MOTT MACDONALD

Colwyn Bay

Over Wintering Bird Survey Report

11 February 2020

Mott MacDonald
Mott MacDonald House
5 Woodland Road West
Colwyn Bay LL29 7DH
United Kingdom

T +44 (0)1492 534601
mottmac.com

Environment, Roads and Facilities Team'
Conwy County Borough Council'
Mochdre Offices,
Conway Road,
Mochdre,
COLWYN BAY,
LL28 5AB

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Issue and Revision Record

Revision	Date	Originator	Checker	Approver	Description
A	07/01/20	K Bowman	L Woolley	J Bates	First Issue
B	11/02/20	K Bowman	L Woolley	N Shelton	Second Issue

Document reference: 410895-MMD-N-R-00-XX-1700

Information class: Standard

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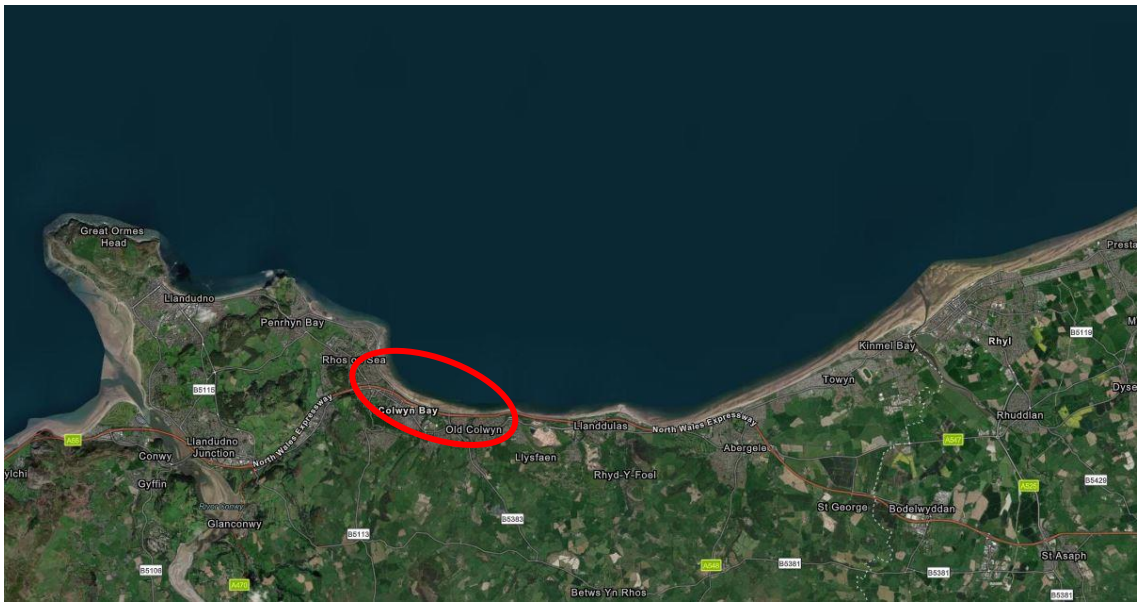
1 Introduction

1.1 Background and Site Location

Mott MacDonald Ltd has been commissioned by Conwy County Borough Council (CCBC) to complete over-wintering bird surveys relating to two coastal defence and promenade improvement Schemes within Colwyn Bay, North Wales (see Map 1).

Map 1: Colwyn Bay Location



Source: DigitalGlobe, Microsoft, Earthstar Geographics | Esri UK, Esri, HERE, Garmin, METI/NASA, USGS

The Victorian built coastal defences around Colwyn Bay from Rhos-on-Sea in the west to Old Colwyn in the east have suffered from undermining, corrosion, partial collapses and degradation with frequent overtopping events occurring at Spring Tides.

Phase 1abc and 2a of the Colwyn Bay Waterfront Project have already been completed which included the construction of a 150m groyne and Porth Eirias, beach recharge and promenade improvements in the central Colwyn Bay area.

