

A Review of Alternative Oyster Husbandry Techniques and their relevance to the Irish Industry

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**An Roinn Talmhaíochta,
Bia agus Mara**
Department of Agriculture,
Food and the Marine



EUROPEAN UNION

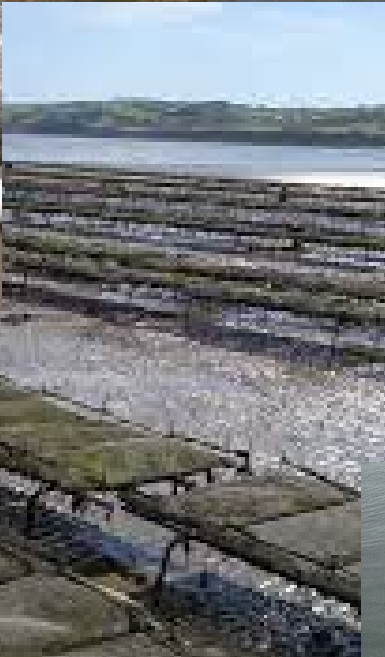
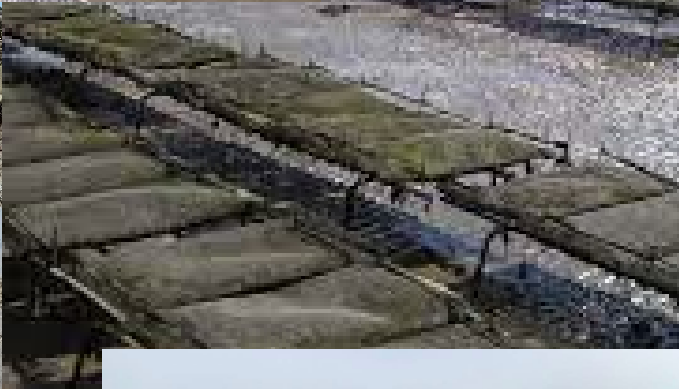
This measure is part-financed
by the European Maritime
and Fisheries Fund



Aim of Report

Each system was described using the following criteria:

- structural specifications
- reported lifespan of main system components
- any variations available on the basic system and structural specifications of same
- material costs,
- reported potential yield per licensed hectare
- site requirements,
- recommended stocking densities
- main selling points
- reported pros and cons in terms of labour, growth rates, quality, maintenance, navigation and other marine user impact.
- method of deployment: recommended height above seabed, mooring requirement / post driving, orientation on the tide





Systems Reviewed

- 1) Reduce Labour
- 2) Improve Oyster Quality
- 3) Achieve faster growth

Trestles and Bag

Floating Bags

Floating Cage System - OysterGro

Adjustable Long-Line System Baskets

Floating Baskets - FlipFarm

Tumble Culture – OstreaSpin

Bottom Cage Culture - OstreaPack

Suspended Float Bags

Roll'Bag – Gran Ocean

Trestle and Bag System



Floating Bags



Floating cage system - OysterGro



Adjustable
Long-Line
Basket System
– Seapa /
Hexcyl



Floating Baskets - FlipFarm



Tumble Culture – Ostrea Spin



Bottom Cage Culture - OstreaPack



Suspended Float Bags



Roll'Bag System – Gran Ocean



Criteria for reviewing each system

1. Availability in Ireland
2. Cost per Kilo (€)
3. Durability (years)
4. Advantages
5. Disadvantages
6. Labour
7. Produce Quality
8. Fouling Control
9. Survival
10. Stocking Density
11. Marine Litter Potential



| System | Cost per kilo stocked (€) | Availability in Ireland | Durability (years) | Advantages | Disadvantages | Marine Litter Potential |
|--|---------------------------|-------------------------|--------------------|---|---|-------------------------|
| Trestles and Bag | €2.90 | Yes | 10 – 20 | Cost effective, used widely. | Intense labour, Average oyster quality | Very low |
| Floating Cage System OysterGro | €9.80 | Yes, by container | 10 - 20 | Faster growth and Improved Oyster quality, Non-tidal. | Initial captial investment, Weather prone | Moderate |
| Floating Baskets Flip Farm | €11.77 | Yes, by container | 10 - 15 | Greatly reduced labour, Faster growth and improved, oyster quality, Non-tidal | Initial captial investment, Custom Boat, Weather prone, | Low - Moderate |
| Floating Bags | €5.09 | Yes | 5 | Faster growth and Improved Oyster quality, Non-tidal. | Boat required, Weather prone, Non-durable | High |
| Adjustable Long-Line System Baskets Seapa / Hexcyl | €8.61 | Yes, by container | 15 - 30 | Reduced labour and improved oyster quality | Initial capital and labour, low stocking density | Moderate |
| Tumble Culture OstreaSpin | €11.07 | Yes, through Triskell | 20 | Reduced labour and improved oyster quality | Initial capital investment, Design in development | Low |
| Bottom Cage Culture OstreaPack | €10.63 | Yes, through Heile | 15 | Greatly reduced labour | Initial capital investment, Machinery required | Moderate-High |
| Suspended Float Bags | €3.36 - 5.22 | Yes | 1 - 10 | Reduced labour and improved oyster quality | No established system, durability is varied | Moderate |
| Roll’Bag Gran Ocean | €7.50 | Yes | 10 - 20 | Reduced labour and improved oyster quality, Increased stocking density | Initial capital investment, Galvanised custom trestles, | Low |

Running a Trial

67B of the Fisheries (Amendment) Act 1997

“Permission of use of novel or experimental equipment by licensee.

