

Fishing Technology

Types of fishing gears & methods

Definition

- A fishing gear is a tool with which aquatic resources are captured and can be used in different ways.
- Fishing methods is how the gear is used to catch aquatic resources.
- Fishing gear and method used depend on the species fished.

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Classification of fishing gears

- The basis for fishing gear & method classification is the principle of how the fish are caught.
- Fishing gears can be broadly classified as **Passive Gears & Active Gears**
 - a) *Passive Gears*: Gears that remain stationary, and capture relies on fish moving to the gear. Examples: gillnets, traps, long-line, etc
 - * Thus, much experience is needed to construct this type of gear so that prey (fish) will accept gear and not be scared by its construction, color, visibility, smell etc.
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 - * Knowledge of fish behavior will help make passive gears most effective.

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- As they do not require towing, passive gears are relatively inexpensive to operate and have lower potential to do physical damage on marine resources and environment.

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- b) *Active Gears*: Gears that are designed to be dragged or towed. Examples: trawl nets, seine nets (purse seine, beach seine), dredges etc.
- * Their success in capturing fish depend more or less on human skills and perseverance, knowledge of fish behavior, gear construction & material used.
 - * Impacts on marine resources and environment could be substantial in terms over-fishing & physical damage to the marine environment.

Modern groupings for fishing gears & methods

1. Without gear

- Fish collected by hand along the shore or in shallow waters

2. Grappling & wounding gear

- Fish is taken by grappling, squeezing, piercing and wounding. Examples: spears, harpoons, etc

3. Stupefying devices

- Prevent fish from escape by stunning them by way of: explosives, chemical fish poisoning, electrical fishing, etc.

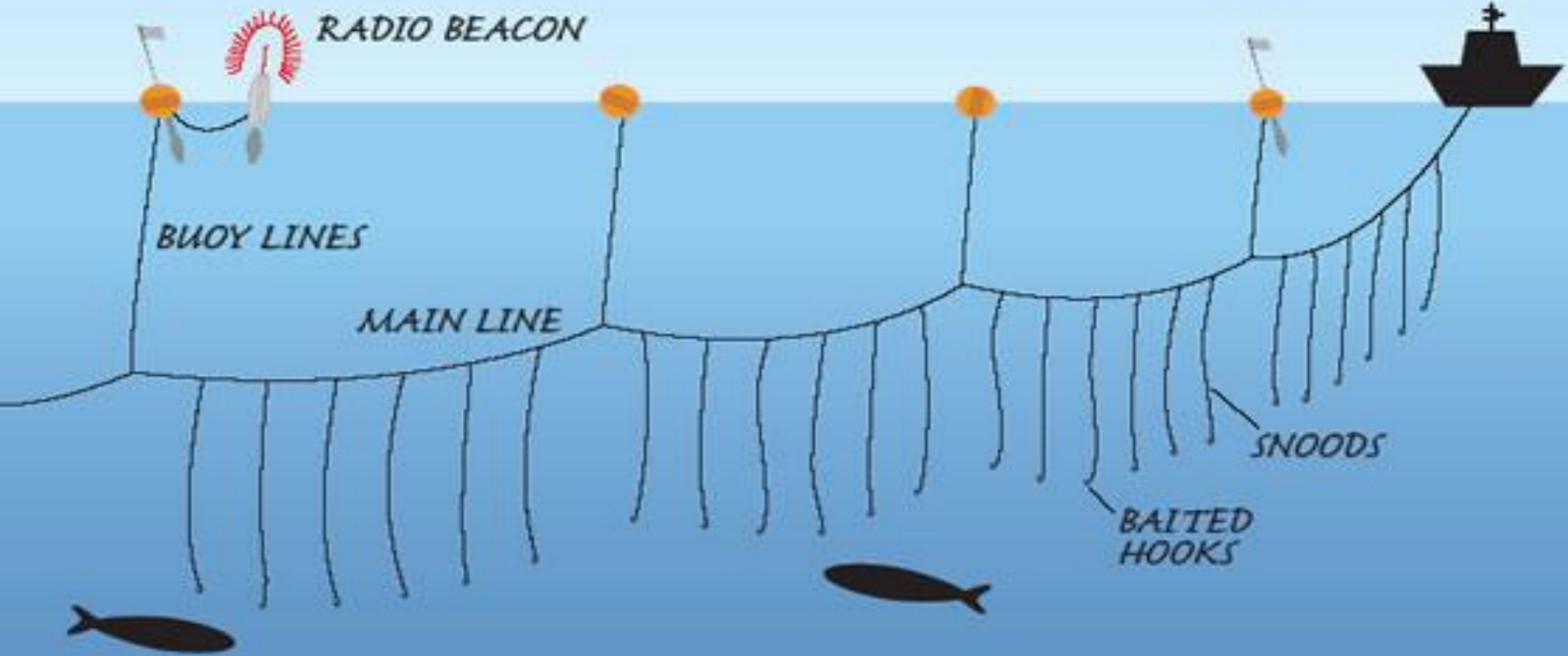
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4. Hooks & lines

