

Irish Guidance for Integrated Biodiversity Impact Assessment

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Abstract

Research and consultation funded by the Irish EPA for developing Integrated Biodiversity Impact Assessment (IBIA), a methodological approach integrating key Appropriate Assessment (AA), SEA and EIA stages, has recently been completed. Advisory guidance for practitioners has emerged, and a manual and an interactive support website are planned. The guidance seeks to ensure that relevant processes required under different EU Directives and Irish national law connect effectively and efficiently, to provide an integrated and holistic approach to biodiversity impact assessment, optimise time and resource efficiencies, and avoid unnecessary duplication. Particular emphasis is given to the fulfilment of legal obligations, effective integration and communication of scientific knowledge; spatial assessment and biodiversity data considerations; and integration of biodiversity aspects with a variety of other environmental concerns during the planning process. The guidance is structured around correlating critical stages between AA and SEA/EIA, and merges their requirements in relation to scope, scale and detail in order to provide comprehensive and robust biodiversity assessment. This practical framework is applicable to land-use planning and other sectoral plans, programmes and projects, including renewable energy strategies and grid infrastructure projects. This paper presents the guidance and the methodological framework, noting the research approach and consultation strategy adopted for its development. It critically examines the various SEA/EIA and AA stages and their requirements, and opportunities for, benefits of, or potential limitations to their effective integration. Ireland's Offshore Renewable Energy Development Plan will be used as a work-through example to demonstrate applicability of the methodology.

Short Brief: *Ireland's Offshore Renewable Energy Development Plan is used as an example to demonstrate applicability of the advisory guidance for integrated biodiversity impact assessment, which amalgamates key AA and SEA/EIA stages.*

Key Words: Appropriate Assessment (AA), biodiversity, impact assessment, Strategic Environmental Assessment (SEA), Ireland's Offshore Renewable Energy Development Plan (IOREDP).

1. Background to IBIA

In 2010 the Irish Environmental Protection Agency (EPA) issued a call for the development of an *Integrated Biodiversity Impact Assessment (IBIA)* methodology, which would promote better integration of Appropriate Assessments (AA) required under the EU's Habitats Directive (CEC, 1992 - encompassing the Birds Directive CEC, 1979 as amended) with *Strategic Environmental Assessment* – SEA (CEC, 2001) and *Environmental Impact Assessment* – EIA (CEC, 1985 as amended) procedures. This call was necessitated by unresolved tensions between the strong precautionary approach of AA (CEC, 2002; García-Ureta, 2007; Fry and O'Connell, 2011) and the more development-facilitating ethos of the environmental assessment legislation. As such, the term '*integration*' refers to a mechanism for improving the linkage between existing procedures, rather than as an additional procedure. It seeks to ensure that relevant processes required under different EU Directives and Irish national law connect effectively and efficiently, to provide an integrated and holistic approach to biodiversity impact assessment, as well as to optimise time and resources and avoid unnecessary duplication. This practical framework is applicable to land-use planning, as well as other sectoral plans, programmes and projects.

In line with previous work (González, 2009; González et al, 2011c), the remit was to produce guidance for practitioners that would not add additional burden, but would clarify procedures, highlight opportunities and promote best practice. Background IBIA investigations reported at previous IAIA meetings, included a possible standardised AA review package (Fry and Scott, 2011), a review of previous AAs in Ireland (Fry and O'Connell, 2011), and identification of the assessment context (Fry et al, 2011b) and legal and

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administrative issues (Fry et al, 2011a). GIS-compatible methods and data limitations on GIS support have been assessed (González et al, 2011a; González and Fry, 2011), as has possible IBIA application to other areas of biodiversity (Fry et al, 2011c). Opinion was sought from statutory authorities, practitioners and other stakeholders during framework development through a variety of mechanisms including a national workshop (González et al, 2011d). The resulting *IBIA Best Practice Guidance* was peer-reviewed by a combination of national and international experts, and has been recently published (González et al, 2012¹). The current paper builds on the last progress report at the IAIA Prague SEA conference (González et al, 2011b) and uses Ireland's Offshore Renewable Energy Development Plan (DCENR, 2010a) as a work-through example to demonstrate potential benefits from adopting the IBIA framework.

2. Structure of the IBIA Guidance

The guidance is structured around correlating critical stages between AA and SEA/EIA, and merges their requirements in relation to scope, scale and detail in order to provide comprehensive and robust biodiversity assessment. Figure 1 summarises the process and linkages between AA and SEA or EIA. Particular emphasis is given to the fulfilment of legal requirements, effective integration and communication of scientific knowledge, biodiversity data and spatial assessment considerations, and integration of biodiversity aspects with a variety of other concerns into planning.

