



BIM
Eanáir Tascailigh Náisiúna
Irish Sea Fisheries Board

Kicking off a Shellfish Carrying Capacity Project -

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Introduction

- Development of a computer application to allow carrying capacity and water quality modelling with respect to shellfish aquaculture
- For this project we will be focusing on blue mussel and Pacific oysters
- Our definition of carrying capacity is to do with how much aquaculture can be put into a bay area and what are the optimal / sustainable levels

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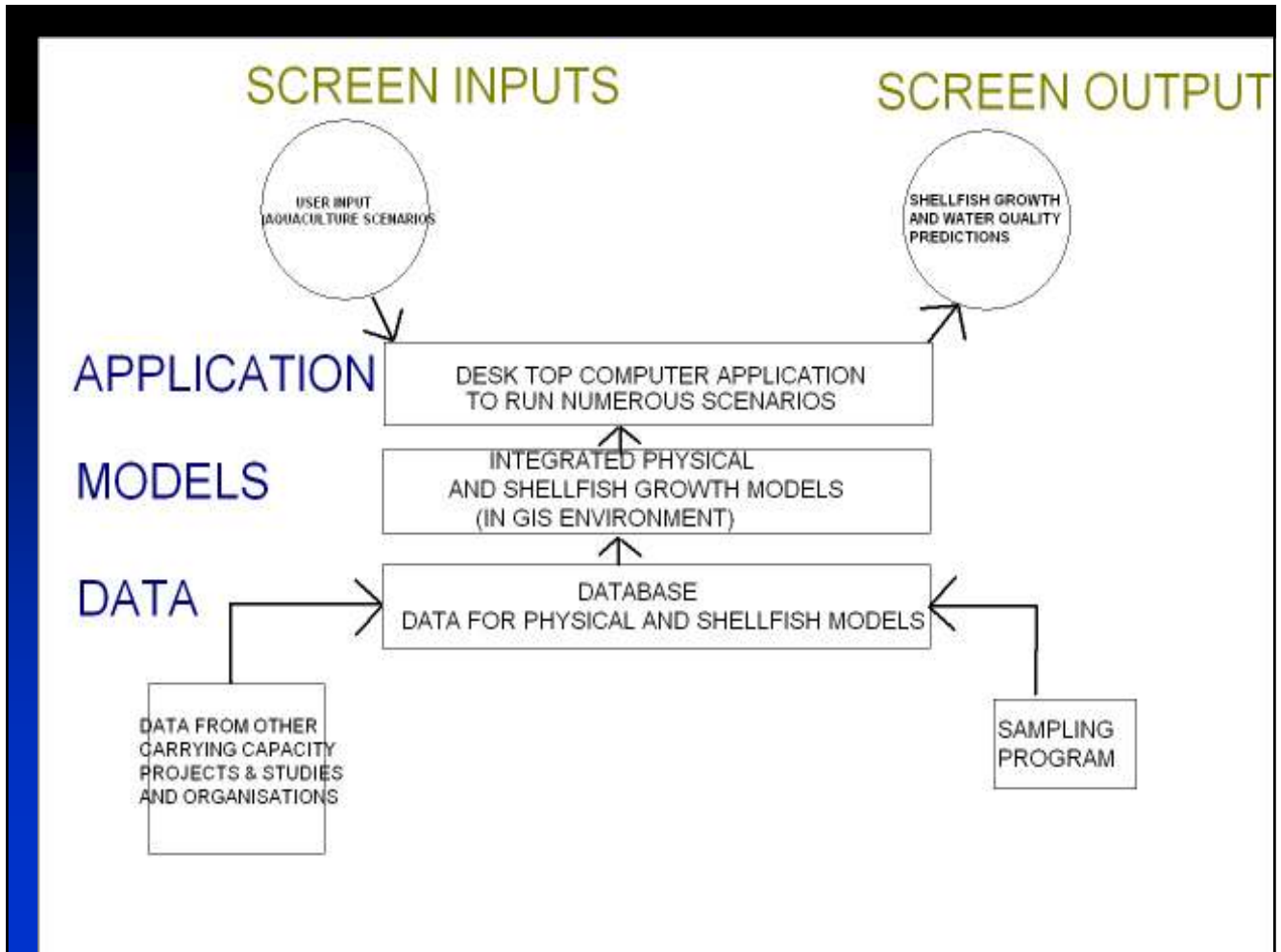
Why are we doing this?

