

# Fish oil feeding regimes

Do different feeding regimes effect  
deposition efficiencies of long chain Omega 3  
fatty acids?

Jamie Walton, Kjell Måsøval  
and Trygve Sigholt

FHF Verdikjede laks, Workshop EPA/DHA  
11-12 May 2011



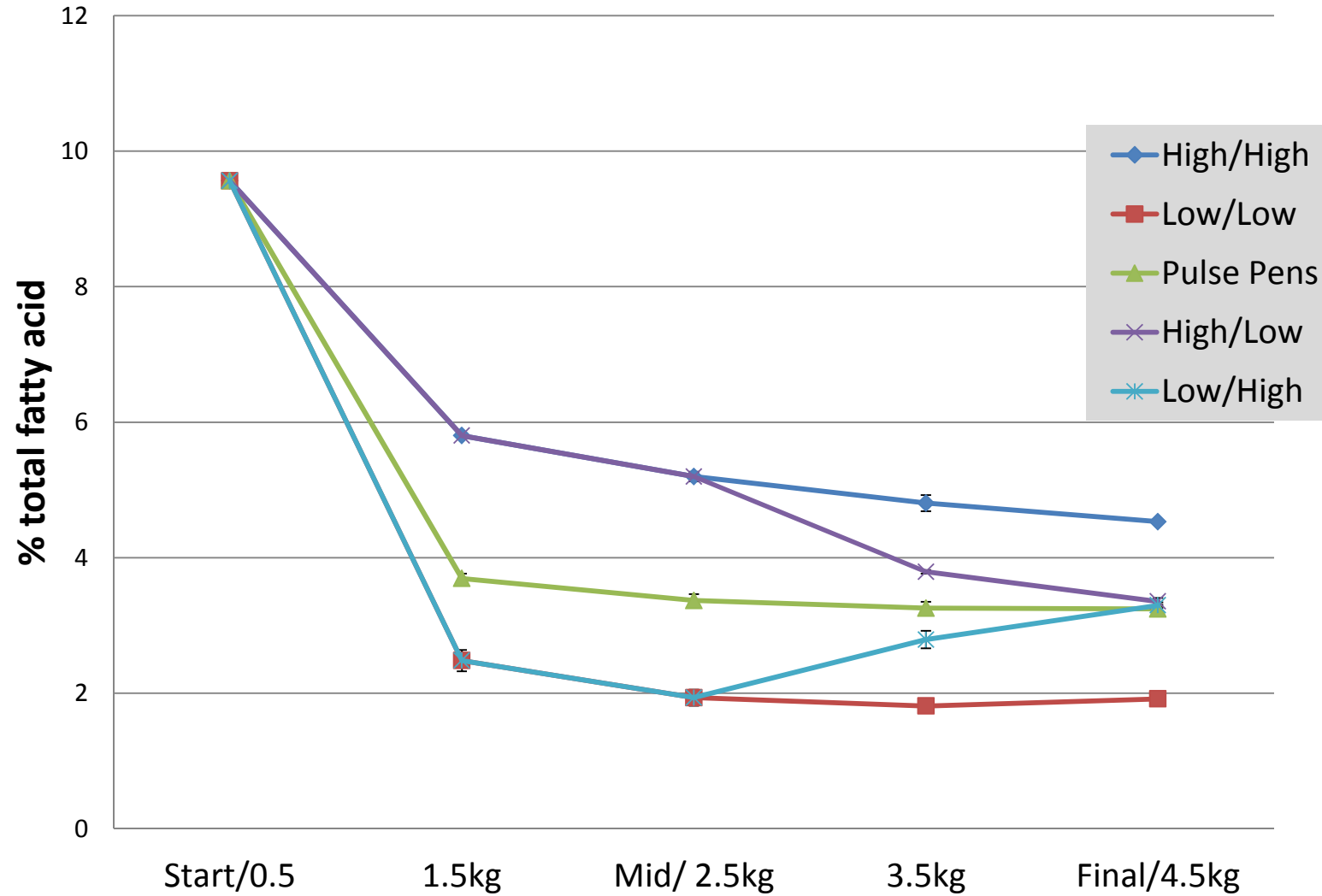
## 2 Diets and 5 feeding regimes

- High EPA and DHA diet
  - ✓ 11.75% total EPA and DHA (% of feed oil)
- Low EPA and DHA diet
  - ✓ 4.75% total EPA and DHA (% of feed oil)
- 5 Feeding regimes:
  - ✓ High Diet: High EPA and DHA 0.5kg → 4.3kg
  - ✓ Low Diet: Low EPA and DHA 0.5kg → 4.3kg
  - ✓ Pulse Diet: High and Low diet – every 14 days (average 8.25% EPA and DHA)
  - ✓ High to Low: High EPA and DHA diet 0.5kg → 2.4kg (1.9kg growth), Low EPA and DHA 1.9kg → 4.3kg (8.25% EPA and DHA)
  - ✓ Low to High: Low EPA and DHA diet 0.5kg → 2.4kg (1.9kg growth), High EPA and DHA 1.9kg → 4.3kg (8.25% EPA and DHA)
- *The last 3 diets are fed the same amount of EPA+DHA*