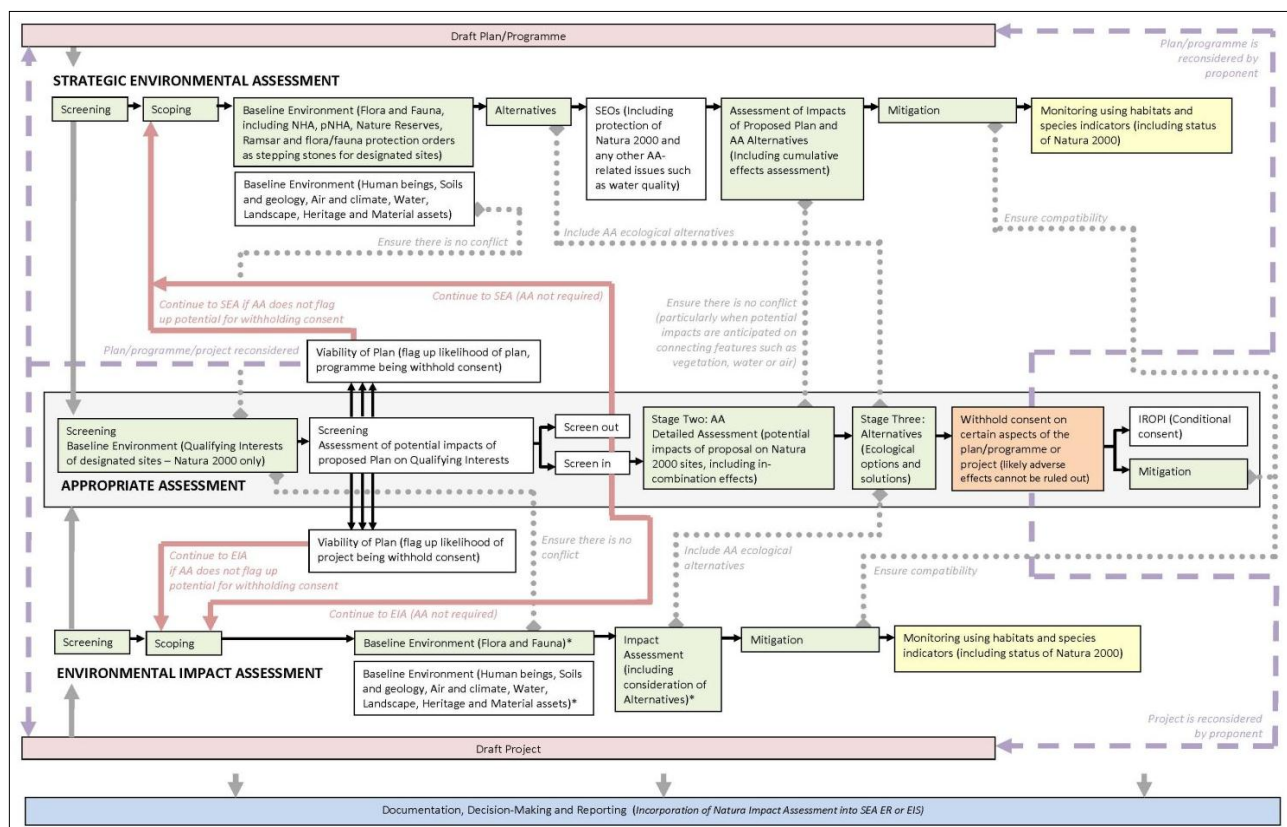


Figure 1. Schematic representation of IBIA. Note: green boxes indicate 'common' procedural stages; yellow boxes indicate correlation between some of the processes; white refers to those stages solely applicable to one of the processes; and the orange highlights the primacy of the AA process for refusing consent. Red arrows refer to the critical outcomes of AA screening; dotted grey arrows link all the rest of the relevant stages; discontinuous grey arrows point to reconsideration of proposal in light of IROPI.

The guidance consists of three chapters and a set of appendices. Chapter 1 is introductory, providing definitions and identifying the purpose, legislative framework and objectives of the project, as well as commenting on spatial data and GIS as support tools. Chapter 2 explains the methodological framework and provides best practice and high-level recommendations to address current practice issues, while Chapter 3 provides the step-by-step IBIA Guidance. For those familiar with the background, Chapter 3 could provide essentially stand-alone guidance for IBIA. The appendices list available biodiversity datasets and biodiversity-related research projects in Ireland, provide a flow diagram identifying stages where spatial data and GIS can be applied, list core biodiversity indicators and provide an IBIA review checklist.

