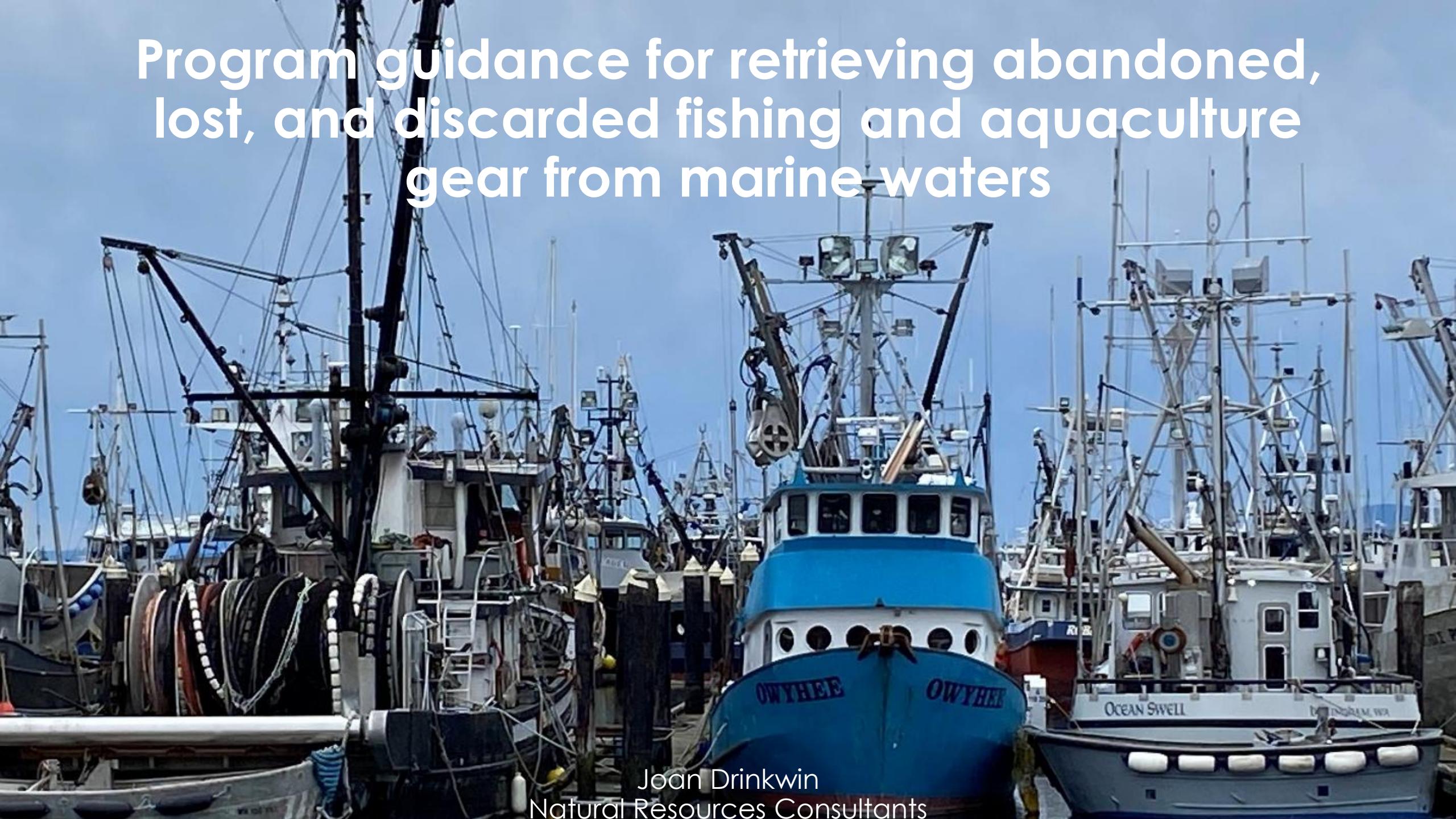


# Program guidance for retrieving abandoned, lost, and discarded fishing and aquaculture gear from marine waters



Joan Drinkwin  
Natural Resources Consultants

# Contents



Purpose and background

General Considerations

Location Methods

Retrieval Methods

Programmatic Guidance: the Big Picture

- Case Studies
- ALDFG Management in the U.S. Washington State Coastal Dungeness Crab Fishery
- Norway Directorate of Fisheries ALDFG Reporting and Retrieval
- Ghost Diving Foundation and Healthy Seas: Ghost Farms Clean up in Greece
- The Evolution of the Myanmar Ocean Project's Fight Against Ghost Gear
- Ghost Net Removal in the Upper Gulf of California