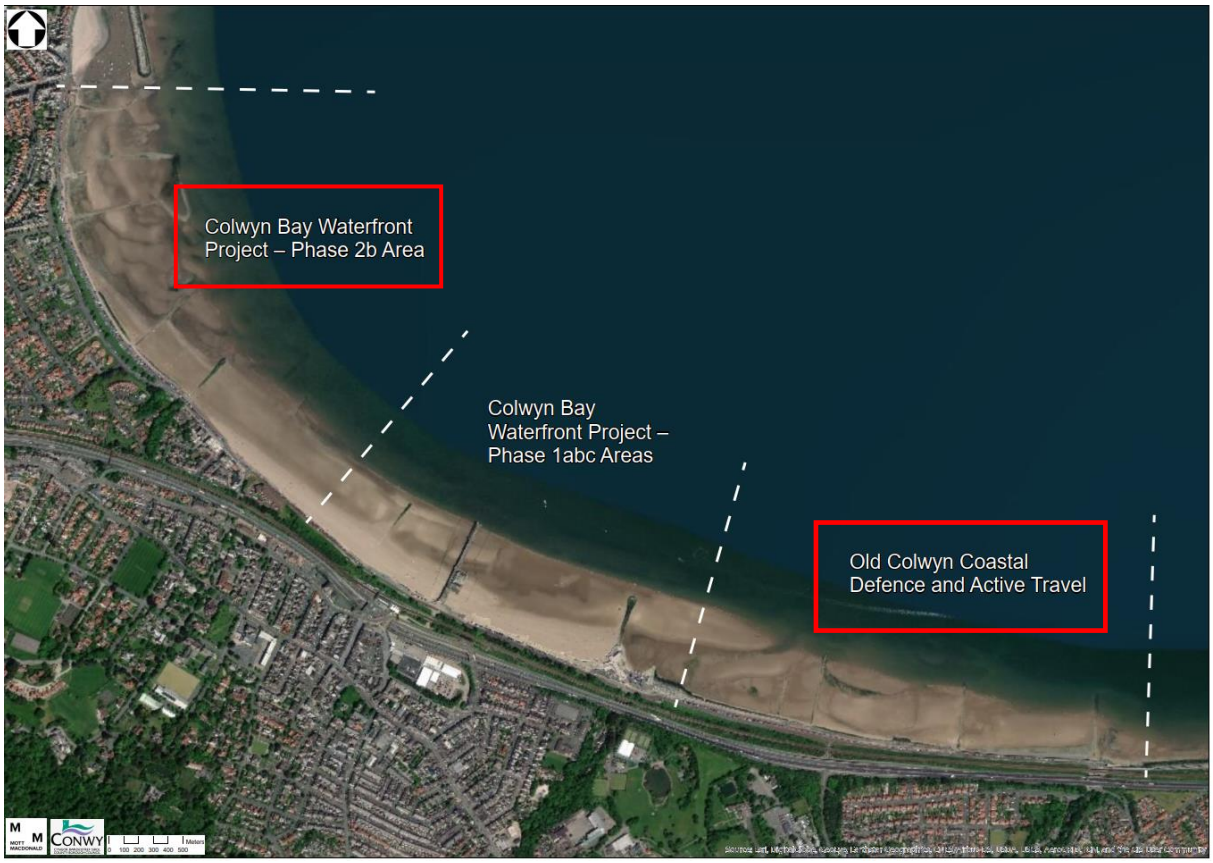
Subsequent to this, CCBC are now seeking to provide a permanent upgrade of the coastal defences to protect the western and eastern areas of the bay concurrently with improvements to the promenade to facilitate active travel and regeneration.

These proposed schemes are illustrated on Map 2 (along with the Phase 1 area), namely:

- 'Colwyn Bay Waterfront Project Phase 2b' to the west; and
- 'Old Colwyn Coastal Defence and Active Travel Scheme' to the east.

These are the two areas targeted by the bird surveys discussed within this report.

Map 2: Scheme Location within Colwyn Bay



Source: 'ESRI, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community'. Note The completed Colwyn Bay Waterfront Phase 2a Scheme area straddles the Phase 1 and Phase 2 areas.

The national grid references for the western and eastern boundaries of each Scheme are approximately:

- The Colwyn Bay Waterfront Project Phase 2b west (285746, 378889) to east (287079, 378699); and
- Old Colwyn Coastal Defence and Active Travel Scheme west (284270, 380524) to east (284975, 379499).

1.2 Proposed Scope of Coastal and Promenade Works

1.2.1 Old Colwyn Coastal Defence and Active Travel Scheme

The proposed scope of work comprises a combination of coastal defence, promenade and active travel improvements:

Coastal defence works to comprise:

- The construction of a rock revetment (approximately 30m in cross sectional width and 1,200m in length);
- The extension of outfalls along the length of the revetment which currently outfall at the sea wall and protection works to existing outfalls that would be covered by the revetment;

- New pedestrian beach accesses through the new revetment to replace the existing ones;
- The raising of the promenade to permissible overtopping levels, accounting for climate change; and
- The widening of the promenade where it is narrow between Rotary Way access and Splashpoint at the eastern end of the promenade.

Active Travel improvements, to include new cycleway layouts, improved pedestrian access areas, improved lighting, new handrailing and improved signage.

Conceptual design has been completed for the Scheme which is to be classed as a 'Back to Nature' Zone. However, as these are concept options only it is anticipated that they may be subject to change during the detailed design phase depending on funding, technical physical and environmental constraints

In addition to the above key aspects of the Scheme, the conceptual design also includes:

- Boundary regrading to reconcile differences with existing levels;
- Three new headland areas across the western half of the Scheme to tie-in with the design of the promenade to the west of Porth Eirias including one with level access to the beach to comply with the Equalities Act 2010;
- The creation of platform or mini-headland areas with shelters across the eastern half of the Scheme to allow locations for fishing and other activities without blocking the promenade. The spacing and extent of these are yet to be confirmed;
- A new events and informal play area beyond the retaining wall to the north of Rotary Way;
- A picnic area with potential concessions building and refurbished toilet block;
- The creation of additional car parking spaces along the promenade, particularly along the eastern half of the Scheme (numbers of spaces created would be dependent on the parking layout option selected but are understood to vary from 77 to 235 – spaces in this area are estimated to number 49 currently). In the western half of the Scheme the number of parking spaces is anticipated to remain broadly the same as present with a potential small increase; and
- The creation of a new area of rock pools and rocky reef habitat between two existing groynes for ecological and educational enhancement.

These aspects have not been finalised as yet, however it is considered likely that many would be taken forward.

