



The Importance of Industry Engagement: Understanding Fishing to Inform Location, Mitigation and Compensation

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Globally, fisheries in regions with strong OSW industries are quite narrow in scope:

- North Sea:
 - Mobile Gear focused
- France:
 - Mobile Gear focused
- Asia
 - Diverse fisheries with generally low production
- United States:
 - Some mobile gear
 - Extensive fixed gear (lobster)

This translates into simplified pathways for both working with industry and coding mitigation and compensation regimes



Fisheries on the Scotian Shelf are Incredibly Diverse

Fixed Gear:

- Traps (lobster, crabs, hagfish, whelk, shrimp)
- Ground Longline (halibut, groundfish)
- Gillnet (herring, mackerel, groundfish)

Mobile Gear:

- Seiner (herring)
- Bottom Trawl (scallop, clam, sea cucumber, groundfish, shrimp)
- Pelagic Trawl (groundfish)

Other Gears:

- Rod and Reel (Tuna)
- Floating longline (Tuna/Swordfish)
- Harpoon (Swordfish)
- Buoy Gear (Swordfish)

Each fishery has its own geographic specificity which impacts how it must be treated – understanding the act of fishing is key to gaining civil license



Impacts ARE anticipated from OSW

DIRECT IMPACTS



Physical Obstructions



Fish Behavior Changes

INDIRECT IMPACTS



Habitat Disruption



Economic Changes

Broad range of impact pathways:

- Direct – impacting the ‘act’ of fishing and the ability to access those resources in and around OSW development
- Indirect – impact the productivity of the stock, our ability to accurately assess its health and anything that may alter the very marine environment that supports sustainable fisheries

This presentation will be focused on understanding the ‘act’ of fishing and why the input from the harvesting sector is vital to gainful coexistence between fisheries and the OSW sector by providing insights that cannot be gleaned from an activity map or description of landings.

Why Engagement is Important?

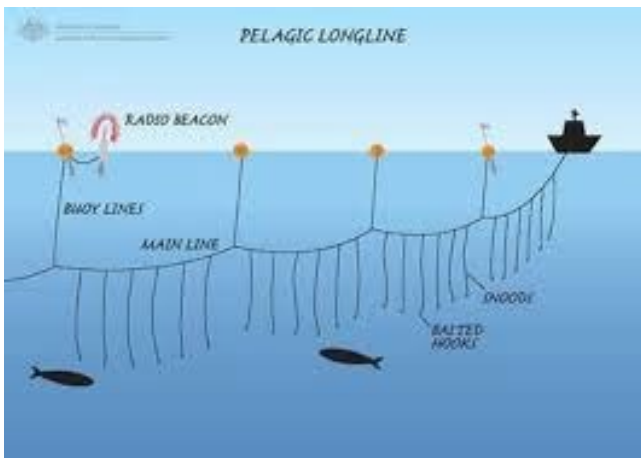
- Spatial landings data is often spatially incomplete
- Complexity of a fishery is often ignored
- Diverse participation means diverse engagement
- Developers often have no understanding of the 'how' fishing is done
- Developers don't understand the 'why' we fish where we do

Harvesters address these data gaps – let's look at some examples of why the industry is a key source of information:

Swordfish: Functional Gear Differences

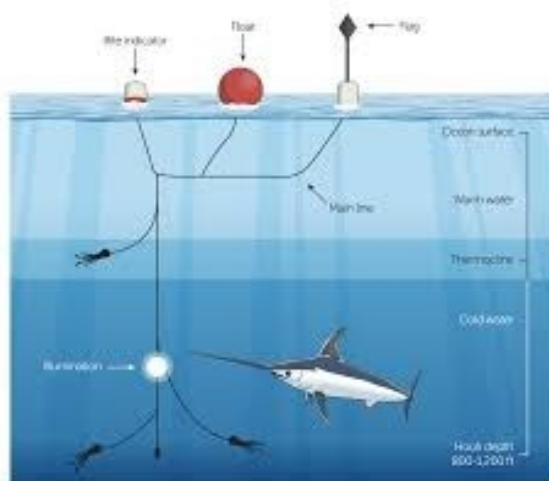
Pelagic Longline

- String can be 80 kms long
- Baited hooks suspended at various depths
- Gear 'floats' freely with tides/currents
- Can travel 100 km easily between set and retrieval



