Cod Farming in Ireland

by the EIRCOD team

- Background & Overview
- EIRCOD Rationale & Objectives
- Economic Evaluation of Cod Farming in Ireland
    - World & EU position
    - Norwegian Experience
    - *Quo Vadis*
    - Production & Economic Model for Ireland
    - Business Strategy
    - Implementation

Cod Farming in Ireland

Background and Overview of past decade

- 2002 – Minister appoints New Species Review Group and their report highlights cod potential
- 2003 – Funding from Marine Institute for Desk Study on Feasibility of Cod Farming and Tech Appraisal
- 2003/4 – Establishment of Marine Finfish hatchery at MRI Carna with import of batches of cod eggs
- Eggs through the MRI hatchery every year from 2004 to date – various sources Scot, Nor, IoM, Celtic Sea

- 2004 – Establishment of TROSC Teo (pilot sea farm) and transfer of first juveniles to sea

- Logistical & Financial assistance from key State bodies Marine Institute, BIM and Údarás na Gaeltachta for various aspects of cod farming through this developmental period 2003-5

- 2006 – First Harvest and continuing farming activities at Trosc using three sites in one Bay

- 2007 – Time for Review, Reflection and Re-focus

Cod Culture Group review in 2007

<u>Cod Broodstock Consortium</u>
<u>- EIRCOD</u>

Project Co-ordinator

Work Package Groups & Leaders

<u>Commercial Initiatives</u>

- **<u>Road Map to Commercialisation</u>**

- **Juvenile supply**
- **Broodstock Programme**
- **Commercial Hatchery with adequate capacity**
- **Adoption of best practice (at sea & land, focus on health and bio-security)**
- **Appropriate International collaboration**
- **Market Differentiation (table fish and other products)**
- **Attractive to Investors (supported by a robust business model)**
- **Mixed species culture & management**

EIRCOD

- The overall objective of the EIRCOD project is to design, establish and operate a Cod Broodstock and Breeding programme, customized for the Irish environment and underpinning the native fish farming industry
    - MRI Carna, National Univ of Ireland Galway,
    - Univ College Cork,
    - Irish Seafood Producers Group,
    - Bord Iascaigh Mhara,
    - Trosc Teo and
    - Dr Ashie Norris, consultant.
- Marine Institute - funding & oversight

Marine Institute
Foras na Mara
NDP
NATIONAL DEVELOPMENT PLAN
Ireland's EU Structural Funds Programmes 2007 - 2013
Co-funded by the Irish Government and the European Union
EUROPEAN REGIONAL DEVELOPMENT FUND

EIRCOD Work Prog over 7 years
(3 + 4 years – now at end Year 3)

- Characterization & Profiling of native Irish Cod Stocks (WP1),
- Enhanced Technical Performance for Eggs & Larvae (WP2),
- Broodstock Production & Selection (WP3),

- Economic Assessment of Cod Production in Ireland (WP4),
- Technology transfer & Dissemination Activities to the National industry (WP5) and
- Project Management (WP6).

WP4 - Economic Evaluation of cod farming in Ireland

- Report prepared by members of the EIRCOD project team and specific external consultants

  (Neil Bass, Watermark Ltd; Paul Casburn, MRI; Lucy Watson, BIM Majbritt Bolton-Warberg MRI; Liam Roche, ISPG Ltd; RF)
- Currently, submitted for consideration, approval and adoption by State Agencies …..
- Full report is 85 pages + supporting models etc
- Here today – selective resume

Economic Evaluation of cod farming in Ireland

- Global Aquaculture is developing, expanding, diversifying and intensifying in almost all regions – wild fish stocks are overexploited and food fish are needed

- In Europe, significant and growing levels of imports and mounting trade deficits - internal EU aquaculture production has remained static – high dependency

- In EU, growing seafood consumption and clear demand for safe and quality products at competitive prices. Intense price competition between cheaper imports and internal (high value species) production – high demand & competition

- [*Immature element of the EU agri-food sector that is subject to and highly sensitive to price movements linked to an increase in volumes and this is documented for several EU aquaculture species – market volatility*]