1.2.2 Colwyn Bay Waterfront Project Phase 2b

The proposed scope of work is anticipated to comprise a combination of coastal defence and promenade improvements. The scope has not been finalised as yet, however it is considered likely that the majority of the following aspects will be incorporated:

- Coastal defence works to comprise (from Horizon Shine to the southern boundary of Rhos-on-Sea Harbour):
  - Beach recharge to bring beach levels adjacent to the promenade up to those in the Phase 1 area; and
  - Modifications to the rock groyne adjacent to Rhos-on-Sea Harbour.
- Coastal defence works to comprise (from Rydal Boat store to the southern boundary of Rhos-on-Sea Harbour):
  - Repairs to the existing sea wall;

  - Removal of remaining areas of existing rock revetment located against the sea wall in recharge areas for re-use elsewhere; and
  - Modification of outfalls as appropriate to enable them to continue operating with the raised beach levels.
- Promenade improvement works currently anticipated to comprise (from Rydal Boat store to the southern boundary of Rhos-on-Sea Harbour):
  - 4m wide shared surface, 2.2m wide pedestrian only zone, highway alterations (one-way system), activity zones (for example seating, exercise areas, play features and garden areas), junction realignments, pedestrian links and crossings, new kiosks, planting and artwork.

1.2.3 Future Maintenance

The Schemes are also anticipated to also include future management and maintenance actions comprising:

- Maintenance and repair of coastal structures and sea wall;
- Maintenance and repair of promenade and associated features;
- Beach management;
- Reworking of structures to maintain the standard of service in line with sea level rise; and
- Beach re-nourishment if considered necessary (Colwyn Bay Waterfront project Phase 2b only).

1.2.4 Proposed Works Programme

As funding is yet to be secured for Scheme construction, the programme has not yet been confirmed. Due to the scale of the Schemes, the construction process may need to be split into several phases.

1.3 Ecology Context - Liverpool Bay SPA

The Schemes are both located in close proximity to the Bae Lerpwl/ Liverpool Bay inshore Special Protection Area (SPA) and Important Bird Area (IBA). For the Colwyn Bay Waterfront Project Phase 2b Scheme in particular it is anticipated that the beach recharge construction activities including boat and temporary floating pipeline activities will take place within the SPA boundary.

The SPA covers an area of approximately 252,757.73ha and regularly supports approximately 6.89% of the British populations of red-throated diver (*Gavia stellata*), 10.31% of the biogeographical population of common scoter (*Melanitta nigra*), 6.84% of the British population of little tern (*Sternula albifrons*), 1.8% of the British population of common tern (*Sterna hirundo*) and also supports little gull (*Hydrocoloeus minutus*) (the population percentage of which is not given).

In terms of use of the area, the red-throated diver, common scoter and little gull are wintering species, whilst the little tern and common tern use the area in summer.

1.4 Purpose of this Report

The purpose of this report is to set out the results of the over-wintering bird surveys undertaken from November 2019–January 2020 and to assess the potential impacts from the two proposed coastal defence and promenade improvement Schemes, as far as is reasonably possible based

on current understanding (given that detailed design has not yet been completed for either Scheme). Recommendations are provided for mitigation as appropriate.

2 Survey Methodology

2.1 Scope of the Surveys

The survey area includes the Old Colwyn Coastal Defence and Active Travel Scheme area to the east (including 500m to the east to cover the potential zone of influence of the proposed works) and the Colwyn Bay Waterfront Project Phase 2b area to the west. The total survey area Old Colwyn Coastal Defence and Active Travel Scheme is approximately 1.4km and the total survey area for the Colwyn Bay Waterfront Project Phase 2b is approximately 1.5km.

There was some overlap into the Phase 1 Colwyn Bay Waterfront Project area and these results have been included in Appendix A for completeness.

2.2 Wetland Bird Survey (WeBS) Methodology

The British Trust for Ornithology's Wetland Bird Survey, 'look-see' methodology (Bibby *et al*. 2000) has been used for the surveys. The methods involve surveying the whole of a predefined area.

The coastal boundary was walked during a rising tide (within three hours of high tide), at a constant pace with surveyors stopping every 300m to scan the immediate bay and sea area.

Wetland birds identified by sight or sound were counted and recorded separately for each feature along the coastline using an appropriate digital mobile device. Particular attention was paid to the presence of over-wintering SPA species and notes taken on behaviour, location, time spent at location and existing disturbance levels and any species responses to these, where relevant.

In order to maintain a relatively consistent ability to detect bird activity, the surveys were conducted where practicable in optimal or near optimal conditions and avoiding periods of heavy rain and/or strong wind (above wind Force 4) wherever possible.

2.3 Survey Details

Four survey visits have been undertaken, the details for which are included in Table 2.1 below.

Table 2.1. Survey details

Scheme	Date	Start/ Finish Time (BST)	Total Cloud Cover (Oktas)	Wind Speed (Beaufort Scale) & Direction	Precipitation	Surveyor/s
Old Colwyn Coastal Defence and Active Travel Scheme	22/11/2019	11am-3pm	0	1 SE	None	K. Bowman & K. Howe
Colwyn Bay Waterfront Project Phase 2b	06/12/2019	10am-2pm	0	2 NW	None	K. Bowman & C. Taylor
Old Colwyn Coastal Defence and Active Travel Scheme & Colwyn Bay Waterfront Project Phase 2b	09/12/2019	10am-2pm	0	3 N	None	K. Bowman & C. Taylor

Scheme	Date	Start/ Finish Time (BST)	Total Cloud Cover (Oktas)	Wind Speed (Beaufort Scale) & Direction	Precipitation	Surveyor/s
Old Colwyn Coastal Defence and Active Travel Scheme & Colwyn Bay Waterfront Project Phase 2b	06/01/2020	11am-1.30pm	0	2 WSW	None	K. Bowman A. Crowl
Old Colwyn Coastal Defence and Active Travel Scheme Colwyn Bay Waterfront Project Phase 2b	16/01/2020	10:00am-2pm	0	3 SSE	None	K. Bowman B. Gray

3 Survey Results

The survey results are set out separately below in Section 3.1 for The Old Colwyn Coastal Defence and Active Travel Scheme area plus a 500m stretch to the east; and in Section 3.2 for The Colwyn Bay Waterfront Project Phase 2b area.