- Used in a wide range of configuration:
 - hand held lines (hand lining);
 - pole & lining
 - reel fishing/drop lining
 - trolling,
 - long lining (bottom & surface)
- Fish is captured by being offered a real or artificial bait/lure, presented in a way that is difficult for the fish to escape once it is hooked.

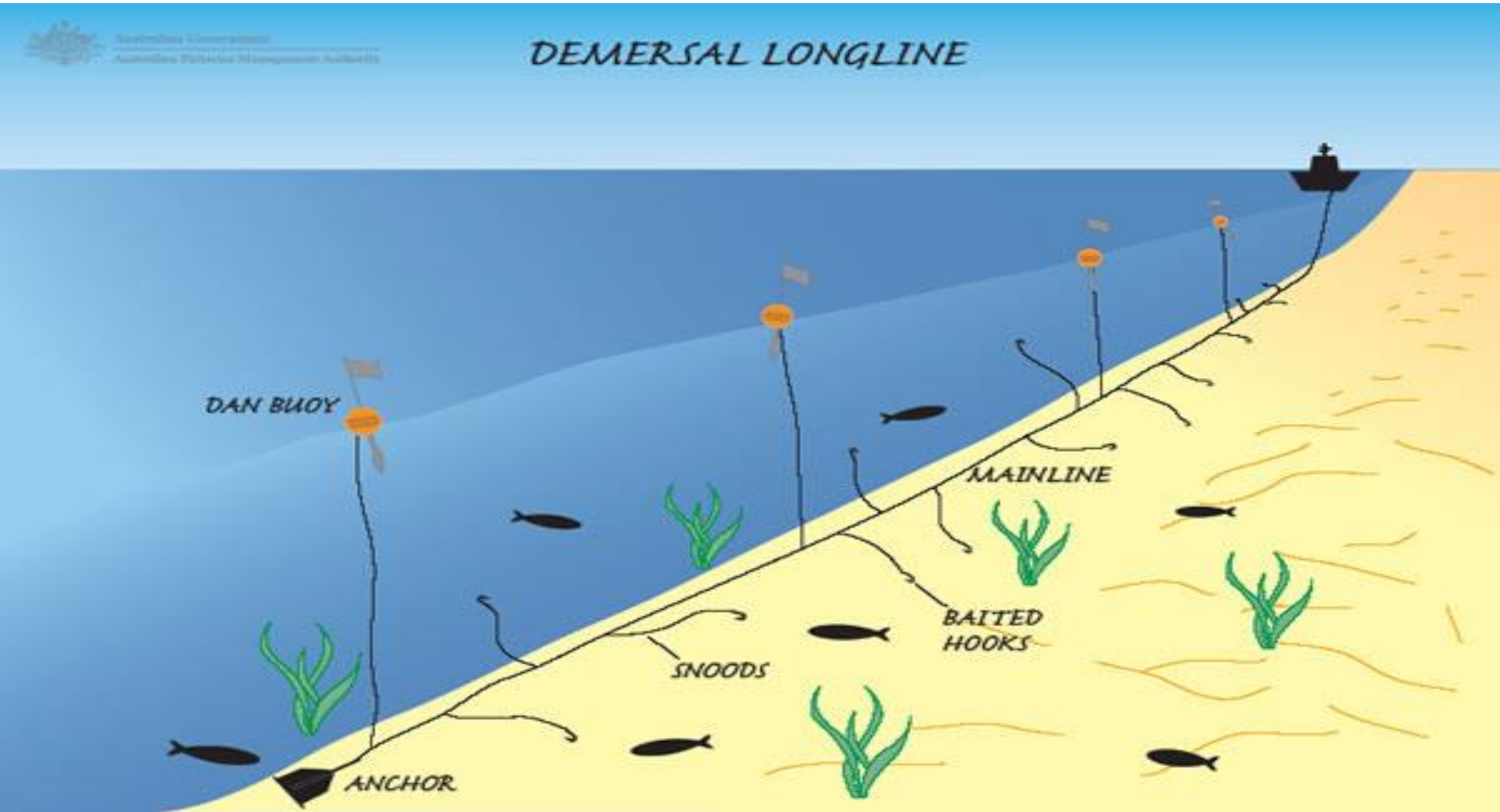
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PELAGIC LONGLINE



