UNCOVER Project

UNderstanding the Mechanisms of
Stock ReCOVERy

INNOVATIVE FISHERIES MANAGEMENT
- an Aalborg University Research Centre

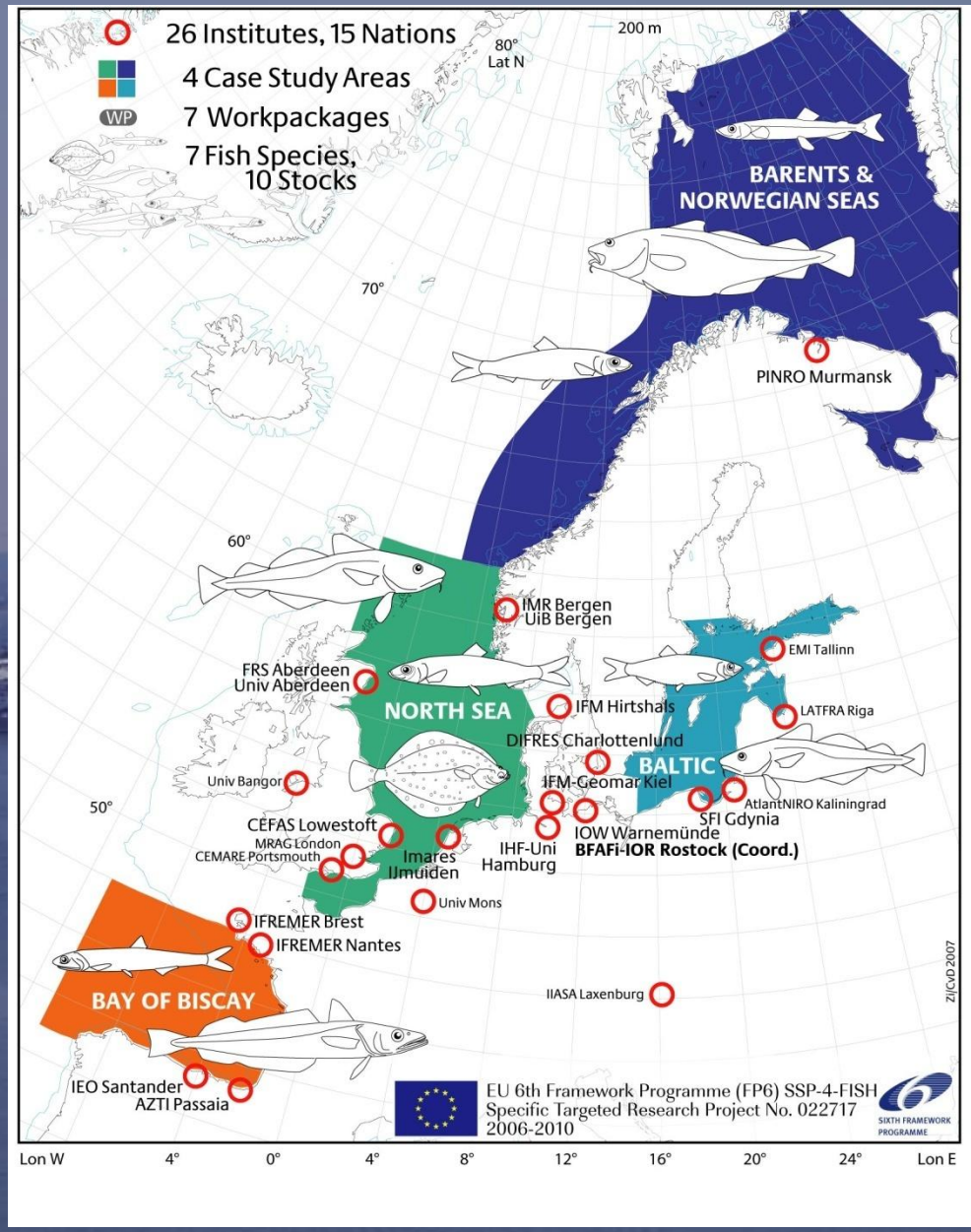
UNCOVER key facts

March 2006
February 2010

Partners: 17 + 9

Total of ca. 100 participants

Coordinator:
Bundesforschungsanstalt für Fischerei - Institut für Ostseefischerei, Germany



What are the Problems?

- many exploited fish stocks in European waters are at historical low levels
  - some are in danger of further decline
  - for many of these, ICES recommends a closure of the fishery
- stock recovery may not follow prediction
  - biological parameters changed
  - changes in the ecosystem
    - caused by the stock decline
    - independent of the decline

How does UNCOVER work?