Economic Evaluation of cod farming in Ireland

- Wild cod stocks and supplies particularly affected in the last two decades with significant price increases from the mid-1990s – (short-term) price increases

- The highly segmented whitefish market has, perforce, been expanding to include a series of new species, e.g. tilapia and *Pangasius*, beyond the traditional species – market growth

- The existence of a large market for wild cod, and whitefish generally, is an opportunity as well as a challenge for farmed cod – complexity of market

- Many longer and short-term pre-disposing factors that supported and fostered the emergence of a cod farming industry which had been envisaged to expand dramatically
- *This was a perfect (economic) storm*

Economic Evaluation of cod farming in Ireland

- Evident that the decline in wild cod stocks provided a significant opportunity to the aquaculture sector – with over-ambitious expectations

- A unique feature of cod aquaculture is that this species, as different to previous candidate species, had the status of a commodity with high trading volumes and, until recently, relatively stable and low prices

  NOT - low quantities of wild catch and high product prices

- Small number of countries and, in contrast to the huge expectations, growth of the industry has been quite modest

- The Norwegian industry had very high subscription rate for concessions (= site licenses) from 2000 onwards, though the number of sites/companies producing harvested cod is as few as 31 units and the amounts being produced are only a small fraction of their licensed capacity.

Economic Evaluation of cod farming in Ireland

- Norwegian outcomes and trends to date very relevant to all

- As typical of all emerging aquaculture species, series of issues have adversely impacted on production output/harvest projections and skewed cost structures – poor operational performance and slow growth of industry

- Concern over slow fish growth, poor survival, low output, higher costs and the prevailing, fragile, market prices – poor financial performance and losses in companies

- Until 2009, prices were quite strong with a price premium of c. +20% for farmed fish over wild – though following cyclical pattern of wild product – now bottoming out

- The established companies already committed to cod farming will hold/increase production. In contrast, many others who hold concessions will be slow to initiate production in the current trading market and economic climate

Economic Evaluation of cod farming in Ireland

- Under-estimated – the power and sensitivity of the existing whitefish / cod market and highly reactive price movements – unpredictability in current (supply) clime
- Over-estimated – the capacity of the R & D base to provide technical solutions in a short time frame
- Cod is not Salmon…..Cod is not Salmon…..
- Why should investors/companies/cash continue to be attracted to or remain in this activity?
- FINANCIAL MASOCHISM HAS A VERY POOR FUTURE!
- Long-term vision or some tangible 'returns' needed

Economic Evaluation of cod farming in Ireland

- <u>Quo Vadis Nunc – So where to now</u>
- Within a complex seafood market – we need products
- BUT no strategic effort to differentiate farmed cod (or an organic cod) which should yield significant price returns for a branded product – Norwegian vs Scottish experience
- Despite harsh evidence to date – Cod farming industry can realise its latent potential with more modest interim targets and, similarly, achieve economic viability <u>but only</u> if it continues to receive <u>sufficient support and sustained effort</u> from researchers, farmers, government/financial institutions.
- Most importantly, the marketing of farmed cod products needs careful orchestration and planning ....Higher prices may be obtained for farmed cod providing there is sufficient volume, reliable delivery, focused marketing, product development and quality assurance

Economic Evaluation of cod farming in Ireland

- <u>Growth & Production Model for Ireland</u>
- Waters around Ireland, at the more southerly margin of their natural range, an ideal environment for production of cod

- Growth models of Bjornsson and colleagues from Iceland, predict a harvest size of 2.5kg would be reached in 35.6 (Model I) and 32.4 (Model II) months post hatch. Agreement between the actual and projected growths

- Using the same predictive model, an evaluation of the projected growth performance of cod using ambient temperature regimes for five different countries (Ireland, Norway, Iceland, Canada and the Faeroes)

- Growth in the Faeroes and Ireland outperformed that of Iceland, Canada and Norway during the first year of sea growth

