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## Marine Aggregates – as an Emerging Sector

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Northern Ireland Coastal and Marine Forum

ico nec irish coastal network

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## Why use Marine Aggregates?

An important economic resource which can contribute to the development and maintenance of infrastructure (e.g. buildings, roads, bridges, etc.).

Can also be employed for beach nourishment and coastal defence purposes (important in the context of predicted impacts of climate change, sea level rise and associated effects on low-lying coastal areas).

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## Outline of Presentation

- What, why and how?
- Marine Aggregates in Ireland
- Irish Sea Marine Aggregates Initiative
- Challenges

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## How are Marine Aggregates Obtained?

Aggregates are extracted by dredging of the deposit to remove it from the seabed.

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## What are Marine Aggregates?

Marine aggregates can be defined as sedimentary material – sand or gravel of various grain / clast sizes that are found on the sea bed.

Marine aggregates can be classified on the basis of their grain sizes, their composition, i.e. sand / gravel composition, or their suitability for use (primary or secondary aggregates).

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## How are Marine Aggregates Obtained?

Typical trailer hopper suction dredger, drag head raised.

Aggregates can be screened at sea before being transported to a port or wharf facility for unloading / further processing if needed, and transportation.

Photos courtesy of British Marine Aggregate Producers Association (BMAPA).

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## Demand for Marine Aggregates

**Ireland**

- Economic growth – associated housing demand and infrastructural requirements (each new house needs **300** tons aggregates and each mile of motorway needs approx **200,000** tons aggregates).
- Aggregates demand has trebled since the early 1990s, and recent statistics show Irish demand is **~130 million** tonnes /year, equates to approximately four times the EU average per capita demand.

**Europe**

- Countries such as Belgium, the Netherlands, Wales and England have ~ 30 years experience in extraction and use of marine aggregates.
- In the UK – 30% offshore aggregates to London and the South East region come from the English Channel, and in South Wales – 90% of sand comes from Bristol Channel.

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## IMAGIN Study Area

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## Marine Aggregate Extraction in Ireland

Currently there is no coherent policy for “commercial” extraction of marine aggregates within the RoI.

Although extraction has occurred on a non-commercial basis, e.g. material used as backfill for Lee Tunnel in Cork (1996), similarly material from Codling Bank used for Bray coastal protection works.

Policy gap in RoI was the focus of the Irish Sea Marine Aggregates Initiative (IMAGIN).

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## IMAGIN – Key Finding

As an emerging sector of activity – marine aggregate extraction (from the Irish Sea) is attractive in terms of:

- *availability of an additional resource to meet current and future demand; and*
- *reduction in CO<sub>2</sub> emissions.*

*Substantial amount of data and information produced - increasing our understanding of the geology and ecology of marine environment, cost benefit analysis, GIS, hydrodynamic modelling, etc.*

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## Irish Sea Marine Aggregates Initiative

Project aimed to build a strategic framework for the development of marine aggregate resources from the Irish Sea, with minimum risk of impact on marine and coastal environments, ecosystems and other marine users.

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## Marine Spatial Planning and Aggregates <sup>(1)</sup>

However, cognisant of the recent communication from the European Commission on an Integrated Maritime Policy for the EU, it is clear that future marine activities will be subject to a maritime spatial planning framework.

The Commission intends to develop a roadmap in 2008 to facilitate the development of maritime spatial planning by Member States.

Thus, IMAGIN is timely in terms of.....

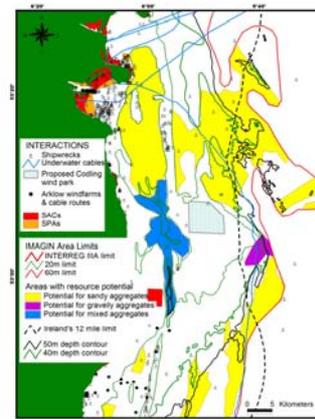


## Marine Spatial Planning and Aggregates (2)

...its recommendation that in order to implement a national policy, a statutory framework for the marine aggregate sector should be created, that is consistent with the principles of marine spatial planning, and.....

...the ability of project outputs to be used to achieve this objective, and to contribute to an overall national integrated maritime policy.

Example of IMAGIN GIS showing range of marine uses, activities and potential for interaction.



## Challenges (1)

- Current foreshore legislation in Ireland can accommodate applications for the extraction of marine aggregates but issues exist, e.g. resource beyond 12 nm limit, appeals process, etc;
- Integration of planning across the land / sea divide can be further strengthened;
- Building capacity – where will we source the marine spatial planners needed?
- How to establish criteria for zoning of activity?



## Engagement with other marine stakeholders

Consultation was built into the IMAGIN work programme - two stakeholder workshops held – sought input from users of the marine environment, gauge opinion, identify (and nullify where possible) concerns.



## Challenges (2)

- Interactions with other users of the coastal and marine environment.



## Feedback from stakeholders

- Marine spatial planning and zoning of activities and interactions were emphasised as key elements of policy for the development of marine aggregates in Irish waters. With respect to interactions consideration should be given to the range of scale and stages involved.
- No unequivocal opposition to marine aggregate extraction as a new maritime sector of activity.
- Substantial body of good practice exists from activities in other Member States – stakeholders were encouraged by experience garnered by practitioners in other countries, and from the outputs of ongoing and completed projects.



## Potential for an Marine Aggregate Sector

- ✓ Justifiable in terms of need to meet demand and availability of resource;
- ✓ Clear interest from commercial aggregate sector;
- ✓ Through INSS, IMAGIN, JIBS and INFOMAR we have developed much in terms of scientific know how; and,
- ✓ Preliminary level of stakeholder engagement undertaken through IMAGIN.

Need green light in terms of a policy decision.....

## Thank You

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