- **synthesise and integrate** relevant information from previous (FP 4,5) and ongoing (FP 6) research programs
  - e.g., EFIMAS, PROTECT, BECAUSE, CORE
- perform **specific target studies** within UNCOVER
- integrate the results into a **modelling framework** to evaluate and develop management strategies

UNCOVER Work Packages

WP	Activity
1	Fisheries and environmental Impacts on Stock structure and reproductive potential
2	Impact of exogenous processes on recruitment dynamics
3	Trophic controls on stock recovery
4	Evaluation of strategies for rebuilding
5	Social, economic and governance influences on recovery plan effectiveness
6	Project Synthesis

Desired Outcome

- **Clear cut and concise recommendation what to do with particular overexploited fish stocks**

Work Package Five:

Social, economic and governance influences on recovery plan effectiveness

INNOVATIVE FISHERIES MANAGEMENT
- an Aalborg University Research Centre

Review of successful stock recovery plans **(MRAG)**

- reviewed development and success of fish stock recovery plans
  - USA, Australia, New Zealand and Europe
- evaluated range of multi-disciplinary factors associated with successful stock recovery for 33 case studies
- each factor was evaluated and scored
  - based on the best available information
  - to indicate its relative importance in the overall process leading to stock recovery
- Feedback workshop at IFFET in Portsmouth

Results: Key factors associated with successful recovery strategies

- rapid and often large reduction in fishing mortality
- developing unambiguous management performance criteria and harvest control rules
- complimentary fisheries legislation and regulations
- fish biology must be favourable
- favourable environmental conditions during the recovery period
  - including status of essential habitats

North Sea cod recovery plan

From 2001 **series of technical measures** (closure in 2001; mesh size restrictions 2002; effort restrictions 2003, 2004).

Closure and mesh size restrictions had probably no effect, but effort restrictions together with decommissioning have **reduced effort**

F in 2000 ca 30% higher than F_{lim}, reduced to about F_{lim} in 2006, and to F_{pa} in 2007

Decline in stock size was halted since 2001 and assessments suggest stock is now increasing, but still substantially below B_{lim}.

No indication of increasing recruitment (but a stronger 2005 yc observed, which is now largely discarded).

ICES advised zero catch 2001-2007 but the TAC is still high (20 kt in 2007) and catch even higher (47.9 kt 2007).

Key-problem to solve: discard of recruits

NS cod rec plan: performance indices (MRAG)

Overfishing	Yes
Rebuilt	No
Defining a recovery process	2
Management performance criteria	4
Property rights	1
Legislation and regulations	3
Monitoring, control and surveillance	2
Complexity of fishery system	1
Rapid reduction in fishing mortality	2
Environmental conditions	1
Fish biology	2
Status of stock when plan implemented	1
Economic efficiency	1
Impact analysis/compensation	2
Stakeholder participation	2

1 = very poor
3 = indifferent
5 = very good

WP 5: Socio-economics

Bioeconomic modelling and community studies focussed on compliance

INNOVATIVE FISHERIES MANAGEMENT
- an Aalborg University Research Centre

Bioeconomic Modelling
(CEMARE)

- North Sea plaice, cod, herring
  - 10% reduction in vessels reduces profit 5-20%
    - Higher for fleets with smaller vessels.
  - a non-linear response of F to decommissioning.
    - First 10% decommissioning has much more impact than the second.
- Bay of Biscay
  - "bakas" (single trawlers) and "parejas" (pair trawlers)
  - Bakas react to lower TAC by modifying catch composition
  - Parejas too specialized in hake, far greater decrease in profits

Social impact assessments of the Cod and Hake Recovery Plans

SIAs conducted in 5 Member States:

- Denmark (1)
- the Netherlands (1)
- Scotland (1)
- Spain (2)
- France (1)

What is found in an SIA ?

- Descriptions of the ethnic character, family structure, and community organization of affected communities to understand vulnerability and resilience in respect to economic impacts of recovery

SIA Result highlights

- Community impacts highly variable.
- The catching sector may not always be faced with the greatest impacts.
  - Consolidation and loss of support services in all areas of industry.
- Cumulative impacts

WP 5 Goverance: Interviews with Regional Advisory Council Members

- **Recovery plans central to RAC development**
  - **Requesting reviews of recovery plans**
  - **Discussion papers /recommendations**
  - **Cod Symposium March 2007**

How are important decisions made?

- Who decides what fish need recovering?
  - Not just a biological question.
- What does recovery mean?
- How much time to recovery?

Mixed fisheries are the central issue in recovery plans

- Focus on a single stock
- Defining and managing ”target” and ”bycatch”
- Recovery plans and the ecosystem approach?

Recovery plans as a chance for reform

- Moving to long term management
- Increased participation in knowledge base for management
- Strengthening RACs
  - Results-based framework
  - ”Burden of proof”
  - Separating ”strategy” and ”tactics”

ICES/PICES/UNCOVER Symposium:

"**Rebuilding Depleted Fish Stocks - Biology, Ecology, Social Science and Management Strategies**"

3rd-6th November 2009, Warnemünde, Germany

(Coveners C Hammer, OS Kjesbu, GH Kruse, P Shelton, Keynote speaker: Ray Hilborn)

You are all Invited!

INNOVATIVE FISHERIES MANAGEMENT
- an Aalborg University Research Centre