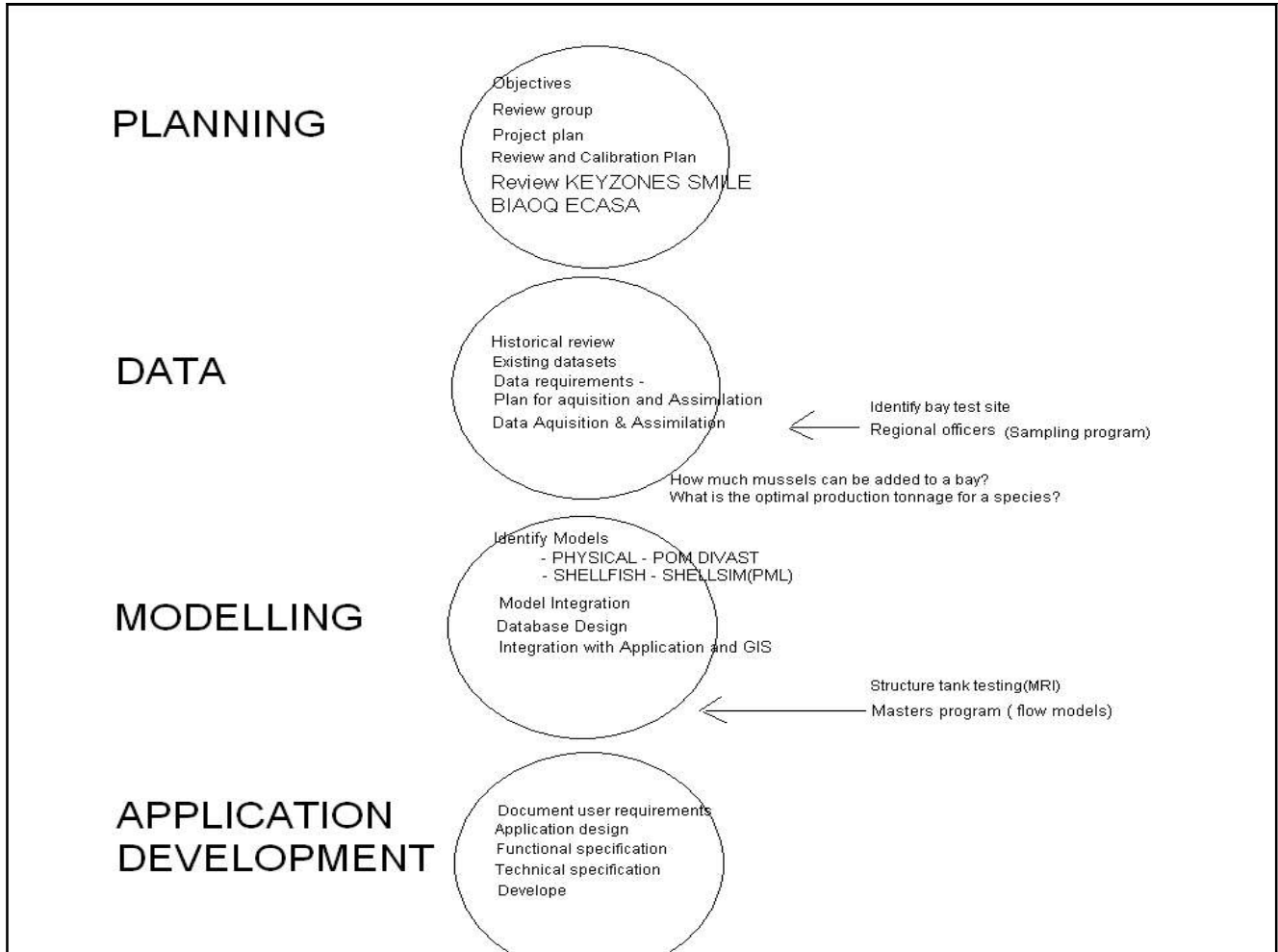
Asked to do this by DCMNR (ISA/Aquaculture Forum and the DCMNR)

- There is anecdotal evidence of sub-optimal growth of mussels in Killary for example i.e Mussels taking longer to grow to market size.
- To provide decision support :- The application will be used by industry decision makers to run various scenarios demonstrating different shellfish aquaculture and water quality case studies.
 - ◆ For example, if a grower wishes to increase the stocking density on a farm this application will be able to assist with this
 - ◆ Also, the water quality impacts of different discharges can be predicted by this application.