Looking Forward

References

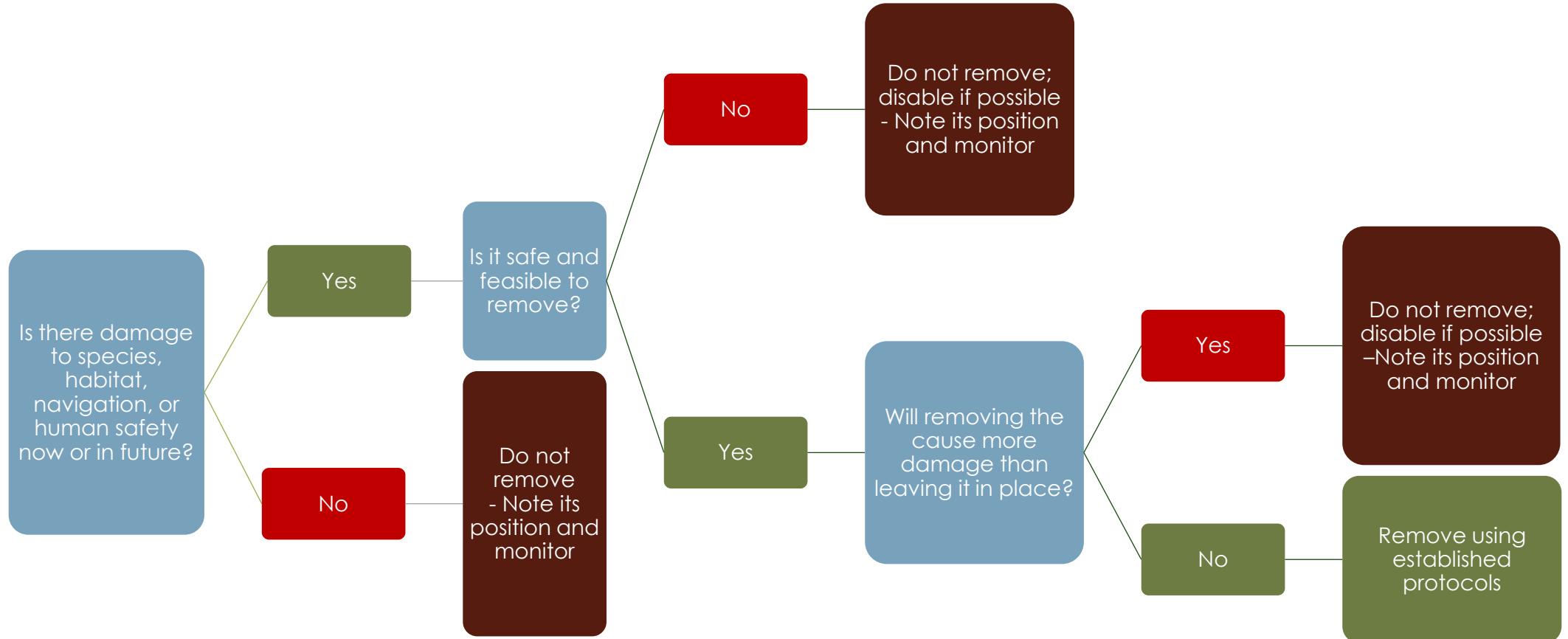
Appendix 1: ALDFG Program, Retrieval and Location methods guidance documents

Appendix 2: ALDFG Removal Plan Outline

## General Considerations

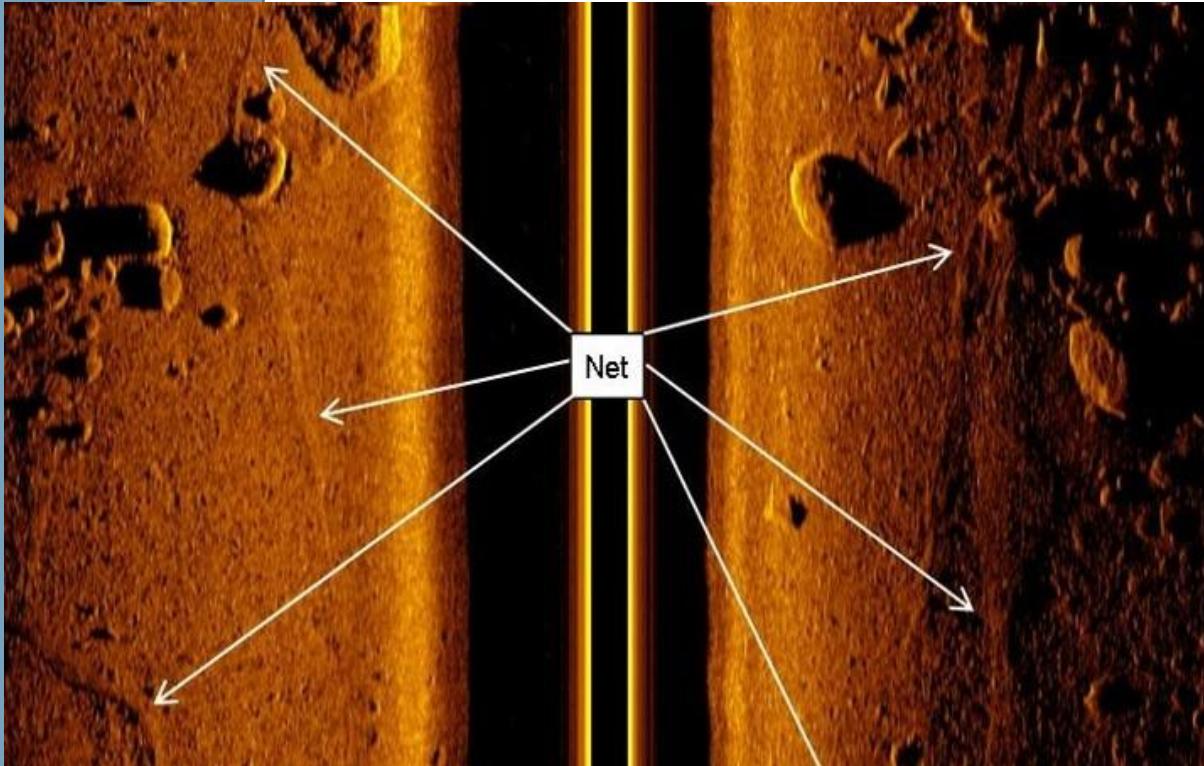
- Consider the local situation and need for actions in terms of what gear is being lost and why.
- Regulatory and cultural context of the area should be considered, and support from local harvesters, indigenous groups, and aquaculture farmers should be sought.
- Required permits to remove ALDFG should be identified and acquired.
- Clear goals and objectives should be articulated and anticipated to measure success.
- Determine what data should be collected to measure success, establish baseline information, and assess impacts from ALDFG and how the data will be managed to ensure easy access and dissemination.
- Disposal options should be identified and secured before retrieval activities.





