# *Offshore wind development – mitigating biodiversity impacts*

Giulia Carbone
Deputy Director
Global Business and Biodiversity Programme
International Union for Conservation of Nature

# Renewable energy and biodiversity

- Renewable energy sources will play a critical role in achieving a net-zero emissions scenario.
- The transition is currently happening and should by all means be supported.
- However, we need to consider the associated transition risks, among which the loss of biodiversity.
- Policy action is necessary to ensure that this risk is managed effectively and timely.
- In particular, Marine Spatial Planning should create the enabling framework for project developers and operators to implement effective biodiversity mitigation measures (following the mitigation hierarchy).

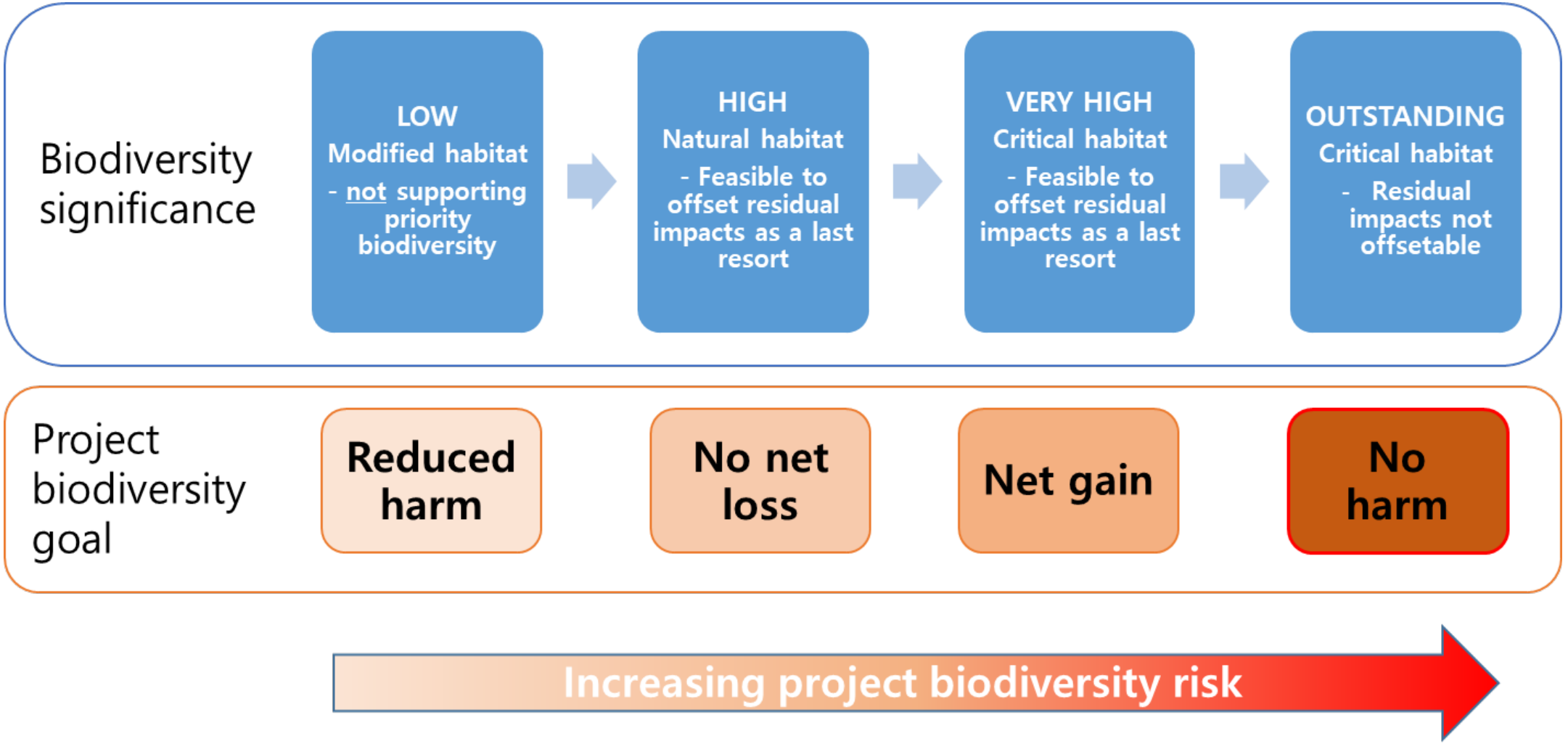
# Biodiversity impacts types associated to offshore wind

1. Bird and bat mortality from colliding with turbine blades and/or onshore transmission lines
2. Seabed habitat loss, degradation and transformation (bottom-fixed turbines)
3. Hydrodynamic change (bottom-fixed turbines)
4. Habitat creation (including reef and refuge effects associated with bottom-fixed turbines)
5. Trophic cascades
6. Barrier effects or displacement effects due to presence of wind farm (bottom-fixed turbines)
7. Bird and bat mortality through electrocution on associated onshore distribution lines
8. Mortality, injury and behavioural effects associated with vessels
9. Mortality, injury and behavioural effects associated with underwater noise
10. Electromagnetic fields of subsea power cables: behavioural effects
11. Pollution (e.g. dust, light, solid/liquid waste)
12. Introduction of invasive alien species
13. Indirect impacts
14. Associated ecosystem service impacts