-The Minister may, on the application of a licensee and subject to such conditions (if any) as the Minister may consider appropriate in the circumstances and specifies in writing, permit the licensee to use novel or experimental equipment within the licensed area for such period as the Minister specifies in writing. Such permission shall be granted only if the Minister is satisfied that the use of the novel or experimental equipment will have no greater environmental or visual impact than that which existed prior to the introduction and use of such equipment and shall be noted in the register of licences maintained under section 78.”

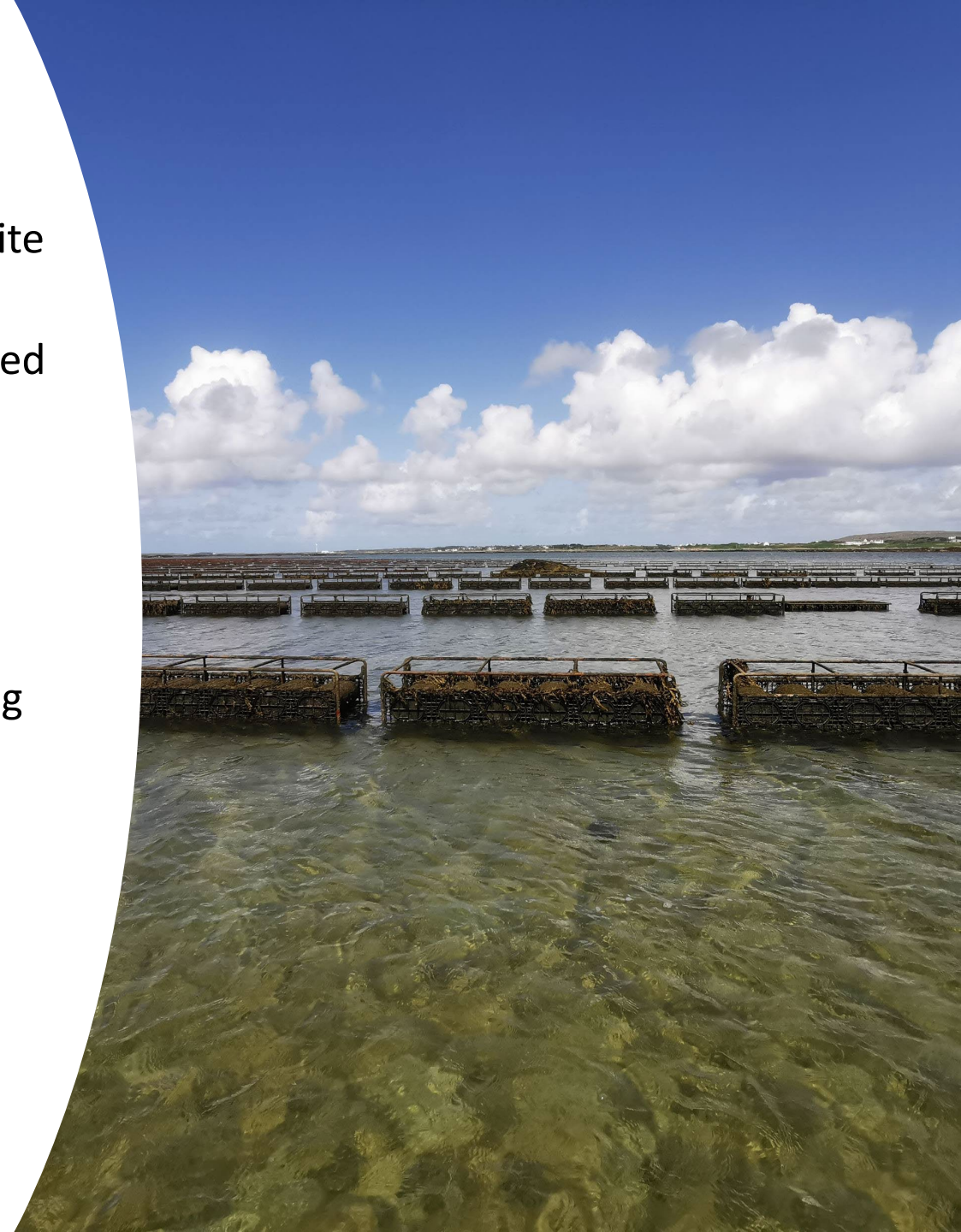


How to run a trial

Each operator will have to state the licence number and site reference in their request along with the following.