Survey results for the Phase 1 area (intervening land) are included in Appendix A for context only but are not considered below as it falls outside of the scope of this report.

3.1 Old Colwyn Coastal Defence and Active Travel Scheme (including Splashpoint and 500m east)

Table 3.1: Survey Visit 1 - 22nd November Results (note that SPA species are in bold)

Date	Species	Distance from bay	Count	Field observations
22/11/19	Black-headed gull (*Chroicocephalus ridibundus*)	<50m	4	Foraging on the intertidal area and rock revetment area, with the occasional bird flying over.
22/11/19	Common gull (*Larus canus*)	<50m	10	Foraging on the intertidal area amongst herring gull. The occasional bird flew over.
22/11/19	**Common scoter**	<400m (small numbers of birds) and >1.5km (main feeding zone)	*c*.2000	Scattered medium to large rafts of birds (50-500) were visible from the coastal footpath, up to 1.0km-3.0km out to sea. The majority of birds were observed feeding and flying to and from other, scattered rafts within the area. Two small rafts of 13-20 birds were recorded chasing one another towards the bay within 500m of the coastline for approximately 15 minutes. Subsequently, the birds returned to the larger rafts of birds approximately 2.0-3.0km away.
22/11/19	Cormorant (*Phalacrocorax carbo*)	<600m	104	The majority of cormorant were observed roosting upon the manmade structures along the bay. In addition, several individuals were noted feeding at sea close to common scoter and within 100m of the bay.
22/11/19	Great black-backed gull (*Larus marinus*)	<350m	7	Several individuals were seen foraging on the intertidal zone and others were seen flying over.
22/11/19	Great-crested grebe (*Podiceps cristatus*)	<200m	1	One individual was observed feeding at sea, close to the tideline.
22/11/19	Herring gull (*Larus argentatus*)	<500m	185	The majority of birds were seen in flocks feeding within the intertidal area. Other individuals were seen roosting on rock revetments and flying over.
22/11/19	Lesser black-back gull (*Larus fuscus*)	<200m	4	All individuals were observed flying over the survey area.
22/11/19	Oystercatcher (*Haematopus ostralegus*)	<200m	34	The majority of birds were seen feeding within the intertidal zone, with herring gull. Others were observed flying low through the area and close to the bay.
22/11/19	Turnstone (*Arenaria interpres*)	<40m	8	Turnstone were recorded feeding and roosting amongst the rock armour at grid reference SH911788. They were not observed again.

Table 3.2: Survey Visit 2 – 9th December Results (note that SPA species are in bold)

Date	Species	Distance from bay	Count	Field observations
09/12/19	Black-headed gull	<500m	19	The majority of birds were observed foraging within the intertidal area, with several individuals flying over the area.
09/12/19	Common gull	<200m	6	Three birds were observed foraging with other gull species within the intertidal zone. Three other individuals were recorded flying over.
09/12/19	**Common scoter**	<500 (small numbers of birds) >1.5km (main feeding zone).	*c*. 2000	Large rafts of birds making up approximately 1000 individuals were visible from coastline, approximately 1.5-2.0km away. A small raft of 23 individuals were observed within 0.5km of the bay, which remained in the area for approximately five minutes. A further 3 individual birds were also observed chasing one another within 0.5km of the bay, and these stayed in view for 10 minutes. All birds observed within 0.5km of the bay returned back to the larger groups of birds up to 1.5km away after a short period of time.
09/12/19	Cormorant	<800m	86	The majority of cormorant were seen roosting on manmade structures along the coastline, with a few individuals observed feeding at sea.
09/12/19	Great black-backed gull	<1.1km	2	One individual was observed feeding within the intertidal zone and another individual was recorded foraging at sea.
09/12/19	Herring gull	<300m	655	Herring gull were observed in large flocks feeding and roosting within the intertidal zone and rock revetment area. Many individuals were also seen flying over the area.
09/12/19	Lesser black-backed gull	<100m	5	All individuals were observed feeding within the intertidal area.
09/12/19	Meadow pipit (*Anthus pratensis*)	<50m	10+ (most likely under-recorded)	Meadow pipit were commonly encountered along the rock revetment and grassy areas running parallel to the coastal public footpath.
09/12/19	Oystercatcher	<100m	8	All individuals were observed foraging within the intertidal area.
09/12/19	Shelduck (*Tadorna tadorna*)	<100	3	Three Shelduck were observed flying through the area and travelling up to 1.0km out to sea. It is possible that the birds flew from the bay, however this could not be confirmed.

Table 3.3: Survey Visit 3 - 6th January Results (note that SPA species are in bold)

Date	Species	Distance from bay	Count	Field observations
06/01/2020	Black-headed gull	<20m	6	Observed feeding and loafing within the intertidal area.
06/01/2020	Common gull	<200m	4	All individuals were observed in mixed flocks of feeding and (or) loafing gulls, including herring and black-headed gull.
06/01/2020	**Common scoter**	<500m (small numbers of birds) >1.5km (main feeding zone).	*c*. 1000	Like the previous surveys, large rafts of feeding common scoter congregated approximately 2.0-3.0km from the coastal footpath.

