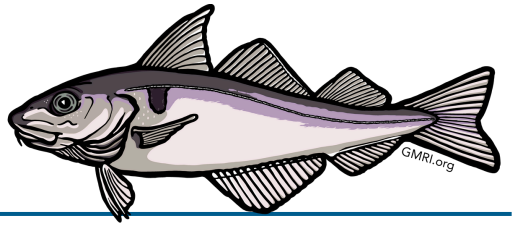
Measuring Quality: Haddock



Handling Strategies

- Trawl gear
- 2-4 day trips
- Fish stored in layered ice in the hold

Total fish measured: 454 haddock from one vessel (representing an estimated 2,000 lbs) across 4 trips, and 300 fish from offloads of other vessels when possible.

Methods of Measuring Quality

Certified Quality Reader (CQR) – handheld device that runs a small electrical current through fish tissue to measure resistance; higher numbers indicate higher quality.

Temperature data – tracked fish temperature with digital loggers on the vessels through offload.

Key Results

- Temperature loggers placed in individual fish at the top, middle, and bottom of the hold were consistent at 31-32°F across 4 trips, indicating enough ice was used. It could potentially indicate a well-insulated or well-sealed hold (preventing cool air from leaking out). Any quality issues are likely caused by practices other than chilling (e.g. handling during sorting or offload, crushing in the hold, cleaning).
- A small sample of fish showed that the middle layer of the hold had the highest quality. Lower scores for the top and bottom of the hold could be due to crushing (on the bottom), partial freezing and then thawing, or temperature fluctuations (on the top - unlikely due to the consistency seen in the temperature loggers).
- Fish from all four trips had similar average CQR scores, but there were differences in the range of scores from low to high quality on each trip. Protocols on deck during trips with different catch composition (more haddock vs. more flounder) might explain these differences. There were no major differences in water temperature, air temperature, or water depth across these trips.
- For one trip, second measurements where taken after 24 hours of storage in the offload facility. The CQR score went down 3 points. Quality is expected to degrade over time, and there is not enough data to know what is an ideal rate for good quality haddock. However, a faster than normal CQR drop could indicate not enough ice was used by the offload facility and/or fish coming off the boat had factors that sped degradation (e.g. bruising, crushing, bacteria accumulation, etc).

Takeaways

- For any vessel, tracking whether fish are adequately chilled - to below 40°F on deck and in the hold - is valuable for identifying whether chilling or other practices might be responsible for any quality issues.
- More data is needed to verify whether higher quality in the middle layer of the hold stays true across the catch, and to explore why.
- More shelf-life data is needed to understand ideal rates of quality degradation over time.

For more details on this experiment with this species and results on quality experiments with a range of other species, visit gmri.org/quality.

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