- There is clearly a commercial/competitive advantage to Irish cod farmers, specifically over Canada and Iceland, during the first and second years of sea growth with competitor countries regaining growth rates in subsequent years at larger fish sizes

Economic Evaluation of cod farming in Ireland

- <u>Financial Model – Base Economic Evaluation</u>

- Full financial appraisal of viability of cod farming in Ireland but it is not a dynamic model (changing to reflect changes in key quantities e.g. improved FCR, lower mortalities, faster growth)

- <u>Annual output of 1,000 tonnes of certified ORGANIC fish at sea</u>
- All production / operational expenditure items reflect current organic production experience and prevailing economic (e.g. Fx rates etc) conditions

- Major cost element in this model is feed at c. 50% of total costs followed by labour at c. 20% and the cost of juveniles at 15-16% per annum

- Model puts <u>operating costs per tonne at € 3,424</u>(gutted& bled)
- Sensitivity analysis revealed that the most significant element impacting on profitability is the sales price with an +11% increase giving operating profits of 32% while an -11% decrease results in profits dropping to c. 15%.

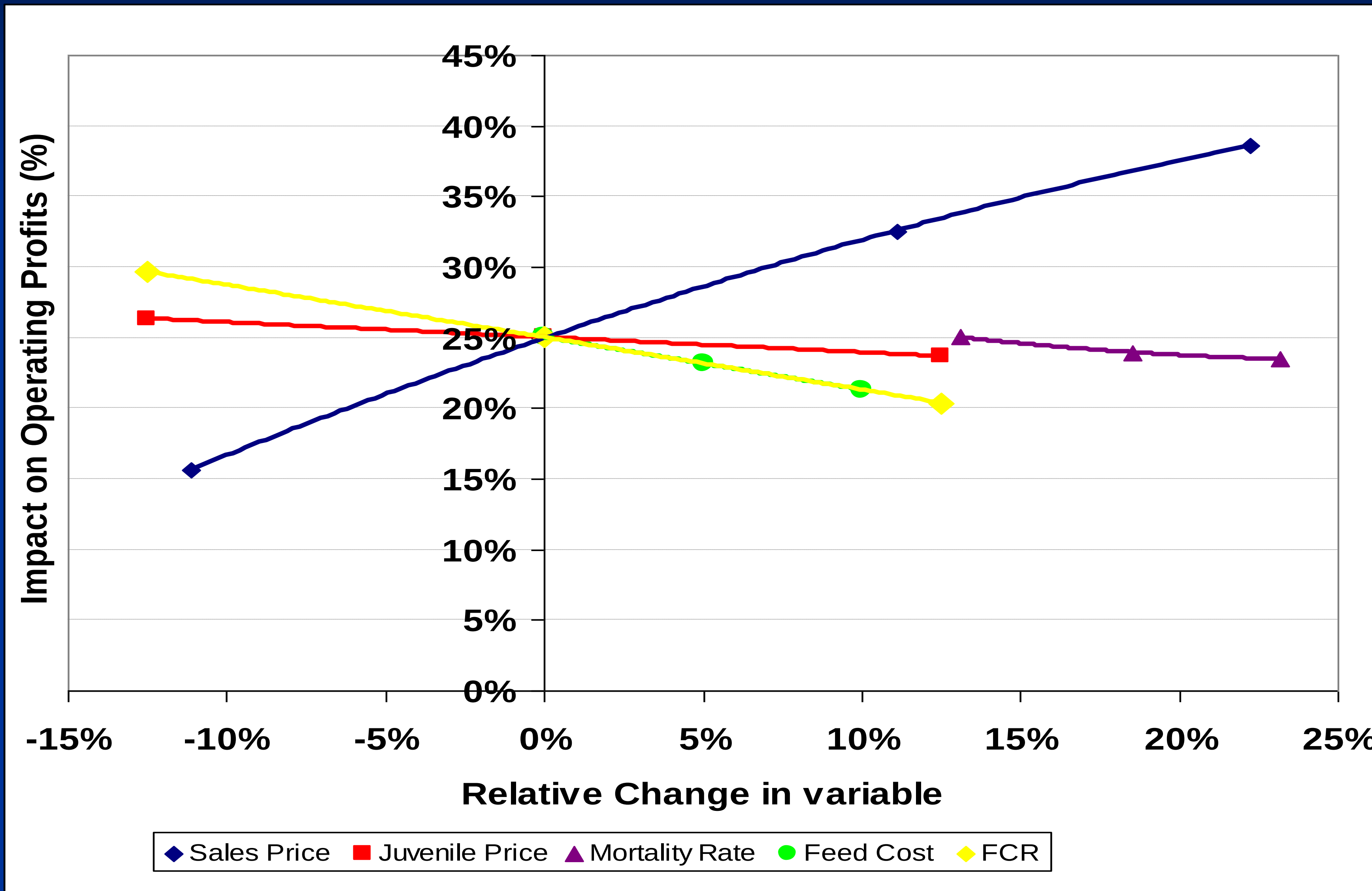
- Equivalent minimum sales price (fully-costed) per tonne (g & b) at c € 4,228 [organic salmon c. € 4,800 prod cost]