- co-ordinates of the proposed location within their licensed site,
- detailed structural drawings of the system,
- a timeline for the trial

Marine institute and DAFM Engineers are consulted during the process



Thank you



Cost per kilo stocked – Explained

| Item | Number | Cost | Bag and Trestle | |
|-------------------------|--------|-------|-----------------|--|
| | | | | |
| Trestle and Bag | | | | |
| Trestle | 1 | 60.00 | 60.00 | |
| Bag C&G | 1 | 2.90 | 2.90 | |
| Bungee 45cm HD | 2 | 0.21 | 0.42 | |
| Hook 2.7MM SS | 3 | 0.10 | 0.29 | |
| Rubber 185X15mm | 1 | 0.01 | 0.01 | |
| Cable Tie 7.6mm | 3 | 0.03 | 0.09 | |
| Cable Tie 4.8mm | 0 | 0.01 | 0.00 | |
| Cable Tie 3.6mm | 0 | 0.01 | 0.00 | |
| | | | 11.58 | |
| Cost per kilo stocked @ | | | | |
| 4kg of 35g oysters = | | | 2.90 | |

Summary of Findings

| System | Producer / Manufacturer | Cost per kilo stocked (€) | Availability in Ireland | Durability (years) | Advantages | Disadvantages | Labour | Produce Quality | Fouling Control | Survival | Stocking Density Seed(S), Half-Grown(H-G), Adult(A) | Marine Litter Potential |
|-------------------------------------|---|---------------------------|-------------------------|--------------------|---|---|----------------|-----------------|--------------------------|--------------------|---|-------------------------|
| Trestles and Bag | Intermas, C&G etc. | €2.20 | Yes | 10 – 20 | Cost effective, used widely. | Intense labour, Average oyster quality | Intensive | Good | Turning + Drying | Average (Baseline) | S=1-3000, H-G=200-500, A=1-150 | Moderate - High |
| Floating Cage System | OysterGro | €9.69 + freight | Yes | 10 - 20 | Faster growth and Improved Oyster quality, Non-tidal. | Initial captial investment, Weather prone | Semi-Automated | Excellent | Turning + Drying | Below average | S=1-3000, H-G=200-500, A=1-150 | Moderate |
| Floating Baskets | FlipFarm | €10.70 + freight | Yes | 10 - 15 | Greatly reduced labour, Faster growth and improved, oyster quality, Non-tidal | Initial captial investment, Custom Boat, Weather prone, | Semi-Automated | Excellent | Turning + Drying | Above average | S=800-1000, H-G=150-200 A=50-80 | Low - Moderate |
| Floating Bags | Variable Configuration s and Components | €4.34 | Yes | 5 | Faster growth and Improved Oyster quality, Non-tidal. | Boat required, Weather prone, Non-durable | Semi-Automated | Very Good | Turning + Drying | Average | S=1-3000, H-G=200-500, A=1-150 | High |
| Adjustable Long-Line System Baskets | Seapa, Hexcyl, Intermas | €8.61 | Yes | 15 - 30 | Reduced labour and improved oyster quality | Initial capital and labour, low stocking density | Semi-Automated | Excellent | Drying on-line | Above average | S= , H/G= , A=50-80 | Moderate |
| Tumble Culture | Ostrea'Spin | €11.40 | Yes | 20 | Reduced labour and improved oyster quality | Initial capital investment, Design in development | Semi-Automated | Excellent | Drying | Above average | S=1-3000, H-G=200-500, A=1-150 | Low |
| Bottom Cage Culture | OstreaPack | €10.63 | Yes | 15 | Greatly reduced labour | Initial capital investment, Machinery required | Semi-Automated | Good | Pressure washer + Drying | Average | S=1-3000, H-G=150-250 A=1-60 | Moderate-High |
| Suspended Float Bags | Variable Configuration s and Components | €2.32 - 4.19 | Yes | 1 - 10 | Reduced labour and improved oyster quality | No established system, durability is varied | Semi-Automated | Very Good | Winkles | Average | S=1-3000, H-G=200-500, A=1-150 | Moderate |
| Roll'Bag | Gran Ocean | €6.59 | Yes | 10 - 20 | Reduced labour and improved oyster quality, Increased stocking density | Initial capital investment, Galvanised custom trestles, | Semi-Automated | Excellent | Pressure Washer | Average | 12 - 20kg | Low |

Implications of The Single-Use Plastics Directive

- “The objectives of this Directive are to prevent and reduce the impact of certain plastic products on the environment, in particular the aquatic environment”
- Marine litter is transboundary in nature and is recognised as a growing global problem. Reducing marine litter is a key action for the achievement of UN Sustainable Development Goal 14
- “fishing gear’ means any item or piece of equipment that is used in fishing or aquaculture to target, capture or rear marine biological resources
- <https://www.triskellseafood.com/the-single-use-plastics-directive-how-it-applies-to-the-aquaculture-industry/>

