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# YILI OCEANIA PROJECT STAGE 3

## Coastal Bird Assessment

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# Coastal Bird Assessment

## DOCUMENT APPROVAL

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## CONTENTS

# 1. INTRODUCTION

The following section addresses the birds at the proposed outfall site off the end of Archibald Road, Morven. The intertidal area consists of highly mobile cobbles and gravels that are steep in places and flanked by c.15m tall eroding silt and cobble cliffs. There is no suitable intertidal habitat for wading birds and the focus was therefore on seabirds (gulls, terns, shags and other "pelagic" species) using the area of coastline.

The proposed outfall location is across an area of intertidal and nearshore habitat that is similar to about 27km of contiguous habitat along this coastline. The closest large breaks in that continuous stretch are Wainono Lagoon (and the Waihao River) c.19.5km to the north and the Waitaki River mouth c.7.5 km to the south.

Gaskin,[1] 2014 has proposed that the coastal area off Waimate District is designated as an Important Bird Area (IBA) based on characteristics that satisfy the Global IBA criteria and the Ramsar Convention. The area is noted as NZ M010 Canterbury. The proposed IBA extensions range from 19km to seaward for spotted shag, to 50km to seaward for yellow-eyed penguin to 195km for Hutton's shearwater. The trigger species are listed (Gaskin, 2014) as yellow-eyed penguin, spotted shag, Hutton's shearwater, antipodean albatross, southern royal albatross, northern royal albatross, white-capped albatross, Swain's albatross, Buller's albatross, Campbell albatross, Westland petrel, white-chinned petrel, Buller's shearwater, little (white-flippered) penguin, black-billed gull and black-fronted tern.

In contrast, BirdLife International's Marine IBA e-atlas indicates that the proposed IBA extends south from Banks Peninsula to the Wainono Lagoon but that there is no proposed IBA between the lagoon to south of Waitaki River mouth i.e. the proposed discharge site is not within a proposed IBA. There is however a proposed "candidate" oceanic IBA well offshore and associated with the Bounty Seachannel (Trough) c.50km off the coast and with depths of 2000-3000m.

Similarly the proposed site is not noted as an area of significant natural value under the Regional Coastal Environment Plan for Canterbury, 2005.

[1] Gaskin, C 2014 Important Areas for New Zealand Seabirds – Sites at Sea – Seaward extensions, pelagic areas. The Royal Forest & Bird Protection Society of New Zealand, Wellington. 90pp.

The following sections address (i) threatened and at risk seabirds recorded from the wider Canterbury coastal area (ii) birds recorded traversing but not using the site directly (iii) birds recorded using the nearshore area of the site to c.200m offshore and (iv) birds recorded using the offshore area beyond c.200m out to c.1000m.

## 2. THREATENED AND AT RISK CANTERBURY SEABIRDS [1] [2]

The list of species from the two sources cited is shown in Table 1 with their national conservation status[3] (i.e. threatened or at risk) and the qualifiers applying to that status. Birds on that list recorded at the site on 5 March 2019 are also identified. Of the eighteen species, 7 are threatened and 11 at risk. The threatened species recorded from the Canterbury region are as follows in descending area of threat severity:

| | |
|---|---|
| Nationally critical | • Black-billed gull<br>• Salvin's albatross |
| Nationally endangered | • Black-fronted tern<br>• Yellow-eyed penguin |
| Nationally vulnerable | • Campbell black-browed albatross<br>• Caspian tern<br>• Hutton's shearwater |

A total of three of the above species were recorded at the site on 5 March 2019: black-billed gull, caspian tern and Hutton's shearwater together with two at risk species: red-billed gull and white-fronted tern.

Despite a relatively high diversity of threatened and at risk species being recorded in coastal Canterbury, that diversity did not apply to the proposed site. In addition, ten species from coastal Canterbury are more typical of offshore and continental shelf waters than the nearshore area that is potentially affected by this proposal.

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[2] Environment Canterbury 2009 Canterbury's Marine & Coastal Animals 13pp (www.ecan.govt.nz/document/download?uri=1204019).