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- Demersal long line



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5. Traps & pots

- Devices designed to allow fish to enter voluntarily, and are prevented from escaping, by design of the trap itself or particular aspects of fish behavior.
- Baited traps attract fish and enter through tapered opening from which it is difficult to escape.
- Traps are often designed to take advantage of the species' behavior.
- Construction and configuration of traps are often controlled by fisheries regulations (e.g. commercial lobster fishery).

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6. Stationery nets

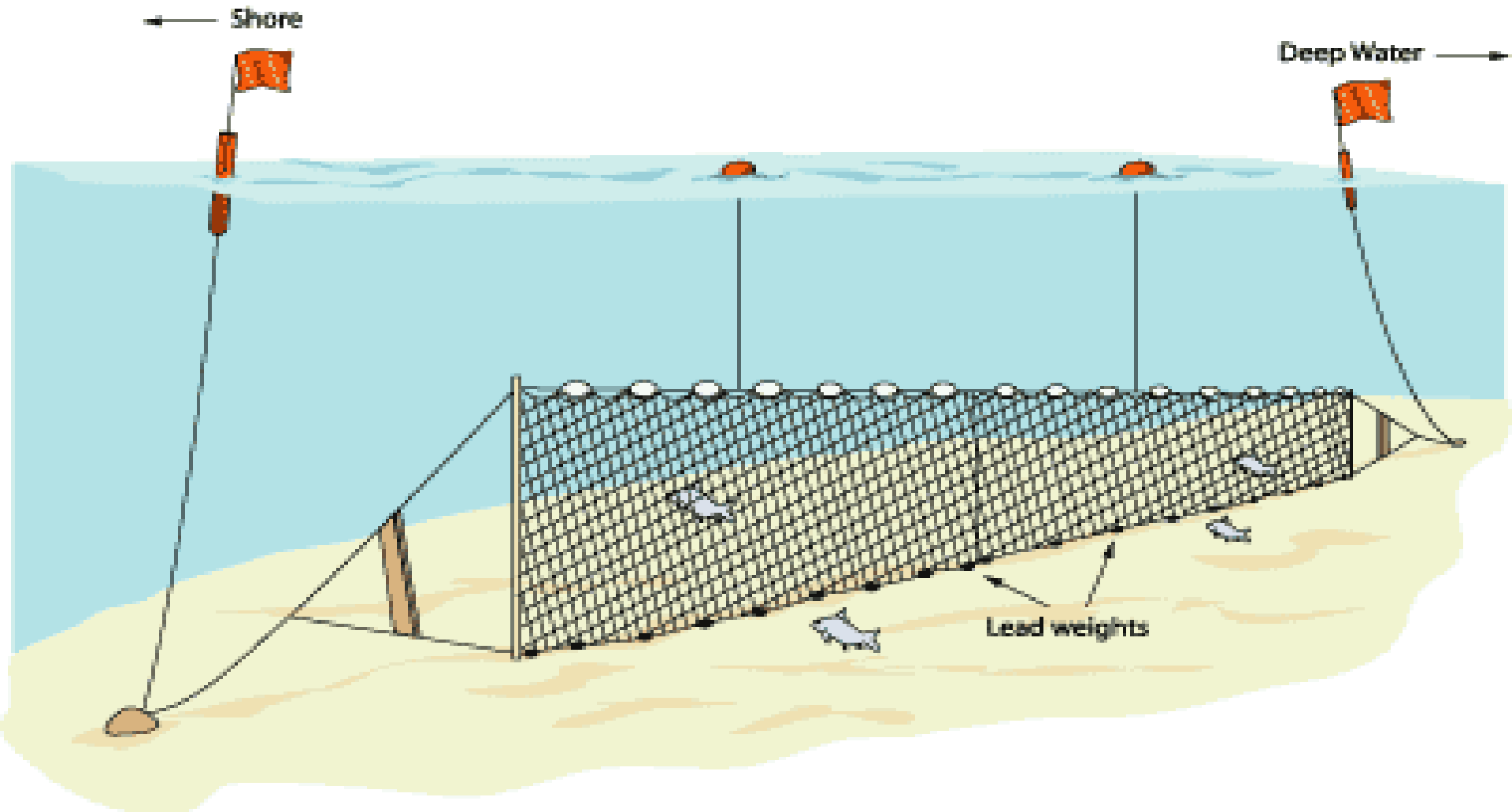
- Those that are passively left in the sea and include:
 - a) *Gillnets*:
 - single walled nets (nylon etc), with a mesh opening of such size that the wanted fish can gill themselves in the netting.
 - b) *Tangle or trammel nets*:
 - Fish are capture by 'entangling' themselves in the netting by coming into the single, double, or triple walled (trammel) nets voluntarily or by being driven.
 - c) *Drive – in nets* : Fish caught by driving them into the net.

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- These nets are panel of netting held vertically in water column by series of floats attached to upper edge (float line) and weights attached to lower edge (foot rope).
- Either anchored or drifting, and catching ability relies on the movements or migration of fishes through the area.
- Most made of non-biodegradable monofilament material, and locks behind gill covers of fish.
- 'Ghost fishing' by lost gillnets is an environmental problem.
- Construction is subject to fishing regulation (mesh size etc).

