

Dead Zones in Ireland

Spreading Dead Zones and Consequences for Marine Ecosystems

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Table S1. Hypoxic areas around the world linked to eutrophication. Hypoxia type is characterized as Episodic: events occurring at irregular intervals >1 year; Periodic: several to many events per year lasting from hours to weeks, also includes daily hypoxia; Seasonal: yearly events related mostly to summer or autumn seasons; Persistent: year-round or near year-round hypoxia. Decade of first or recent data report is an estimate of when hypoxia first started. Area is the maximum reported spatial extent of hypoxia, however, most systems do not have area estimates.

1. Bandon Estuary Lower Ireland 1990 DO deficiency increased 1995-99 OSPAR 2003
2. Bandon Estuary Upper Ireland 1990 DO deficiency increased 1995-99 OSPAR 2003
3. Barrow Estuary Ireland 1990 DO deficiency increased 1995-99 OSPAR 2003
4. Blackwater Estuary Lower Ireland 2000 OSPAR 2003
5. Broadmeadow Estuary Ireland 1990 DO deficiency increased 1995-99 OSPAR 2003
6. Cashen Feale Estuary Ireland 1990 DO deficiency increased 1995-99 OSPAR 2003
7. Castletown Estuary Ireland 1990 DO deficiency increased 1995-99 OSPAR 2003
8. Colligan River Ireland 1990 DO deficiency increased 1995-99 OSPAR 2003
9. Donegal Bay Ireland 2000 Episodic low DO from HAB Silke et al. 2005
10. Dungarvan Harbor Ireland 1990 DO deficiency increased 1995-99 OSPAR 2003

11. Fergus Estuary Ireland 1990 DO deficiency increased 1995-99 OSPAR 2003
12. Killybegs Harbour Ireland 1990 DO deficiency increased 1995-99 OSPAR 2003
13. Lee (Tralee) Estuary Lower Ireland 1990 DO deficiency increased 1995-99 OSPAR 2003
14. Lee (Tralee) Estuary Upper Ireland 1990 DO deficiency increased 1995-99 OSPAR 2003
15. Lough Ine Ireland 1970 Seasonal Mass Mortality with annual recolonization Kitching et al. 1976
16. Lough Mahon & Lee Estuary Ireland 1990 Toner et al. 2005
17. Owennacurra Estuary Ireland 1990 DO deficiency increased 1995-99 OSPAR 2003
18. Slaney Estuary Lower Ireland 1990 DO deficiency increased 1995-99 OSPAR 2003
19. Upper Feale Estuary Ireland 1990 DO deficiency increased 1995-99 OSPAR 2003
20. Upper Suir Estuary Ireland 1990 DO deficiency increased 1995-99 OSPAR 2003