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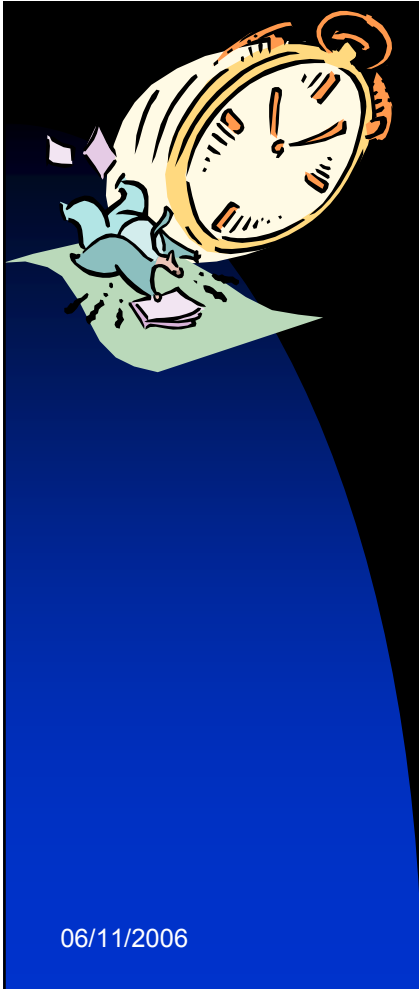


Bay scale and Farm scale modelling

- The application will assist in modeling bay scale (eg seed tonnage) and farm scale (flow through aquaculture structures/phytoplankton uptake) modelling
- Bay scale questions
 - ◆ Is it a good idea to put 1000 tonnes of seed into a particular part of a bay?
 - ◆ What is the impact of a biotoxin closure on a bay?
- Farm scale questions
 - ◆ Does one mussel line 'steal' from another mussel line? If so, to what extent.
 - ◆ Is mussel line / oyster trestle orientation optimal?

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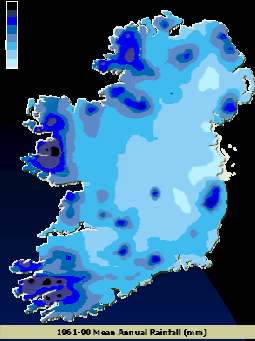


Time frame

- The timeframe for the project is 2 years but we expect to take the project beyond this point.
- Will have a modelling capability for 3 bays at least. Killary, Wexford Harbour and Dungarvan bay are the pilot bays

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We will investigate 3 bays from the following priority areas

- Lough Swilly
- Killary Harbour <<- Pilot
- Kenmare River
- Inner Bantry Bay
- Carlingford Lough (SMILE Project)
- Waterford Estuary
- Dungarvan Bay <<- Pilot
- Roaringwater Bay
- Bannow Bay
- Wexford Harbour <<- Pilot

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Killary -
Suspended
mussel culture;
long narrow
inlet; prone to
stratification



Wexford -
Bottom
culture; open
bay;