¹ <http://www.epa.ie/downloads/pubs/research/biodiversity/name,33395,en.html>

The IBIA guidance is currently being repackaged as a stand-alone practitioners' manual, with the aim to provide a focused practical guide to integrated biodiversity assessment by converging the step-by-step guidance and the best practice recommendations. In addition, the preparation of an interactive web-portal is envisaged to promote and support best practice.

3. Applicability of IBIA to Offshore Renewable Energy

The IBIA framework is relevant to offshore and onshore energy developments, including renewable energy plans/programmes and related grid infrastructure proposals. In order to critically examine its applicability, and assess current practice limitations and benefits of integration, *Ireland's Offshore Renewable Energy Development Plan* (IOREDP) is used as a work-through example (Table 1). This draft plan is under discussion and has yet to be approved, but has been prepared to formulate a strategic plan for harnessing local renewable energy resources through offshore wind, wave and tidal energy technologies.

Table 1. IOREDP SEA and AA stages and their undertaking in practice, observed limitations, and recommendations for integration to obtain benefits from best practice.

Assessment Stage	IOREDP Practice	Observed Limitations	IBIA Recommendations	Potential Benefits
Screening and Scoping	SEA screening and scoping set the context for the assessment (including assessment detail and alternatives). AA screening undertaken at a later stage.	Undertaking AA screening after SEA constrains early identification of significant impacts on European sites.	Undertake AA screening <i>a priori</i> to anticipate any significant effects on European sites, before proceeding with SEA.	Early identification of potential significant issues that may lead to consent refusal.
Establishing the Baseline	Thorough assessment of environmental receptors and their vulnerabilities, including European sites in the SEA; European sites only in the AA. Identification of data gaps.	Potential omission of critical considerations for European sites in the SEA and duplication in data gathering and description efforts.	Ensure that SEA baseline informs AA and <i>vice versa</i> . Include recommendations for addressing identified data gaps.	Assessing the interrelationship between environmental receptors, non-designated areas/species and European sites; more comprehensive baseline.
Definition of Alternatives	Determined at SEA scoping and reflect Ireland's National Renewable Energy Action Plan's objectives.	Limitations on full consideration of ecological aspects; potential to preclude/include areas from development without appropriate evidence base.	Incorporate ecological expertise and intrinsic biodiversity considerations in the definition of alternatives.	Discourage development in European sites and biodiversity-sensitive areas unless proven that no significant impacts are anticipated (precautionary approach).
Impact Assessment	Thorough spatially-specific assessment at a strategic level (using scientific literature). Very detailed cumulative effects assessment undertaken in SEA, and in-combination effects in AA.	Risk of overlooking connectivity between sites and interrelationship between environmental receptors.	Assessment of potential impacts at the ecosystem level, including connectivity between biodiversity areas and integrity of European sites.	Comprehensive identification of all significant direct/indirect, short/long-term, synergistic, cumulative and in-combination effects.
Mitigation	Direct incorporation of SEA ER (and eventually AA) mitigation measures into the draft plan.	Draft plan formulated on the basis of SEA recommendations and mitigation. Late incorporation of AA mitigation measures.	Simultaneous considerations of all mitigation measures for their incorporation into the plan.	Timely and full incorporation of compatible SEA and AA mitigation measures into the plan (i.e. influence the plan).
Monitoring	General monitoring provisions made in the SEA ER and NIS but no indicators or targets provided. SEA includes monitoring recommendations for addressing data gaps.	No specific monitoring scheme proposed (noted as a requirement at project level). Potential to affect its effectiveness.	Define complementary arrangements to monitor SEA/AA mitigation and plan implementation.	Coordination of monitoring efforts and systematic identification of unforeseen impacts on European sites and other sensitive biodiversity areas/species.
Reporting	SEA ER and NIS as separate reports. General references to AA in SEA ER and to SEA in NIS.	Lack of combined reporting, affecting the comprehensive overview of issues, assessment findings and recommendations.	Incorporate AA findings into SEA ER (NIS as an appendix) while acknowledging statutory implications of each process.	Comprehensive and all-inclusive biodiversity impact assessment findings and proposed mitigation.
Consultation	SEA and AA teams	Expert input into draft	Proactive and ongoing	Optimised exchange of

