Choosing Effective Technologies to Develop Offshore Mussel Culture
Offshore and 400 submerged lines

Offshore double lines
Move offshore requires a re.think
Must produce more with less!

A) Continuous socking – What are the options?

B) What didn’t work - not always fault of socking! Materials, methods, flotation

C) Practical issues that impact on sock yields
   Quality socking
   Adapted flotation
   Benefits of Sampling
A) Continuous socking – What are the options?

- Going from **manual vertical** tube socks to continuous
- Testing efficiency with scale-up to higher output
A) Continuous socking – What are the options?

**Spanish continuous:** easy use of more size ranges anytime

- Increasing efficiency with scale-up to higher output
- Use more months, since seed does not need to move out
A) Continuous socking – What are the options?

**Automatic continuous:** High output, more sizes anytime

- Increasing efficiency with scale-up, least labour required
- Use more months of year, reusable, mechanized, fast
B) What didn’t work - not always fault of socking!

Materials & methods
Sockling Mishaps

- Winter storm + floatation
- Wrong timing for socking
- Wrong densities

Wrong densities
B) What didn’t work - not always fault of socking!

Good sock methods not always enough

No difference in growth or yield: poor grading is wrong method!
B) What didn’t work - not always fault of socking!

1) Use of **wrong floatation** technologies can decrease yields & profits, increase costs!

Should use right floats to hold mussels, get maximum yields and value!
c) Practical examples that improve sock yields
c) Practical examples that improve sock yields

Adapted floatation is cost-effective

Killary Harbour - Galway

Roaring water - Cork
c) Practical examples that improve sock yields

Sampling to compare JFC and thin-walled floats
Do costlier JFC floats really increase commercial value growers?

**Measured**
- size distribution
- density
- commercial biomass (yield)
- fall-off
- time to market
### Typical biomass differences with JFC-ribbed vs barrel floats

- **Larger size**
- **Higher densities**
  - 30-50mm vs 238/m
  - 30-50mm vs 3% comm
- **Faster growth**
- **Less fall-off**

#### Commercial yields
- 10-30% > / JFC line

#### Table: Density and Size Distribution

<table>
<thead>
<tr>
<th>Size Class (mm)</th>
<th>% Frekvens</th>
<th>No. Shells/m</th>
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<tbody>
<tr>
<td>&gt;10-15</td>
<td>0.9</td>
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</tr>
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<td>&gt;15-20</td>
<td>5.5</td>
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<td>0</td>
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<tr>
<td>&gt;50-55</td>
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<tr>
<td>&gt;55-60</td>
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<td>0</td>
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<tr>
<td>&gt;60-65</td>
<td>0.0</td>
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</tr>
<tr>
<td>&gt;65-70</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td>&gt;70+</td>
<td>0.0</td>
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*Density: (1020/m) 1m (Pegolini 8mm JFC) Mean Size: (37.3 mm)*

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*Density: (413/m) 1m Pegolini 8mm ROM  Mean Size: (30 mm)*

#### Diagram: Frequency Distribution

- **Commercial yields**
  - 10-30% > / JFC line
Sampling socks at different depth - know what harvest!

ASK-B-01-C, Afjord, Utsett: 13-des-05 Prøve: 13-nov-07 (23,3 mo.-start)

Tethet: (969/m) z=1m SVKB EXP.high Middel: (40,2 mm)

556 salgbar skjell/m

ASK-B-01-C, Afjord, Utsett: 13-des-05 Prøve: 13-nov-07 (23,3 mo.-start)

Tethet: (520/m) z=3m SVKB EXP.high Middel: (45,8 mm)

357 salgbar skjell/m

ASK-B-01-C, Afjord, Utsett: 13-des-05 Prøve: 13-nov-07 (23,3 mo.-start)

Tethet: (543/m) z=5m SVKB EXP Middel: (47,2 mm)

407 salgbar skjell/m
Sampling your offshore sites is key:
Know when/why mussels give higher value & select quality

- When better declumping-gradining
- Use Narrow size range
- Use proper sock rope

Get:
- High % commercial yields
- Better control of fouling
- Cost-effective harvest
- Better risk management

Automatic socking allows for rapid response: import spat, fouling, 2\textsuperscript{nd} set, depth unlimited, Play w density- all same material
Thank you

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