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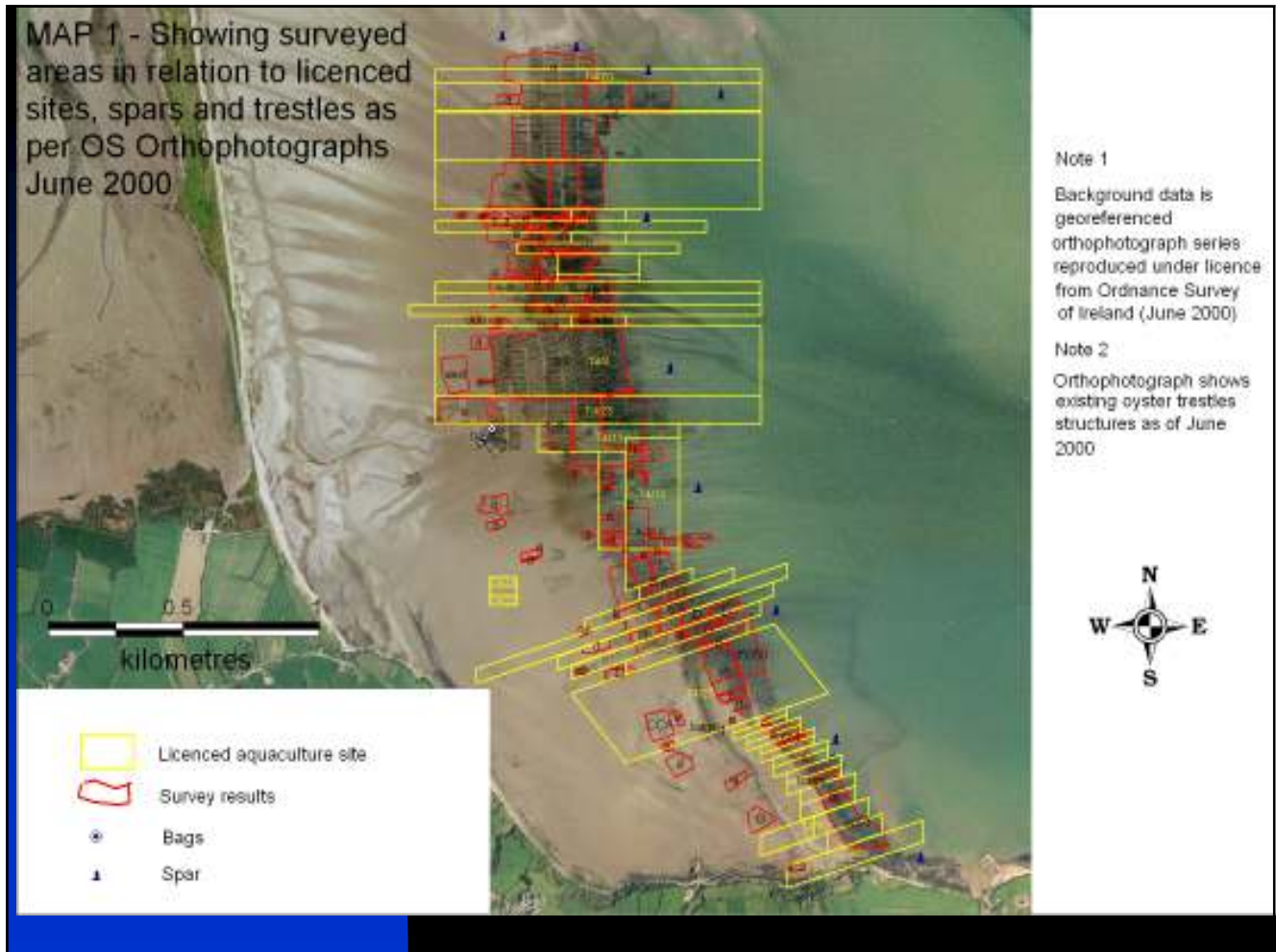
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OSI
Orthophotograph
showing oyster
trestles in
Dungarvan bay –
INTERTIDAL

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Partnerships

- MRI(Martin Ryan Inst) – Use of facilities, Research program
- PML(Plymouth Marine Lab) – Shellfish growth models
- Marcon Computations – model integration
- Compass Informatics – information management
- Other organizations we are talking to are₁₂
– IMAR ; GSI ; MI ; EPA

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The following are 'in progress'

- Objectives and scope defined
- Masters program initiated – (flow through aquaculture structures)
- Review of related projects and research
- Review of project data requirements and data availability
- Sampling program design
- Report on aquaculture structures currently in use in Ireland

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Summary

- 2 year project looking at mussel / oyster production and water quality
- Initially focusing on 3 pilot bays
- BIM in conjunction with MRI and other institutions
- Working closely with the industry to access requirements

PLEASE MAIL ME ON DALLAGHAN@BIM.IE
FOR MORE INFORMATION!

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