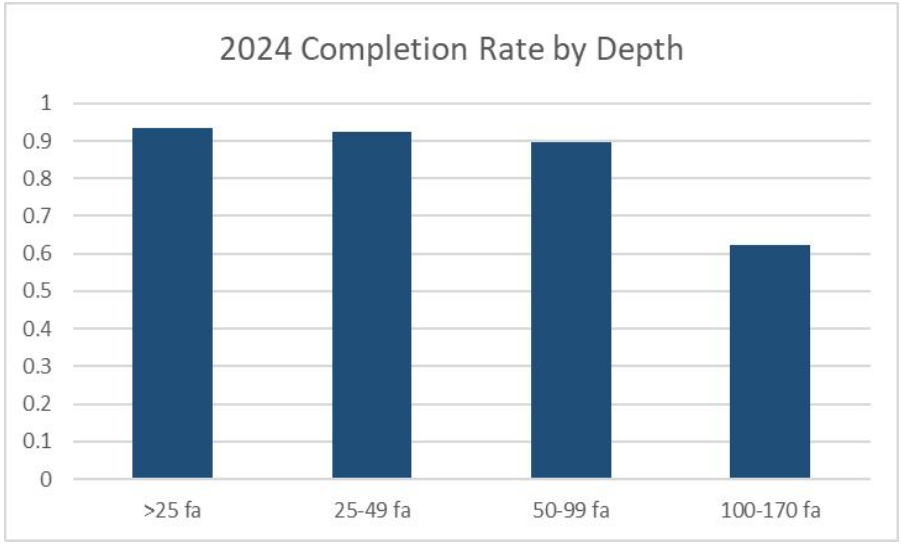
- The goal of technology development is to provide alternative gear marking and sharing systems in the most cost effective and least disruptive way.

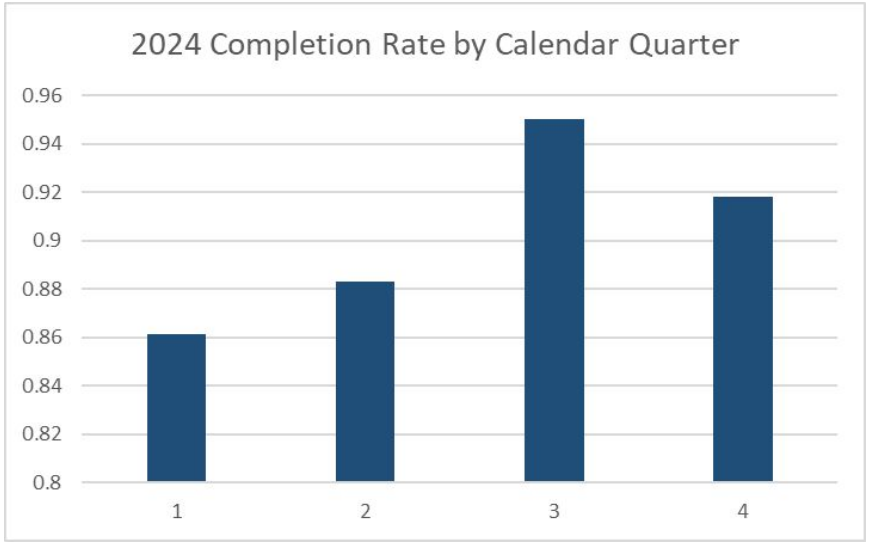
- Currently available on TimeZero chartplotters and multiple mobile apps, including a free option (ER Buoy). Work is underway to bring functionality to Olex and standalone multi-function-displays (MFD) such as Garmin.

- At sea satellite internet connectivity could be needed to receive gear set locations in real time. Broadband and Iridium solutions are being investigated.
    - Broadband Satellite - 50 GB Starlink data plan (~$250/mo)
    - Iridium Satellite - Blue Ocean Gear is developing a device to display gear markers on 7 different chartplotters (~$25/mo)

2024 On-Demand Performance

Overall performance rate (91%) doesn't tell the full story of variability across times/areas.





Proportion of hauls that were completed as intended using on-demand systems by depth. Data is from open area testing using hybrid trawls and excludes trials of beta designs. N = 3578, 1372, 584, 45, respectively, per depth category.

Proportion of hauls that were completed as intended using on-demand systems by 2024 calendar quarter. Data includes experimental fishing effort in ALWTRP restricted areas and open area testing, but exclude beta designs. N = 807, 1453, 2617, 1680.

Ghost Gear

- Fixed gear loss is a problem with traditional buoyed gear, but the amount of gear lost annually is hard to estimate.
- To date, on-demand gear loss in NEFSC collaborative research has been low, with fewer than 1 in 600 hauls resulting in the loss of a device.
- Fixed gear without buoy lines and surface marking systems may be protected from some gear loss events.
- The acoustic communication component of on-demand gear can be used to find and retrieve lost gear. This has been demonstrated in the NEFSC trials.
- Alternative gear marking systems display gear markers in all weather conditions, which is an advantage over physical markers, but does required widespread technology uptake.

Alternative Gear Marking Privacy

- During the research phase, mariners can see anonymized gear set locations within a 5-nautical-mile radius of their current position. Safeguards are in place to prevent location spoofing or seeing all gear locations during planning mode (e.g. TimeZero).

- Data access and privacy rules for alternative gear marking and sharing systems will need to be established via a data governance plan.
    - In 2025, the Ropeless Consortium On-Demand Data Governance Working Group released a series of governance recommendations in this report.

Testing Gear & Owning On-Demand Systems

- While some early adopters have purchased on-demand gear and associated technologies. Currently, the only way to use on-demand rigged gear is to participate in one of the collaborative research trials and fish under a research permit, such as a federal EFP.

- NEFSC research program utilizes a lending library of on-demand gear. The EFP limits the number of modified trawls deployed and the number that each participant can fish; so fishermen owned gear is largely prohibited. NEFSC strives to involve all interested fishermen while being diligent about gear conflict concerns.

- Commercial fishing permit holders interested in participating in on-demand testing can contact the NEFSC Gear Research Team at nec.gearlibrary@noaa.gov. All qualifying fishermen are welcome to join. Alternatively, consider the research programs organized by MEDMR and MADMF.

For More Information:

Please visit the Gear Research Team's website by going to https://www.fisheries.noaa.gov/ and searching *Protected Species Gear Research* or contact the Gear Research Team at nec.gearlibrary@noaa.gov