- Based on this conservative base model, it is apparent that the farming of an organic cod in Irish conditions is eminently feasible and potentially profitable

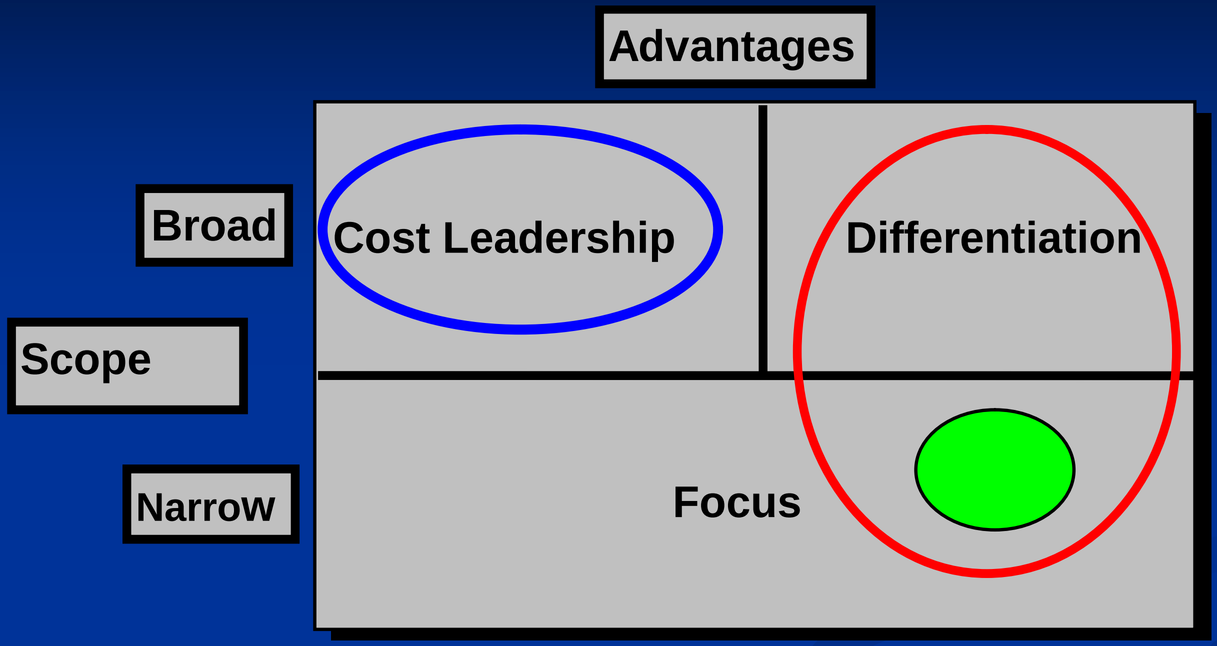
Economic Evaluation of cod farming in Ireland