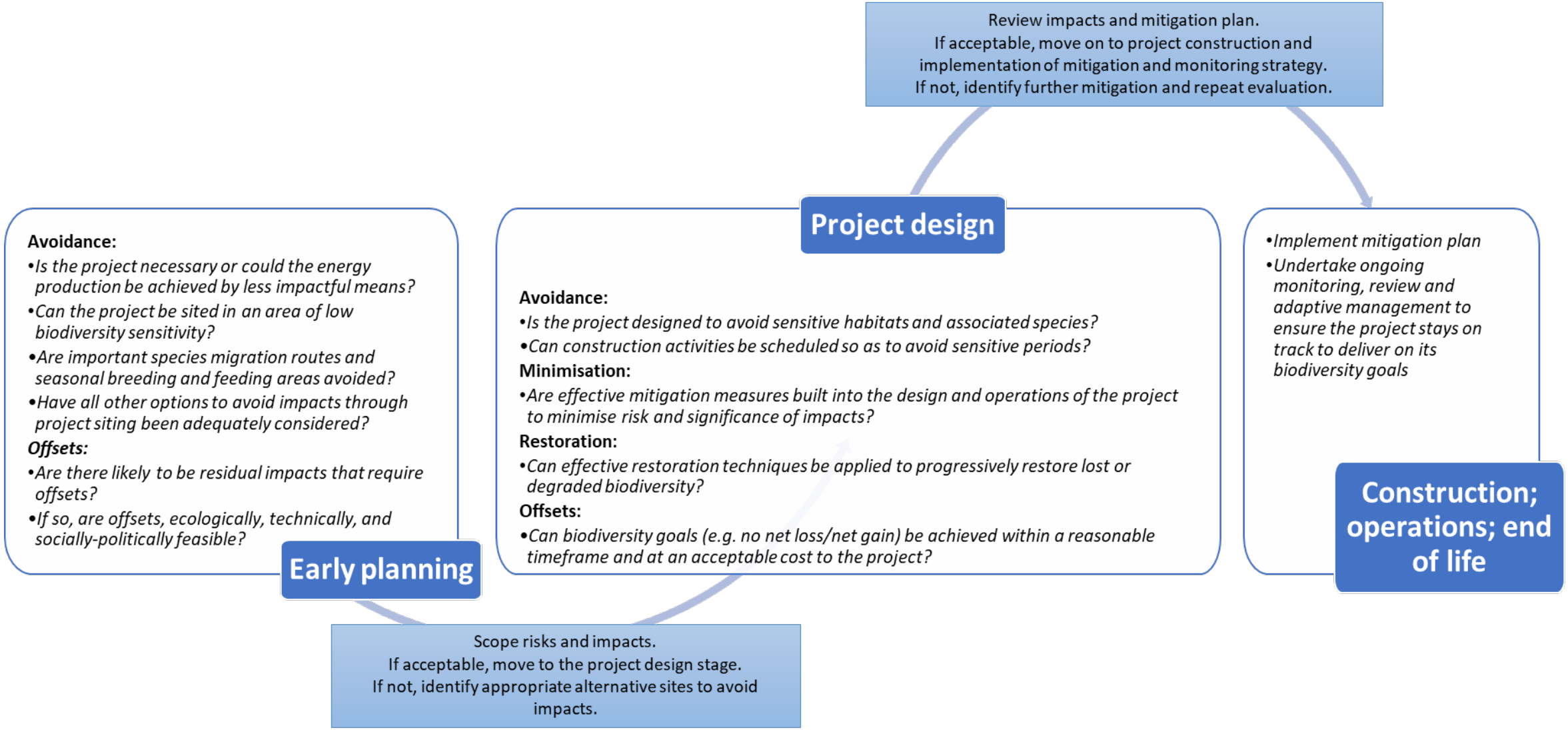
# The mitigation hierarchy – a focus on developers

- The mitigation hierarchy provides developers and operators with a logical framework to address the negative impacts of development on biodiversity and ecosystem services.
- It's applicable to projects in any sector, including renewable energy.
- It's based on the sequential and iterative application of four actions – **avoid, minimise, restore and offset**.
- The mitigation hierarchy should be applied to direct, indirect and cumulative impacts.
- Clear goals should be defined in advance to ensure that the MH is results oriented.

# Set goals commensurate to biodiversity values



# Implementing the mitigation hierarchy



# Impact avoidance through site selection – the role of Marine Spatial Plans

- The **early project planning phase** includes an assessment by developers of the feasibility of potentially suitable project site(s) based on a range of criteria.
- Avoidance by site selection **should ideally be guided by area-based planning that integrates biodiversity considerations into renewable energy siting decisions. Spatial plans should be developed before permitting starts.**
- Given the potentially large energy contribution and space requirements of renewable technologies such **proactive strategic spatial planning and strategic environmental assessment are important to avoid undermining biodiversity conservation goals.**
- Clear criteria for 'no go' areas should inform and support the planning (MSP) and assessment (SEA) processes complemented by criteria for GO AREAS.
- Once suitable areas are identified at the seascape level, further **risk screening** can then be undertaken to support site characterisation and help assess biodiversity sensitivities for one or more potential project sites.

# MSP can also support biodiversity benefits

- Seize opportunities to create synergies with other climate resilient NbS activities, such as seaweed farming.
- Elaborate on potential to include MPAs within the seascape, and the collaboration with fisheries and zoning efforts.
- Promote the use of nature based solutions to solve operational and management problems (for example use of bio-enhancing materials for cement foundations)
- Promote opportunities for enhancing biodiversity associated to offshore wind farms (for example the restoration of benthic habitats in association with the wind turbine foundation).

# IUCN's contribution

- In collaboration with The Biodiversity Consultancy, brought together industry leaders (EDF, EDP and Shell) and NGOs active in this area (BirdLife, FFI, TNC and WCS).
- Through a series of meetings and case studies developed *Guidelines for mitigating biodiversity impacts associated with solar and wind energy development.*
- These will be launched at the end of the year / early 2021.
- For further information contact me at giulia.carbone@iucn.org