[3] Robertson, HA; Baird, K; Dowding, JE; Elliott; GP; Hitchmough, RA; Miskelly, CM; McArthur, N; O'Donnell, C.F.J; Sagar PM; Scofield, P; Taylor, GA 2017 Conservation Status of New Zealand birds, 2016. NZ Threat Classification Series 19. Dept of Conservation.

| Table 1 Threatened and at risk species of seabirds reported from the wider Canterbury area | | | | |
|---|---|---|---|---|
| **Common Names** | **Scientific Name** | **Conservation Status** | **Qualifiers** | **Recorded at site** |
| Black-billed gull | *Larus bulleri* | T | Nationally critical; data poor; recruitment failure | ✓ |
| Black-fronted tern; tarapiroe | *Chlidonias albostriatus* | T | Nationally endangered; conservation dependent; recruitment failure; data poor; sparse | - |
| Buller's shearwater | *Puffinus bulleri* | AR | Naturally uncommon; one location; stable | - |
| Campbell black-browed albatross | *Thalassarche impavida* | T | Nationally vulnerable; one location; island endemic | - |
| Caspian tern; taranui | *Hydroprogne caspia* | T | Nationally vulnerable; secure overseas; sparse | ✓ |
| Hutton's Shearwater | *Puffinus huttoni* | T | Nationally vulnerable; conservation dependent; restricted range | ✓ |
| Little penguin; korora | *Eudyptula minor* | AR | Conservation dependent; declining; partial decline; range restricted | - |
| NZ white-capped albatross | *Thalassarche cauta steadi* | AR | Declining; extreme fluctuations; range restricted | - |
| Northern royal albatross; toroa | *Diomedea sanfordi* | AR | Naturally uncommon; range restricted | - |

| Table 1 Threatened and at risk species of seabirds reported from the wider Canterbury area | | | | |
|---|---|---|---|---|
| **Common Names** | **Scientific Name** | **Conservation Status** | **Qualifiers** | **Recorded at site** |
| Red-billed gull; tarapunga | *Larus novaehollandine scopulinus* | AR | Declining | ✓ |
| Salvin's albatross | *Thalassarche salvini* | T | Nationally critical; data poor; range restricted | - |
| Sooty shearwater; titi | *Ardenna grisea* | AR | Declining; secure overseas | - |
| Southern Buller's albatross | *Thalassarche bulleri bulleri* | AR | Naturally uncommon; range restricted | - |
| Southern royal albatross; toroa | *Diomeda epomophora* | AR | Naturally uncommon; range restricted | - |
| Stewart Island shag | *Leucocarbo calconotus* | AR | Recovering; conservation dependent; partial decline | - |
| Westland petrel | *Procellaria westlandica* | AR | Naturally uncommon; one location; stable | - |
| White-fronted tern | *Sterna striata striata* | AR | Data poor | ✓ |
| Yellow-eyed penguin; hoiho | *Megadyptes antipodes* | T | Nationally endangered; extreme fluctuations | - |

T = Threatened

AR = At risk

(Names generally follow OSNZ, 2010 – Checklist of the Birds of New Zealand, Norfolk and Macquarie Islands, and the Ross Dependency, Antarctica 500pp except for sooty shearwater)

# 3. SITE INVESTIGATION

## 3.1 METHODS

Hourly counts were undertaken on 5 March 2019 between 0900 and 1500 hours inclusive, and covering the tidal period from 5 hours after high water to five hours after low water i.e. a total of seven counts. Birds in two areas were recorded (i) along the exposed shoreline to c.200m offshore and (ii) the offshore area beyond 200m to about 1000m offshore. The lateral extents of the recording area to the north and south were about 500m. Although the recording area was large relative to a potential pipeline corridor, it was considered conservative and reasonable in terms of providing a characteristic assessment of a section of this extensive coastline.

In addition, a total of five hours of continuous records were maintained of birds traversing the site but not utilising its habitats directly.

That provided an indication of additional species that could be expected to utilise the site on occasions.

Counts were undertaken using Nikon Monarch 5 10x42 binoculars and a Kowa TSN-883 Prominar (20 to 60 times zoom) tripod-mounted spotting scope. Before each hourly count the air temperature was measured using a digi-quartz multi-thermometer; wind speeds and barometric pressure were measured with a Silva-Alba ADC Summit Windwatch and general weather conditions recorded. All data were entered on pre-prepared, waterproof recording sheets.

All coastal bird species were identified, counted and their use of the habitats recorded for the hourly counts according the following annotations:

| | |
|---|---|
| FW: | feeding in or over the water |
| REI: | resting in the intertidal area |
| REW: | resting on the water |

No feeding in the exposed intertidal area was observed.

## 3.2 RESULTS

### 3.2.1 Site conditions

The weather conditions at the site on 5 March 2019 are shown in Table 2 and consisted of warm, dry, sunny conditions with a light north easterly breeze (average 2.4 knots) and relatively high barometric pressure.

The conditions were ideal and conducive to a representative assessment of coastal bird use at the proposed outfall area being recorded.