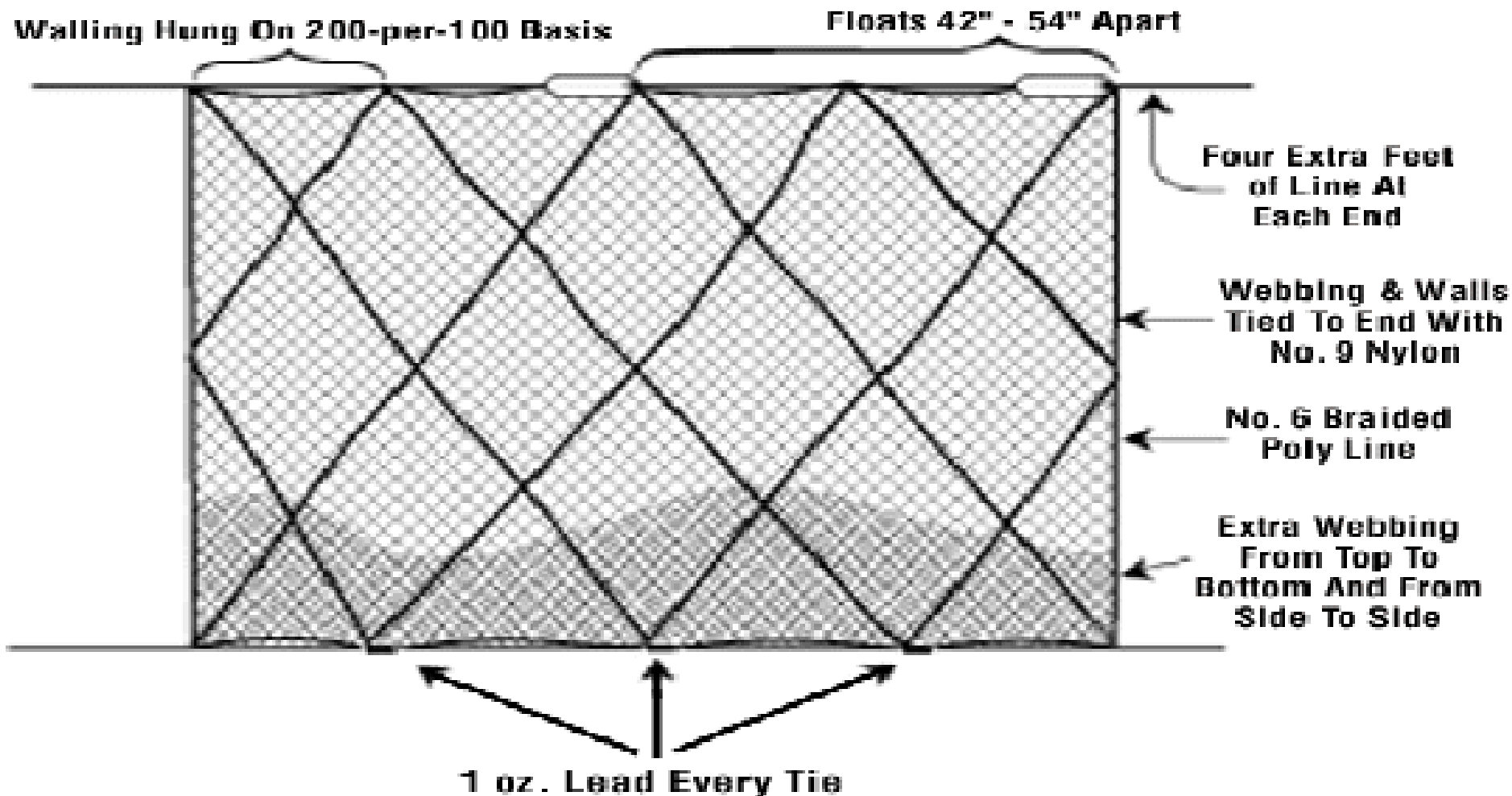
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- Gillnet



