

Assessment form - decision

Marine park management

Permits for (State only) marine parks – Navigate a managed vessel (hovercraft) – version 1

File reference	CVL/ MAN
Assessed by	

Applicant details

Name of applicant		
Postal address		
Telephone		Fax
Email address		
ABN / ACN	☐ ABN / ACN checked on ASIC website	

Application details

Period of permit	Three years from date of issue (if a new operator) Six years from date of issue (if an existing operator)
Proposed use	1. Navigation of a managed vessel - hovercraft. 2. Vessel charter involving the navigation of a managed vessel - hovercraft.
Zones and locations	[List the exact zones applied for and covered by the Native Title notification] E.g. All general use, habitat protection, conservation park and marine national park zones Or E.g. HPZ02 – Moreton Island to Broadwater , MNP17 – St Helena Island, MNP21 – Amity Banks (West)
Designated areas	Delete irrelevant designated areas] All designated areas excluding Go Slow Areas for Natural Values

Application background

Permit history of applicant (if relevant):

Nature and extent of proposal

Detailed description of the proposed activity, including specific locations involved:

Applicant suitability

a) Has the applicant or any associated person held or been party to an authority or agreement that has been suspended or cancelled in the 3 years prior to the date of this application?	☐ YES ☐ NO
b) Does the applicant or any associated person owe any amount payable under the <i>Marine Parks Act 2004</i> ?	☐ YES ☐ NO
c) Has the applicant or any associated person been convicted of an offence within 3 years prior to the date of this application against legislation that protects the marine park, wildlife, recreation and protected areas?	☐ YES ☐ NO
d) Is the applicant considered to be a suitable person? Discuss history of applicant in relation to environmental matters (if relevant) Discuss ability of applicant to conduct activities under the permission in a competent or ethical way (if relevant)	☐ YES ☐ NO

Native title requirements

- ☐ The need for Native Title notification was assessed and found not to be necessary; **OR**
- ☐ The need for Native Title notification was assessed and found to be necessary. Representatives of **<state the Native Title Representative Body>** and **<list Native Title claimants>** was/were invited to provide comments on the proposal. Details of the notification procedure and response(s) obtained are set out below.

Notification sent to	Representative body details	Date
	NT claimant details	Date
Expiry date for comments (as per DNR&M)		
Comments received from	Representative body details	Date
	NT claimant details	Date

Comments were taken into considerations during the assessment process	☐ YES ☐ NO
--	--

Public notice:

- ☐ The proposed activity does not fall within section 15 of the Regulation and public notice was not required.
- ☐ The proposed activity falls within section 15 and public notice was required.

Summary of public submission comments received:

.....

Copies of all comments received are filed at:

NB. If public notice is deemed necessary it is still appropriate to use the class assessment provided that there is public support for the proposed activity and if issues raised by the public are adequately addressed under the class assessment.

The assessing officer should discuss options with their supervisor prior to proceeding with the class assessment if they consider that a public notice may be required.

REFER TO CLASS ASSESSMENT Navigate a managed vessel (hovercraft) VERSION 1.

<G:\QPWS\Marine Parks\Permits\Proforma Assessment\Class Assessment Hovercraft V1.doc>

Checklist for commercial hovercraft operators

Checklist. This check list outlines the critical considerations outlined in the class assessment and that form the basis of permit conditions. Read and answer questions from beginning to end.	Yes	No	N/a
Is this assessment for commercial hovercraft?	☐ go to 1	☐ refer to code of practice for recreation hovercraft	
1. Will the hovercraft traverse/land on exposed intertidal areas?	☐ go to 2	☐ go to 3	
2. Assess the value of the intertidal areas for marine plants and invertebrates. Assess the location in terms of proximity to sensitive receptors e.g. anchorages, residential areas, campgrounds, popular recreation areas. Marine Park Permit must not authorise traversing/landing within 200m of such locations. Marine Park Permit must not authorise traversing/landing on exposed areas with seagrass and invertebrates.			

Include condition 4 stipulating suitable areas for landing/traversing and the number of times landing/traversing is supported per day.			
3. Does the tour propose to travel past a shorebird site when not travelling within a marked navigation channel?	☐ go to 4	☐ go to 5	
4. Advise the applicant that this route is not supported.			
5. Include condition 'The permit holder must not travel past a shorebird site shown on Attachment 1 unless travelling within a marked navigation channel'.			
6. Does the hovercraft propose to stop at a location within 200m of a shorebird site?	☐ go to 7	☐ go to 8	
7. Ensure the applicant is advised that stopping at this location is not supported			
8. Include condition 'The permit holder must not use tidal land within 200m of a shorebird area shown on Attachment 1'.			
9. Is exposed intertidal land being used for stops during the navigation?	☐ go to 10	☐ go to 11	
10. Is it necessary to condition the number of times the hovercraft may land at this location?	☐ go to 11	☐ go to 12	
11. Include the condition 'Landing/ take off of the hovercraft is authorised to occur X times per day at the following locations:'			
12. Delete condition X regarding landing and taking off.			
13. Does the tour involve use of tidal land adjacent to a national park?	☐ go to 14	☐ → N/a	
14. Ensure you have consulted with the relevant national park managers. Provide details of consultation in the <i>nature and extent of proposal</i> section above.			
15. Does the tour involve use of a Recreation Area e.g. tidal land adjacent to Moreton, Bribie Island or Minjerribah declared under the <i>Recreation Areas Management Act 2006</i> ?	☐ go to 16	☐ go to 17	
16. Ensure the applicant has a current commercial activity permit to access the RAM area and follow note 1 page 1 of the permit proforma.			
17. Ensure that the applicant is not granted access to tidal land adjacent to the RAM area i.e. Moreton Island and/or Bribie Island and follow note 1 page 1 of the permit proforma.			

Recommendation

Please note if the recommendation is to **refuse** the application, or **grant** with modifications to what was initially proposed, this should be discussed with the applicant prior to finalising the assessment and the views of the applicant noted.

The application was discussed with the applicant on and (insert date(s)).

Recommendation ☐ GRANT ☐ REFUSE	
Signature _____	Date _____
Assessing officer _____	Position _____

Signature _____	Date _____
Endorsing officer _____	Position _____

Signature _____	Date _____
Delegate of the chief executive _____	
Position _____	

The following documents are attached (*delete irrelevant documentation*):

- ☐ Draft permit – recreational
- ☐ Draft permit – commercial

Attachment 1 – Map of approved landing and take of locations **[This is only applicable to commercial hovercraft - Delete if not applicable]**

- ☐ Draft information notice

(Note: use the information notice decision_not tourism or the information notice_decision_tourism where the hovercraft navigation also involves tourist program activities.

- ☐ Draft returns form **[For commercial non-tourist only – Delete if not applicable]**

(Note: where the hovercraft navigation also involves tourist program activities, the tourist return form is to be used)

Assessment form - decision

Marine park management

Permits for (State only) marine parks – Navigate a managed vessel (hovercraft) – version 2

File reference	CVL/ MAN
Assessed by	

The permit application has been assessed as per the class assessment for navigating a managed vessel (hovercraft) which was endorsed for use in 2012. A review of the class assessment and associated permit documentation is currently being undertaken by Technical Support staff within the Great Barrier Reef and Marine Parks Region. Until such time as a new Standard Operating Procedure is approved, applications to navigate a managed vessel (hovercraft) for recreational use will be assessed in line with the 2012 class assessment for this activity. Minor amendments have been made to permit conditions to reflect decisions made by the Assessments and Approvals Branch of QPWS in 2017. Note: The class assessment may not specifically make reference to the amended conditions included in the attached draft permit but the management intent and objective of each condition remains unchanged.

Applicant details

Name of applicant		
Postal address		
Telephone		Fax
Email address		
ABN / ACN	☐ ABN / ACN checked on ASIC website	

Application details

Period of permit	Three years from date of issue (if a new operator) Six years from date of issue (if an existing operator)
Proposed use	1. Navigation of a managed vessel - hovercraft. 2. Vessel charter involving the navigation of a managed vessel - hovercraft.
Zones and locations	[List the exact zones applied for and covered by the Native Title notification] E.g. All general use, habitat protection, conservation park and marine national park zones Or

Permits for (State only) marine parks – standard assessment

	E.g. HPZ02 – Moreton Island to Broadwater , MNP17 – St Helena Island, MNP21 – Amity Banks (West)
Designated areas	Delete irrelevant designated areas] All designated areas excluding Go Slow Areas for Natural Values

Application background

Permit history of applicant (if relevant):

Nature and extent of proposal

Detailed description of the proposed activity, including specific locations involved:

Applicant suitability

a) Has the applicant or any associated person held or been party to an authority or agreement that has been suspended or cancelled in the 3 years prior to the date of this application?	☐ YES ☐ NO
b) Does the applicant or any associated person owe any amount payable under the <i>Marine Parks Act 2004</i> ?	☐ YES ☐ NO
c) Has the applicant or any associated person been convicted of an offence within 3 years prior to the date of this application against legislation that protects the marine park, wildlife, recreation and protected areas?	☐ YES ☐ NO
d) Is the applicant considered to be a suitable person? Discuss history of applicant in relation to environmental matters (if relevant) Discuss ability of applicant to conduct activities under the permission in a competent or ethical way (if relevant)	☐ YES ☐ NO

Native title requirements

- ☐ The need for Native Title notification was assessed and found not to be necessary; **OR**
☐ The need for Native Title notification was assessed and found to be necessary. Representatives of **<state the Native Title Representative Body>** and **<list Native Title claimants>** was/were invited to provide comments on the proposal. Details of the notification procedure and response(s) obtained are set out below.

Notification sent to	Representative body details	Date
	NT claimant details	Date

Expiry date for comments (as per DNR&M)			
Comments received from	Representative body details	Date	
	NT claimant details	Date	
Comments were taken into considerations during the assessment process	☐ YES ☐ NO		

Public notice:

- ☐ The proposed activity does not fall within section 15 of the Regulation and public notice was not required.
- ☐ The proposed activity falls within section 15 and public notice was required.

Summary of public submission comments received:

.....

Copies of all comments received are filed at:

NB. If public notice is deemed necessary it is still appropriate to use the class assessment provided that there is public support for the proposed activity and if issues raised by the public are adequately addressed under the class assessment.

The assessing officer should discuss options with their supervisor prior to proceeding with the class assessment if they consider that a public notice may be required.

REFER TO CLASS ASSESSMENT Navigate a managed vessel (hovercraft) VERSION 1.

<G:\QPWS\Marine Parks\Permits\Proforma Assessment\Class Assessment Hovercraft V1.doc>

Checklist for commercial hovercraft operators

Checklist. This check list outlines the critical considerations outlined in the class assessment and that form the basis of permit conditions. Read and answer questions from beginning to end.	Yes	No	N/a
Is this assessment for commercial hovercraft?	☐ go to 1	☐ Conditions found in the code of practice for recreation hovercraft are now listed as conditions in the permit.	
1. Will the hovercraft traverse/land on exposed intertidal areas?	☐ go to 2	☐ go to 3	

<p>2. Assess the value of the intertidal areas for marine plants and invertebrates.</p> <p>Assess the location in terms of proximity to sensitive receptors e.g. anchorages, residential areas, campgrounds, popular recreation areas. Marine Park Permit must not authorise traversing/landing within 200m of such locations.</p> <p>Marine Park Permit must not authorise traversing/landing on exposed areas with seagrass and invertebrates.</p> <p>Include condition 4 stipulating suitable areas for landing/traversing and the number of times landing/traversing is supported per day.</p>			
<p>3. Does the tour propose to travel past a shorebird site when not travelling within a marked navigation channel?</p>	☐ go to 4	☐ go to 5	
<p>4. Advise the applicant that this route is not supported.</p>			
<p>5. Include condition 'The permit holder must not travel past a shorebird site shown on Attachment 1 unless travelling within a marked navigation channel'.</p>			
<p>6. Does the hovercraft propose to stop at a location within 200m of a shorebird site?</p>	☐ go to 7	☐ go to 8	
<p>7. Ensure the applicant is advised that stopping at this location is not supported</p>			
<p>8. Include condition 'The permit holder must not use tidal land within 200m of a shorebird area shown on Attachment 1'.</p>			
<p>9. Is exposed intertidal land being used for stops during the navigation?</p>	☐ go to 10	☐ go to 11	
<p>10. Is it necessary to condition the number of times the hovercraft may land at this location?</p>	☐ go to 11	☐ go to 12	
<p>11. Include the condition 'Landing/ take off of the hovercraft is authorised to occur X times per day at the following locations:'</p>			
<p>12. Delete condition X regarding landing and taking off.</p>			
<p>13. Does the tour involve use of tidal land adjacent to a national park?</p>	☐ go to 14	☐ → N/a	
<p>14. Ensure you have consulted with the relevant national park managers. Provide details of consultation in the <i>nature and extent of proposal</i> section above.</p>			
<p>15. Does the tour involve use of a Recreation Area e.g. tidal land adjacent to Moreton, Bribie Island or Minjerribah declared under the <i>Recreation Areas Management Act 2006</i>?</p>	☐ go to 16	☐ go to 17	
<p>16. Ensure the applicant has a current commercial activity permit to access the RAM area and follow note 1 page 1 of the permit proforma.</p>			

17. Ensure that the applicant is not granted access to tidal land adjacent to the RAM area i.e. Moreton Island and/or Bribie Island and follow note 1 page 1 of the permit proforma.			

Recommendation

Please note if the recommendation is to **refuse** the application, or **grant** with modifications to what was initially proposed, this should be discussed with the applicant prior to finalising the assessment and the views of the applicant noted.

The application was discussed with the applicant on and (insert date(s)).

Recommendation ☐ GRANT ☐ REFUSE	
Signature _____	Date _____
Assessing officer _____	Position _____

Signature _____	Date _____
Endorsing officer _____	Position _____

Signature _____	Date _____
Delegate of the chief executive _____	
Position _____	

The following documents are attached (*delete irrelevant documentation*):

- ☐ Draft permit – recreational
- ☐ Draft permit – commercial

Attachment 1 – Map of approved landing and take of locations **[This is only applicable to commercial hovercraft - Delete if not applicable]**

- ☐ Draft information notice

(Note: use the information notice decision_not tourism or the information notice_decision_tourism where the hovercraft navigation also involves tourist program activities.