Item	Year 6 values		5-year Mean (yrs 6-10)	
Form	**Round**	**Gutted & Bled**	**Round**	**Gutted & Bled**
Production (tons)	1,000	780	1,000	780
Sales Price/ton (€)	**3,510**	**4,500**	**3,510**	**4,500**
Production Cost/ton (€)	2,484	3,184	2,523	3,234
Operating Cost/ton (€)	**2,631**	**3,374**	**2,671**	**3,424**
Operating Profit/ton (€)	878	1,126	838	1,076
Operating Profit/ton (%)	25%	25%	24%	24%

Economic Evaluation of cod farming in Ireland



Economic Evaluation of cod farming in Ireland



- Simplest Business Strategy
- To target a focused, differentiated, market segment (niche) is likely the only viable and strategically defensible position that the Irish industry/promoters should adopt with cod farming at this time

Economic Evaluation of cod farming in Ireland

Strategic business approach that exploits a viable commercial stance, exploiting a natural competitive advantage, which offers some chance of success

Need to caution all parties at this pivot point

<u>on the one hand,</u>

- the folly of eagerly accepting an initial proposition that had little real chance of being achieved so simply or so easily,

<u>to alternately,</u>

- the danger of abandoning an opportunity that may still have real potential

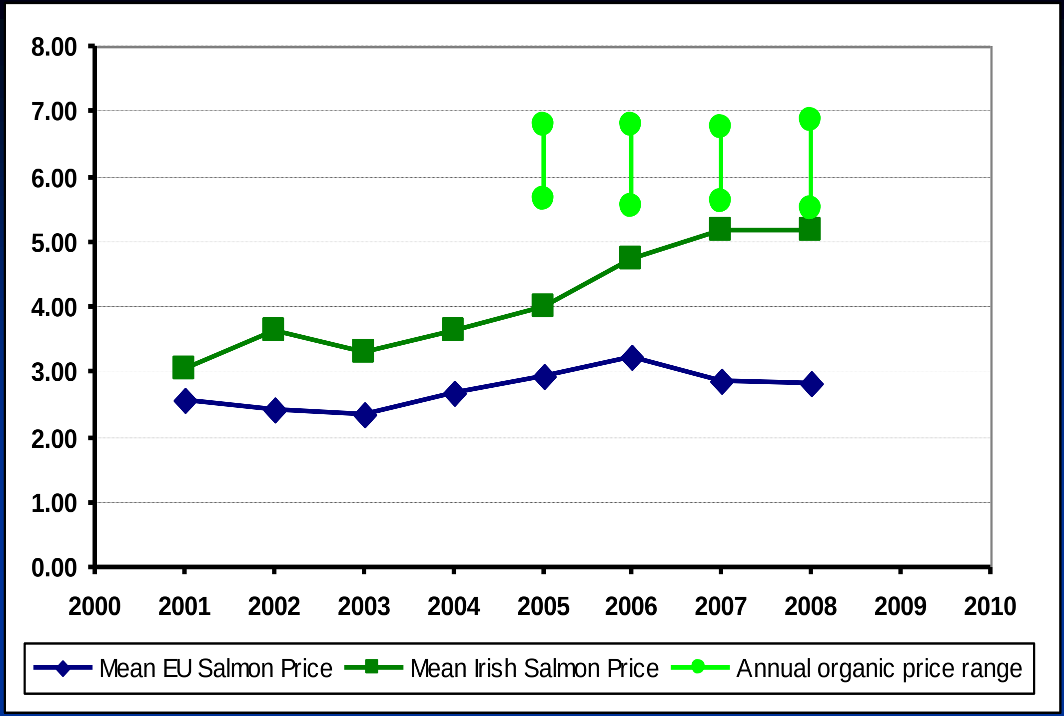
Economic Evaluation of cod farming in Ireland

- A specific strategic business opportunity in Ireland for the production of an organic cod product for a yet-to-be-defined, high-end, niche market
    - e.g. partnerships with European organic suppliers/distribution groups.