Buoy Gear

- Single vertical line with hooks set along to depth (down to 300 m+)
- Gear 'floats' freely with tides/current (10 km per set)
- Much more spatially restricted than longlines



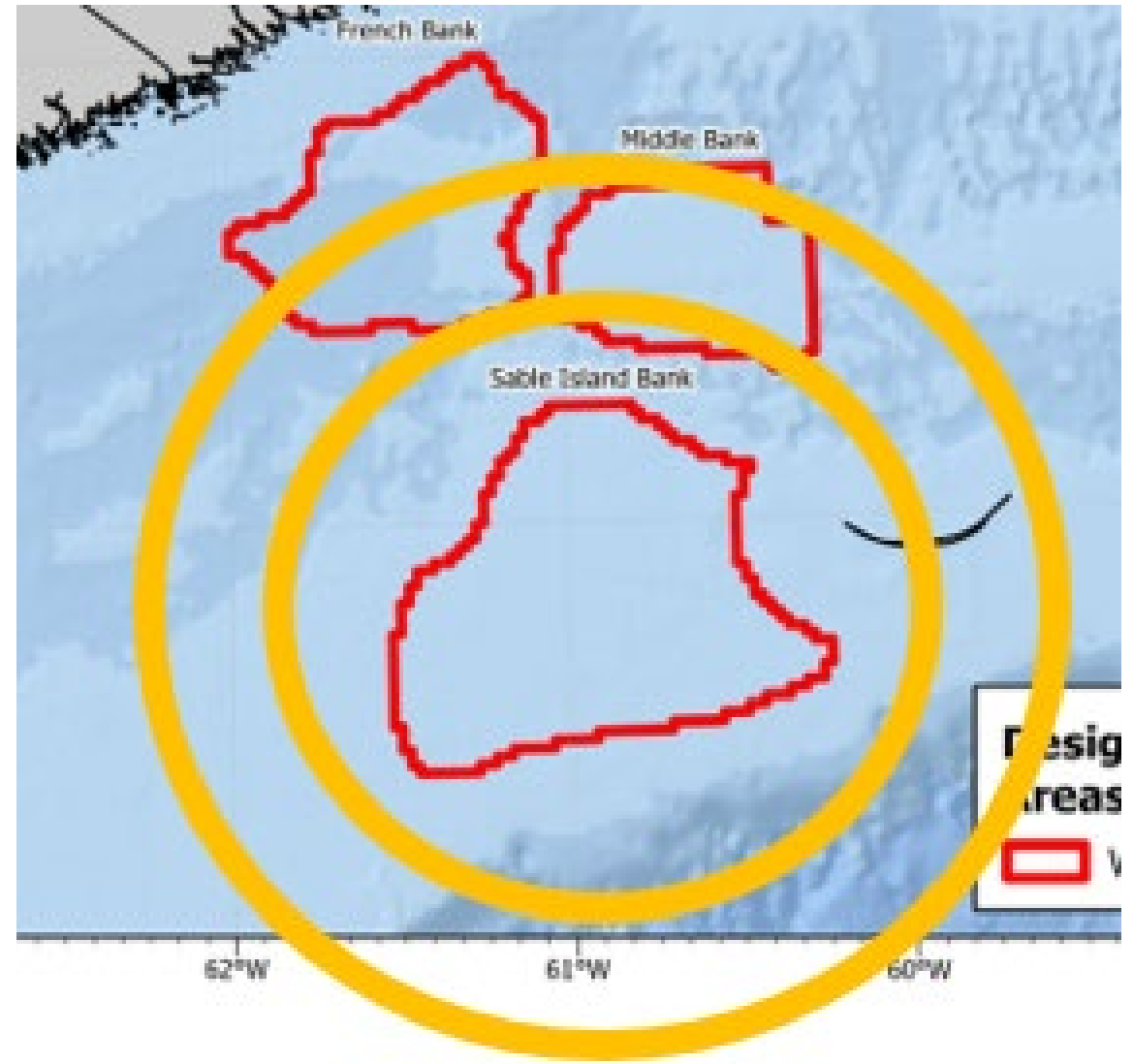
Harpoon

- Hand thrown harpoon from a vessel
- Requires visual confirmation and surfacing fish
- Follows the schools