- ☐ Draft returns form **[For commercial non-tourist only – Delete if not applicable]**

(Note: where the hovercraft navigation also involves tourist program activities, the tourist return form is to be used)


**Queensland
Government**

Rhonda Leggett
A/Assistant Principal Ranger, Technical Support
Great Barrier Reef and Marine Parks Region
Queensland Parks and Wildlife Service
Department of Environment and Science

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Level 10, 445 Flinders Street, Townsville QLD 4810
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Cheers
Rhon


**Queensland
Government**

Rhonda Leggett
A/Assistant Principal Ranger, Technical Support
Great Barrier Reef and Marine Parks Region
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P 07 4722 5251 M [CTPI 49-Sch](tel:0747225251)
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www.des.qld.gov.au

At this stage the memo and documents only refer to the process to be used in MBMP. A similar set of documents should be produced for GSMP

although I believe that the actual 30 page class assessment document itself for Great Sandy has been updated so the memo would need to be reworded top reflect that.

Hope this all makes sense, if not give me a call.

Michelle



Michelle Perry

Senior Conservation Officer

Great Barrier Reef and Marine Parks | Technical Support

Queensland Parks and Wildlife Service

Department of Environment and Science

☎ 07 3101 2021

34 Trafalgar Street, Manly QLD 4179

PO Box 5178, Manly QLD 4179

MEMORANDUM

FROM: Michelle Perry
Senior Conservation Officer, Technical Support - GBR&MP Region

TO: Rhondda Leggett
A/ Assistant Principal Ranger, Technical Support - GBR&MP Region

Approved

CTPI 49-Sch4

A/ APR (GSRMP)

11.06.2018

DATE: 23 May 2018

SUBJECT: Process for assessing and issuing a permit to navigate a managed vessel (recreational hovercraft) in Moreton Bay Marine Park

As at 30 April 2018, applications for a permit to navigate a managed vessel (hovercraft) in Moreton Bay Marine Park are being assessed as per the class assessment for this activity which was endorsed for use in June 2012. A review of the class assessment and associated permit documentation is to be undertaken by Technical Support staff within the Great Barrier Reef and Marine Parks Region of QPWS. Until such time as the review has been completed and the new Standard Operating Procedure has been approved, applications to navigate a managed vessel (hovercraft) for recreational purposes in Moreton Bay Marine Park will continue to be assessed against the 2012 class assessment, with minor amendments being made to the permit conditions to reflect decisions made by the Assessments and Approvals Branch of QPWS in 2017 about the conduct of this activity in southern marine parks. Note: The class assessment may not specifically make reference to the amended conditions included in the updated draft permit template but the management intent remains unchanged.

Lara Connell, A/ Manager – Assessments & Approvals (Southern) and Roslyn Howie, A/ Team Leader - Assessments & Approvals (Southern) were advised of the management arrangements outlined above by email on 19 March 2018. A subsequent response was received from Lara approving the temporary approach that same day.

While the class assessment to navigate a managed vessel (MBMP) document itself remains unchanged, the assessment checklist and draft permit have been amended (copy attached) and will be saved in the appropriate location on the network drive with the other permit documentation for use by permit assessment staff. A copy of this memo, once signed will be attached to the class assessment and also saved on the network drive. All superseded documentation will be archived on the network drive as part of the file records.

[Instructions: Grey areas require action. **Ensure no grey is left in final version. Read final version to ensure it is legible]**

Permit

Marine Parks Act 2004

PERMIT NO.

TERM OF PERMISSION:

xx xxxxxxxx xxxx to xx xxxxx xxxx

THIS PERMISSION IS GRANTED TO:

Permit holder:

ABN/ACN: *(Omit where not relevant)*

Place of Business:
.....
..... QLD 4xxx

for use and entry of **Moreton Bay Marine Park**

in accordance with the details as stated in Part A, and subject to the conditions stated in Part B.

..... Date:

Sue Gregory
Delegate of the Chief Executive,
Department of National Parks, Sport and Racing

Part A:

LOCATION TO WHICH THIS PERMISSION APPLIES:

[List the exact zones applied for and covered by the Native Title notification]

E.g. HPZ02 – Moreton Island to Broadwater , MNP17 – St Helena Island, MNP21 – Amity Banks (West)

Or

All general use, habitat protection, conservation park and the following Marine National Park Zones:

MNP03 – Northern Wedge, MNP07 – Braydon Beach, MNP08 – Deep Offshore Moreton Island, MNP09 – Deception Bay, MNP10 – Cherubs Cave-Henderson Rock, MNP12 – Scotts Point, MNP13-Bramble Bay (excluding Nundah & Nudgee Creek), MNP14 – Middle Moreton Bay, MNP16-Mirapool Islands-Offshore Area (excluding Mirapool Lagoon), MNP17 – St Helena, MNP18 – Amity Banks, MNP21 – Amity Banks (west), MNP24 – Cox Bank, MNP25 – Offshore North Stradbroke Island, MNP27 – Lamb Island, MNP28 – Pannikin Island, MNP32 – Offshore South Stradbroke Island.

(Excluding access to tidal land included within Moreton Island, Bribie Island and Minjerribah Recreation Areas)

[Note: remove words in italics if an authority to operate a recreational craft is held by applicant to access Moreton Island, Bribie Island or Minjerribah Recreation Areas]

PURPOSE OF USE OR ENTRY AUTHORISED BY THIS PERMISSION:

Navigate a managed vessel (recreational hovercraft)

DEFINITIONS

Anchorage means a place designated for vessels to anchor

Campground means a piece of land available for rent as a camp or caravan site to holiday makers.

Dwelling means a house used as a residence.

Part B:

CONDITIONS OF PERMISSION:

[delete if not relevant]

1. Location

Activities described in the 'purpose of use and entry' of this permit must only take place in the locations described in 'Part A' of this permit.

2. Approval of vessel(s) to be used

(a) The following vessel(s) are authorised to be used under this permission:

Registered name:	xxxxxxxxxxx
Australian Maritime Safety Authority Registration:	xxxxxxxxxxx
Maximum passengers:	xxx

Registered name:	xxxxxxxxxxx
Australian Maritime Safety Authority Registration:	xxxxxxxxxxx
Maximum passengers:	xxx

- (b) Where the permit holder wishes to use a different vessel in substitution for a vessel nominated in paragraph (a) above, details of the proposed vessel must be provided in writing to the Chief Executive for approval.
- (c) Vessel other than those nominated in paragraph (a) must not be used under this permission without written permission of the Chief Executive.

3. Navigation of a managed vessel (recreational hovercraft)

The Permit Holder must ensure that:

- (a) Navigation of the managed vessel is conducted in accordance with Marine Park Permit application received [insert date of application].
- (b) Hovercraft entry and egress to the marine park must only be via formalised access points e.g. boat ramps.
- (c) Hovercraft must not repetitively operate in the same location on any one day.
- (d) Hovercraft must not transverse exposed seagrass beds, mudflats and sandbanks.
- (e) Hovercraft must maintain a distance of at least 200m from known shorebird roost sites shown on maps provided unless navigating in a marked navigation channel.
- (f) Hovercraft must travel past sensitive receptors e.g. a visible dwelling, campground or anchorage, at a distance that keeps the noise levels below 75dB when recorded from the receptor.
- (g) Hovercraft must not cause noise that is of nuisance to the public.
- (h) Hovercraft must operate at a noise level acceptable to the public.
- (i) After starting the hovercraft, the hovercraft must move away as quickly as possible from the start up location.
- (j) Hovercraft must not operate in a way that makes audible noise before 7am or after 7pm on a business day or Saturday or before 8am or after 6:30pm on any other day.
- (k) Traversing, landing/take off must not be conducted within 100m of other people within the marine park (in water and on beach).

4. Insurance

- (a) For the Term of this Permit, the Principal Holder must take out and maintain the following insurances:
 - (i) where required by law, insurance under the Workers' Compensation and Rehabilitation Act 2003, or its equivalent under another jurisdiction with the consent of the Chief Executive; and
 - (ii) where not covered under the above subclause (a)(i), accident insurance sufficient to cover workers, volunteers and eligible persons (as defined under the Workers' Compensation and Rehabilitation Act 2003) with the consent of the Chief Executive; and
 - (iii) a public liability insurance policy for not less than \$20 million on a claims occurring basis in respect of the death of, or injury to persons, or loss or damage to property; and
 - (iv) any other insurances as reasonably required by the Chief Executive.

(b) The Principal Holder must ensure that the insurance policies required under this clause are with:

- (i) an insurer who is:
 - a. authorised under the Insurance Act 1973 (Cth);
 - b. registered with the Australian Prudential Regulation Authority as an authorised insurer; and
 - c. has a Standard & Poor's rating of no less than A-; or
- (ii) if the Principal Holder is globally insured, another insurer with the written approval of the Chief Executive.

(c) The Principal Holder must ensure that in relation to the insurable interests under this clause, insurance policies are effected to cover all invitees, employees, contractors, agents, members or clients of the Principal Holder and (where possible) name the State as an interested party.

(d) Before undertaking any activities on the Relevant Area, the Principal Holder must have in place all insurances required by this clause.

(e) In any circumstance where the insurances required under this Permit are cancelled, altered or expire before the expiry date of this Permit, the Principal Holder must cease all activities on the Relevant Area until such time as alternative insurance policies that comply with the requirements of this clause have been obtained.

(f) The Principal Holder must provide copies of certificates of currency for the insurances required under this clause if requested by the Chief Executive, acting reasonably.

(g) If the Principal Holder is an individual or sole trader, then clause (a)(i) is satisfied if the Principal Holder maintains:

- (i) personal accident insurance covering all medical treatment, hospitalisation and medical expenses; and
- (ii) income protection insurance; and
- (i) death and disability insurance;

equivalent to the coverage and entitlements provided to employees under the statutory provisions of the Workers Compensation and Rehabilitation Act 2003 (Qld).

(h) Where the Principal Holder –

- (i) is a Commonwealth, State or Territory government department, agency or statutory body; and
- (ii) is a self-insurer; and
- (iii) has provided the Chief Executive with a certificate from an appropriately authorised officer to that effect,

the Principal Holder is deemed to have complied with this clause.

(i) If the Principal Holder breaches its obligations under this clause, the Chief Executive may immediately cancel this Permit by written notice to the Principal Holder.

5. Compliance with laws

The Principal Holder must at its own expense punctually comply with all statutes, ordinances, local laws, regulations or rules in force at the time, which apply to the Relevant Area and adjoining land and/or the Principal Holder's use of the Relevant Area and adjoining land.

6. Principal Holder's Authority

The Principal Holder must have the power, authority and ability to be issued this Permit and must perform its obligations under this Permit with all due skill, care and diligence.

7. Indemnity

(a) The Principal Holder:

- (i) indemnifies; and



(ii) releases and discharges

the State (including its Representatives) from and against all actions, proceedings, claims, demands, costs, losses, damages, liability and expenses which may be brought against, or made upon the State (or any Representative) or which the State (or any Representative) may pay, sustain, or be put to by reason of, or in consequence of, or in connection with this Permit and the occupation and use of the Relevant Area by the Principal Holder, except to the extent of any negligent act of the State (or any Representative).

(b) The Principal Holder must notify the Chief Executive in writing of any death, injury, loss or damage immediately upon the Principal Holder becoming aware of such death, injury, loss or damage.

(c) If the Principal Holder breaches its obligations under subclauses (a) and (b), the Chief Executive may give notice to the Principal Holder stating the breach and if the breach is not remedied in accordance with the timeframe set out in that notice, the Chief Executive may immediately cancel this Permit by written notice to the Principal Holder.

8. No liability for consequential or indirect loss

The State and its Representatives will not in any circumstances (including for negligence) be liable for any loss of revenue, loss of profit, loss of anticipated savings or business, loss of opportunity (including opportunity to enter into or complete arrangements with third parties), loss of data or goodwill, loss of reputation, or any indirect or consequential loss, whether arising in contract, tort (including negligence) or otherwise, in connection with this Permit.

9. No Warranty and Risk

(a) The Chief Executive does not warrant that the Relevant Area is free from defect or that it is safe, fit, suitable or adequate for the Approved Activities. To the full extent permitted by law, all warranties as to fitness, suitability and adequacy implied by law are expressly negated.

(b) The Principal Holder uses the Relevant Area entirely at its own risk and must first check the Relevant Area to ensure that it is suitable for the Approved Activities under this Permit before undertaking any Approved Activities.

Assessment form - decision

Marine park management

Permits for (State only) marine parks – Navigate a managed vessel (hovercraft) – version 1

File reference	CVL/ MAN
Assessed by	

The permit application has been assessed as per the class assessment for navigating a managed vessel (hovercraft) which was endorsed for use in 2012. A review of the class assessment and associated permit documentation is currently being undertaken by Technical Support staff within the Great Barrier Reef and Marine Parks Region. Until such time as a new Standard Operating Procedure is approved, applications to navigate a managed vessel (hovercraft) for recreational use will be assessed in line with the 2012 class assessment for this activity. Minor amendments have been made to permit conditions to reflect decisions made by the Assessments and Approvals Branch of QPWS in 2017. Note: The class assessment may not specifically make reference to the amended conditions included in the attached draft permit but the management intent and objective of each condition remains unchanged.

Applicant details

Name of applicant			
Postal address			
Telephone		Fax	
Email address			
ABN / ACN	☐ ABN / ACN checked on ASIC website		

Application details

Period of permit	Three years from date of issue (if a new operator) Six years from date of issue (if an existing operator)
Proposed use	1. Navigation of a managed vessel - hovercraft. 2. Vessel charter involving the navigation of a managed vessel - hovercraft.
Zones and locations	[List the exact zones applied for and covered by the Native Title notification] E.g. All general use, habitat protection, conservation park and marine national park zones Or

	E.g. HPZ02 – Moreton Island to Broadwater , MNP17 – St Helena Island, MNP21 – Amity Banks (West)
Designated areas	Delete irrelevant designated areas] All designated areas excluding Go Slow Areas for Natural Values

Application background

Permit history of applicant (if relevant):
--

Nature and extent of proposal

Detailed description of the proposed activity, including specific locations involved:

Applicant suitability

a) Has the applicant or any associated person held or been party to an authority or agreement that has been suspended or cancelled in the 3 years prior to the date of this application?	☐ YES ☐ NO
b) Does the applicant or any associated person owe any amount payable under the <i>Marine Parks Act 2004</i> ?	☐ YES ☐ NO
c) Has the applicant or any associated person been convicted of an offence within 3 years prior to the date of this application against legislation that protects the marine park, wildlife, recreation and protected areas?	☐ YES ☐ NO
d) Is the applicant considered to be a suitable person? Discuss history of applicant in relation to environmental matters (if relevant) Discuss ability of applicant to conduct activities under the permission in a competent or ethical way (if relevant)	☐ YES ☐ NO

Native title requirements

☐ The need for Native Title notification was assessed and found not to be necessary; **OR**
☐ The need for Native Title notification was assessed and found to be necessary. Representatives of **<state the Native Title Representative Body>** and **<list Native Title claimants>** was/were invited to provide comments on the proposal. Details of the notification procedure and response(s) obtained are set out below.