**Table 2 – Site conditions – 5 March 2019**

| Time (hours) | Air temperature (°C) | Barometric pressure (hPa) | Wind (knots) | General Weather |
|---|---|---|---|---|
| 0900 | 21.7 | 1017 | NE to 2 | Dry, clear, sunny |
| 1000 | 22.3 | 1017 | NE to 2 | Dry, clear, sunny |
| 1100 | 21.5 | 1017 | NE to 2 | Dry, clear, sunny |
| 1200 | 22.0 | 1017 | NE to 3 | Dry, clear, sunny |
| 1300 | 23.7 | 1016 | NE to 3 | Dry, clear, sunny |
| 1400 | 24.6 | 1016 | NE to 3 | Dry, clear, sunny |
| 1500 | 24.2 | 1016 | NE to 2 | Dry, clear, sunny |
| **Average** | **22.9** | **1016.6** | **NE to 2.4** | **Dry, clear, sunny** |

### 3.2.2 Birds traversing the site

Birds recorded flying past the site over a 5 hour period are shown in Table 3. An average of 56.6 birds per hour passed the site in both northerly and southerly directions (range 37 to 96 per hour). A total of 10 species were recorded including three threatened (black-billed gull, caspian tern and Hutton's shearwater) and two at risk species (red-billed gull and white-fronted tern). From a combined total of 283 records the dominant species was white-fronted

tern 46.5% (at 264 individuals), followed by black-backed gull, spotted shag (mostly juveniles) and black-billed gull. A total of about 1000 juvenile spotted shags have been reported from the Waitaki River mouth (Otago Daily Times 14/01/17). The total number of traverses was biased towards the low-tide period (chi-squared = 39.7; $p<0.001$) although a reason for that is not clear if indeed it has any ecological basis.

While ten species were recorded passing the site, only six of those were recorded using the site's nearshore and offshore habitats. Species in Table 3 that did not utilise the site itself were caspian tern, Hutton's shearwater, little shag and red-billed gull. Therefore although a moderate diversity of seabirds was recorded traversing the site, a far lower diversity was recorded utilising the site's habitats.

| Table 3 – Birds recorded traversing the site but not utilising its habitats, 5 March 2019 | | | | | | | |
|---|---|---|---|---|---|---|---|
| species | recording period (hrs) | | | | | | |
| | 1000 - 1100 | 1100 - 1200 | 1200 – 1300 | 1300 – 1400 | 1400 – 1500 | Average number per hour | Percentage of total record |
| arctic skua | 1 | 2 | 1 | 1 | - | 1.0 | 1.8 |
| australasian gannet | 1 | 1 | - | - | - | 0.4 | 0.7 |
| black-backed gull | 18 | 12 | 7 | 5 | 9 | 10.2 | 18.0 |
| black-billed gull T | 8 | - | 11 | 14 | 4 | 7.4 | 13.1 |
| caspian tern T | 3 | - | - | 1 | - | 0.8 | 1.4 |
| Hutton's shearwater T | - | 1 | - | - | - | 0.2 | 0.4 |
| little shag | - | 1 | - | - | - | 0.2 | 0.4 |
| red-billed gull AR | 3 | - | 1 | - | - | 0.8 | 1.4 |
| spotted shag | 15 | 8 | 10 | 8 | 5 | 9.2 | 16.3 |
| white-fronted tern AR | 47 | 16 | 19 | 31 | 19 | 26.4 | 46.5 |
| **TOTAL PER HOUR** | **96** | **41** | **49** | **60** | **37** | **56.6** | **100.0** |

T = threatened; AR = at risk; total number of records = 283

### 3.2.3 Site's nearshore habitat use

The summary of species, numbers and habitat use of the intertidal and nearshore habitats is shown in Table 4. A total of four species was recorded – black-backed gull, black-billed gull, spotted shag and white-fronted tern. The most common species that utilised the nearshore area of the site was black-billed gull (average of 17.7 individuals) and it commonly entered the area en masse from the cliff top (and probably the adjoining irrigated pasture) e.g. a total of 82 at 1100 hours. The remaining species were relatively incidental only, especially white-fronted tern.

The overall average number of birds using the nearshore area was 24.9 individuals ranging from 3 individuals to 91 as a result of black-billed gulls resting on the water. Outside the hourly counts, up to 177 black-billed gulls were recording resting (rafting) on the water. The average number of birds in the nearshore area was significantly lower than the average number traversing the site (chi-squared = 12.3; $p<0.001$) which suggests that the site is not especially attractive as a seabird habitat relative to the wider sections of coastline nearby.

The habitat use data indicate that, based on 174 records, the proportions were as follows:

| | |
|---|---|
| Feeding in or over the water: | 6.9% |
| Resting in the intertidal area: | 15.5% |
| Resting on the water: | 77.6% |

The predominant habitat use was resting on the water and that applied to both black-backed and black-billed gulls. The only activity recorded for the threatened black-billed gull was resting on the water and no feeding was observed.

The only birds recorded using the nearshore area for feeding were spotted shag (8 records in 7 hours; average = 1.1) and white-fronted tern (4 records in 7 hours; average =0.6). No feeding in the exposed intertidal area was observed.