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- Trammel net configuration



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- Typical drift-netter



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- Drift net



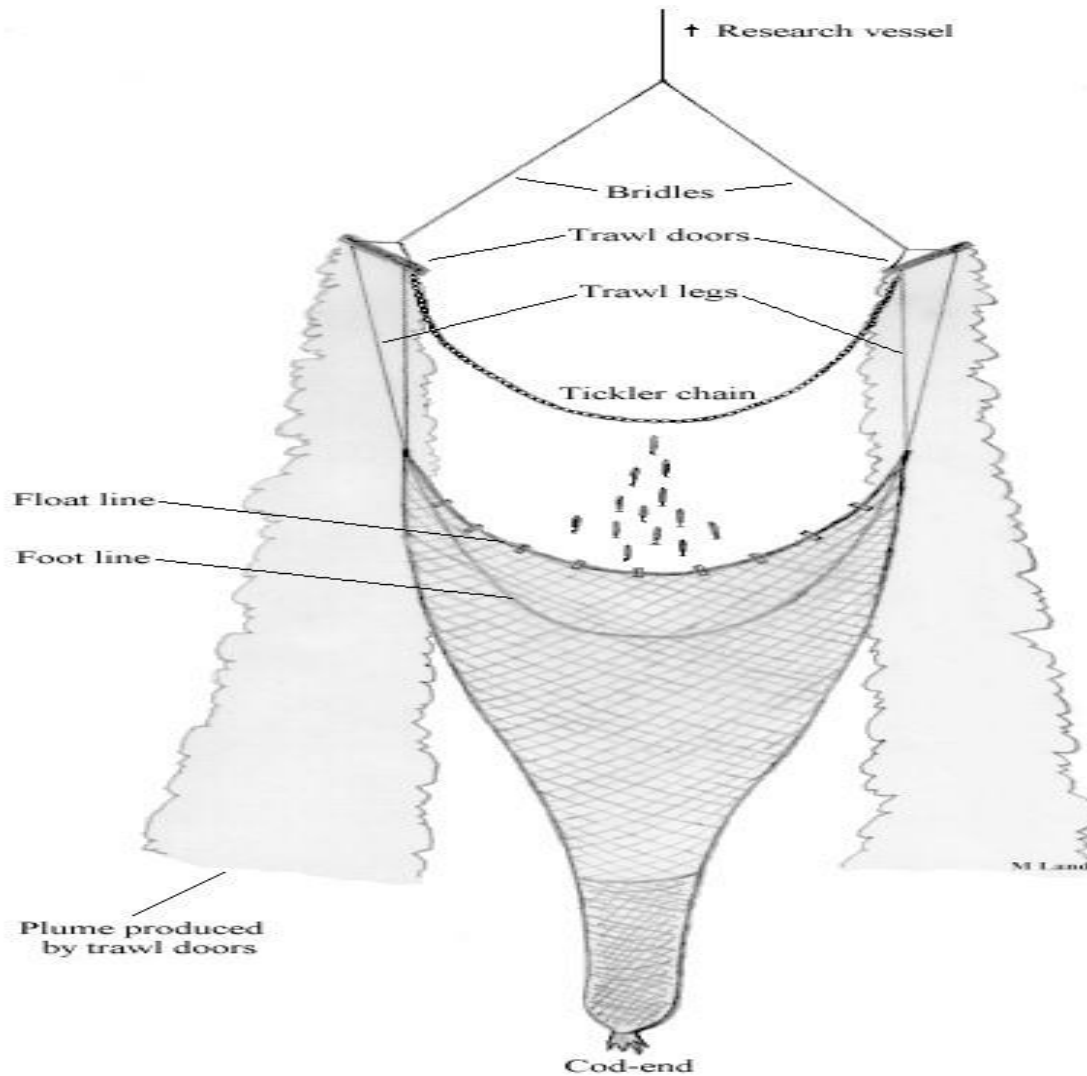
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7. Towed & dragged gear

- Include: Otter trawl, beam trawl, demersal trawl & dredges.
- Gears that are towed through the water to 'sieve' out fish and marine invertebrates.
- Rely on the ability to tow nets at faster speed than the fish are able to sustain.
- Consist mainly of funnel shaped netting which leads into the cod end, which retains fish and with long cables, which help to herd fish into mouth of the net.
- Impose substantial adverse impacts on marine resources and habitat (physical destruction of marine habitat).