Notification sent to	Representative body details	Date
	NT claimant details	Date

Permits for (State only) marine parks – standard assessment

Expiry date for comments (as per DNR&M)		
Comments received from	Representative body details	Date
	NT claimant details	Date
Comments were taken into considerations during the assessment process	☐ YES ☐ NO	

Public notice:

- ☐ The proposed activity does not fall within section 15 of the Regulation and public notice was not required.
- ☐ The proposed activity falls within section 15 and public notice was required.

Summary of public submission comments received:

.....

Copies of all comments received are filed at:

NB. If public notice is deemed necessary it is still appropriate to use the class assessment provided that there is public support for the proposed activity and if issues raised by the public are adequately addressed under the class assessment.

The assessing officer should discuss options with their supervisor prior to proceeding with the class assessment if they consider that a public notice may be required.

REFER TO CLASS ASSESSMENT Navigate a managed vessel (hovercraft) VERSION 1.

G:\QPWS\Marine Parks\Permits\Proforma Assessment\Class Assessment Hovercraft V1.doc

Checklist for commercial hovercraft operators

Checklist.	Yes	No	N/a
This check list outlines the critical considerations outlined in the class assessment and that form the basis of permit conditions. Read and answer questions from beginning to end.			
Is this assessment for commercial hovercraft?	☐ go to 1	☐ Conditions previously found in the Code of Practice for recreation hovercraft (attachment to permit) are now listed as part of the permit conditions.	

1. Will the hovercraft traverse/land on exposed intertidal areas?	☐ go to 2	☐ go to 3	
2. Assess the value of the intertidal areas for marine plants and invertebrates. Assess the location in terms of proximity to sensitive receptors e.g. anchorages, residential areas, campgrounds, popular recreation areas. Marine Park Permit must not authorise traversing/landing within 200m of such locations. Marine Park Permit must not authorise traversing/landing on exposed areas with seagrass and invertebrates. Include condition 4 stipulating suitable areas for landing/traversing and the number of times landing/traversing is supported per day.			
3. Does the tour propose to travel past a shorebird site when not travelling within a marked navigation channel?	☐ go to 4	☐ go to 5	
4. Advise the applicant that this route is not supported.			
5. Include condition 'The permit holder must not travel past a shorebird site shown on Attachment 1 unless travelling within a marked navigation channel'.			
6. Does the hovercraft propose to stop at a location within 200m of a shorebird site?	☐ go to 7	☐ go to 8	
7. Ensure the applicant is advised that stopping at this location is not supported			
8. Include condition 'The permit holder must not use tidal land within 200m of a shorebird area shown on Attachment 1'.			
9. Is exposed intertidal land being used for stops during the navigation?	☐ go to 10	☐ go to 11	
10. Is it necessary to condition the number of times the hovercraft may land at this location?	☐ go to 11	☐ go to 12	
11. Include the condition 'Landing/ take off of the hovercraft is authorised to occur X times per day at the following locations:'			
12. Delete condition X regarding landing and taking off.			
13. Does the tour involve use of tidal land adjacent to a national park?	☐ go to 14	☐ → N/a	
14. Ensure you have consulted with the relevant national park managers. Provide details of consultation in the <i>nature and extent of proposal</i> section above.			
15. Does the tour involve use of a Recreation Area e.g. tidal land adjacent to Moreton, Bribie Island or Minjerribah declared under the <i>Recreation Areas Management Act 2006</i> ?	☐ go to 16	☐ go to 17	

16. Ensure the applicant has a current commercial activity permit to access the RAM area and follow note 1 page 1 of the permit proforma.			
17. Ensure that the applicant is not granted access to tidal land adjacent to the RAM area i.e. Moreton Island and/or Bribie Island and follow note 1 page 1 of the permit proforma.			

Recommendation

Please note if the recommendation is to **refuse** the application, or **grant** with modifications to what was initially proposed, this should be discussed with the applicant prior to finalising the assessment and the views of the applicant noted.

The application was discussed with the applicant on and (insert date(s)).

Recommendation ☐ GRANT ☐ REFUSE	
Signature _____	Date _____
Assessing officer _____	Position _____

Signature _____	Date _____
Endorsing officer _____	Position _____

Signature _____	Date _____
Delegate of the chief executive _____	
Position _____	

The following documents are attached (delete irrelevant documentation):

- ☐ Draft permit – recreational
- ☐ Draft permit – commercial

Attachment 1 – Map of approved landing and take of locations **[This is only applicable to commercial hovercraft - Delete if not applicable]**

- ☐ Draft information notice

(Note: use the information notice decision_not tourism or the information notice_decision_tourism where the hovercraft navigation also involves tourist program activities.

- ☐ Draft returns form **[For commercial non-tourist only – Delete if not applicable]**

(Note: where the hovercraft navigation also involves tourist program activities, the tourist return form is to be used)

Published on DES Disclosure Log
RTI Act 2009

MEMORANDUM

FROM: Michelle Perry
Senior Conservation Officer, Technical Support - GBR&MP Region

TO: Rhondda Leggett
A/ Assistant Principal Ranger, Technical Support - GBR&MP Region

DATE: 23 May 2018

SUBJECT: Process for assessing and issuing a permit to navigate a managed vessel (recreational hovercraft) in Moreton Bay Marine Park

As at 30 April 2018, applications for a permit to navigate a managed vessel (hovercraft) in Moreton Bay Marine Park are being assessed as per the class assessment for this activity which was endorsed for use in June 2012. A review of the class assessment and associated permit documentation is to be undertaken by Technical Support staff within the Great Barrier Reef and Marine Parks Region of QPWS. Until such time as the review has been completed and the new Standard Operating Procedure has been approved, applications to navigate a managed vessel (hovercraft) for recreational purposes in Moreton Bay Marine Park will continue to be assessed against the 2012 class assessment, with minor amendments being made to the permit conditions to reflect decisions made by the Assessments and Approvals Branch of QPWS in 2017 about the conduct of this activity in southern marine parks. Note: The class assessment may not specifically make reference to the amended conditions included in the updated draft permit template but the management intent remains unchanged.

Lara Connell, A/ Manager – Assessments & Approvals (Southern) and Roslyn Howie, A/ Team Leader - Assessments & Approvals (Southern) were advised of the management arrangements outlined above by email on 19 March 2018. A subsequent response was received from Lara approving the temporary approach that same day.

While the class assessment to navigate a managed vessel (MBMP) document itself remains unchanged, the assessment checklist and draft permit have been amended (copy attached) and will be saved in the appropriate location on the network drive with the other permit documentation for use by permit assessment staff. A copy of this memo, once signed will be attached to the class assessment and also saved on the network drive. All superceded documentation will be archived on the network drive as part of the file records.

MEMORANDUM

FROM: Michelle Perry
Senior Conservation Officer, Technical Support - GBR&MP Region

TO: Rhondda Leggett
A/ Assistant Principal Ranger, Technical Support - GBR&MP Region
Approved
CTPI 49-Sch4
A/ AFR (GBR&MP)
11.06.2018

DATE: 23 May 2018

SUBJECT: Process for assessing and issuing a permit to navigate a managed vessel (recreational hovercraft) in Moreton Bay Marine Park

As at 30 April 2018, applications for a permit to navigate a managed vessel (hovercraft) in Moreton Bay Marine Park are being assessed as per the class assessment for this activity which was endorsed for use in June 2012. A review of the class assessment and associated permit documentation is to be undertaken by Technical Support staff within the Great Barrier Reef and Marine Parks Region of QPWS. Until such time as the review has been completed and the new Standard Operating Procedure has been approved, applications to navigate a managed vessel (hovercraft) for recreational purposes in Moreton Bay Marine Park will continue to be assessed against the 2012 class assessment, with minor amendments being made to the permit conditions to reflect decisions made by the Assessments and Approvals Branch of QPWS in 2017 about the conduct of this activity in southern marine parks. Note: The class assessment may not specifically make reference to the amended conditions included in the updated draft permit template but the management intent remains unchanged.

Lara Connell, A/ Manager – Assessments & Approvals (Southern) and Roslyn Howie, A/ Team Leader - Assessments & Approvals (Southern) were advised of the management arrangements outlined above by email on 19 March 2018. A subsequent response was received from Lara approving the temporary approach that same day.

While the class assessment to navigate a managed vessel (MBMP) document itself remains unchanged, the assessment checklist and draft permit have been amended (copy attached) and will be saved in the appropriate location on the network drive with the other permit documentation for use by permit assessment staff. A copy of this memo, once signed will be attached to the class assessment and also saved on the network drive. All superceded documentation will be archived on the network drive as part of the file records.

[illegible]

Permit No:

Permittee: _____

[illegible]



Department of National Parks, Sport and Racing

[Instructions: Grey areas require action. **Ensure no grey is left in final version.** Read final version to ensure it is legible]

Permit

Marine Parks Act 2004

PERMIT NO.

TERM OF PERMISSION:

XX XXXXXXXX XXXX to XX XXXXX XXXX

THIS PERMISSION IS GRANTED TO:

Permit holder:

ABN/ACN: (Omit where not relevant)

Place of Business:

..... QLD 4xxx

for use and entry of **Moreton Bay Marine Park**

in accordance with the details as stated in Part A, and subject to the conditions stated in Part B.

..... Date:

Sue Gregory
Delegate of the Chief Executive,
Department of National Parks, Sport and Racing

Part A:

LOCATION TO WHICH THIS PERMISSION APPLIES:

[List the exact zones applied for and covered by the Native Title notification]

E.g. HPZ02 – Moreton Island to Broadwater , MNP17 – St Helena Island, MNP21 – Amity Banks (West)

Or

QS20157/CVL/MAN*****

1 of 5



All general use, habitat protection, conservation park and the following Marine National Park Zones:

MNP03 – Northern Wedge, MNP07 – Braydon Beach, MNP08 – Deep Offshore Moreton Island, MNP09 – Deception Bay, MNP10 – Cherubs Cave-Henderson Rock, MNP12 – Scotts Point, MNP13-Bramble Bay (excluding Nundah & Nudgee Creek), MNP14 – Middle Moreton Bay, MNP16-Mirapool Islands-Offshore Area (excluding Mirapool Lagoon), MNP17 – St Helena, MNP18 – Amity Banks, MNP21 – Amity Banks (west), MNP24 – Cox Bank, MNP25 – Offshore North Stradbroke Island, MNP27 – Lamb Island, MNP28 – Pannikin Island, MNP32 – Offshore South Stradbroke Island.

(Excluding access to tidal land included within Moreton Island, Bribie Island and Minjerribah Recreation Areas)

[Note: remove words in italics if an authority to operate a recreational craft is held by applicant to access Moreton Island, Bribie Island or Minjerribah Recreation Areas]

PURPOSE OF USE OR ENTRY AUTHORISED BY THIS PERMISSION:

Vessel charter involving the navigation of a managed vessel

DEFINITIONS

Anchorage means a place designated for vessels to anchor

Campground means a piece of land available for rent as a camp or caravan site to holiday makers.

Dwelling means a house used as a residence.

Shoreline means the location where the land adjoins the sea or a body of water.

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Part B:

CONDITIONS OF PERMISSION:

[delete if not relevant]

This permit number QS20xx/MANxxx supersedes permit number QS20xx/CVL/MANxxx signed <date> to amend xxxx, effective from <date>.

[Omit conditions not relevant to the permitted activity]

1. Location

Activities described in the 'purpose of use and entry' of this permit must only take place in the locations described in 'Part A' of this permit.

2. Approval of vessel to be used

(a) The following vessel are authorised to be used under this permission:

Registered name:	xxxxxxxxxxx
Australian Maritime Safety Authority Registration:	xxxxxxxxxxx
Maximum passengers:	xxx



- (b) Where the permit holder wishes to use a different vessel in substitution for a vessel nominated in paragraph (a) above, details of the proposed vessel must be provided in writing to the Chief Executive for approval.
- (c) Vessel other than those nominated in paragraph (a) must not be used under this permission without written permission of the Chief Executive.

3. Conduct of hovercraft tours/ charter

- (a) Hovercraft tours/charter must:
 - (i) Be conducted in accordance with Marine Park Permit application dated XX and Environmental Management Plan dated XXX and route shown on Attachment X;
 - (ii) Not exceed more than XXX trips per day;
 - (iii) Enter and egress the marine park via formalised access points e.g. boat ramps *except where authorised under condition X [delete words in italics if not authorised to access/egress elsewhere]*.
 - (iv) Not operate before 7am or after 7pm on a business day or Saturday or before 8am or after 6:30pm on any other day; and
 - (v) Maintain a distance of Xm from anchored vessels and the shoreline when navigating.

4. Landing/ take off and traversing exposed intertidal areas

- (a) Landing/ take off of the hovercraft is authorised to occur X times per day at the following locations:
 - (i) XXXX shown on Attachment X;
 - (ii) XXXX shown on Attachment X.
- (b) The most direct route must be taken to and from landing/take off and traversing locations;
- (c) Traversing, landing/ take off must not be conducted:
 - (i) within Xm of people and/or anchored vessels within the marine park;
 - (ii) where shorebirds are present; and
 - (iii) above the high water mark.

5. Data returns

- (a) Returns must be submitted at three monthly intervals using the record sheets supplied as Attachment X and provide the following information:
 - (i) the places landed/taken off from and traversed on each trip;
 - (ii) the types of activities carried out at each of these places; and
 - (iii) the number of persons participating in each trip.
- (b) The returns must be lodged with the Administration Officer, Assessments and Approvals, Department of National Parks, Sport and Racing (DNPSR) at:
 - southernpermitsteam@npsr.qld.gov.au; or
 - PO Box 15187 CITY EAST QLD 4002

no later than 5.00pm on the fourteenth (14th) day of April, July, October and January for the preceding three months. A nil return must be submitted when no tourism program was undertaken during the return period.