## Location Methods

- Assessing local knowledge
- Acoustic sonar surveys
- ROV and towed underwater camera surveys
- Diver surveys
- Surface visual surveys
- Aerial surveys





## Retrieval Methods

- Diving
- Grappling, trawling, dragging, or creeping
- ROV Retrieval
- Surface retrieval



*Table 1. Advantages and disadvantages of diving retrieval methods*

Diving method	Advantages	Disadvantages
Free diving	Nimbleness; less drag; flexible vessel requirements	No air; limited to shallow, high visibility conditions; no lift bag options; no communications
SCUBA diving	Nimbleness; less drag; more flexible vessel requirements	Limited airtime; no communications
Surface Supplied Air diving	Unlimited air time; audio communications	Less nimble; air hose can cause drag; requires air source on vessel

## Programmatic Guidance: the Big Picture





## Case Studies

- U.S. Washington State Coastal Dungeness Crab Fishery
- Norway Directorate of Fisheries ALDFG Reporting and Retrieval
- Ghost Diving Foundation and Healthy Seas: Ghost Farms Clean up in Greece
- Myanmar Ocean Project's Fight Against Ghost GearOverview of steps to develop tailored plans
- Ghost Net Removal in the Upper Gulf of California

# Appendix 1: ALDFG Program, Retrieval and Location methods guidance documents



- Protocolo para la detección y extracción de aparejos de pesca perdidos en el Mediterráneo (Protocol for the detection and removal of lost fishing gear in the Mediterranean); Hereu, B., Ortega, J., & Ylla Boix, J. (2020).
- Methods to locate and remove lost fishing gear from marine waters; Drinkwin, J., Antonelis, K., & Calloway, M. (2022).
- Derelict Fishing Gear Removal Guidelines; Washington Department of Fish and Wildlife. 2002
- California Lost Fishing Gear Recovery Project – Policies & Procedures; Seadoc Society. (2009).
- Manual Para Prevenir, Mitigar y Corregir los Daños Causados por la Pesca Fantasma en México (Manual for Preventing, Mitigating, and Correcting Damage Caused by Ghost Fishing in Mexico); Gobierno de Mexico (2023)
- Lost at Sea: A Ghost Gear Retrieval Manual; Fundy North Fishermen's Association (2016)
- MARELLIT Baltic Derelict fishing gear mapping and retrieval methodologies; Prędki, P., Kalinowska, M., & Migdał, S. (2019).



## Appendix 2: ALDFG Removal Plan Outline

- Adapted from MARELITT BALTIC Project
- Framework for organizing removal operations
- Adaptable to any location



## Looking Forward

- There is no single solution that applies universally;
- Each retrieval program must be tailored to local ecological, social, cultural, and regulatory contexts.
- The structured approaches, decision frameworks, and tested field methods outlined here can be adapted to diverse marine environments and governance structures.
- The integration of data collection and reporting into retrieval programs ensures that current actions contribute to a stronger foundation for future management, creating a continuous cycle of improvement.



# Contact

---

Joan Drinkwin or Kyle Antonelis  
Natural Resources Consultants  
[jdrinkwin@nrccorp.com](mailto:jdrinkwin@nrccorp.com),  
[kantonelis@nrccorp.com](mailto:kantonelis@nrccorp.com)

NRC 