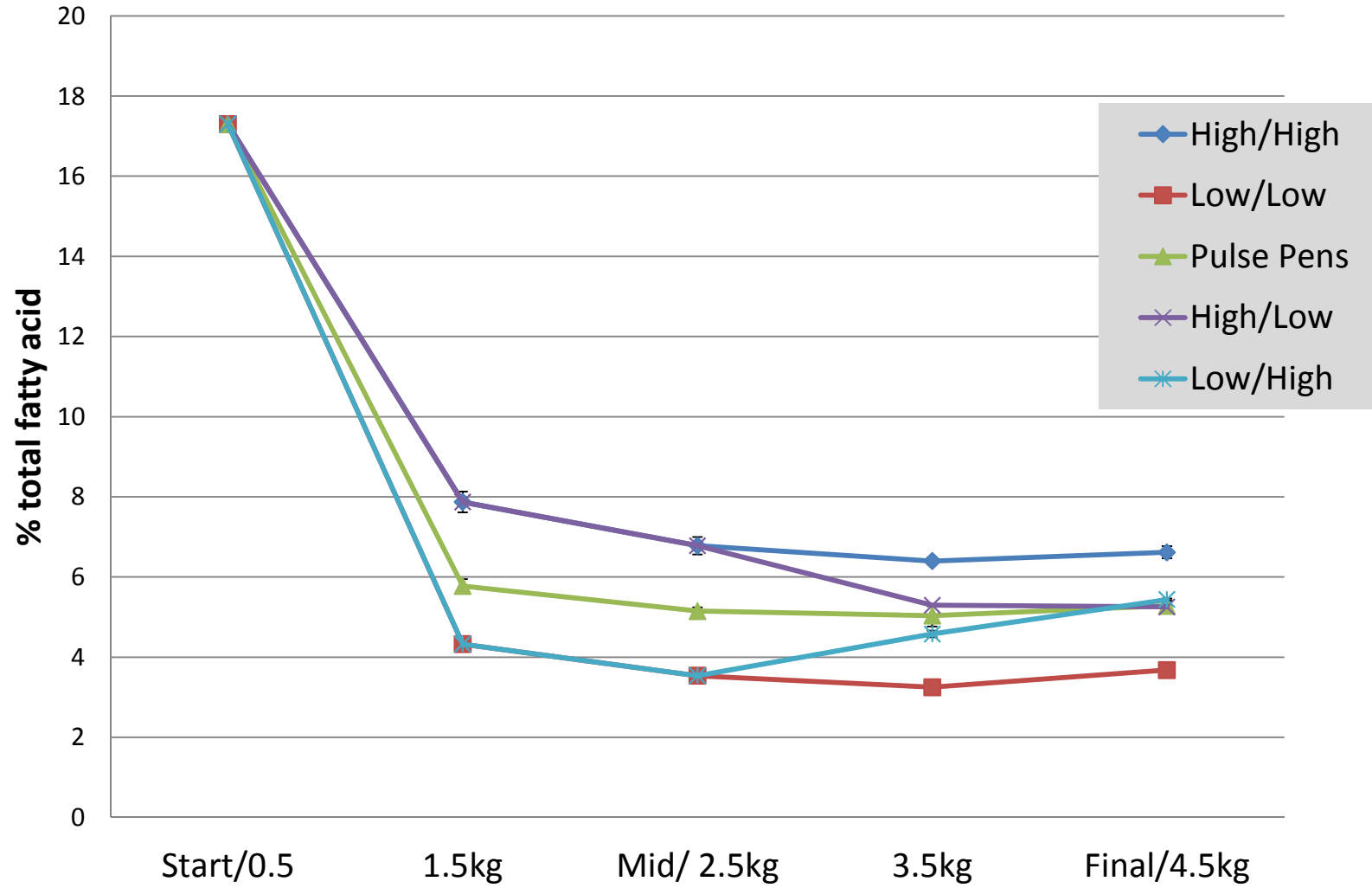
# Trial details

- BioMar and Marine Harvest collaboration
- MH FTU Ardnish, Lochailort
- 0.5kg → 4.5kg between September 2009 and July 2010
- 3 Treatments September 2009 and February 2010
- 5 treatments March 2010 and Jul 2010
- Samplings at approximately every 1kg of weight gain.
- Average temperature – 9.9°C (5.7 - 15°C)
- Total no. of feeding days - 266 days