[Add any other conditions relevant to the activity e.g. tourism or research conditions]

6. Insurance

(a) For the Term of this Permit, the Principal Holder must take out and maintain the following insurances:

- (i) where required by law, insurance under the Workers' Compensation and Rehabilitation Act 2003, or its equivalent under another jurisdiction with the consent of the Chief Executive; and
- (ii) where not covered under the above subclause (a)(i), accident insurance sufficient to cover workers, volunteers and eligible persons (as defined under the Workers' Compensation and Rehabilitation Act 2003) with the consent of the Chief Executive; and
- (iii) a public liability insurance policy for not less than \$20 million on a claims occurring basis in respect of the death of, or injury to persons, or loss or damage to property; and
- (iv) any other insurances as reasonably required by the Chief Executive.

(b) The Principal Holder must ensure that the insurance policies required under this this clause are with:

- (i) an insurer who is:
 - a. authorised under the Insurance Act 1973 (Cth);
 - b. registered with the Australian Prudential Regulation Authority as an authorised insurer; and
 - c. has a Standard & Poor's rating of no less than A-; or
- (ii) if the Principal Holder is globally insured, another insurer with the written approval of the Chief Executive.

(c) The Principal Holder must ensure that in relation to the insurable interests under this clause, insurance policies are effected to cover all invitees, employees, contractors, agents, members or clients of the Principal Holder and (where possible) name the State as an interested party.

(d) Before undertaking any activities on the Relevant Area, the Principal Holder must have in place all insurances required by this clause.

(e) In any circumstance where the insurances required under this Permit are cancelled, altered or expire before the expiry date of this Permit, the Principal Holder must cease all activities on the Relevant Area until such time as alternative insurance policies that comply with the requirements of this clause have been obtained.

(f) The Principal Holder must provide copies of certificates of currency for the insurances required under this clause if requested by the Chief Executive, acting reasonably.

(g) If the Principal Holder is an individual or sole trader, then clause (a)(i) is satisfied if the Principal Holder maintains:

- (i) personal accident insurance covering all medical treatment, hospitalisation and medical expenses; and
- (ii) income protection insurance; and
- (i) death and disability insurance;

equivalent to the coverage and entitlements provided to employees under the statutory provisions of the Workers Compensation and Rehabilitation Act 2003 (Qld).

(h) Where the Principal Holder –

- (i) is a Commonwealth, State or Territory government department, agency or statutory body; and
- (ii) is a self-insurer; and
- (iii) has provided the Chief Executive with a certificate from an appropriately authorised officer to that effect,

the Principal Holder is deemed to have complied with this clause.

(i) If the Principal Holder breaches its obligations under this clause, the Chief Executive may immediately cancel this Permit by written notice to the Principal Holder.



7. Compliance with laws

The Principal Holder must at its own expense punctually comply with all statutes, ordinances, local laws, regulations or rules in force at the time, which apply to the Relevant Area and adjoining land and/or the Principal Holder's use of the Relevant Area and adjoining land.

8. Principal Holder's Authority

The Principal Holder must have the power, authority and ability to be issued this Permit and must perform its obligations under this Permit with all due skill, care and diligence.

9. Indemnity

(a) The Principal Holder:

- (i) indemnifies; and
- (ii) releases and discharges

the State (including its Representatives) from and against all actions, proceedings, claims, demands, costs, losses, damages, liability and expenses which may be brought against, or made upon the State (or any Representative) or which the State (or any Representative) may pay, sustain, or be put to by reason of, or in consequence of, or in connection with this Permit and the occupation and use of the Relevant Area by the Principal Holder, except to the extent of any negligent act of the State (or any Representative).

(b) The Principal Holder must notify the Chief Executive in writing of any death, injury, loss or damage immediately upon the Principal Holder becoming aware of such death, injury, loss or damage.

(c) If the Principal Holder breaches its obligations under subclauses (a) and (b), the Chief Executive may give notice to the Principal Holder stating the breach and if the breach is not remedied in accordance with the timeframe set out in that notice, the Chief Executive may immediately cancel this Permit by written notice to the Principal Holder.

10. No liability for consequential or indirect loss

The State and its Representatives will not in any circumstances (including for negligence) be liable for any loss of revenue, loss of profit, loss of anticipated savings or business, loss of opportunity (including opportunity to enter into or complete arrangements with third parties), loss of data or goodwill, loss of reputation, or any indirect or consequential loss, whether arising in contract, tort (including negligence) or otherwise, in connection with this Permit.

11. No Warranty and Risk

(a) The Chief Executive does not warrant that the Relevant Area is free from defect or that it is safe, fit, suitable or adequate for the Approved Activities. To the full extent permitted by law, all warranties as to fitness, suitability and adequacy implied by law are expressly negated.

(b) The Principal Holder uses the Relevant Area entirely at its own risk and must first check the Relevant Area to ensure that it is suitable for the Approved Activities under this Permit before undertaking any Approved Activities.



QUEENSLAND
GOVERNMENT

Department of National Parks, Sport and Racing

[Instructions: Grey areas require action. **Ensure no grey is left in final version.** Read final version to ensure it is legible]

Permit

Marine Parks Act 2004

PERMIT NO.

TERM OF PERMISSION:

XX XXXXXXXX XXXX to XX XXXXX XXXX

THIS PERMISSION IS GRANTED TO:

Permit holder:

ABN/ACN: *(Omit where not relevant)*

Place of Business:
.....
..... QLD 4xxx

for use and entry of **Moreton Bay Marine Park**

in accordance with the details as stated in Part A, and subject to the conditions stated in Part B.

..... Date:

Sue Gregory
Delegate of the Chief Executive,
Department of National Parks, Sport and Racing

Part A:

LOCATION TO WHICH THIS PERMISSION APPLIES:

[List the exact zones applied for and covered by the Native Title notification]

E.g. HPZ02 – Moreton Island to Broadwater , MNP17 – St Helena Island, MNP21 – Amity Banks (West)

Or

All general use, habitat protection, conservation park and the following Marine National Park Zones:

MNP03 – Northern Wedge, MNP07 – Braydon Beach, MNP08 – Deep Offshore Moreton Island, MNP09 – Deception Bay, MNP10 – Cherubs Cave-Henderson Rock, MNP12 – Scotts Point, MNP13-Bramble Bay (excluding Nundah & Nudgee Creek), MNP14 – Middle Moreton Bay, MNP16-Mirapool Islands-Offshore Area (excluding Mirapool Lagoon), MNP17 – St Helena, MNP18 – Amity Banks, MNP21 – Amity Banks (west), MNP24 – Cox Bank, MNP25 – Offshore North Stradbroke Island, MNP27 – Lamb Island, MNP28 – Pannikin Island, MNP32 – Offshore South Stradbroke Island.

(Excluding access to tidal land included within Moreton Island, Bribie Island and Minjerribah Recreation Areas)

[Note: remove words in italics if an authority to operate a recreational craft is held by applicant to access Moreton Island, Bribie Island or Minjerribah Recreation Areas]

PURPOSE OF USE OR ENTRY AUTHORISED BY THIS PERMISSION:

Navigate a managed vessel (recreational hovercraft)

DEFINITIONS

Anchorage means a place designated for vessels to anchor

Campground means a piece of land available for rent as a camp or caravan site to holiday makers.

Dwelling means a house used as a residence.

Part B:

CONDITIONS OF PERMISSION:

[delete if not relevant]

This permit number QS20xx/MANxxx supersedes permit number QS20xx/CVL/MANxxx signed <date> to amend xxxx, effective from <date>.

1. Location

Activities described in the 'purpose of use and entry' of this permit must only take place in the locations described in 'Part A' of this permit.

2. Approval of vessel to be used

(a) The following vessel are authorised to be used under this permission:

Registered name:	XXXXXXXXXXXX
Australian Maritime Safety Authority Registration:	XXXXXXXXXXXX
Maximum passengers:	xxx

(b) Where the permit holder wishes to use a different vessel in substitution for a vessel nominated in paragraph (a) above, details of the proposed vessel must be provided in writing to the Chief Executive for approval.

- (c) Vessel other than those nominated in paragraph (a) must not be used under this permission without written permission of the Chief Executive.

3. Navigation of a managed vessel (recreational hovercraft)

The Permit Holder must ensure that:

- (a) Navigation of the managed vessel is conducted in accordance with Marine Park Permit application received [insert date of application].
- (b) Hovercraft entry and egress to the marine park must only be via formalised access points e.g. boat ramps.
- (c) Hovercraft must not repetitively operate in the same location on any one day.
- (d) Hovercraft must not transverse exposed seagrass beds, mudflats and sandbanks.
- (e) Hovercraft must maintain a distance of at least 200m from known shorebird roost sites shown on maps provided unless navigating in a marked navigation channel.
- (f) Hovercraft must travel past sensitive receptors e.g. a visible dwelling, campground or anchorage, at a distance that keeps the noise levels below 75dB when recorded from the receptor.
- (g) Hovercraft must not cause noise that is of nuisance to the public.
- (h) Hovercraft must operate at a noise level acceptable to the public.
- (i) After starting the hovercraft, the hovercraft must move away as quickly as possible from the start up location.
- (j) Hovercraft must not operate in a way that makes audible noise before 7am or after 7pm on a business day or Saturday or before 8am or after 6:30pm on any other day.
- (k) Traversing, landing/take off must not be conducted within 100m of other people within the marine park (in water and on beach).

4. Insurance

(a) For the Term of this Permit, the Permit Holder must take out and maintain the following insurances:

- (i) where required by law, insurance under the Workers' Compensation and Rehabilitation Act 2003, or its equivalent under another jurisdiction with the consent of the Chief Executive; and
- (ii) where not covered under the above subclause (a)(i), accident insurance sufficient to cover workers, volunteers and eligible persons (as defined under the Workers' Compensation and Rehabilitation Act 2003) with the consent of the Chief Executive; and
- (iii) a public liability insurance policy for not less than \$20 million on a claims occurring basis in respect of the death of, or injury to persons, or loss or damage to property; and
- (iv) any other insurances as reasonably required by the Chief Executive.

(b) The Permit Holder must ensure that the insurance policies required under this this clause are with:

- (i) an insurer who is:
 - a. authorised under the Insurance Act 1973 (Cth);
 - b. registered with the Australian Prudential Regulation Authority as an authorised insurer; and
 - c. has a Standard & Poor's rating of no less than A-; or
- (ii) if the Permit Holder is globally insured, another insurer with the written approval of the Chief Executive.

(c) The Permit Holder must ensure that in relation to the insurable interests under this clause, insurance policies are effected to cover all invitees, employees, contractors, agents, members or clients of the Permit Holder and (where possible) name the State as an interested party.

(d) Before undertaking any activities on the Relevant Area, the Permit Holder must have in place all insurances required by this clause.

(e) In any circumstance where the insurances required under this Permit are cancelled, altered or expire before the expiry date of this Permit, the Permit Holder must cease all activities on the Relevant Area until such time as alternative insurance policies that comply with the requirements of this clause have been obtained.

(f) The Permit Holder must provide copies of certificates of currency for the insurances required under this clause if requested by the Chief Executive, acting reasonably.

(g) If the Permit Holder is an individual or sole trader, then clause (a)(i) is satisfied if the Permit Holder maintains:

- (i) personal accident insurance covering all medical treatment, hospitalisation and medical expenses; and
- (ii) income protection insurance; and
- (i) death and disability insurance;

equivalent to the coverage and entitlements provided to employees under the statutory provisions of the Workers Compensation and Rehabilitation Act 2003 (Qld).

(h) Where the Permit Holder –

- (i) is a Commonwealth, State or Territory government department, agency or statutory body; and
- (ii) is a self-insurer; and
- (iii) has provided the Chief Executive with a certificate from an appropriately authorised officer to that effect,

the Permit Holder is deemed to have complied with this clause.

(i) If the Permit Holder breaches its obligations under this clause, the Chief Executive may immediately cancel this Permit by written notice to the Permit Holder.

5. Compliance with laws

The Permit Holder must at its own expense punctually comply with all statutes, ordinances, local laws, regulations or rules in force at the time, which apply to the Relevant Area and adjoining land and/or the Permit Holder's use of the Relevant Area and adjoining land.

6. Permit Holder's Authority

The Permit Holder must have the power, authority and ability to be issued this Permit and must perform its obligations under this Permit with all due skill, care and diligence.

7. Indemnity

(a) The Permit Holder:

- (i) indemnifies; and
- (ii) releases and discharges

the State (including its Representatives) from and against all actions, proceedings, claims, demands, costs, losses, damages, liability and expenses which may be brought against, or made upon the State (or any Representative) or which the State (or any Representative) may pay, sustain, or be put to by reason of, or in consequence of, or in connection with this Permit and the occupation and use of the Relevant Area by the Permit Holder, except to the extent of any negligent act of the State (or any Representative).

(b) The Permit Holder must notify the Chief Executive in writing of any death, injury, loss or damage immediately upon the Permit Holder becoming aware of such death, injury, loss or damage.

(c) If the Permit Holder breaches its obligations under subclauses (a) and (b), the Chief Executive may give notice to the Permit Holder stating the breach and if the breach is not remedied in accordance with the timeframe set out in that notice, the Chief Executive may immediately cancel this Permit by written notice to the Permit Holder.

8. No liability for consequential or indirect loss

The State and its Representatives will not in any circumstances (including for negligence) be liable for any loss of revenue, loss of profit, loss of anticipated savings or business, loss of opportunity (including opportunity to enter into or complete arrangements with third parties), loss of data or goodwill, loss of reputation, or any indirect or consequential loss, whether arising in contract, tort (including negligence) or otherwise, in connection with this Permit.

9. No Warranty and Risk

(a) The Chief Executive does not warrant that the Relevant Area is free from defect or that it is safe, fit, suitable or adequate for the Approved Activities. To the full extent permitted by law, all warranties as to fitness, suitability and adequacy implied by law are expressly negated.

(b) The Permit Holder uses the Relevant Area entirely at its own risk and must first check the Relevant Area to ensure that it is suitable for the Approved Activities under this Permit before undertaking any Approved Activities.