Date	Species	Distance from bay	Count	Field observations
				Three small rafts of approximately 6-21 individuals maximum came within 500m of the bay. Rafts remained in the area for approximately 15 minutes and subsequently, returned to the larger feeding raft at 2.0-3.0km away.
06/01/2020	Cormorant	<400m	18	Cormorant were predominantly observed basking on rocks, east and west of the Splashpoint and feeding upon the water within 400m of the bay, parallel of the Splashpoint area.
06/01/2020	Great black-backed gull	<100m	1	One great black-backed gull was observed on the rock armour fringing the bay.
06/01/2020	Herring gull	<300m	89	Herring gull were observed regularly, feeding and loafing throughout the survey extent either in small or large flocks. Few individuals were also seen feeding at sea.
06/01/2020	Turnstone	<50m	32	Turnstone were observed feeding amongst the rocks directly opposite the Splashpoint, along with a few oystercatcher.
06/01/2020	Oystercatcher	<50m	11	One to three individuals were observed feeding within the intertidal area at a time. Others were seen upon rocks feeding and feeding with turnstone.
06/01/2020	Great-crested grebe	<100m	2	Two individuals were observed feeding close to the tideline.

Table 3.4: Survey Visit 4 - 16th January Results (note that SPA species are in bold)

Date	Species	Distance from bay	Count	Field observations
16/01/2020	Black-headed gull	<50m	69	All individuals were noted as foraging and roosting within the intertidal range.
16/01/2020	Common gull	<50m	1	Roosting within intertidal and high tide zones.
16/01/2020	**Common scoter**	>1.0km (main feeding zone) <1.0km (one raft) <800m (two small rafts)	*c*. 1300	Feeding at sea in scattered rafts of various sizes (40-300 per raft). Two small rafts of 50 and 40 individuals were detected approximately 650m and 500m away, respectively at their closest points. These did not drift closer towards the bay.
16/01/2020	Cormorant	<200m	1	One individual observed flying over the sea
16/01/2020	Great black-backed gull	<50m	2	Two individuals were observed foraging at sea.
16/01/2020	Herring gull	<50m	56	Observed foraging and roosting within the intertidal zone.
16/01/2020	Lesser black-backed gull	<50m	1	Observed feeding within the intertidal area.
16/01/2020	Oystercatcher	<50m	18	Similar to previous surveys, all individuals observed feeding amongst gulls and turnstone within the intertidal zone. The majority <50m away.
16/01/2020	Turnstone	<50m	60	60 turnstone were observed feeding within the intertidal zone and on the groin.

3.2 Colwyn Bay Waterfront Project Phase 2b

Table 3.5: Survey Visit 1 – 6th December Results (note that SPA species are in bold)

Date	Species	Distance from bay	Count	Field observations
06/12/19	Black-headed gull	<200m	3	All individuals were noted as foraging and roosting within the intertidal range.
06/12/19	Common gull	<250m	3	Foraging and roosting within the intertidal zone, amongst other gull species (mainly common and herring species).
06/12/19	**Common scoter**	>1.0km	*c*. 700	Feeding at sea in scattered rafts of various sizes (50-300).
06/12/19	Cormorant	<800m	46	The majority of birds were observed roosting on manmade structures such as walls and pylons. Fewer individuals were observed foraging and flying out to sea to feed.
06/12/19	Great black-backed gull	<200m	1	Foraging within intertidal zone.
06/12/19	Great crested grebe	<500m	4	All individuals were observed feeding at sea.
06/12/19	Great northern diver (*Gavia immer*)	600m	1	Observed feeding at sea.
06/12/19	Herring gull	<250m	57	Observed foraging and roosting within the intertidal zone.
06/12/19	Lesser black-backed gull	<200m	2	Observed feeding within the intertidal area.
06/12/19	Oystercatcher	<150m	6	Individuals observed feeding amongst gulls within the intertidal zone.
06/12/19	**Red throated diver** (*Gavia stellata*)	<800m	2	Two individual birds observed out at sea.
06/12/19	Redshank (*Tringa totanus*)	<200m	2	Both individuals were observed feeding within the intertidal zone area.

Table 3.6: Survey Visit 2 – 9th December Results (note that SPA species are in bold)

Date	Species	Distance from bay	Count	Field observations
9/12/19	Black-headed gull	<100m	14	Black-headed gull were observed roosting and foraging within the intertidal range and flying over the survey area.
9/12/19	Common gull	<50m	2	Both sightings of common gull were in mixed flocks of gull *sp.* foraging and roosting in the intertidal zone.
9/12/19	**Common scoter**	>1.0km	*c*. 1200	Large scattered raft at sea.
9/12/19	Cormorant	<100m	42	The majority of birds were observed roosting on manmade structures such as walls and pylons, north of the survey area. Few individuals were also observed foraging and flying out to sea to feed.
09/12/19	Great black-backed gull	<200m	1	Foraging within intertidal zone with other gull *sp.*
09/12/19	Herring gull	<100m	62	Foraging within intertidal zone with other gull *sp.*
09/12/19	Lesser black-backed gull	<200m	2	Foraging within intertidal zone with other gull *sp.*

Date	Species	Distance from bay	Count	Field observations
09/12/19	Oystercatcher	<50m	7	Foraging in the intertidal zone. One to two individuals were observed flying through the area.
9/12/19	Redshank	<50m	3	Feeding within the intertidal zone, with oystercatcher.

