OTAGO REGIONAL COUNCIL

Agenda for a meeting of the Technical Committee to be held in the Council Chamber, 70 Stafford Street, Dunedin on Wednesday, 2 August 2017, following the Finance and Corporate Committee

Membership:
Cr Andrew Noone (Chairperson)
Cr Ella Lawton (Deputy Chairperson)
Cr Graeme Bell
Cr Doug Brown
Cr Michael Deaker
Cr Carmen Hope
Cr Trevor Kempton
Cr Michael Laws
Cr Sam Neill
Cr Gretchen Robertson
Cr Bryan Scott
Cr Stephen Woodhead

Apologies: Cr Noone

Leave of Absence: Cr Neill

In attendance:

Please note that there is an embargo on agenda items until 08:30am on Monday, 31 July 2017

CONFIRMATION OF AGENDA

CONFLICT OF INTEREST

PUBLIC FORUM

MINUTES

Minutes of the meeting held on 14 June 2017, having been circulated for adoption.

ACTIONS

Status report of resolutions of the Technical Committee.

Report No.	Meeting	Resolution	Status
2017/0848 Waiwera River Catchment Water Quality Study	14/6/17	That a stakeholder engagement proposal is brough to the next Communications round.	CLOSED. Item 1 of Communications Committee agenda 2/8/17

PART A PRESENTATIONS

PART B ITEMS FOR NOTING

Item 1
2017/0802 **Director's report on progress**, DEHS, 08/06/17

The report provides information on: Lakes Hayes Remediation; review of State of the Environment (SOE) monitoring; Clean Water Package 2017 – National Proposed Swimmability Targets; National Flood Forecasting Model; Sector Research; Waitaki District Council District Plan Review; Leith Flood Protection Scheme; Stock Effluent Disposal Sites.

Item 2
2017/0844 **Ecological Assessment of the Waikouaiti, Catlins and Shag Estuaries**, DEHS, 17/07/17

The covering report summarises the 2016/17 ecological assessments carried out in the Waikouaiti, Catlins and Shag Estuaries to inform the development of the Coastal Strategy and to complement work being undertaken on the effects of surface water-groundwater interactions on water quality in the lower Shag River.

The technical reports are circulated separately with the agenda:

Waikouaiti Estuary - Broad Scale Habitat Mapping 2017/17
Waikouaiti Estuary - Fine Scale Monitoring 2016/17

Catlins Estuary - Broad Scale Habitat Mapping 2016/17
Catlins Estuary - Fine Scale Monitoring 2016/17

Shag Estuary - Broad Scale Habitat Mapping 2016/17
Shag Estuary - Fine Scale Monitoring 2016/17

OTAGO REGIONAL COUNCIL

Minutes of a meeting of the Technical Committee held in the Council Chamber, 70 Stafford Street, Dunedin on Wednesday, 14 June 2017, commencing at 2:48pm

Membership:
Cr Stephen Woodhead (Deputy Chairperson)
Cr Graeme Bell
Cr Doug Brown
Cr Michael Deaker
Cr Carmen Hope
Cr Trevor Kempton
Cr Michael Laws
Cr Sam Neill
Cr Andrew Noone
Cr Gretchen Robertson
Cr Bryan Scott

Apologies:
Cr Deaker
The apology was noted.

In attendance:
Peter Bodeker (CE)
Gavin Palmer (DEHS)
Nick Donnelly (DCS)
Fraser McRae (DPPRM)
Michele Poole (Acting DSHE)
Scott MacLean (DEMO)
Adam Uytendaal *(Item 1 & 2)*
Rachel Ozanne *(Item 1& 2)*
Lauren McDonald (Committee Secretary)

Members of the Yellow-eyed Penguin Trust and staff were welcomed to the meeting

CONFIRMATION OF AGENDA
The agenda was confirmed.

CONFLICT OF INTEREST
No conflicts of interest advised.

PUBLIC FORUM
No public forum held.

MINUTES
Minutes of the meeting held on 3 May 2017, having been circulated were adopted on the motion of Crs Woodhead and Laws. ***Carried***

ACTIONS
(Status report of resolutions of the Technical Committee).

No current actions to be reported.