Moreton Bay Marine Park	Reason/s + potential issues	Great Sandy Marine Park	Reason/s + potential issues
<p>Hovercraft are not permitted to operate in the following marine national park zones:-</p> <ul style="list-style-type: none"> 01 – go slow area (NV) 02 – go slow area (NV) 04 – DA (no anchoring) 05 – Cape Moreton 06 – Heath Island 11 – go slow area (NV) 14 – part in go slow area (T&D) - new 15 – go slow area (T&D) 18 – go slow area (T&D) - new 19 – DA (no anchoring) 20 – bayside foreshore (NSI) 21 – go slow area (T&D) - new 22 – DA (no anchoring) 23 – go slow area (T&D) 26 – go slow area (T&D) 27 – go slow area (T&D) - new 29 – go slow area (NV) 30 – southern bay islands 31 – go slow area (NV) 33 – go slow area (NV) 34 – go slow area (NV) <p><i>NV= natural values, T&D=turtle and dugong</i></p>	<p>Excluded zones include those that cover / contain go slow areas (both for turtles and dugong and natural values)</p>	<p>Hovercraft are not permitted to operate in all marine national park zones</p>	<p>Justification required from GSMP staff for why hovercraft use excluded in all MNPZs</p> <ul style="list-style-type: none"> Are there some zones where hovercraft use could be allowed ie MNP4, MNP10, MNP11, MNP12
<p>Hovercraft are not permitted to access intertidal areas included within Moreton Island, Bribie island and Minjerribah Recreation Areas</p>	<p>Need to check whether this OK with A&A – could be seen to be restating other existing legislation and so not necessary</p> <p><i>Not included on MBMP class assessment permit template</i></p>	<p>Hovercraft not permitted to access tidal land (including beaches and creeks) within Fraser Island and Cooloola Recreation Areas</p>	<p>Need to check whether this OK with A&A – could be seen to be restating other existing legislation and so not necessary</p>
<p>Hovercraft not permitted to operate in go slow area for natural values</p>	<p>In line with objects for the designated area which are-</p> <ul style="list-style-type: none"> to help protect the natural integrity and values of relatively undisturbed areas in the marine park <p>Noise and perceived amenity issues with hovercraft deemed incompatible with areas set aside due to their high natural values and low levels of disturbance</p>		
<p>Hovercraft are not permitted to operate in turtle and dugong feeding and resting designated go slow area.</p> <p><u>Alternative wording</u> Hovercraft not permitted to operate in go slow areas for turtles and dugong</p>	<p>Not such zone type is prescribed in the current zoning plan</p> <p>This condition to be used to reflect current legislative wording in MBMP zoning plan</p> <ul style="list-style-type: none"> Wording of zone type used as per current zoning plan Hovercraft unable to comply with s.45 <ul style="list-style-type: none"> A person must not do any of the following in a go slow area for turtles and dugong– <ul style="list-style-type: none"> Operate a vessel in a planning or non-displacement mode Operate a vessel for motorised water sports 	<p>Hovercraft are not permitted to operate in turtle and dugong feeding and resting designated go slow area.</p> <p><u>Alternative wording</u> Hovercraft not permitted to operate in go slow areas</p>	<p>Not such zone type is prescribed in the current zoning plan</p> <p>This condition to be used to reflect current legislative wording in MBMP zoning plan</p> <ul style="list-style-type: none"> Wording of zone type used as per current zoning plan Hovercraft unable to comply with special management provisions <ul style="list-style-type: none"> A person must not do either of the following in a go slow area – <ul style="list-style-type: none"> Operate a vessel in a non-displacement mode Operate a vessel in a way or at a speed that could reasonably be expected to

	<ul style="list-style-type: none"> Operate a vessel in a way or at a speed that could reasonably be expected to result in the striking a turtle or dugong 		result in the striking of a turtle or dugong
Hovercraft entry and egress to the marine park must only be via formalised access points (e.g. boat ramps) or via water bodies adjoining the marine park.	Minimises potential impacts on intertidal substrate and/or sensitive habitats such as seagrass	Hovercraft entry and egress to the marine park must only be via formalised access points (e.g. boat ramps) or via water bodies adjoining the marine park.	Minimises potential impacts on intertidal substrate and/or sensitive habitats such as seagrass
Hovercraft must not traverse exposed seagrass beds, mudflats, saltmarsh, salt pans, sandbanks and other exposed intertidal areas including beach not open to vehicles. This includes not traversing the real time water line associated drainage lines and other shallow water bodies within areas of exposed mudflats or other intertidal areas.	Minimises potential impacts on intertidal substrate and/or sensitive habitats such as seagrass	Hovercraft must not traverse exposed seagrass beds, mudflats, saltmarsh, salt pans, sandbanks and other exposed intertidal areas including beach not open to vehicles. This includes not traversing the real time water line associated drainage lines and other shallow water bodies within areas of exposed mudflats or other intertidal areas.	Minimises potential impacts on intertidal substrate and/or sensitive habitats such as seagrass
<p>Hovercraft must maintain a distance of at least 200m from shorebird roost sites unless navigating in a marked navigation channel.</p> <p><u>Alternative wording</u> Hovercraft must maintain a distance of at least 200m from shorebirds unless navigating in a marked navigation channel</p>	<p>This condition relies on permit holder being able to identify a roost site / QPWS providing maps of critical roost sites / include definition of "roost site" in permit</p> <p>In line with section 101 of the MBMP zoning plan with respect to disturbance to shorebirds and their habitat in the marine park</p>	<p>Hovercraft must maintain a distance of at least 200m from shorebird roost sites unless navigating in a marked navigation channel.</p> <p><u>Alternative wording</u> Hovercraft must maintain a distance of at least 200m from shorebirds unless navigating in a marked navigation channel</p> <p><u>Additional GSMP specific condition</u> Hovercraft must not operate in shorebird roosting and feeding areas (designated areas defined in zoning plan)</p>	<p>This condition relies on permit holder being able to identify a roost site / QPWS providing maps of critical roost sites / include definition of "roost site" in permit</p> <p>Would provide protection to all shorebirds in the marine park not just those in the designated shorebird areas</p> <p>In line with the objects of the shorebird roosting and feeding areas-</p> <ul style="list-style-type: none"> To protect shorebirds and their habitat and To minimise harm or distress caused directly or indirectly to shorebirds by human activities
Hovercraft must travel past areas with visible dwellings, campgrounds or anchored vessels at a distance that keeps the noise levels below 75db when recorded from the receptor.	Minimise noise and amenity issues and potential impacts on other users of the marine park	Hovercraft must travel past areas with visible dwellings, campgrounds or anchored vessels at a distance that keeps the noise levels below 75db when recorded from the receptor.	Minimise noise and amenity issues and potential impacts on other users of the marine park
<p>In all other locations not adjacent to sensitive receptors hovercraft must not cause noise that is of nuisance to the public and operate at noise levels acceptable to the public.</p> <p><u>Alternative</u> <i>In all other locations not specified in s.xx(x), hovercraft must not cause noise that is of nuisance to the public and operate at noise levels acceptable to the public.</i></p>	<p>A&A removed reference to "sensitive receptors". If not referred to in previous condition, then shouldn't be referred to in this condition.</p>	<p>In all other locations not adjacent to sensitive receptors hovercraft must not cause noise that is of nuisance to the public and operate at noise levels acceptable to the public.</p> <p><u>Alternative</u> <i>In all other locations not specified in s.xx(x), hovercraft must not cause noise that is of nuisance to the public and operate at noise levels acceptable to the public.</i></p>	<p>A&A removed reference to "sensitive receptors". If not referred to in previous condition, then shouldn't be referred to in this condition.</p>
After starting the hovercraft, the hovercraft must where possible move away as quickly as possible from the start up location.	Minimise noise and amenity issues and potential impacts on other users of the marine park	After starting the hovercraft, the hovercraft must where possible move away as quickly as possible from the start up location.	Minimise noise and amenity issues and potential impacts on other users of the marine park
Hovercraft must not operate in a way that makes audible noise before 7am or after 7pm on a business day or Saturday or before 8am or after 6.30pm on any other day.	Minimise noise and amenity issues and potential impacts on other users of the marine park	Hovercraft must not operate in a way that makes audible noise before 7am or after 7pm on a business day or Saturday or before 8am or after 6.30pm on any other day.	Minimise noise and amenity issues and potential impacts on other users of the marine park

Other than at formalised access points (e.g. boat ramps), traversing, landing/ take off must not be conducted within 100m of other people within the marine park (people in water and on beach).	Minimise noise and amenity issues and potential impacts on other users of the marine park	Other than at formalised access points (e.g. boat ramps), traversing, landing/ take off must not be conducted within 100m of other people within the marine park (people in water and on beach).	Minimise noise and amenity issues and potential impacts on other users of the marine park
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Moreton Bay Marine Park	Reason/s + potential issues	Great Sandy Marine Park	Reason/s + potential issues
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		<p>Hovercraft are not permitted to operate in the Great Sandy Strait and Tin Can Bay Ramsar Wetland</p>	<p>Need to justify reason/s for this exclusion</p> <p>What is the head of power / section of legislation pertaining to this statement – how does this tie in with marine park legislation?</p>
<p>Hovercraft are not permitted to access intertidal areas included within Moreton Island, Bribie island and Minjerribah Recreation Areas</p>	<p>Need to check whether this OK with A&A – could be seen to be restating other existing legislation and so not necessary</p> <p>Under s.131 of the Recreation Areas Management Act 2006 A person must not use or operate a recreational craft in a recreation area unless the use or operation is authorised—</p> <p>(a) by the chief executive’s written approval; or</p> <p>(b) under a regulation.</p> <p>recreational craft means a hot-air balloon, hang-glider, hovercraft, parachute, paraglider, ultralight aircraft or other craft or device prescribed under a regulation.</p>	<p>Hovercraft not permitted to access tidal land (including beaches and creeks) within Fraser Island and Cooloola Recreation Areas</p>	<p>Need to check whether this OK with A&A – could be seen to be restating other existing legislation and so not necessary.</p> <p>Under s.131 of the Recreation Areas Management Act 2006 A person must not use or operate a recreational craft in a recreation area unless the use or operation is authorised—</p> <p>(a) by the chief executive’s written approval; or</p> <p>(b) under a regulation.</p> <p>recreational craft means a hot-air balloon, hang-glider, hovercraft, parachute, paraglider, ultralight aircraft or other craft or device prescribed under a regulation.</p> <p>Argument put forward by Great Sandy staff that if hovercraft operator given marine park permit this would allow them access to the recreation area in accordance with s.131 – as terrestrial staff don’t want to allow hovercraft access to Fraser Island and Cooloola, agreement has been reached that no MPPs will be issued for these areas. Need to confirm / discuss further</p>
<p>Hovercraft not permitted to operate in go slow area for natural values</p>	<p>In line with objects for the designated area which are-</p>		

	<ul style="list-style-type: none"> to help protect the natural integrity and values of relatively undisturbed areas in the marine park <p>Noise and perceived amenity issues with hovercraft deemed incompatible with areas set aside due to their high natural values and low levels of disturbance</p>		
<p>Hovercraft are not permitted to operate in turtle and dugong feeding and resting designated go slow area.</p> <p><u>Alternative wording</u> Hovercraft not permitted to operate in go slow areas for turtles and dugong</p>	<p>Not such zone type is prescribed in the current zoning plan</p> <p>This condition to be used to reflect current legislative wording in MBMP zoning plan</p> <ul style="list-style-type: none"> Wording of zone type used as per current zoning plan Hovercraft unable to comply with s.45 <ul style="list-style-type: none"> A person must not do any of the following in a go slow area for turtles and dugong— <ul style="list-style-type: none"> Operate a vessel in a planning or non-displacement mode Operate a vessel for motorised water sports Operate a vessel in a way or at a speed that could reasonably be expected to result in the striking a turtle or dugong 	<p>Hovercraft are not permitted to operate in turtle and dugong feeding and resting designated go slow area.</p> <p><u>Alternative wording</u> Hovercraft not permitted to operate in go slow areas</p>	<p>Not such zone type is prescribed in the current zoning plan</p> <p>This condition to be used to reflect current legislative wording in MBMP zoning plan</p> <ul style="list-style-type: none"> Wording of zone type used as per current zoning plan Hovercraft unable to comply with special management provisions <ul style="list-style-type: none"> A person must not do either of the following in a go slow area — <ul style="list-style-type: none"> Operate a vessel in a non-displacement mode Operate a vessel in a way or at a speed that could reasonably be expected to result in the striking of a turtle or dugong
		<p>Hovercraft are not permitted to operate in the Mon Repos area</p>	<p>Designated area in place from 15 October to 30 April</p> <p>Objects of the Mon Repos area are to-</p> <ul style="list-style-type: none"> Protect turtles and their habitat and Minimise harm or distress caused directly or indirectly to turtles by human activities or domestic animals <p>Special management provisions for area prohibit vehicles and domestic animals from accessing the area but no such prohibition exists for vessels. Need to justify excluding hovercraft when other vessels are not excluded from accessing the area between 6am and 6pm. All vessels excluded from area between 6pm and 6am.</p>
		<p>Hovercraft are not permitted to operate in a turtle protection area</p>	<p>Objects of the turtle protection area are to</p> <ul style="list-style-type: none"> Protect turtles and their habitat and Minimise harm or distress caused directly or indirectly to turtles by human activities, including trawling <p>Special management provision prohibits trawling in the area between 1 November and 31 January. Need to justify excluding hovercraft when other vessels are not excluded from accessing the area. Only restriction in place is with respect to access by trawlers for three months of the year.</p>
<p>Hovercraft entry and egress to the marine park must only be via formalised access points (e.g. boat ramps) or via water bodies adjoining the marine park.</p>	<p>Minimises potential impacts on intertidal substrate and/or sensitive habitats such as seagrass</p>	<p>Hovercraft entry and egress to the marine park must only be via formalised access points (e.g. boat ramps) or via water bodies adjoining the marine park.</p>	<p>Minimises potential impacts on intertidal substrate and/or sensitive habitats such as seagrass</p>
<p>Hovercraft must not traverse exposed seagrass beds, mudflats, saltmarsh, salt pans, sandbanks and other exposed intertidal areas including beach not open to</p>	<p>Minimises potential impacts on intertidal substrate and/or sensitive habitats such as seagrass</p>	<p>Hovercraft must not traverse exposed seagrass beds, mudflats, saltmarsh, salt pans, sandbanks and other exposed intertidal areas including beach not open to</p>	<p>Minimises potential impacts on intertidal substrate and/or sensitive habitats such as seagrass</p>

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Hovercraft must travel past areas with visible dwellings, campgrounds or anchored vessels at a distance that keeps the noise levels below 75db when recorded from the receptor.	Minimise noise and amenity issues and potential impacts on other users of the marine park	Hovercraft must travel past areas with visible dwellings, campgrounds or anchored vessels at a distance that keeps the noise levels below 75db when recorded from the receptor.	Minimise noise and amenity issues and potential impacts on other users of the marine park
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Hovercraft must not repetitively operate in the same location on any one day. <u>Alternative wording</u> Hovercraft must not travel past the same location more than twice (?) in a 60 min period	Minimise noise and amenity issues and potential impacts on other users of the marine park Possibly an excessive condition that could be got rid of given all other conditions above with respect to limiting impact on other users of the marine park	Hovercraft must not repetitively operate in the same location on any one day. <u>Alternative wording</u> Hovercraft must not travel past the same location more than twice (?) in a 60 min period	Minimise noise and amenity issues and potential impacts on other users of the marine park Possibly an excessive condition that could be got rid of given all other conditions above with respect to limiting impact on other users of the marine park

Date : 5/07/2018 2:12:36 PM

From : "MURRAY Kristy"

To : "CRADICK Adam"

Cc : "UDY Nicola"

Subject : RE: Hi there, do you have the References for the Hovercraft class assessment handy, if so can you send them or i can come and get them, these are Brooks, Fancy and McGrorly please

Attachment : Are hovercraft a major cause of disturbance to inverts.pdf;some aspects of the env effects of air cushion vehicle.pdf;Brooks 2014-03-14 Recreational Light Hovercraft Environmental Impact Assessment Rev 3.pdf;image008.png;image001.png;image002.png;image004.png;image012.png;image013.png;

Hi Adam

I could only find 2 of the 3 references on local files. The 2010 report by Brooks may have been a precursor to the attached 2014 report by the same author.