Use of the intertidal cobble habitat involved resting by black-backed gull and spotted shag, the latter of which formed small groups along the shoreline. Based on the presence of guano deposits the locations of the resting areas appeared to be variable rather than consistent which is to be expected along a relatively homogeneous coastline.

Overall there was no particular feature or observed habitat use that identified the specific nearshore area of the proposed pipeline route as a notable seabird habitat relative to the c.27 km of coastline on either side. A caveat to that conclusion applies to potential little penguin use of the area for nesting. No penguins were observed, however, use of the cobble and gravel shoreline at times by little penguins cannot be discounted. For example little penguin is common at Oamaru to the south (www.penguins.co.nz) and Timaru's Caroline Bay to the north (timarupenguins.co.nz). In early March, when the survey was undertaken, any little penguins that utilise the site's access gully or nearby areas for nesting would have been either preparing for or would have commenced moulting, in which case they would have been inactive and inconspicuous. The period with the highest probability of recording use of the coastline by little penguin is probably November – December when parents are making daily trips from the shore to the sea to obtain food for the chicks, and are therefore more conspicuous. A second penguin, the white-flippered little penguin, (a clade but not a subspecies; www.nzbirdsonline.org,nz) is unlikely to utilise the area; its stronghold is Motunau Island in North Canterbury, that supports a large population, and Banks Peninsula (Environment Canterbury 2009). The third potential penguin, hoiho or yellow-eyed penguin, is found mainly in Otago and Southland but is occasionally seen on Banks Peninsula. It no longer breeds successfully in Canterbury (Environment Canterbury, 2009).

The site gully does not present a particularly suitable nesting area – the silt and cobble substrate is relatively unstable to provide burrows and the vegetation cover quite patchy. A precautionary approach, however, should be to check the site's access gully for little penguin presence prior to construction commencing.

| Table 4 - Birds recorded utilising the intertidal and nearshore habitats at the site (to c.200m offshore): 5 March 2019 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| TIME | 0900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | Average |
| TIDAL STATE | HW+5 | LW | LW+1 | LW+2 | LW+3 | LW+4 | LW+5 | |
| SPECIES | | | | | | | | |
| black-backed gull | 4 REI<br>2 REW | 3 REI<br>2 REW | | | 3 REW | 2 REI<br>2 REW | 2 REW | 2.9 |
| black-billed gull T | 10 REW | | 82 REW | 2 REW | | 11 REW | 19 REW | 17.7 |
| spotted shag | | | 6 REI<br>3 FW | 12 REW | | 1 FW | 4 FW | 3.7 |
| white-fronted tern AR | | 4 FW | | | | | | 0.6 |
| **TOTAL BIRDS** | **16** | **9** | **91** | **14** | **3** | **16** | **25** | **24.9** |

T = threatened; AR = at risk

### 3.2.4 Site's offshore habitat use

The species and their numbers using the offshore and potential outfall area are shown in Table 5. The average number of birds using the habitat was low at 2.4 individuals with a range of 0 to 8 individuals per hourly count.

The most common offshore species was australasian gannet with relatively incidental records of arctic skua, spotted shag and white-fronted tern. No aggregations of pelagic species were observed.

Relative to the average number of birds using the nearshore area, the average number using the offshore habitat was significantly lower (chi-squared = 18.5; $p<0.001$) and sparse. Although records were few the habitat uses were as follows:

| | |
|---|---|
| Feeding in or over the water: | 94.1% |
| Resting on the water: | 5.9% |

While feeding was the dominant activity offshore, the total record was of only 17 compared with a total of 174 records for the nearshore area.

In conclusion there was no activity observed in the offshore (outfall) area that would suggest that it is a notable seabird feeding habitat relative to c.27km of similar offshore habitat on either side. In addition, it is too close inshore to present an attractive regular feeding habitat for key pelagic species such as albatrosses, shearwaters and petrels.

| Table 5 - Birds recorded using the offshore (beyond c.200m) habitat at the site: 5 March 2019 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| TIME | 0900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | Average |
| TIDAL STATE | HW+5 | LW | LW+1 | LW+2 | LW+3 | LW+4 | LW+5 | |
| SPECIES | | | | | | | | |
| arctic skua | | 1 REW | | No birds | | No birds | No birds | 0.1 |
| australasian gannet | 4 FW | 2 FW | 2 FW | | 1 FW | | | 1.3 |
| spotted shag | | 1 FW | 4 FW | | | | | 0.7 |
| white-fronted tern AR | | | 2 FW | | | | | 0.3 |
| **TOTAL BIRDS** | **4** | **4** | **8** | **0** | **1** | **0** | **0** | **2.4** |

T = threatened; AR = at risk