Table 3.7: Survey Visit 3 – 6th January Results (note that SPA species are in bold)

Date	Species	Distance from bay	Count	Field observations
06/01/20	Black-headed gull	<100m	26	All individuals were noted as foraging and roosting within the intertidal range and upon the rocky walls leading in to the sea.
06/02/20	Common gull	<250m	2	Similar to previous surveys, common gull were observed foraging and roosting within the intertidal zone, amongst other gull species (mainly black-headed and herring species).
06/01/20	**Common scoter**	>1.0km <1.0km (one small raft of three)	*c*. 800	Feeding at sea in scattered rafts of various sizes (50-300 per raft). One small raft of 3 individuals were detected approximately 500m away but did not drift any closer towards the bay.
06/01/20	Cormorant	<800m	16	Few individuals were observed roosting on manmade structures such as walls and pylons within the survey extent. Other individuals were observed foraging and flying out to sea to feed.
06/01/20	Great black-backed gull	<200m	1	One individual was observed foraging at sea.
06/01/20	Great crested grebe	<500m	3	All individuals were observed feeding at sea.
06/01/20	Herring gull	<50m	34	Observed foraging and roosting within the intertidal zone. Several individuals were also seen foraging at sea and flying over the survey extent.
06/01/20	Oystercatcher	<100m	11	Similar to previous surveys, all individuals observed feeding amongst gulls and turnstone within the intertidal zone.
06/01/20	Redshank	<100m	3	Three redshank were observed feeding within the intertidal zone, close to one another.

Table 3.8: Survey Visit 4 - 16th January Results (note that SPA species are in bold)

Date	Species	Distance from bay	Count	Field observations
16/01/20	Black-headed gull	<100m	32	Recorded foraging and roosting within the intertidal zone.
16/02/20	Common gull	<250m	3	Similar to previous surveys, common gull were observed foraging and roosting within the intertidal zone.
16/01/20	**Common scoter**	>1.0km	*c*. 800	Large raft commonly observed on all surveys, feeding at sea.
16/01/20	Cormorant	<800m	16	All individuals were observed roosting on the manmade wall north of the site boundary.
16/01/20	Great black-backed gull	<200m	1	One individual was observed foraging within the intertidal range.
16/01/20	Great crested grebe	<500m	2	All individuals were observed feeding at sea.

Date	Species	Distance from bay	Count	Field observations
16/01/20	Herring gull	<50m	34	Observed foraging and roosting within the intertidal zone with black-headed gulls.
16/01/20	Oystercatcher	<100m	12	Similar to previous surveys, all individuals observed feeding amongst gulls and turnstone within the intertidal zone.
16/01/20	Redshank	<100m	2	Two redshank were observed feeding within the intertidal zone, close to one another.

4 Assessment of Potential Impacts

Further, and more detailed, assessments of potential effects and impacts of the construction and operational phases of the works will be required to be undertaken once the detailed proposals are finalised, these being as part of an Environmental Impact Assessment (EIA) and Habitats Regulations Assessment (HRA).

However, based on the broad scope of works available at the current time, a high-level assessment of effects has been included below.

4.1 Assessment of Potential Impact Pathways

The impact pathways and assessment of effects below are undertaken for both Schemes (the Colwyn Bay Waterfront Project – Phase 2b and the Colwyn Bay Coastal Defence and Active Travel area).

4.1.1 Construction Phase

Construction impacts may occur during removal and placement of rock armour, excavation of sand, beach recharge, outfall extensions and the presence of humans and/or machinery travelling through the proposed works footprint.

Potential construction impacts to SPA species could include:

- Disturbance;
- Water pollution (notably turbidity and sedimentation);
- Noise pollution; and
- Light pollution.

The above effects could lead to a reduction in abundance and distribution of bird species due to displacement from areas utilised for feeding and impacts on feed availability and/or accessibility. Although the area is coastline with significant human usage and baseline levels of disturbance, the works are expected to exceed the baseline levels to which birds have become habituated to or have modified their behavior patterns to accommodate this activity.

In respect of the SPA species, if works are undertaken during winter months they could cause an impact by displacing relatively small numbers of SPA bird species. Smaller groups of wintering SPA species, common scoter, and red throated diver were observed during surveys, with the main populations being observed further offshore, as would be expected for these species. Timing of the elements of the proposed works will need to be considered, when they are known, regarding potential impacts on wintering, summering or passage SPA species.

In terms of other bird species (specifically those observed feeding within the intertidal zone) identified within the programmed works area, it is anticipated that these will be temporarily displaced during beach works as a result of both disturbance and also potentially due the replaced substrate. Following beach recharge (Colwyn Bay Waterfront project Phase 2b only) it is likely that there will be a short period of time until intertidal species recolonise the area of imported sand. However, there is extensive alternative habitat available compared with area likely affected and such effects would be temporary in nature, such that the birds will be able to recolonise following completion of works. Coastal habitats, especially those with sandy

sediments in exposed areas are subject to high levels of natural movements and change naturally and it is expected that re-colonisation will take place in a short period of time.

4.1.2 Operational Phase

Impacts relating to operation of the Schemes are anticipated not change the baseline levels of activity, with the exception of infrequent maintenance activities, which may include replenishment of the beach, the impact pathways for which are anticipated to be:

- Disturbance;
- Water pollution; and
- Light and noise pollution;

The above effects could lead to a reduction in species richness and/or abundance as well as displacement of SPA birds from areas utilised for feeding and any required maintenance will require assessment of potential impacts prior to being undertaken

4.2 Assessment of Impacts

As set out above, disturbance to non-SPA birds is considered likely to cause temporary displacement to other available habitat and so is not considered a particular constraint to the proposals.

In respect of SPA birds, an assessment of effects, although likely to impact only small numbers of birds for short period of time, would be undertaken as part of a Habitats Regulations Assessment (HRA) once the proposals are finalised.