Regards

Kristy

References

I. L. Brooks (2010) Environmental Impact Assessment for Langstone Harbour Board in connection with a managed access agreement at Langstone Harbour by the Hovercraft club of Great Britain.

Fancy, S.G (1982). Some aspects of environmental effects of air cushion vehicle operations in the arctic. State of Alaska Department of Transportation and Public Facilities Division of Planning and Programming Research section.

McGrorty S, Jenyon A, Williams Le B. (1976) Are Hovercraft a major cause of disturbance to intertidal invertebrates? Biological conservation (9).

<http://www.airlifthovercraft.com/HovercraftInformation/HovercraftandtheEnvironment/tabid/74/Default.aspx>

<http://4wings.com.ph/temp.com/faq/faq-envi.html>



Kristy Murray (nee Currie)

Senior Conservation Officer

Queensland Parks and Wildlife Service | Great Barrier Reef & Marine Parks Region

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kristy.murray@npsr.qld.gov.au

From: UDY Nicola

Sent: Wednesday, 4 July 2018 10:38 AM

To: CRADICK Adam <Adam.Cradick@des.qld.gov.au>

Cc: MURRAY Kristy <Kristy.Murray@des.qld.gov.au>

Subject: RE: Hi there, do you have the References for the Hovercraft class assessment handy, if so can you send them or i can come and get them, these are Brooks, Fancy and McGrorly please

Hi Adam – Kristy Murray wrote the class assessment so she should be able to send them to you. I've CC'ed her in.

Cheers

Nicola



Nicola Udy

Manager

Marine Resource Management | Protected Area Strategy and Policy

Protected Area Innovation Engagement and Policy

Department of Environment and Science

P 07 3199 7624

Level 4, 400 George St, Brisbane QLD 400

PO Box 15187, City East QLD 4001

From: CRADICK Adam

Sent: Tuesday, 3 July 2018 3:49 PM

To: UDY Nicola <Nicola.Udy@des.qld.gov.au>

Subject: Hi there, do you have the References for the Hovercraft class assessment handy, if so can you send them or i can come and get them, these are Brooks, Fancy and McGrorly please



Adam Cradick
Executive Director
Permissions Management | Queensland Parks and Wildlife Service
Department of Environment and Science

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RTI Act 2009

ARE HOVERCRAFT A MAJOR CAUSE OF DISTURBANCE TO INTERTIDAL INVERTEBRATES?

S. MCGRORTY, A. JENYON & R. LE B WILLIAMS

Institute of Terrestrial Ecology, Colney Research Station, Norwich, NR4 7UD, Great Britain

ABSTRACT

The densities of intertidal invertebrates in areas within and outside the hovercraft flightpath were compared by analysis of variance and least significant range tests. No evidence was found to suggest that the hovercraft had significantly reduced the density of invertebrates in the flightpath area. Only five species groups (Nereis diversicolor, Spionid spp., Bathyporeia spp., Macoma balthica and Arenicola marina) had significantly different densities between areas, and in each case there was a density gradient alongshore. In three species groups (Spionid spp., Bathyporeia spp. and Macoma balthica) density was related to the percentage of fine sand (4–5φ) at each site.

INTRODUCTION

The Ramsgate International Hoverport was established in Pegwell Bay (Kent) in May 1969 and was soon operating up to 20 flights/day in summer and about three flights/day in winter. Although disturbance is minimal to the overwintering flocks of wading birds and wildfowl and there is little evidence to suggest any major effects on the numbers of birds using the Bay (Griffiths, 1971), the visual effect of the hovercraft on the sand has been considerable. The sand in the flightpath, where it crosses the upper shore, is highly compacted and appears to be of a coarser grade than in adjacent areas.

The aim of this survey was to compare the density of the invertebrate fauna in the flightpath with adjacent areas in the Bay to see if there was any reduction in the quantity of food available for birds, which could be directly attributed to the use of the area by hovercraft.

Pegwell Bay is a small east facing bay of about 2 km², bounded to the north by Pegwell cliffs and to the south by the River Stour. There is a narrow zone of salt marsh and higher mudflat, but the bay consists predominantly of uniform, fine sand.

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Biol. Conserv. (9) (1976)—© Applied Science Publishers Ltd, England, 1976
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METHODS

A sampling scheme was set out as shown in Fig. 1. Areas E and F were located within the main hovercraft flightpath, areas C and D on the fringe of the flightpath and areas A and B at a distance from the flightpath on undisturbed sand. These six sites were sampled between 15 and 17 February 1974. A further upper shore site G was sampled on 17 March 1974, but it was not possible to sample an equivalent lower shore site because of the shape of the Bay.

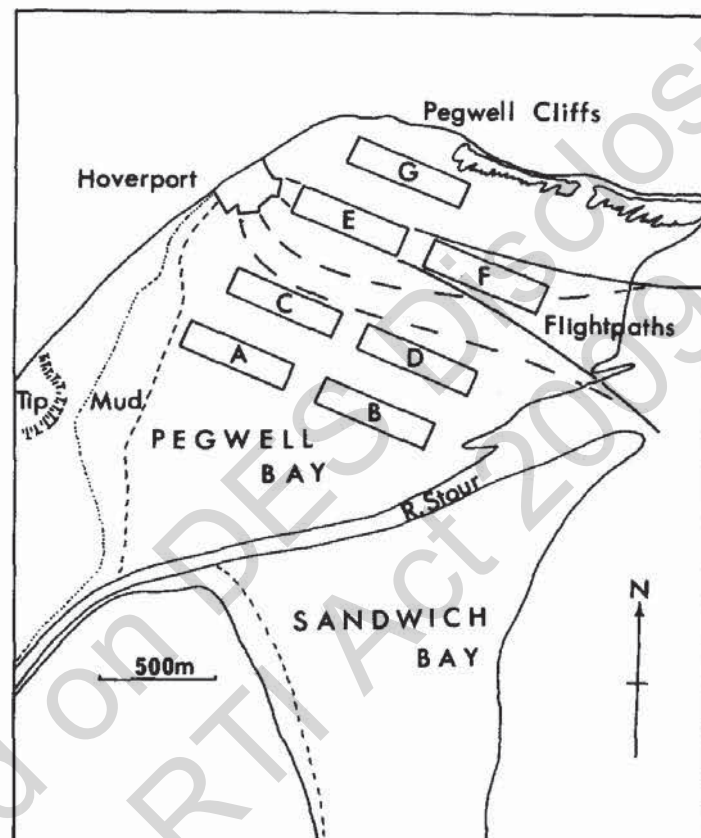


Fig. 1. Pegwell Bay, Kent, showing the location of sampling areas in relation to the hovercraft flightpaths.

Each area (A–G) was divided into 5 sub-areas (100×100 m) and from each of these sub-areas three cores, $1/100 \text{ m}^2 \times 15$ cm deep, were located by co-ordinates taken from random number tables. Each core was sieved through a 0.5 mm mesh sieve and the invertebrates obtained preserved in 5% formalin. The density of *Arenicola marina* was estimated by averaging the number of casts within five 1 m^2 quadrats at each sampling site. Within each sub-area, one core 5 cm diameter $\times$ 15 cm deep, was taken for 'dry-sieve' particle size analysis of the sand.

In the laboratory, the invertebrates from each core were identified and counted. Analysis of variance and least significance range tests were used to test the significance of differences between the densities of invertebrates in the sampling areas. Analysis of variance was carried out using the XDS3 statistical package on the 1905E ICL computer at the University of East Anglia. The least significant range (LSR) was calculated from the formula: $LSR = Q_{\alpha(kv)}(\text{mean SS residual}/n)^{\frac{1}{2}}$; where, mean SS residual = the mean sum of squares of the residual term taken from the analysis of variance table, n = number of samples per site, α = the required level of significance (e.g. $p = 0.05$), k = the number of sites, v = the number of degrees of freedom of the residual term and Q = a critical value of the studentised range taken from Tables (see Sokal & Rohlf, 1969).

RESULTS

Species distributions

Twenty-six species were identified from the samples but only eleven were considered to be sufficiently common for analysis (Table 1). Seven of these eleven species had an aggregated distribution at high densities (variance/mean ratio tests, Kosler, 1968: Table 1) and the $\log n + 1$ transformation was used to normalise the data before carrying out the analysis of variance.

Initially only the symmetrical data block, comprising sites A-F, was analysed. The significance of each term in the analysis of variance table was tested using a variance ratio (F) test.

The number of animals collected was low (see Table 1 for mean and maximum densities of the commonest species) and there were many zero values in the data. The analyses of variance were therefore carried out at three levels.

TABLE 1
PATTERN OF DISTRIBUTION AND DENSITY OF THE COMMON SPECIES
A = Aggregated, R = Random

Species	Distribution ($s^2/\bar{x}$)	Limit/m ²	Mean density/m ²	Maximum density/m ²
<i>Nereis diversicolor</i> O. F. Müller	A	> 53	22	900
<i>Eteone longa</i> (Fabricius)	R		8	100
<i>Nephtys (cirrosa) Ehlers + hombergi</i> Lamark)	R		22	200
<i>Arenicola marina</i> (L.)	R		11	200
<i>Capitella capitata</i> (Fabricius)	A	> 67	20	2100
<i>Spionid</i> spp.	A	> 333	598	4400
<i>Bathyporeia (sarsi) Watkin + pilosa</i> , Lindstrom)	A	> 134	191	3600
<i>Corophium (volutator) (Pallas) +</i> <i>arenarium</i> Crawford)	A	> 67	121	1100
<i>Urothoe poseidonis</i> Reibisch	A	> 67	109	3200
<i>Cardium edule</i> L.	R		16	200
<i>Macoma balthica</i> (L.)	A	> 233	80	900

The analysis of total numbers of all species at each site showed a highly significant difference between zones (*i.e.* downshore: $p < 0.001$) but no significant difference alongshore. However, the interaction term was significant and further analysis of upper and lower shore areas separately showed significant differences between densities alongshore.

The data were further analysed in terms of four species groups: errant polychaetes, sedentary polychaetes, crustacea and bivalve molluscs. Where significant differences were shown alongshore within these groups, further analyses were conducted on individual species data. Only the three species groups listed in Table 2 showed significant differences between areas. The least significant range test was used to identify the areas in which each of these groups had significantly higher densities. In the lower shore zone spionid worms (predominantly *Pygospio elegans* Claperède) were most abundant in the flight path. In the upper shore zone *Macoma balthica*

TABLE 2
MEAN DENSITIES AND LEAST SIGNIFICANT RANGES OF SPECIES WITH SIGNIFICANTLY DIFFERENT DENSITIES BETWEEN AREAS

Species	Zone	Area	Mean density/core (in $\log_e(n+1)$)	LSR
Spionid spp.	Upper shore	A	2.14	0.71
		C	2.12	
		E	1.23	
Spionid spp.	Lower shore	B	1.22	0.51
		D	1.26	
		F	1.89	
<i>Bathyporeia</i> spp.	Upper shore	A	1.31	0.63
		C	1.03	
		E	0.37	
<i>Macoma balthica</i>	Upper shore	A	0.35	0.40
		C	0.50	
		E	1.02	

was most abundant in the flightpath, but spionids and *Bathyporeia* (*sarsi* and *pilosa*) were least abundant. Spionids are probably not important as prey species for birds, because of their small size, but they were included in the analysis because of their abundance.

To test whether these differences in density between areas could have been caused by the hovercraft or were the result of gradients of density across the beach, a further series of analyses were conducted on the data from the four upper shore sites A, C, E and G.

Only five species groups (listed in Table 3) showed significant differences between areas, but in no case was Site E (in the flightpath) significantly different from all the other sites. In each case there was a gradient of density alongshore. Spionids, *Bathyporeia* and *Arenicola marina* had their greatest densities at site A, *Nereis diversicolor* and *Macoma* at site G.

TABLE 3
MEAN DENSITIES AND LEAST SIGNIFICANT RANGES OF SPECIES WITH SIGNIFICANTLY DIFFERENT DENSITIES
BETWEEN AREAS IN THE UPPER SHORE ZONE

Species	Areas	Mean density/core (in $\log_e (n + 1)$)	LSR
<i>Nereis diversicolor</i>	A	0.26	0.51
	C	0.35	
	E	0.09	
	G	1.01	
Spionid spp.	A	2.14	0.79
	C	2.12	
	E	1.23	
	G	1.16	
<i>Bathyporeia</i> spp.	A	1.31	0.62
	C	1.03	
	E	0.37	
	G	0.26	
<i>Macoma balthica</i>	A	0.35	0.46
	C	0.50	
	E	1.02	
	G	1.19	
<i>Arenicola marina</i> (castes)	A	1.86	0.81
	C	0.19	
	E	0.14	
	G	0.67	

The relationship between sand grade and invertebrate distribution

The grain size distribution of the sand was very similar for all the sites sampled, with between 65 and 79% of the particles falling within the range 4–5 ϕ (63–125 μ m) (Fig. 2). When the densities of the five species groups (Spionids, *Bathyporeia*, *Arenicola*, *Nereis* and *Macoma*) were plotted against the percentage of fine grains (4–5 ϕ) in the sand, Spionids and *Bathyporeia* (Figs. 3a and b) were found to be negatively correlated. *Macoma* appeared to show separate positive relationships with the percentage of fine sand for upper and lower shore sites (Fig. 3c), suggesting that factors other than grain size are also important in determining the density distribution of this species. The distribution of the remaining species was independent of grain size.