Inner Belfast Lough & Tidal Lagan Northern Ireland 2000 OSPAR 2003

Strangford Lough Catchment Northern Ireland 2000 OSPAR 2003

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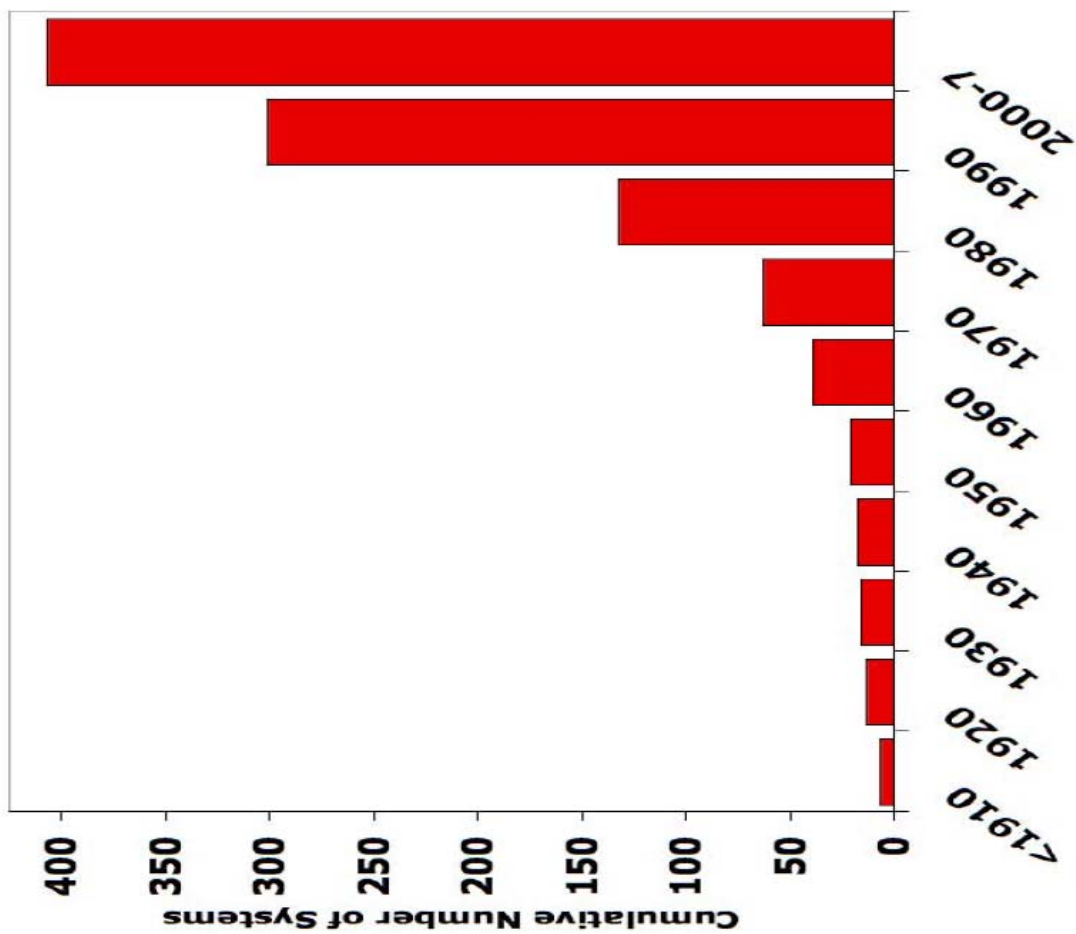
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Source:
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Ireland: applied the assessment and area classification to its waters according to the agreed assessment and overall classification procedure of the Comprehensive Procedure. Not all parameters however were reported due to a lack of data for certain parameters, e.g. phytoplankton indicator species and macrophytes. As Ireland's assessment under the Common Procedure relates to estuarine waters only (where the N:P ratios may be naturally elevated due to the freshwater influence), Ireland did not include consideration of N:P ratios in its comprehensive assessment. The Comprehensive Procedure was applied to a total of 53 (sub) areas, as part of the 19 examined estuaries and bays that were not identified as non problem areas during the initial screening procedure. Of the 53 (sub) areas, 21 are classified as problem areas on the basis of the initial classification; of the remainder, 12 are classified as potential problem areas and 19 are classified as non-problem areas. One area (Garavoge estuary) is unclassified. Ten of the 12 potential problem areas (initial classification) are ultimately classified as non-problem areas following appraisal of all relevant information (step 3, final classification). All such areas indicate elevated nutrient levels (either nitrogen or phosphorus), but in all cases did not exhibit either direct or indirect effects throughout the monitoring period (1995 to 1999 inclusive).

In the case of Ireland, a number of Potential Problem Areas [PPAs] have been identified where nutrient concentrations exceed the Comprehensive Procedure thresholds. As the link between nutrient concentrations and eutrophication is complex and not fully understood, and as the thresholds for direct and indirect effects for the areas concerned were not exceeded over a five-year period, Ireland considers that the areas should be classified as NPAs. The absence of undesirable effects, in these cases, is probably a function of mitigating supporting environmental factors.

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Ireland

E16 Castletown Estuary Problem area
E12 Broadmeadow Estuary (Inner) Problem area
E30 Liffey Estuary Problem area
E39 Slaney Estuary (Upper) Problem area
E40 Slaney Estuary (Lower) Problem area
E3 Barrow Estuary Problem area
E5 Suir Estuary (Upper) Problem area
E18 Colligan River Problem area
E19 Dungarvan Harbour Problem area
E8a Blackwater Estuary Upper Problem area
E8b Blackwater Estuary Lower Problem area
E26a Lee Estuary/Lough Mahon Problem area
E26b Owennacurra Estuary/North Channel Problem area
E1a Upper Bandon Estuary Problem area
E1b Lower Bandon Estuary Problem area
E28a Upper Lee (Tralee) Estuary Problem area
E28b Lower Lee (Tralee) Estuary Problem area
E15a Upper Feale Estuary Problem area
E15b Cashen Feale Estuary Problem area

E36 Maigue Estuary Potential problem area

E37 Deel Estuary Potential problem area

E38 Fergus Estuary Problem area

E24 Killybegs Harbour Problem area

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