Ardbear Salmon Ltd.

Supplemental Information Request for Hawks Nest T09-127, Clifden Bay, Co. Galway

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AQUAFACT REF: P21039

2026

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AQUAFACT
APEM Group

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Reference no:	P21039
Date of issue:	June 2026
Version Number:	v1

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Tax Clearance Number:	559674

Report Approval Sheet

Client	Ardbear Salmon Ltd.
Report Title	Supplemental Information Request for Hawks Nest T09-127, Clifden Bay, Co. Galway
Job Number	P21039
Report Status	Final
Issue Date	June 2026
Report Type	Supplemental Information Request

Rev	Status	Issue Date	File Name	Author(s)	Approved By
1	Draft	June 2026	P21039_ArdbearSalmon_ HawksNest_WorkingDoc	Brendan Dickerson	AL, AH
2	Final	June 2026	P21039_ArdbearSalmon_ HawksNest_Final	Brendan Dickerson	AL, AH

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List of Acronyms/ Glossary

Abbreviation	Full term
AA	Appropriate assessment
NIS	Natura Impact Statement

1. Introduction – Required Supplemental Information

A Screening for Appropriate Assessment (AA) and Natura Impact Statement (NIS) was prepared by the Marine Institute in October 2024 to support the licence review and renewal application for the Ardbear Salmon Ltd. site Hawks Nest (T09-127) at Clifden bay, Co. Galway. The review highlighted that the following areas required further information in order for the AA to be undertaken:

1. The potential impacts of the wild wrasse fishery on food availability for species such as Cormorant, Shag, red-throated diver etc. will need to be considered in the NIS. Wrasse, notably Ballan wrasse (*Labrus bergylta*) is known to frequently occur in the diet of coastal Cormorant (Tierney et al, 2011).

The following sections of this report provide sufficient information to support the aforementioned points to ultimately enable the AA of the Hawks Nest aquaculture site (T09-127) to be undertaken.

2. Supplemental Information

2.1. Potential impacts of wild wrasse fishery on food availability for cormorant, shag and red-throated diver

The Marine Institute's review of the Hawks Nest NIS highlighted the need to consider whether the sourcing of wild wrasse for use as cleaner fish could affect prey availability for bird species such as Cormorant, Shag and Red-throated Diver. In particular, the review noted that Ballan wrasse (*Labrus bergylta*) has been recorded as a frequent component of the diet of coastal Cormorant (Tierney et al., 2011). The following assessment therefore considers whether the proposed use of wild-caught wrasse by Ardbear Salmon Ltd. is likely to give rise to a reduction in prey availability for relevant Special Conservation Interest bird species.

The use of cleaner fish, including wrasse and lumpfish, forms part of an integrated sea lice management strategy and reduces reliance on chemical treatments. At the Hawks Nest site, wrasse are proposed to be used primarily during the warmer months, between approximately June and November, when they are naturally active. During the winter period, when wrasse activity is reduced, hatchery-reared lumpfish may be used instead. Wrasse are deployed at a minimum ratio of approximately 7 cleaner fish per 100 salmon, with stocking adjusted if required to maintain sea lice control efficacy. Wild wrasse are sourced from local fishers operating in Clifden Bay when required, and the fishery is subject to national management requirements governing the harvesting and use of wild-caught cleaner fish.

Cormorant is the bird species for which a potential prey-availability pathway is most relevant, as wrasse are known to occur in the diet of coastal Cormorants. However, the available literature indicates that Cormorants are opportunistic fish predators with a varied diet. Irish studies have recorded wrasse, eels, salmonids, flatfish and other fish taxa in Cormorant diet, with the relative contribution of prey groups varying between studies and locations (Kennedy and Greer, 1988; MacDonald, 1987; Warke et al., 1994; Warke and Day, 1995; West et al., 1975; Tierney et al., 2011). Wrasse may therefore form an important prey component in some coastal contexts, but they are not the sole prey resource used by the species.

National Cormorant population trends also do not indicate a long-term pattern consistent with prey limitation associated with aquaculture or cleaner-fish harvesting. Breeding Cormorants in Ireland increased between the 1969–70, 1985–88 and 1998–2002 census periods, although the most recent Seabirds Count assessment recorded an 8% decline between 1998–2002 and 2015–2021, largely attributed to declines at coastal colonies (Tierney and Newton, 2023). Aquaculture has been present in Clifden Bay for several decades, yet the long-term national Cormorant trend has not shown a sustained decline over that period. Recent work by Berrow et al. (2025) also illustrates that Cormorant colony trends can vary strongly between sites, with all three colonies

surveyed in the Shannon Estuary and adjacent waters showing increases over time. On this basis, there is no evidence that Cormorant population trends in Ireland are being driven by aquaculture production or by the use of wrasse as cleaner fish in Clifden Bay.

Recent research on the Irish mixed wrasse fishery also provides relevant context. Brennan (2025) undertook field surveys, mark-recapture population estimates and genetic analysis of corkwing wrasse across Irish bays, including Bertraghbui Bay. The study recorded substantial wrasse populations in surveyed bays, including an estimated population of approximately 490,000 wrasse in Bertraghbui Bay, and estimated that annual catches across the fishery represented approximately 10–12% of surveyed wrasse populations, with actual exploitation rates likely to be lower because wrasse are harvested from additional bays not included in the population surveys. The study also found no significant population structure among Irish corkwing wrasse populations, indicating high gene flow and genetic connectivity among Irish bays. Although the genetic component of the study related to corkwing wrasse rather than Ballan wrasse specifically, the findings provide useful baseline evidence that the Irish wrasse fishery is not currently indicative of isolated or depleted local populations. Brennan (2025) nevertheless notes the importance of continued monitoring and potentially bay-specific management, particularly given differences in species composition and size structure between bays.

For Shag and Red-throated Diver, the likelihood of a prey-availability effect is lower. Shag diet is typically dominated by sandeels and other small fish, although the species can exploit a broad range of prey depending on local availability (Howells et al., 2017). Wrasse are not identified as a preferred prey resource for Shag in the available long-term dietary literature. Red-throated Diver similarly feeds primarily on small fish such as sandeel, sprat, clupeids, juvenile gadoids, mackerel and flatfish, with some use of invertebrate prey; wrasse are not considered a principal prey resource for this species (BirdWatch Ireland, 2026; Kleinschmidt et al., 2019). Therefore, the removal of wrasse for cleaner-fish use does not represent a credible prey-depletion pathway for Shag or Red-throated Diver.

Overall, while it is acknowledged that wrasse, including Ballan wrasse, can form part of the diet of coastal Cormorants, the proposed use of wild-caught wrasse by Ardbear Salmon Ltd. is not considered likely to result in a significant reduction in food availability for Cormorant, Shag or Red-throated Diver. This conclusion is supported by: the varied diet and dietary plasticity of Cormorant; the absence of evidence linking Irish Cormorant population trends to aquaculture activity in Clifden Bay; the low relevance of wrasse as prey for Shag and Red-throated Diver; and recent evidence indicating substantial wrasse populations and strong genetic connectivity among Irish bays. Continued adherence to national cleaner-fish fishery management requirements, catch recording, use of size-selective wrasse pots, and ongoing monitoring of local wrasse catches will further reduce the potential for localised depletion of wrasse resources.

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