DISCUSSION

The visible effects of the hovercraft on the sand, particularly on the upper shore, are very marked; the sand in the flightpath is highly compacted and appears to be of a coarser grade than in adjacent areas. However, sand grade analysis did not reveal any major differences between the areas sampled; indeed site E (in the flightpath) had the finest sand, showing that sorting of the sand by the hovercraft is purely a surface phenomenon.

M. E. Griffiths (a member of the Sandwich Bay Bird Observatory) collected a series of samples in April 1973 along a line from the edge of the *Spartina* marsh north of the hoverport towards Shellness Point, crossing the hovercraft flightpath. His results (unpublished) suggested that the density of *Hydrobia ulvae* (Pennant), *Corophium* sp. and *Macoma balthica* was reduced in the flightpath, as compared to adjacent areas, though this was not the case with *Arenicola marina*. These observations were not repeated in this survey. Only five species groups, *Nereis diversicolor*, Spionid spp., *Bathyporeia* spp., *Macoma* and *Arenicola*, showed significant differences in density between areas alongshore and in each case a density gradient was

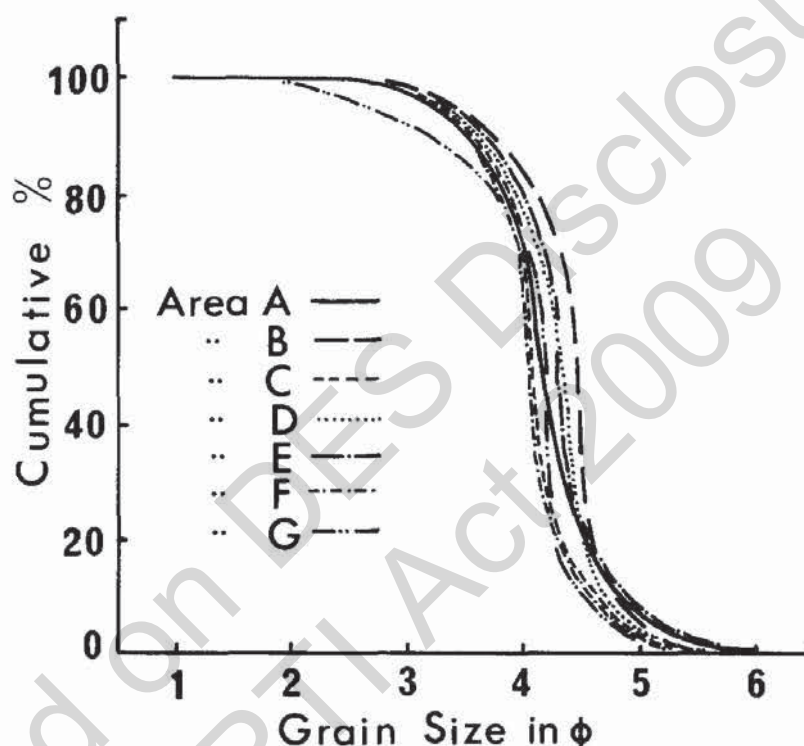


Fig. 2. Grain size composition of sands from areas A-G in Phi units (ϕ is $-\log_2$ particle dia. in mm).

revealed. There is no suggestion that any species was significantly more or less abundant within the flightpath than in adjacent areas. In three of these groups, Spionid spp., *Bathyporeia* and *Macoma*, density was directly related to the grain size of the sand. It is possible that these differences indicate short-term changes, and that at higher population densities a reduction of invertebrate numbers would be observed in the flightpath.

It is curious that we found no *Hydrobia ulvae* in the samples, nor saw any on the intertidal flats, since this was an abundant species in April 1973, when Griffiths

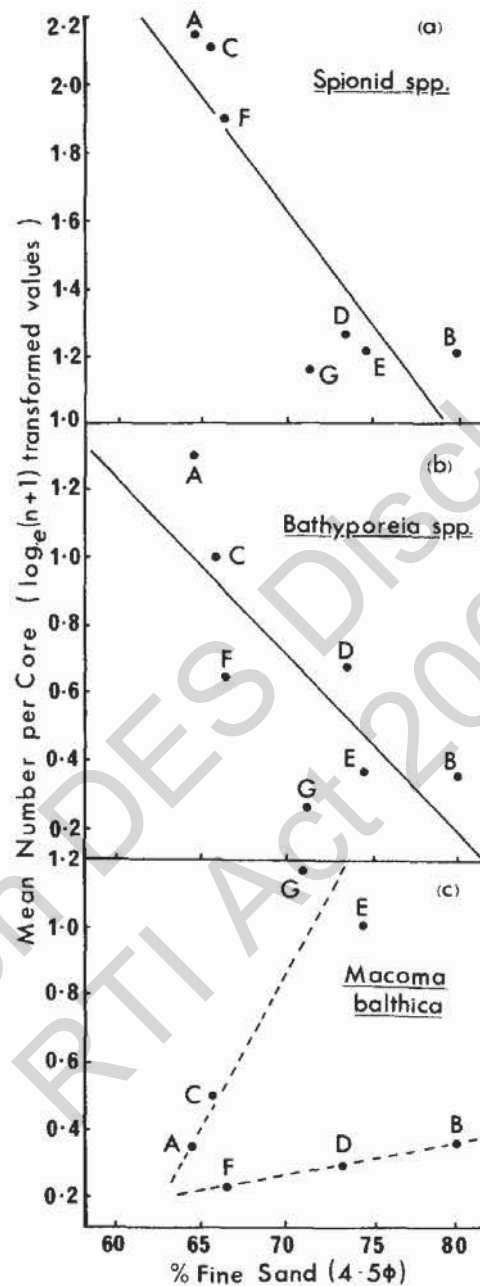


Fig. 3. Relationships between species density and percentage of fine sand in the sediment for (a) spionid worms (principally *Pygospio elegans*); regression line, $y = -0.067x + 6.34$, $r = 0.86$, $p < 0.05$ (b) *Bathyporeia* spp. (*sarsi* and *pilosa* mixed population); regression line, $y = -0.051x + 4.30$, $r = 0.75$, $p < 0.05$ and (c) *Macoma balthica*, upper shore sites A, C, G & E; regression line, $y = 0.079x - 4.69$, $r = 0.87$, $p < 0.05$; lower shore sites B, D & F; regression line $y = 0.009x - 0.39$, $r = 0.98$, $p < 0.05$.

conducted his sampling. It is possible that this species is more susceptible to pollution than the more deeply burrowing species, since it spends a large proportion of the tidal cycle on or within 1–2 mm of the sand surface and there are several possible sources of pollution on or close to Pegwell Bay, including oil, refuse tips, chemical plants and even the hovercraft. The generally low numbers of the invertebrates might simply be attributable to the timing of the survey, *i.e.* at the end of the winter period but before breeding commenced in spring; however, it should also be mentioned that a considerable number of bait-diggers work in the Bay (up to 100 are regularly counted at weekends). The disturbance from this source to both the invertebrates in the sand and the birds feeding in the area may be considerable.

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SOME ASPECTS OF THE ENVIRONMENTAL EFFECTS OF
AIR CUSHION VEHICLE OPERATIONS IN THE ARCTIC

FINAL REPORT

by

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The contents of this report reflect the views of the author who is responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the Alaska Department of Transportation and Public Facilities. This report does not constitute a standard, specification or regulation.

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INTRODUCTION

Resource development and population growth in arctic and subarctic Alaska are causing increased demands for surface transportation, but conventional ground traffic, such as wheeled or tracked vehicles, can cause considerable damage to the terrain surface in permafrost regions (Abele et al. 1975). Because of the short growing season and low temperatures, physical disturbances to arctic tundra are slow to heal or irreparable. Vehicle tracks made 30 to 40 years ago on the North Slope are still visible today (Rickard 1972, Lawson et al. 1978). Air cushion vehicles (ACV's) may provide solutions to some of Alaska's surface transportation problems by providing a year-round nondestructive means of transportation over frozen and unfrozen tundra.

The State of Alaska Department of Transportation and Public Facilities sponsored an Air Cushion Vehicle Demonstration Project to evaluate the practicality of using ACV's in Alaska. As part of this project, LGL Alaska Research Associates, Inc. was contracted to assess the environmental impacts of two ACV's being operated out of Bethel, Alaska. These vehicles were a 1-ton "Tiger" ACV which was used primarily for transporting passengers between villages of the lower Kuskokwim Valley, and a 96-ton "hoverbarge," capable of carrying a 45-ton payload (Table 1).

METHODS

Impacts were to be assessed by reviewing relevant literature and conducting field studies to fill certain data gaps identified during the literature review. The field studies were to include 1) a trip in March 1981 to study the effects of the two ACV's on snow erosion and compaction, and 2) two summer field trips to study the effects of the ACV's on vegetation and terrain, birds, mammals, and fish.

Table 1. Specifications of air cushion vehicles discussed in this report.

Type of ACV	Dimensions (ft)	Wt. Empty (lbs)	Wt. Fully Loaded (lbs)	Cushion Pressure (psi)	Air Escape Velocity (ft/sec)
Cushioncraft CC7	25 x 15	3,000	6,000	NA	NA
Bell SK-5	39 x 24	NA	14,000	0.20	70-120
Bell Voyageur-002	65 x 37	35,720	90,000	0.33	147
North American Hovercraft Tiger	23 x 12	3,100	5,000	0.25	NA
D-PAAC Hoverbarge	66 x 46	191,500	281,500	1.00 (tire pressure ~ 4.30 psi)	NA

NA = not available.

For the following reasons, these field studies could not be conducted as designed:

1. Neither LGL nor the State of Alaska was able to obtain permission to use accessible lands adjacent to the Kuskokwim River for these tests (thus restricting tests to the river only).
2. In March, only a small area of undisturbed snow could be found along the river in the vicinity of Bethel. Therefore, snow erosion and compaction tests were conducted only with the Tiger ACV.
3. The hoverbarge had to be towed by a tugboat during the open water period.

Because of these problems, State of Alaska and LGL representatives concurred on cancellation of the summer field studies. The following report is therefore based on a review of the literature relevant to the environmental effects of ACV's. The results of the limited tests on snow compaction with the Tiger ACV are presented as Appendix 1. Scientific names of plant and wildlife species mentioned in the text are presented in Appendix 2.

RESULTS AND DISCUSSION

Effects on Vegetation and Terrain

The vegetation of an area greatly influences the freezing and thawing processes of the underlying soils through the effects of the vegetation on the heat transfer between the soil and atmosphere (Tyrtikov 1969). The vegetation reflects and absorbs radiation, transpires water,

and, by weakening the speed of the wind, increases the humidity of the air. A thin layer of peat (decomposed plant matter) overlying most tundra soils acts as an insulator between the soil and the atmosphere.

Several studies have shown that travel with wheeled or tracked vehicles over soils with icy profiles can cause damage to vegetation and terrain features (Tyrtikov 1969, MacKay 1970, Radforth 1973 a,b). Removal or compression of the plant cover and all or part of the 5-20 cm peat layer that underlies the tundra vegetation causes increased heat loading because it reduces (1) surface albedo (the ratio of reflected to incident solar radiation), (2) resistivity to heat flow into the ground, and/or (3) heat loss from evapotranspiration. This results in an increase in the depth of the active layer (the surface layer of soil or rock which is subject to annual freezing and thawing) and may lead to terrain subsidence (from either thermal erosion or thermokarst) where ground ice content is high (Bliss and Wein 1972).

Recent studies with air cushion vehicles have been conducted to determine if ACV's have any similar kinds of effects on arctic vegetation and terrain. The results of these studies are summarized below.

Summer

Cushioncraft CC7

Studies dealing with the effects of ACV's on arctic vegetation and terrain in summer have been conducted with four models of air cushion vehicles (Table 1). The first documented study on the effects of ACV operations on arctic terrain was conducted by the Canadian Department of Transportation near Tuktoyaktuk, NWT, with a 1.5-ton Cushioncraft CC7 ACV (Colby 1969). After 50 passes of the ACV, the following effects on the vegetation were described for three classes of terrain:

- (1) Slopes with Labrador tea, willow and birch about 1-2 feet high: willows were largely defoliated and practically no flowers remained; some erosion had taken place on protruding tussocks.
- (2) Flat to hummocky dry tussock surfaces, with and without polygons: perceptible erosion of the tops of tussocks and polygons; "many tussocks had been knocked over and in some cases bowled along like tumble-weed."
- (3) Wet grassy areas: no damage, but track visible by color difference in terrain surface, probably because the craft had blown away the dead grasses.

Colby (1969) noted that after ten passes of the Cushioncraft CC7 there was "little evidence of vehicle passage except some decapitated lupines and leaves off the willows." He also noted that "even the worst erosion was quite superficial compared with that produced by wheeled or tracked vehicles."

Bell SK-5

The U.S. Army Corps of Engineers Cold Regions Research and Engineering Laboratory (CRREL) has conducted a number of studies on the effects of ACV's on vegetation and terrain near Barrow, Alaska. The ACV's used in these studies were a Bell Aerospace Corporation SK-5, and a British Hovercraft Corporation SRN-5 modified by Bell to make the two craft similar. The results of these studies as described by Rickard (1972), Abele (1973) and Sterrett (1976) are summarized below.

There are four properties associated with an ACV that can produce a disturbance to the terrain surfaces: (1) the cushion pressure, (2) the

air flow escaping under the skirt, (3) the contact between the skirt and the terrain, and, (4) in the case of the hoverbarge involved in this project, the contact of the tires on the terrain. Tests with the SK-5 showed that the air cushion pressure itself (0.2 psi) had little effect on the vegetation or terrain (Table 2). The air flow escaping under the skirt (70 to 120 ft/sec) blew the loose dead vegetation away from the ACV, and after 50 passes removed virtually all of the loose, dead vegetation from the ACV's path. However, no apparent damage, such as the detachment of sedge or grass blades, moss, or plant leaves or blossoms was done to live vegetation by the air flow.