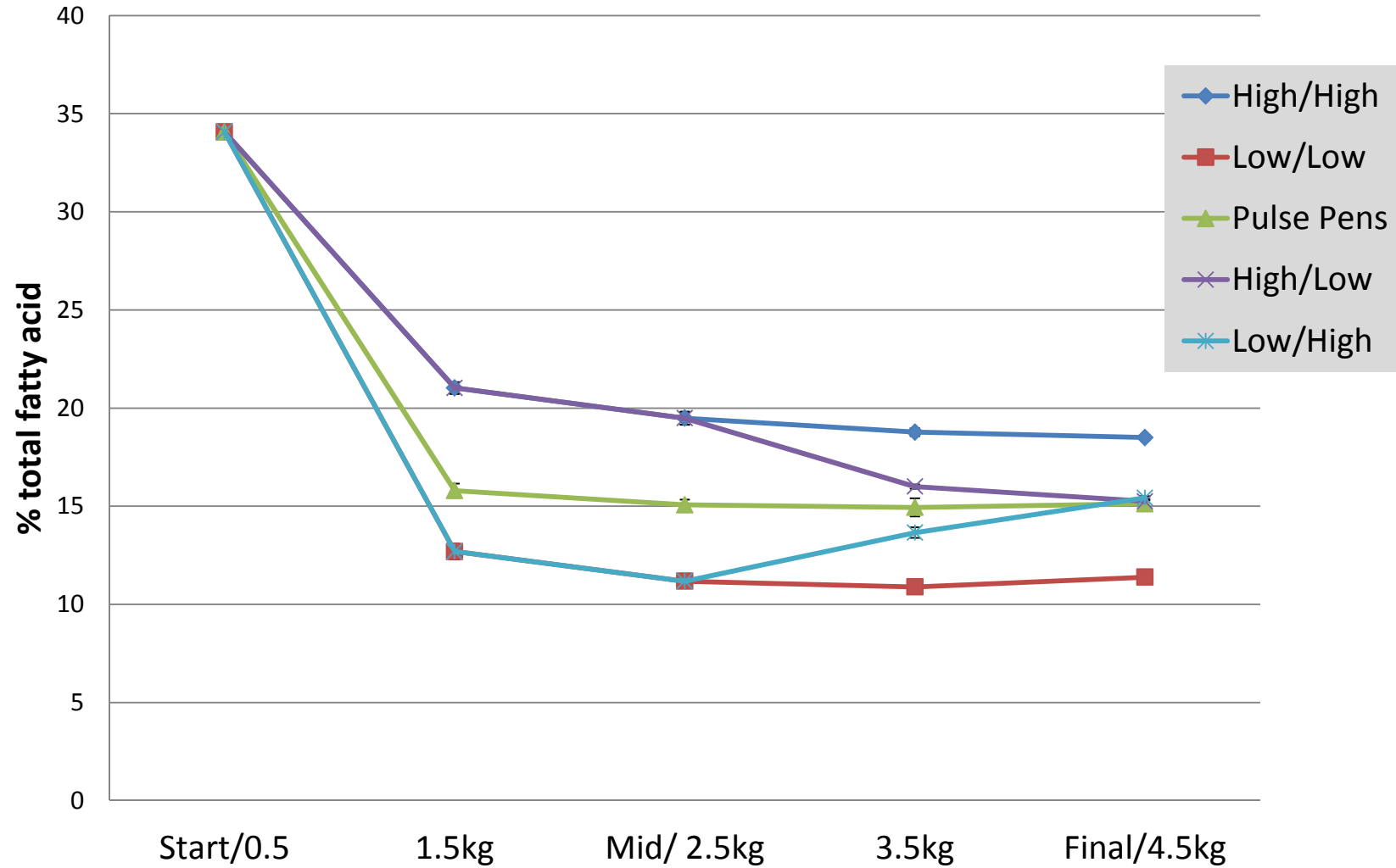
## Mean EPA (SE) in NQC



## Mean DHA (SE) I NQC



## Total n-3 PUFA (SE) in NQC



# Summary

- Alternate feeding regimes (pulse, high/low, low/high) had no influence on the harvest levels of EPA and DHA as % of FA, with all treatments ending with the exactly the same level in the flesh
- Simply put, for this trial, the fish flesh will end up with the same EPA and DHA level as the feeds they have been fed, regardless of strategies used to try an boost or improve deposition and retention
- *Strategies to increase the level of EPA+DHA as mg/kg flesh must include changes in fat level*





BioSustain™

Enhanced sustainability in fish feed industry