PART A PRESENTATIONS

Yellow-eyed Penguin Trust presentation on conservation science work

Presenters: Dr Eric Shelton, Trust Board Chair
Ms Sue Murray, General Manager
Dr Trudi Webster, Conservation Science Trust Advisor

Dr Palmer introduced the Trust members who provided detail on the work achieved for the reporting period February 2016 to May 2017 and the Trust plans for the future.

The presentation outlined:

- Background of the Trust and as an Otago "brand" in the tourism sector.
- Major issues faced by the Trust – in particular the declining number of penguin breeding pairs and the investigations of the causes.
- The role of the Trust science advisor - Trudi Webster
- Recent developments
- Future plans for the Trust – projects, strategies, collaborations.
- Areas of continued work and mutual support with ORC

Cr Brown left the meeting at 3:00pm.

Discussion was held on the investigations underway by the Trust in regard to the mass unexplained mortality rate and the resourcing needed to understand the impacts contributing to the bird decline.

Cr Woodhead confirmed Council's continued support and thanked Dr Shelton, Ms Murray and Dr Webster for the work of the Trust and their presentation to Council.

Cr Laws left the room at 3:28pm and returned at 3:37pm.

PART B ITEMS FOR NOTING

Item 1
2017/0802 **Director's report on progress**, DEHS, 08/06/17

The report provided information on: Alpine lakes and lake snow; climate change adaption; geomorphic change detection; flood forecasting capabilities; Owhiro Stream flood hazard investigation, and the Leith Flood Protection Scheme.

Dr Palmer summarised the report and discussion was held on the priority of research work streams detailed in Appendix A of the report and the status of funding bids made to MBIE by Catchments Otago and Landcare Research.

Lake Snow
Dr Palmer advised that the immediate research aim was to establish whether lake snow was an invasive species or not as this would determine future work streams and responsibilities. He confirmed further consideration was being given to progression of aspects of research, relevant to ORC's interests, as part of the Long Term Plan (LTP) process.

Moved Cr Scott
Seconded Cr Hope

That the report is noted.

Motion carried

Item 2
2017/0844 **Trophic Level Status of Lake Waipori and Lake Waihola**, DEHS, 08/06/17

The covering report summarised the trophic level monitoring undertaken between 2014 and 2016, water quality data collected over the three periods: 1997-1998; 2002-2004; and 2014-2016, and the water quality results.

The full ORC technical report entitled *"Lake Waipori and Lake Waihola Trophic Level Status"* was circulated separately with the agenda.

Ms Ozanne summarised the report and answered questions from councillors. Discussion was held on the trophic status remaining unchanged but noting a significant decrease in the levels of phosphorus detected during the monitoring period.

Moved Cr Neill
Seconded Cr Hope

That this report and the technical report "Trophic Level Status of Lake Waipori and Lake Waihola" are received and noted.

Motion Carried

Item 3
2017/0848 **Waiwera River Catchment Water Quality Study**, DEHS, 02/06/17

The covering report summarised the findings of the water quality study report. The full ORC technical report entitled *"Water Quality Study: Waiwera River Catchment"* was circulated separately with the agenda.

Ms Ozanne provided an overview of the study work undertaken and confirmed that the community was kept information of the water quality results throughout the survey period.

In response to a question Ms Poole advised that the communications team would investigate an strategic approach to release of the survey results to the community for the reports tabled in Items 2 and 3 of the agenda.

Discussion was held on the study results and possible future actions to address the ongoing rural water quality issues in the catchment.

Cr Scott left the room at 4:13pm

Moved Cr Noone
Seconded Cr Bell

That this report and the technical report "Water Quality Study: Waiwera River Catchment" are received and noted.

That a stakeholder engagement proposal is brought to the next Communications round.

Motion Carried

The meeting was declared closed at 4.15pm.

Chairperson

REPORT

Document Id: A1015218

Report Number: 2017/0908
Prepared For: Technical Committee
Prepared By: Dr Jean-Luc Payan, Manager Natural Hazards
Dr Dean Olsen, Manager Resource Science
Chris Valentine, Manager Engineering
Date: 11 July 2017

Subject: **Director's Report on Progress**

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1. Lake Hayes Remediation

Dr Olsen and I met with Friends of Lake Hayes (FOLH), at their invitation, on 19 June to discuss remediation of Lake Hayes. The target in the 2017/18 Annual Plan[1] was explained and the options report prepared for FOLH by Dr Marc Schallenberg (University of Otago) was discussed. The meeting was very constructive with consensus reached on the broad options for which technical and funding proposals would be developed and publicly consulted on. It was agreed that ORC would continue to engage with FOLH and to keep them informed of progress.