What this means for OSW:

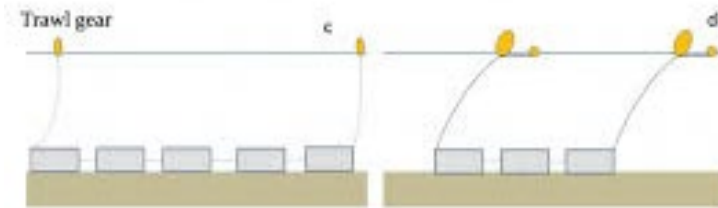
- Challenging to identify 'fishing' location
- Obstacles eliminate opportunity
- Spatial impact zone varies with gear
- A single development creates a massive 'dead zone' for effort (6 km or 100 km?)
- Difficult to mitigate (can't fish)
- Complex compensation regime – impacted fishers may never 'see' a turbine, but can't fish because of it



Same Fishery, Same Gear – Different Deployment:

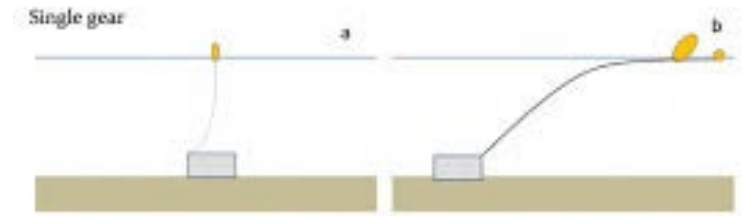
Lobster – SWNS

- Trawls of 25 traps standard
- Long season
- Heavy trap movements (tides/currents)
- Heavy gear movements 'following' the temperature/resource



Lobster – Eastern Shore/Cape Breton

- Single pot/multiple pot trawls
- Short season (~ 60 days)
- Low trap movement (less turbulent environment)
- Follows a more restricted seasonal movement



One fishery may 'work' in the confines of an OSW and the other most certainly will not....

Any change will impact economic viability of the fishery

Halibut: Fleet Specific



Some fish for 200 lbs, others fish 20,000 lbs



Translates into different scales of harvesting



'Tubs' of gear, ranging for several hundred to several thousand hooks



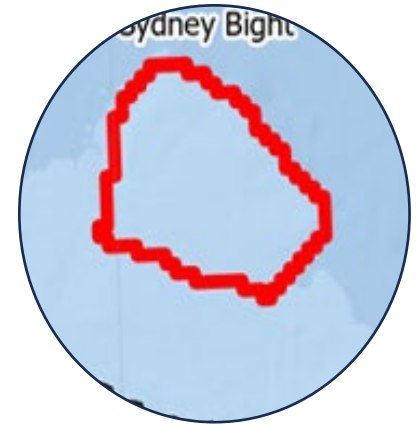
Sinking groundlines, floating/sinking groundlines



Seasonal and fleet dependent – each group has a 'way' they like to fish

One fishery may 'work' in the confines of an OSW and the other most certainly will not