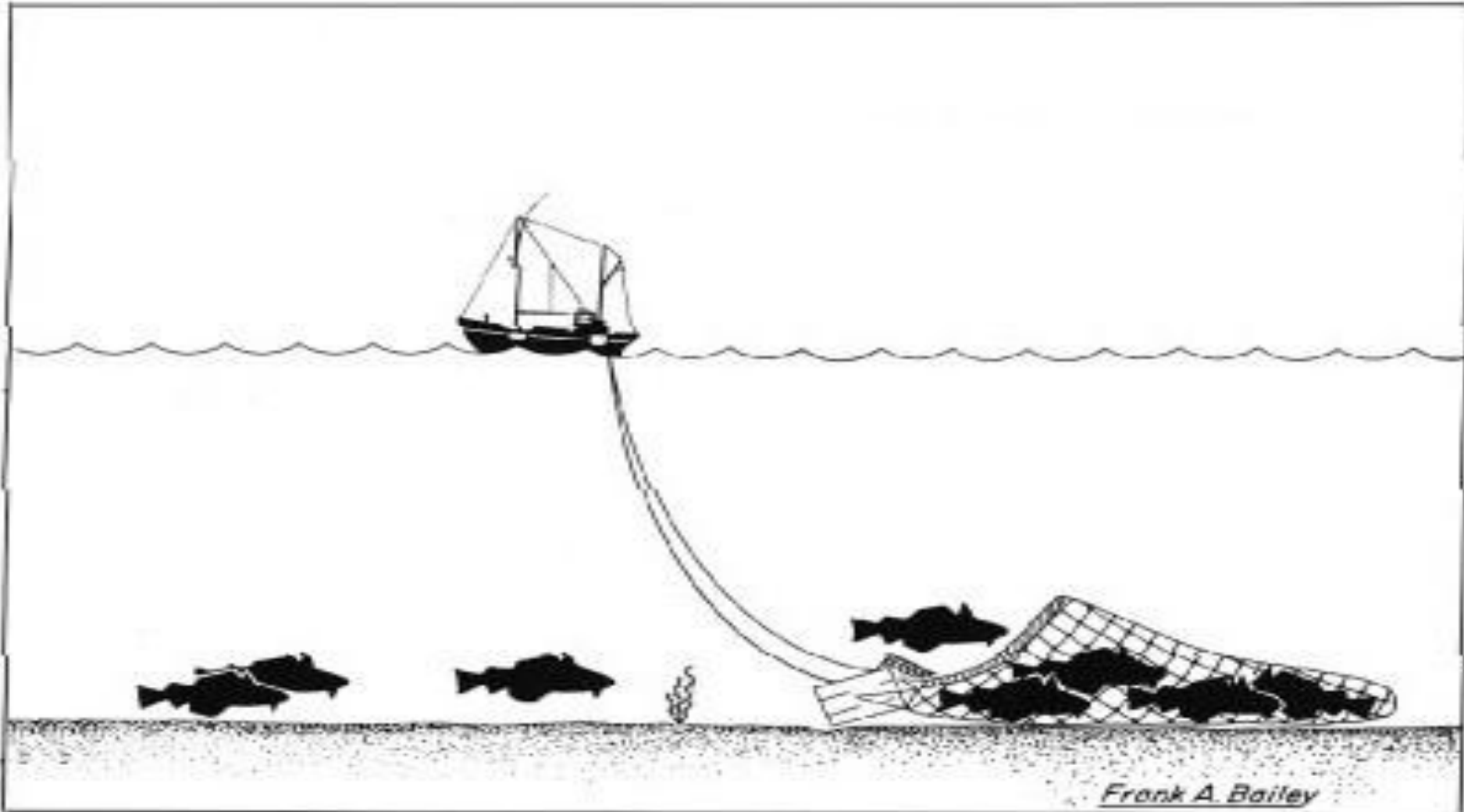
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- Trawl gear configuration