	working in isolation. SEA steering group included representatives from the NPWS (i.e. expert involvement early in the assessment process).	plan (from statutory bodies and key stakeholders) limited to steering group meetings and statutory submissions.	communication between proponent, assessment teams, statutory bodies and stakeholders.	information to avoid duplication and ensure that no relevant biodiversity aspects/issues are overlooked.
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Drafting of IOREDP was preceded by SEA, which illustrates a clear integration of environmental considerations. The parallel undertaking of AA is noted in the SEA *Environmental Report* (ER) but the *National Parks & Wildlife Service* (NPWS - the statutory authority for AA in Ireland) considered that AA could only be finalised with the final plan, so the *Natura Impact Statement* (NIS) required under Irish law was not completed until later. This illustrates a clear failure to integrate processes; SEA and AA were disconnected, the teams operated in an isolated manner, and the opportunity to exchange biodiversity information between SEA and AA, avoid data gathering, assessment and reporting duplication, and provide a timely and comprehensive assessment of biodiversity receptors and their vulnerabilities was lost. The delayed AA could have hindered the early identification of aspects of the plan that could lead to significant effects on European sites, but expert input was obtained through the SEA steering committee, which included ecological expertise and key stakeholders such as the NPWS.

The SEA provides a highly comprehensive account of the baseline environment, with particular emphasis on biodiversity, flora and fauna receptors and sensitive areas – drawing significantly on NPWS data. It identifies key significant data gaps and includes clear recommendations to address them. However, the lack of coordination between assessment teams increased the risk of omitting critical considerations for European sites (e.g. qualifying interests), as well as leading to duplication in data gathering and description efforts. A more coordinated and integrated approach to the baseline environment would have facilitated combined examination of the interrelationship between European sites, nationally designated and non-designated sites and species and other environmental receptors, which would in turn provide a more comprehensive baseline.

The low and medium development scenarios set out in the plan broadly reflect what is set out in Ireland's National Renewable Energy Action Plan (DCENR, 2010b), while the more ambitious third scenario was developed during SEA scoping. All the scenarios are based on strategic objectives for renewable energy development and have a particular focus on technical and economic considerations. Despite the comprehensive assessment of environmental aspects, the incorporation of ecological receptors and intrinsic environmental vulnerabilities in the definition of alternatives is not apparent (although these considerations were addressed during the appraisal of scenarios). In the context of IBIA, proactive communication between the SEA and AA teams could have contributed to a more informed and biodiversity-inclusive definition of alternatives. This is particularly relevant in the context of the thorough assessment of the environmental baseline undertaken in both the SEA and AA, the significant number of European sites along the coast and offshore, and the potential locations for, and implications of, individual developments.

The draft IOREDP addressed all the issues identified in the SEA ER and is, in fact, built upon SEA findings and recommendations. Several sections of the IOREDP show a clear integration between the drafting of the plan and the SEA process (e.g. Section 2.2 'SEA and EIA Processes', Section 9 'Data Gaps and Other Uncertainties', Section 10 'SEA ER Conclusions'). All the proposed actions and recommended mitigation measures are included in the draft plan. AA recommendations were not initially reflected in the SEA ER due to the time lag between the processes, and thus were initially omitted from the draft IOREDP – albeit they were eventually included. In the context of IBIA, undertaking both processes in parallel would have enabled full and simultaneous consideration of all relevant biodiversity aspects, as well as all proposed mitigation measures, providing a more thorough and consistent evidence base for drafting the plan. Moreover, the draft plan recognises that significant effects are anticipated if development occurs in protected habitats, but does not exclude these areas from development. In the context of IBIA (and given the precautionary principle of AA), a clear objective should possibly have been included to discourage or apply strict location-specific guidance for development in such sensitive areas to rule out any potential for significant impact/s (particularly in the context of the 'deploy and monitor' approach recommended to gain further knowledge on device-species interactions). Additional recommendations could have also been included, such as development of an expandable and accessible marine database for developers, and coordination between consent authorities and relevant agencies when processing individual licence applications.

4. Conclusion

The IBIA protocol argues that integrating procedural and legislative requirements of SEA and AA provides significant practical benefits and more comprehensive assessment outputs. SEA has the potential to support the carrying out of AA and better inform its conclusions by contributing information on the interrelationship between environmental factors, and by assessing potential impacts on habitats and species within and outside European sites, and thus examining the overall implications for biodiversity. In contrast, AA can identify aspects of a proposal that can lead to withholding consent and thus, inform SEA. Analysis of IOREDP in the context of IBIA supports these conclusions; in both cases, integration through the IBIA framework facilitates a more comprehensive assessment by improving communication, and coordinating data gathering/analysis efforts.

IBIA represents a pioneering approach at EU level on the integration of legislative requirements for biodiversity impact assessment. It is anticipated that the IBIA recommendations will be operationalised through the preparation and piloting of a practitioners' manual.

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