2. Review of State of the Environment monitoring

NIWA is continuing the review of ORC's current regional State of the Environment (SoE) river and lake water quality and biomonitoring programmes. The purpose of the review is to 'future proof' these programmes so that they are fit for purpose in terms of the site network, monitoring variables and technology (including lake monitoring buoys). Recommendations are also expected regarding the water quality parameters measured, including analytical methods, and these recommendations are expected to bring this into line with the National Environmental Monitoring Standards for water quality analysis that is currently in preparation. The review will also consider long-term lake monitoring options, including for the large alpine lakes.

The review is expected to be finalized by September and will be reported to committee. Provision has been made in the 2017/18 Annual Plan to undertake detailed investigations and costings of the monitoring options arising from the NIWA review and to implement these within the monitoring network within the 2017/18 year where practicable. Substantive changes to the network will be considered during preparation of the 2018/28 Draft Long Term Plan.

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[1] The Annual Plan target is "*develop and publicly consult on technical and funding proposals for the remediation of Lake Hayes*".

3. Clean Water Package 2017 - National Proposed Swimmability Targets

The Government recently published its Clean Water Discussion document[2] which proposes national targets relating to swimming for New Zealand's rivers and lakes[3]. Swimmability is assessed as a measure of safety as determined by *E. coli* concentrations in rivers and toxic algae biovolume in lakes.

The targets relating to swimmability are that:

1. 80%[4] of rivers and lakes are safe to swim in by 2030 and 90% of rivers and lakes are safe to swim in by 2040, and
2. the percentage of rivers and lakes which are fair, good and excellent increase over time.

To fulfil these targets, regional councils and unitary authorities have been asked to report to the Minister for the Environment on their proposed regional targets by October 2017 and on their final targets by March 2018. Councils are collaborating on the reporting. To support this, a taskforce has been established by the Ministry for the Environment (MfE) to provide nationally consistent data to support forecasting of swimmability against proposed limits. Dr Adam Uytendaal is a member of this taskforce providing support on lake swimmability.

In summary:

1. The national modelled 'current state' is 72% of waterways are swimmable (see Figure 1),
2. The Otago modelled current state is 82% swimmable. Otago waterways therefore meet the 2030 targets but improvements are needed to meet the 2040 target of 90% swimmable,
3. Modelled compliance of swimmability targets for Otago published by MfE provide a fair representation of the current state of swimmability across the region. The exception is Lake Wanaka and the lower branch of the Clutha. Feedback on this has been provided to MfE and the Swimmability maps will be updated accordingly,
4. The 'draft' swimmability attribute states are based on 4 separate metrics (see Table 1). Comparison of Region Plan: Water for Otago's Schedule 15 limits for different Receiving Water Groups satisfy the swimmability targets for three of the proposed metrics. However, for Group 1 and 2, the Schedule 15 limit of an 80th percentile of 260 *E. coli* for flows less than median flow will only just achieve the 4th and most stringent proposed attribute state of a 95th percentile of < 1200 *E. coli* at all flows,
5. The proposed attribute states are 'draft' only. It is our understanding that feedback from across the regional council sector is that there is a need to reduce the number of attribute states for assessing 'swimmability'.

[2] Director's Report on Policy Progress March 2017, Report to Otago Regional Council Policy Committee, Report 2017/0679, 22 March 2017.
[3] Rivers greater than 4th order and lakes with perimeters longer than 1,500 metres.
[4] Percentages are measured as the combined length of rivers and lake perimeters.