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- Bottom trawl gear



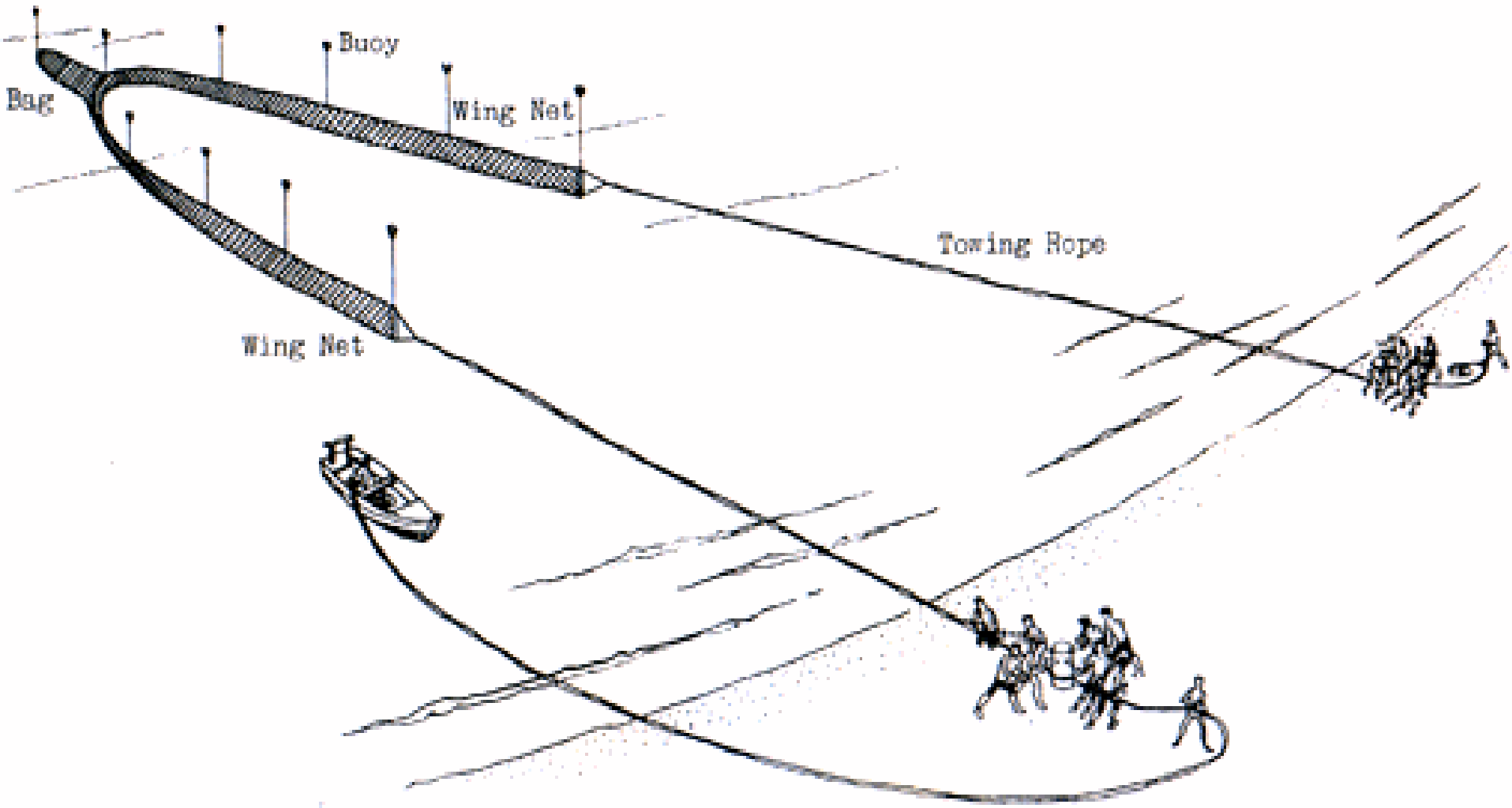
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8. Surrounding & seine nets

- Include: Purse seine and beach seine nets.
- Beach seine nets:
 - gear with long wings or panel of netting and towing warps,
 - mode of capture is by surrounding a certain area and towing or dragging the gear over this area with both ends attached to a fixed point ashore or on a vessel,

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- Beach seine nets



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Purse seine nets

- Gear with a long panel of netting, stretched vertically in water by floats at top, sinkers, purse rings and purse line at bottom.
- Capture is by surrounding school of fish not only from the side but also from beneath, thus permitting capture of fish over very deep waters by preventing escape into depths.
- High tech in the case of tuna purse seining, and thus very effective & efficient.
- But non-selective and thus its impact on marine resources is substantial in terms of over-fishing & by – catch & discards.

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Purse seine gear (view from side)