Any change again impacts economic viability



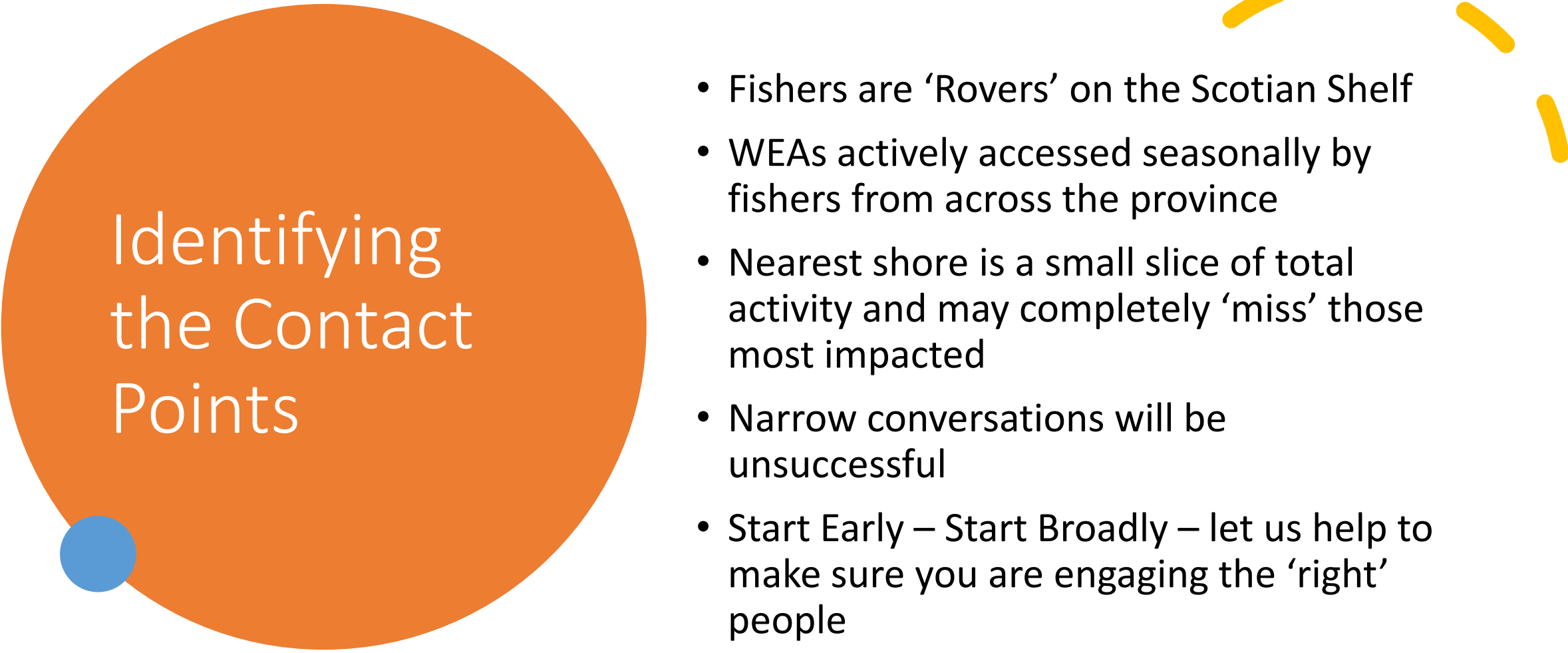
Impacts are Broader than the Footprint

Sea Cucumber:

- Harvesters target minor seabed changes where cucumber aggregate
- Any 'obstacle' (cable, armor rock, trenching) will disrupt movement patterns of a relatively low-mobility animals
- Translates into a resource that can't 'make it' to the fishing grounds, even though those grounds may lie adjacent to an OSW development.

Groundfish/Pelagics

- Reef structures on banks act as fish aggregating devices
- Resource relocates into these structures 'draining' surrounding areas
- No longer accessible outside of the footprint



Identifying the Contact Points

- Fishers are 'Rovers' on the Scotian Shelf
- WEAs actively accessed seasonally by fishers from across the province
- Nearest shore is a small slice of total activity and may completely 'miss' those most impacted
- Narrow conversations will be unsuccessful
- Start Early – Start Broadly – let us help to make sure you are engaging the 'right' people

Pathway to Success



Industry Engagement by OSW developers

- Must be early
- Must be ongoing
- Must be broad and fulsome
- Must be 'honest'
- Must recognize this is their livelihoods

Developer Engagement by the fishing industry

- Must be truly representative of industry
- Must be honest
- Must be constructive

Fisheries WILL be impacted by OSW and open and honest dialogue will help support meaningful sharing of marine space.

Thank you for your time!

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