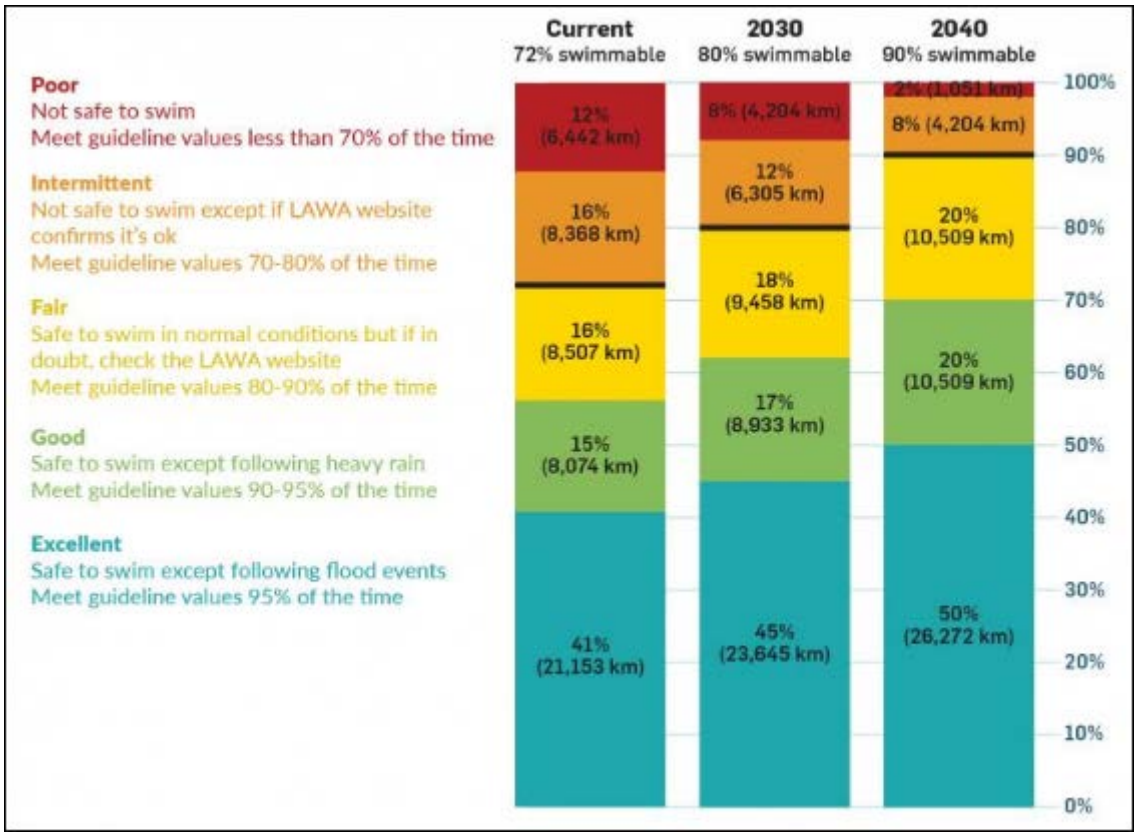

Figure 1: **Modelled national compliance with 'swimmability' targets. Current state and proposed targets for 2030 and 2040.**

CATEGORY	PERCENTAGE OF EXCEEDANCES OVER 540: E. COLI PER 100 ML	MEDIAN: E. COLI PER 100 ML	95TH PERCENTILE: E. COLI PER 100 ML	PERCENTAGE OF SAMPLES ABOVE 260: E. COLI PER 100 ML
Blue	< 5 per cent	⩽ 130	⩽ 540	< 20 per cent
Green	5-10 per cent	⩽ 130	⩽ 1000	20-30 per cent
Yellow	10-20 per cent	⩽ 130	⩽ 1200	20-34 per cent
Orange	20-30 per cent	>130	>1200	>34 per cent
Red	> 30 per cent	>260	>1200	>50 per cent

Table 1: **Proposed Swimmability attribute states – based on 4 separate assessments. Yellow represents the minimum acceptable level of exposure risk.** ***Taken from MfE website http://www.mfe.govt.nz/fresh-water/freshwater-management-reforms/clean-water-package-2017.***

4. National Flood Forecasting Model

NIWA's Chief Climate Scientist and NIWA other scientists met with staff on 17 July for a detailed presentation on and discussion of NIWA's National Flood Forecasting Model. The model forecasts the flow within 66,000 watercourses across New Zealand. It was agreed that ORC would continue to engage with NIWA and other regional councils with similar interests in how the model could be further developed and applied. Low flow forecasting and water quality modelling were also discussed.