Of the species designated as part of the SPA, only common scoter and red throated diver were recorded as part of the surveys and are therefore considered below. Other designated interest features for the Liverpool Bay SPA include little gull, little tern and common tern, none of which were observed during the wintering bird surveys undertaken (albeit this would be expected for summer visitors such as little tern and common tern).

A broad assessment of the anticipated impacts on the SPA birds recorded (common scoter and red throated diver) relating to both Schemes is provided within 4.1 below:

Table 4.1: Potential Impacts on recorded SPA Birds Relating to the Old Colwyn Coastal Defence and Active Travel Scheme and Colwyn Bay Waterfront Phase 2b Scheme Prior to Mitigation

Potential impact	Assessment	Construction	Operation (Occasional Maintenance)
Construction and personnel disturbance	Due to public access already permitted within the areas for the proposed works, the birds are likely to have some level of habituation to human disturbance. However with the presence of additional personnel and machinery, these have the potential to cause displacement to the species and lower the habitat quality of an area. Small number of common scoter that have been identified within c. 500m of the Scheme footprint are most at risk during construction and operational disturbance. Studies have suggested that human activity such as moving vessels (small and large), machinery and manmade structures can put birds into flight from 1.0-2.0km during non-breeding season (Kaiser *et al*., 2006). As such, it is evident that common scoter can react in various ways according to the type of disturbance encountered. As for red-throated diver, only two individuals were observed within 800m of the proposed works area, and neither individual was observed feeding or moving closer to land. Red-throated diver is more susceptible to show vigilance or take flight when in smaller and more confined areas such as lochs and estuaries. However, studies have often shown that this particular species is not likely to take flight when at sea due to the larger fleeing area available. Due to the level of beach disturbance, due to works, being higher at the Colwyn Bay Waterfront Project Phase 2b area, by including boat and pipeline movements within the SPA, the potential impact to SPA species is considered to be higher in this area	Yes	Yes (maintenance works only)
Noise pollution	The majority of the survey area already experiences some form of noise pollution relating to cars and people. However, it is likely that additional impacts are most likely to occur during the construction phase of the works. Whilst the Scheme will result in increased noise levels and a potential reduction in habitat quality, the works areas are relatively small compared to the available habitat/sea resources available to common scoter and red throated diver. The Colwyn Bay Waterfront Project Phase 2b area would involve more intensive beach works closer to the SPA boundary and boat/pipeline movements with associated noise generation within the SPA during construction. The Old Colwyn Coastal Defence and Active Travel Scheme works are located further from the SPA boundary however there may be some piling activities (or other activities that generate percussive sounds) required during construction which could disturb birds.	Yes	Possible (maintenance works only)

Potential impact	Assessment	Construction	Operation (Occasional Maintenance)
Light pollution	The Scheme may result in increased light levels during construction (should lighting be required during the hours of darkness for e.g. tidal working). There is the potential of reduction in habitat quality, despite the affected areas being relatively small compared to the available habitat resource within the wider area. Light pollution and the impacts on over-wintering seabirds is poorly understood. Some studies have noted that the attraction to artificial sources of light has been recorded and has a detrimental effect on some globally threatened populations (Reed *et al.* 1985). However, most studies are produced during breeding season. It is unknown at this point whether the programmed works will use artificial lighting (although it is assumed given the requirement for tidal working) and therefore precautionarily it is assessed that this could impact birds.	Yes	Yes (maintenance works only)
Water pollution	Although mitigated by the timing of recharge at low tide, temporary increase in suspended sediment and turbidity levels within the local water column is anticipated during the construction phase and for a short period thereafter, particularly for the beach recharge aspect for the Colwyn bay Waterfront Project Phase 2b. This may adversely impact submerged seaweeds/plants and filter feeding organisms which provide prey for birds, as well as affecting fish-eating birds close to the coast. Oil and fuel spills also pose a risk in this environment.	Yes	Yes (maintenance works only)

In summary, from the above assessment the principal adverse impacts from both Schemes on SPA birds are considered to relate to construction noise, disturbance resulting from human presence and activity, including the use of machinery and water pollution, with light pollution having lower anticipated impacts

5 Mitigation and Recommendations

5.1 Habitats Regulations Assessment (HRA)

It is recommended that a Habitats Regulations Assessment (HRA) screening is undertaken in respect of the Liverpool Bay SPA to assess likely significant effects from the works, once the proposals are finalised. In the event that works are considered likely to have a significant effect, an Appropriate Assessment will be required which will consider the effectiveness of appropriate mitigation measures.

5.2 Construction Safeguards and Mitigation

It is anticipated that an assessment of effects and recommendations for mitigation would be set out within an EIA or specific mitigation strategy document once the design, construction methodology and programme are finalised for each Scheme. Any such mitigation strategy should be agreed with the County Ecologist and, if needed, NRW.

In the absence of specific design and programme information, it is not possible to recommend specific mitigation measures at this stage. Nonetheless, on the basis of the results and high-level assessment completed, broad mitigation measures are outlined below that are appropriate to the works.

As this report relates to wintering bird surveys these mitigation measures focus on the SPA species common scoter and red throated diver, which were assessed as the key constraints to the works if they are undertaken in the winter months when these species are present. For works undertaken at different times, then consideration for impacts will be required based on those works and species present, particularly for common and little tern in summer.

Mitigation is set out in respect of the broad impacts identified in Section 4.