- Number of features that would facilitate the rapid progression and maintenance of such an initiative including, *inter alia*,
    - the faster growth of cod in Irish waters post-transfer to sea (as compared to some competitor countries),
    - the availability of unused licensed and serviced sites in certain regions,
    - the established reputation of Ireland for the production of organic seafood products, and
    - an established system of supports for commercial development between State agencies and the R&D sector

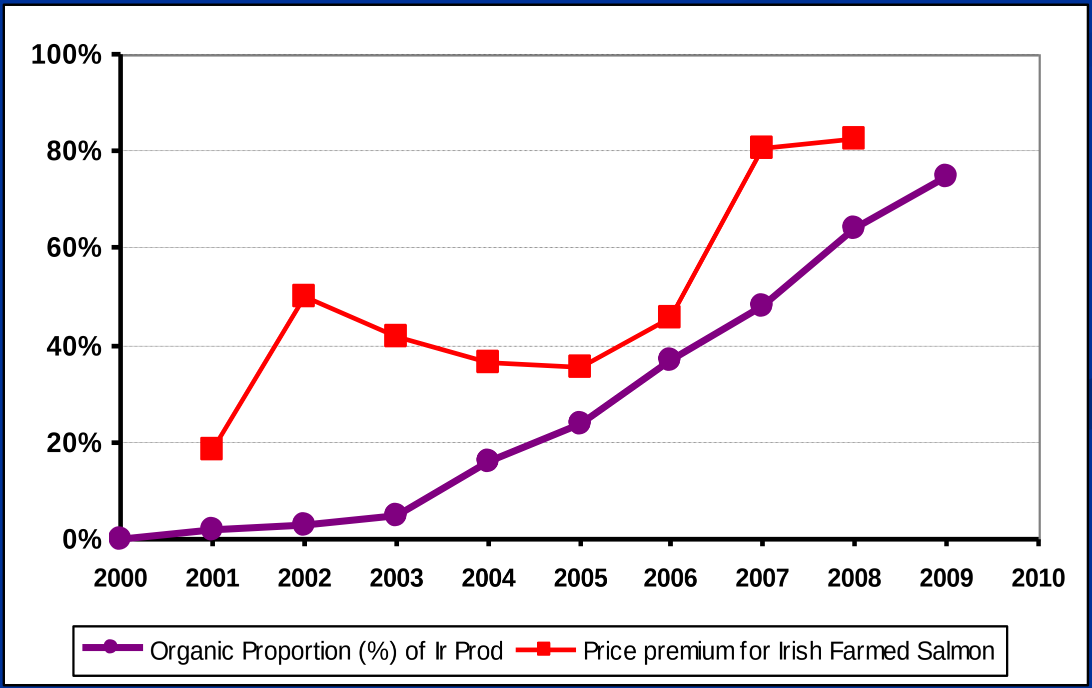
Economic Evaluation of cod farming in Ireland

- To facilitate and underpin a viable and self-sustaining organic cod farming industry in Ireland, two key areas should be addressed, in the short- to medium term, with inter-agency support, viz
  - **Support & Facilitation of Cod Sea Farm Projects**
    - Sourcing Investors and fostering entrepreneurial interest
    - Facilitation of entry and access / license transfer
    - Identification of further sites
    - Maximization of grant aid
    - Institute quality assurance programmes
    - Progression of commercial marine finfish hatcheries
  - **Marketing & Sales Planning for Organic Irish Cod**
    - Undertake full marketing audit to identify niche segment
    - Development of a cachet brand image e.g. *Celtic Cod*
    - Formulate a strategic marketing plan
    - Design an implementation programme
    - Co-ordination of collective sales/logistics



Salmon from Ireland has always commanded a price premium over more generic products

Organic Salmon from Ireland now commands an even greater price premium – this has transformed a very small Irish Salmon farming industry



Cod – another valuable product from existing unused sites

- We are doing it !
- We are producing 2.5 kg cod in 27months.
- Trosc teo Connemara
- Breeding programme
- EIRCOD €4.2million 7yr programme

52 sites on Irish coastal fringe
many currently unused