5. Sector Research

I am continuing my involvement in the Nation Science Challenge: Climate Change and Stormwater and Wastewater Infrastructure Dialogue and participated in the second dialogue on 26 June. The dialogues have the aim of informing discussion papers that identify gaps in knowledge and subsequently form research projects.

I also participated in the regional councils "Integrated Science for the Future" Special Interest Group (SIG) Research Strategy Workshop on 20 and 21 July. The workshop provided the opportunity for regional councils and in particular the various regional council SIGs to share current thinking on key strategic issues and research needs for the sector. The topics discussed included freshwater, air quality, climate change, coasts, biodiversity, natural hazards, flood protection and river engineering.

6. Waitaki District Council District Plan Review

Dr Payan and his staff are working with the Waitaki District Council (WDC) to scope the requirements for natural hazards information to assist in the preparation of the District Plan review. ORC will provide technical information to inform the district plan review, taking a similar approach to the way it collaborated with Clutha District Council on Milton 2060 and with Dunedin City Council on the 2GP Dunedin District Plan Review. The focus is currently on assessing the needs for coastal hazard information. The work with WDC is planned to continue through the year and to include other natural hazards.

7. Leith Flood Protection Scheme

Engineering staff and I participated in the Otago Polytechnic Campus Development (OPCD) Urban Realm workshop on 5 July and outlined the Leith Flood Protection Scheme. It was agreed that ORC would continue to liaise with the Polytechnic and other stakeholders on the OPCD Urban Realm work and on the development of concepts for further enhancement of the Forth Street to Harbour section of the Water of Leith. The further enhancement is programmed for construction in the period 2018-2020 and will build on the initial enhancement works undertaken by ORC in 2011 (Figure 2).

Figure 2: **Water of Leith at low tide, before (left) and after (right) the construction of weirs downstream of ANZAC Street in 2011.**

Engineering works on the Union to Leith Footbridge stage of the Scheme are progressing (Figure 3). The removal of asbestos-contaminated soil is substantially complete. The asbestos is being excavated and removed from site in accordance with a plan approved by WorkSafe NZ and the University of Otago. Works to increase the height of the right bank wall are well underway.

For various reasons including the discovery of asbestos and the weather events in April and July (Figure 4) some of the construction works will extend beyond the planned completion date into the 2017/18 summer break. Staff are continuing to liaise closely with the university so as to minimise disruption to students, staff and visitors.

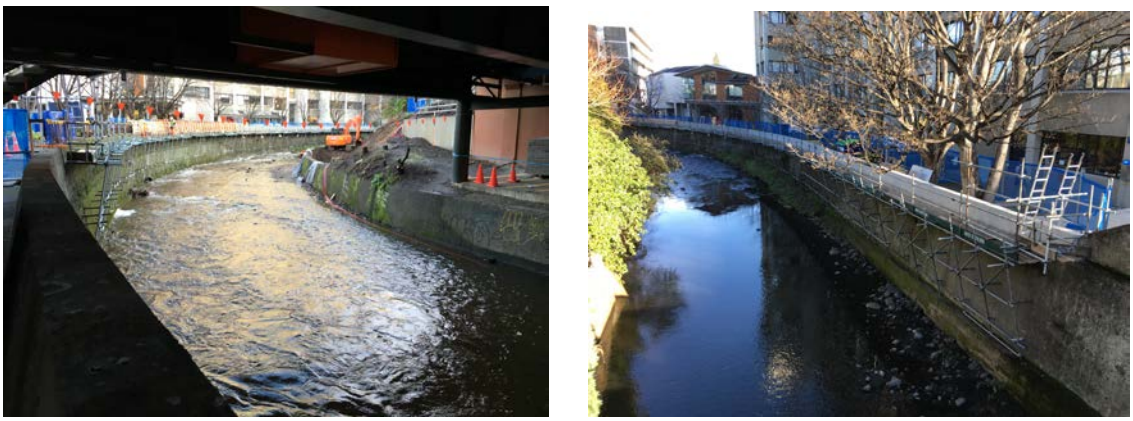

Figure 3: **Leith Flood Protection Scheme works underway between Union Street and Leith Footbridge (14 July 2017).**

Figure 4: **Leith Flood Protection Scheme following the flood event on 21 – 22 July 2017.**

Investigations for the Dundas Street stage of the Scheme are continuing. A civil and structural design contract for the culvert and modification to the existing bridge has been awarded to Opus Consultants Ltd. The first stage of their contract is to investigate the feasibility of three options in relation to increasing the freeboard below the existing bridge. Physical modelling of design options will be undertaken at the University of Auckland. The construction works are programmed to commence in early 2018 assuming a construction contract is awarded before the end of this calendar year.