5.2.1 Construction and Personnel Disturbance

Disturbance causing displacement to common scoter can vary depending on the duration of works, type of activity and its location. However, due to common scoter being a sensitive species and recorded within *c*.500m of the Scheme footprint, it is advised that:

- Disturbance is reduced as much as possible whilst working within close proximity to the population;
- All works should be preceded by a toolbox talk by a qualified Ecological Clerk of Works (ECoW) to advise contractors on how best to minimise disturbance;
- Works should be supervised or overseen by a qualified Ecological Clerk of Works (particularly in areas where common scoter and red throated diver have been recorded) who will monitor the presence, pattern of activity and proximity of sensitive bird species and halt any works where SPA species come within 500m of the bay to avoid disturbance or displacement of SPA birds;
  - The ECoW should be confident to identify and observe all bird movements from a vantage point;
  - From current observations the frequency and time the common scooter are coming into shore is relatively sporadic, the birds will stay within 0.5km for a maximum of 5-15 minutes before returning back to larger groups of feeding birds up to 3.0km away from land. It is not possible to predict the amount time and frequency of birds coming within

close proximity of the works. However, after analysing the current date survey results, it is likely that common scoter will approach land within 0.5km at least once per tidal cycle (6 hours) and that works would only be stopped for a short period; and

– No nocturnal surveys were produced during this 2019-2020 survey period, which is a constraint and limitation of the surveys. While some local studies that suggest the birds in general migrate north (off-shore) in the morning and south (towards the coast) in the morning (Kaiser *et al*., 2002), it is advised that if over-wintering beach night-time beach works are required, thermal imaging is used by the ECoW in order to detect night-time bird movements, particularly SPA species.

Red throated diver was not recorded within 500m of the Scheme during the surveys but the on a precautionary basis the recommendations above are considered relevant to this species as well.

Recommendations for timing of works cannot be made without details of the proposal due to the presence of wintering and summer SPA species.

5.2.2 Noise Pollution

In order to mitigate for noise disturbance to birds, as with the construction effects above, the following is recommended:

- Disturbance is reduced as much as possible whilst working within close proximity to the population;
- All works should be preceded by a toolbox talk by a qualified ECoW to advise contractors on how best to minimise disturbance; and
- Works should be supervised or overseen by a qualified ECoW (particularly in areas where common scoter and red throated diver have been recorded) who will monitor the presence, pattern of activity and proximity of sensitive bird species and halt any works where SPA species come within 500m of the bay to avoid disturbance or displacement of SPA birds.;

The above is recommended for both day and night working.

5.2.3 Light Pollution

It is important that effective measures to reduce seaward and skyward light pollution are implemented. This includes removing unnecessary illumination, using landward facing directional lighting of the lowest lux possible to be effective and allow safe working.

During the operational phase, if path and/or road lights are to be installed, then it is advised that full cut off high pressure sodium lights that point downwards towards the paths/roads should be considered in order to minimise impacts.

5.2.4 Water Pollution

During construction, contamination risks to surface waters from, for example, spillages, accidents and direct runoff will be managed through the CEMP which will include the requirements for the storage of harmful chemicals/fuels. All construction staff would receive training and sign up to implementation of the management plan prior to the start of work.

A bio-security risk assessment should be completed for both Schemes.

For beach recharge activities there is limited mitigation for the increased levels of suspended sediment and turbidity however these effects will be temporary and will be undertaken during low tide conditions.

6 References

BirdLife International. 2015. European Red List of Birds. Office for Official Publications of the European Communities, Luxembourg.

Kaiser, M.J., Galanidi, M., Showler, D.A., Elliott, A.J., Caldow, R.W., Rees, E.I.S., Stillman, R.A. and Sutherland, W.J., 2006. Distribution and behaviour of Common Scoter Melanitta nigra relative to prey resources and environmental parameters. *Ibis*, *148*, pp.110-128.

Kaiser, M.J, *et al.* 2002. Predicting the displacement of common scoter Melanitta nigra from benthic feeding areas due to offshore windfarms. COWRIE funded project under BEN-03-2002. Centre for Applied Marine Sciences, School of Ocean Sciences, University of Wales, Bangor; NERC Centre for Ecology and Hydrology; School of Biological Sciences, University of East Anglia.

Reed, J. R., Sincock, J. L. and Hailman, J. P. (1985) Light attraction in endangered procellariiform birds: reduction by shielding upward radiation. *Auk* 102: pp. 377–383.

Ruddock, M. and Whitfield, D.P., 2007. A review of disturbance distances in selected bird species. *A report from Natural Research (Projects) Ltd to Scottish Natural Heritage*, p.181.

A. Colwyn Bay Waterfront Phase 1 Area Supplementary Results

Date	Species	Distance from bay	Count	Field observations
22/11/19	Black-headed gull	<50m	65	Foraging on the intertidal area and rock revetment area, with the occasional bird flying over.
22/11/19	Common gull	<50m	2	Foraging on the intertidal area amongst herring gull. The occasional bird flew over.
22/11/19	**Common scoter**	>1.5km (main feeding zone)	*c.*2000	Scattered medium to large rafts of birds (50-500) were visible from the coastal footpath, up to 1.0km-3.0km out to sea. The majority of birds were observed feeding and flying to and from other, scattered rafts within the area.
22/11/19	Cormorant	<500m	5	All birds were observed flying over.
22/11/19	Great black-backed gull	<100m	4	Two individuals were seen foraging on the intertidal with other gull species zone and others were seen flying over.
22/11/19	Great-crested grebe	<100m	1	Two individuals were observed feeding at sea, close to the tideline.
22/11/19	Herring gull	<500m	63	The majority of birds were seen in flocks feeding within the intertidal area. Other individuals were seen roosting on manmade structures along the promenade.
22/11/19	Lesser black-back gull	<200m	2	All individuals were observed feeding with other gull species.

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