8. Stock Truck Effluent Disposal Sites

Site selection has been completed for two new stock truck effluent disposal sites (STED) in Central Otago. Discussions with the Road Transport Association and their members have refined the options to two preferred sites. A business case has been completed and approved by NZTA for the design and construction of the two STEDs. The design contract will be awarded this month. Discussions are ongoing with CODC regarding the disposal of effluent from the two sites. It is possible one of the sites could be piped directly into the Cromwell wastewater collection system, and this opportunity is being investigated further as part of the detailed design contract.

9. Recommendation

That this report is noted.

Gavin Palmer
Director Engineering, Hazards and Science

REPORT

Document Id: A1019349

Report Number: 2017/0940
Prepared For: Technical Committee
Prepared By: Rachel Ozanne, Environmental Resource Scientist
Date: 17 July 2017

Subject: **Ecological Assessment of the Waikouaiti, Catlins and Shag Estuaries**

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1. Précis

In 2016/2017 ecological assessments were carried out in the Waikouaiti, Catlins and Shag Estuaries to inform the development of the Coastal Strategy and to complement work being undertaken on the effects of surface water-groundwater interactions on water quality in the lower Shag River. The assessments are presented in the attached reports.

2. Background

Developing an understanding of the condition and risks to coastal and estuarine habitats is an important part of the management of these resources. In 2016, Wriggle Ltd were contracted to undertake ecological monitoring of the Waikouaiti, Catlins and Shag Estuaries, to assess the state of these estuaries and identify any areas of concern, including eutrophication, sedimentation, toxicity and habitat change. They undertook these assessments in December 2016.

The approach for monitoring the condition of the estuaries followed the National Estuary Monitoring Protocol (NEMP[1]) and the NZ Estuary Trophic Index (ETI[2]). The NEMP approach is new (2016), these are the first estuaries to which ORC has applied this approach. It consists of three components:

1. Ecological Vulnerability Assessment (EVA). This component looks at estuaries in the region and their vulnerability to major issues.[3]

2. Broad Scale Habitat Mapping (NeMP approach). This component maps the key habitats within the estuary, determines their condition and assesses changes to these habitats over time.

3. Fine Scale Monitoring (NeMP approach). Monitoring of physical, chemical and biological indicators.

Results are linked to risk indicator ratings that facilitate the assessment of overall estuary condition and enable easy comparison of ecological state between estuaries.

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[1] Robertson et al. 2002: Estuarine Environmental Assessment and Monitoring. MfE Contract No. 5096.
[2] Robertson et al. 2016a/b: NZ Estuary Trophic Index. Screening Tools 1 & 2. MBIE/NIWA Contract C01X1420.
[3] This component has not yet been undertaken on a regional scale for Otago.

3. Implications

To be consistent with the NeMP approach to estuary ecological monitoring, a baseline of ecological health needs to be established against which future trends can be compared. If ORC is to follow the NeMP approach, additional monitoring is required as follows:

Broad scale habitat mapping:	5-10 yearly cycle
Fine scale monitoring:	3-4 consecutive years of baseline monitoring, followed by 5 yearly impact monitoring.

The 2017/18 annual plan includes a target to "Design and establish a coastal SoE network". Consideration of the NeMP approach and how it will be applied in Otago will be considered as part of that project.

4. Recommendation

That this report and the technical reports attached are received and noted.

Gavin Palmer
Director Engineering, Hazards and Science

Attachments:

Waikouaiti Estuary - Broad Scale Habitat Mapping 2017/17
Waikouaiti Estuary - Fine Scale Monitoring 2016/17

Catlins Estuary - Broad Scale Habitat Mapping 2016/17
Catlins Estuary - Fine Scale Monitoring 2016/17

Shag Estuary - Broad Scale Habitat Mapping 2016/17
Shag Estuary - Fine Scale Monitoring 2016/17