The contact between the vehicle skirt and the terrain caused progressive degradation of the terrain with repeated traffic. There was only a one-to-two inch air gap beneath the ACV's used in these tests, and the wearing strakes on the rear bags contacted the terrain repeatedly.

Two operational characteristics were found to have an effect on the degree of terrain degradation by the same ACV -- the number of passes, and the speed of the ACV. The degree of degradation appeared proportional to the number of passes, but vegetation counts showed that the rate of degradation decreased with an increasing number of passes; that is, 20 passes did not cause twice as much damage to the vegetation as did 10 passes. Abele (1973) pointed out that, since the low air gap was responsible for much of the terrain degradation, the number of passes may be less important with other ACV's having a greater air gap.

Increased speed of the ACV caused greater degradation because the impact force of the skirt against the terrain and vegetation was greater at higher speeds. ACV's moving 30 to 40 mph degraded terrain more than did those moving at 10 mph. No visible effect was produced during prolonged hovering, except for removal of some of the dead, loose vegetation.

Table 2. A general outline of SK-5 ACV impacts on tundra (from Sterrett 1976).

Cause	Effect on vegetation	Signature appearance	Thaw depth
<i>Air pressure</i>			
Travel	None	None	None
Prolonged hovering	Slight increase in surface temperature	None	None; temperature effect confined to a limited depth
<i>Air flow</i>			
One to few passes	Removal of some dead, loose vegetation	No visible effect	No measurable effect
Great number of passes	Removal of most of dead, loose vegetation; no effect on standing dead and live vegetation	Decrease in the gray color components of the vegetation causes the terrain to appear blacker due to exposure of dark organic soil, and greener due to more pronounced appearance of live, green vegetation	May cause slight increase due to a decrease in the insulating characteristics of the organic mat
<i>Skirt contact</i>			
(Some air gap)	(In contact with vegetation canopy only)		
Dry vegetation	None, for one to few passes; some detachment of leaves and blossoms of vascular plants for a high number of passes	None	None
Wet vegetation	Bending of vegetation in direction of travel	Appears lighter when viewed in the direction of travel, darker when viewed in the opposite direction; not visible after 1 year	No measurable effect
(No air gap)	(In contact with vegetative mat)		
Dry vegetation (Polygonal areas, such as Site 2)	Detachment of vegetation with weak root systems, such as mosses and lichens; removal of some loose organic soil; breaking of stems of vascular plants; effect increasing with number of passes and vehicle speed; little effect in level areas; subsequent growth of some vascular species stimulated by surface disturbance	Terrain appears darker where vegetation removal has occurred, particularly noticeable on raised relief features (polygon tops and ridges); some areas appear greener (after a year or more) where regrowth of new vegetation is pronounced	Some increase where vegetation has been removed or terrain surface blackened
Wet vegetation (Level meadows such as Site 1)	Matting of vegetation into the organic mat, removal of mosses, general abrasion of the vegetative cover; effect increasing with number of passes and vehicle speed; disturbance stimulates growth of new vegetation; overall effect is more serious on wet than on dry tundra	Initially terrain appears darker, since removal of mosses and matting of vegetation expose the dark organic soil; in a few years, the terrain appears greener than undisturbed areas; abrasion marks, such as grooves in moss mat, remain visible for several years	Increased, due to darker surface and decreased insulation; more significant in wet areas

Note: In practice, the combined effect of the air flow and skirt contact action can be more significant than the sum of the two effects individually. For example, the effect of air flow is increased when there is skirt contact with the terrain surface; the mechanical loosening or detachment of vegetation and soil by skirt contact increases the amount of material removed by the air flow; and the air flow action itself aids in the detachment process being done by the skirt.

Terrain damage inflicted by the SK-5 varied with vegetation and moisture characteristics. Mosses were less resistant to skirt abrasion than were sedges and grasses, and stiff vegetation (particularly lichens) was damaged more easily than soft or pliable vegetation. The signature (visible track) of the ACV was more pronounced in areas of high water content than in dry areas.

The micro-relief of the terrain was the strongest influence on degradation of the terrain during the tests. Damage to areas with uneven terrain, such as tussocks and high-centered polygons, was much greater than damage to areas of level terrain.

The SK-5 signatures on the tundra become less pronounced with time. After one year, the one-pass SK-5 trail was not detectable, and recovery (growth of new vegetation) was observed after one to three years in areas where skirt drag had caused erosion (Abele 1973, Abele et al. 1974). The ACV signatures were more easily visible from the air than from the ground, and on wet, level tundra than on drier sites with more surface relief variations.

Thaw depth increased from normal in the 5-, 25-, and 50-pass test lanes, but not in the 1-pass lane. These changes in the thaw depth were caused primarily by the removal of the insulating dead vegetation and moss during the trials. The 5- and 25-pass lanes caused a 1-cm thaw depth increase after 1 year, but after 2 years there was no longer a measurable effect. After 4 years the depth of thaw under the 50-pass lane was the same as that in the control area.

Traffic with a light tracked vehicle (Weasel) had a much greater impact on tundra than did SK-5 traffic. On wet tundra, one Weasel pass caused more damage than did 25 passes with the ACV, and damage caused by

five Weasel passes was comparable to that caused by 50 passes with the SK-5. The effects on tundra of other tracked and low tire pressure vehicles (e.g., Burt 1970a,b; Bellamy et al. 1971; Radforth 1973a,b; Walker et al. 1977) also appeared to be greater than those of ACV's, although comparisons between study sites and vehicles of different weight and design are difficult.

Simulated Trials

CRREL conducted a number of simulation trials to study the potential effects of ACV's larger and heavier than the SK-5. A series of tests simulating the cushion pressure, air flow characteristics, and skirt contact of ACV's in the 5- to 1000-ton range were conducted by CRREL near Barrow in 1973 (Abele et al. 1975). A summary of their results is as follows:

- (1) Effects from the air flow of simulated ACV's were within the range of natural variations in a wet tundra meadow system.
- (2) The cushion pressure had no seasonal or long-lasting detrimental effect on the vegetation or the soil temperature regime.
- (3) Mechanical contact between the skirt and vegetation produced a more serious effect than did the air flow or cushion pressure. Raised surface features received the greatest impact; depressions or troughs received little or no impact. On dry, polygonal areas, mosses, lichens, and plant leaves were removed by the skirt after several passes. In the wet meadow habitat type, repetitive skirt contact with the moss mat dislodged some mosses and pressed the vegetation canopy into the moss mat.

Voyageur Trials

An environmental assessment of the Bell Voyageur-002 ACV was conducted near Tuktoyaktuk, NWT during the summer of 1973 (Slaney and Co. 1973). The effects of this 18-ton ACV on vegetation and terrain were studied on an upland tundra site, a lowland tundra site (floodplain adjacent to a river channel), and at land/water interfaces. The results of these trials were as follows:

- (1) The effects of a single pass of the ACV were slight over both upland and lowland tundra. Its path on upland tundra was not visible from either the ground or the air, although an occasional dislodged lichen could be found. The trail left on the lowland tundra site was visible because the vehicle reoriented sedge leaves. The cushion pressure produced no measurable compaction of the soil on either site, and the amount of total litter on the lowland site was not measurably affected by the air flow under the skirt.
- (2) Terrain disturbance increased with multiple passes; the degree of disturbance was largely influenced by the speed of the ACV. At 20 mph (32 km/h) the aft skirt tended to drag on the ground, damaging the terrain by levelling hummocks and tussocks and dislodging mosses. At 30 mph (48 km/h) the terrain surface was not as seriously affected, but some shrubs were defoliated and/or uprooted. On lowland tundra a muddy spray was deposited on the vegetation. Lichens were extensively dislodged and redistributed during these trials.
- (3) At land/water interfaces the skirt of the ACV uprooted some vegetation (e.g., marsh fivefinger) and mowed other vegetation (e.g., buckbean) level with the surface of the water. Sedges and horsetails were bent over but not extensively dislodged.

The sites of the 1973 Voyageur trials were revisited two years later by Zoltai (1976). Most of the test lanes were still visible from the air, but were difficult to locate on the ground. Zoltai found damaged plants (primarily lichens) on the upland tundra, but not on the lowland tundra. Some vascular plants were also broken or killed by the ACV; alder appeared to be more prone to damage than willow. The low shrubs sustained no apparent damage.

On lowland tundra the ACV trials resulted in increased unevenness in the thickness of the active layer, but did not cause an increase in the average thaw depth. On upland tundra, damage to the organic mat, and the displacement and redistribution of lichens resulted in an increased thickness of the active layer under the ACV test lanes. No change in plant species composition was noted at the lowland tundra site; however, there was a 10 percent decrease in lichen cover on the upland site.

Winter

Tundra vegetation is much more sensitive to disturbance by mechanical action during the summer than during winter (Heginbottom 1973, Hernandez 1973, Brown 1976). The formation of snow and ice layers during winter, particularly in low wet areas, protects the underlying vegetation and peat layer from damage.

Overland operation of the Voyageur ACV during winter had little effect on the vegetation or terrain, except that tall alders (1.5-2.7 m) were pruned to the snow level along the ACV trail (Slaney and Co. 1973). Woody plants such as alders become very brittle during cold weather, and are susceptible to damage at that time unless covered with snow. Harrison (1976) found that snowmobiles (exerting a ground pressure of approximately 0.5 psi) caused physical damage to woody plants during winter. Harrison

also noted that the growth of most early spring plants was retarded under snowmobile trails. Similar effects could result from winter operations of ACV's.

Abele and Parrott (1971) studied snow erosion and compaction using the Bell SK-5 ACV. Their results were as follows:

- (1) On a windswept snow surface, no measurable deformation or erosion resulted.
- (2) On a soft snow surface, erosion below the peripheral skirt of the ACV varied from 1 to 3 inches.
- (3) The total thickness of a snow cover had no influence on the extent of erosion. The depth of erosion was influenced by the composition of the snow cover; a 0.25 inch-thick hard crust was sufficient to stop the erosion progress.
- (4) Although the engine exhaust was directed under the cushion chamber, the cushion/snow surface contact time during travel was too short to produce any observable heating effect.

Effects on Birds

ACV operations could potentially have adverse impacts on bird populations, particularly during the breeding season and in areas where birds are concentrated. Specific impacts are difficult to predict, because bird species vary in their vulnerability to impacts because of spatial and temporal differences in bird distribution, density, behavior, habitat requirements, and sensitivity to disturbance (Jacobson 1974). For example, some may abandon their nests and young, or molting and staging areas, more readily than others. Birds are usually more vulnerable

to mobile forms of disturbance than to site-specific disturbances (Jacobson 1974).

Quantitative studies on the effects of ACV's on birds have been conducted by Norton (1972) and by Slaney and Co. (1973). Norton subjected six simulated shorebird nests to SK-5 overflights, and also observed the effects of a single overpass on three 1-day-old Red Phalarope (see Appendix 2 for scientific names) chicks and one 5-day-old Red Phalarope. His conclusions based on these limited trials were as follows:

- (1) Well-concealed nests of shorebirds have a good chance of surviving a single overflight by an ACV.
- (2) Exposed nests, such as those of plovers and turnstones, are subject to destruction by a single overflight.
- (3) Repeated passes over even well-concealed nests will result in nest destruction.
- (4) Very small chicks are subject to mortality from ACV overflights, but larger chicks may survive ACV overpasses.
- (5) The air flow escaping under the skirt and the effects of flying litter had a greater effect on nests and chicks than did direct skirt contact.

The distances at which various species of birds flushed (took flight) when approached by the Voyageur ACV were recorded by Slaney and Co. (1973). This information can be used to help determine the relative sensitivity of various bird species to ACV disturbance. Whistling Swans had the greatest mean flushing distance (432 m) of those species encountered

on numerous occasions. The reaction of swans to a person on foot were similar to their reactions to the ACV.

Slaney and Co. (1973) noted that, as a group, diving ducks (primarily Greater Scaup) were more disturbed by the ACV than were dabbling ducks. One Mallard on a small pond was run over by the ACV three times during the terrain trials, with no apparent harmful effect; however, most birds reacted to the ACV by flying away. As a general rule, larger groups of birds had a greater flushing distance than did smaller groups.

Birds may react to both the sight and sound of an ACV. Observations of a group of Black Brant indicated that the birds reacted to the sound of the Voyageur before it came into view (Slaney and Co. 1973). Gollop et al. (1974a) noted that Oldsquaws reacted to the sound of an airplane before the birds could see it; presumably they might react similarly to ACV's.

The disturbance to birds caused by a float plane landing, taxiing, and taking off from a lake may be similar to the disturbance caused by an ACV operating over waterbodies. Schweinsburg (1974) studied the effects of float plane disturbance (one landing and take-off per hour) to waterbirds on lakes of different sizes. His results indicate that certain disturbances can significantly reduce the population levels of waterfowl on arctic lakes.

Birds on large lakes may accommodate a greater level of human activity than will birds on small ones. Waterfowl on large lakes have a greater area in which to avoid a disturbance, and may be less prone to abandon the area, as had been found to be true for both Arctic and Red-throated loons in response to human disturbance (Davis 1972). Also, lakes affording areas for concealment such as marshes or shallow bays

may be less subject to abandonment by waterfowl during disturbances than would be other lakes of similar size (Schweinsburg 1974).

Barry and Spencer (1976) noted during a tugboat trip in the Mackenzie River delta that most birds flushed or otherwise avoided the boat. The passage of the boat also caused some members of family groups of birds to become separated. Boat traffic on the Kuskokwim River near Bethel is heavy, and the operation of the ACV's on that river may have little additional impact on birds along the river.

Effects on some birds may be severe if ACV's are operated over the tundra during the nesting season. During incubation, nesting birds in the arctic experience a critical period of energy demand; they draw on fat reserves to sustain themselves through the incubation period (Godfrey 1966, Milne 1969, Ryder 1970). A disturbance causing a nesting or brooding female to leave a nest during inclement weather could be fatal to the young, and predators may destroy the nest if the female is flushed. Sherwood (1965) found that the parent-young bonds in Canada geese were fragile during the first month, and that disturbances before the goslings were four weeks old could cause disruption of the broods and a loss of goslings. Black Brant are especially susceptible to nesting losses through disturbance (Gollop et al. 1974b); large concentrations of Black Brant nest along the coast in the Yukon-Kuskokwim delta area (Selkregg 1975).

ACV operations could also affect birds at specific sites during the molting and staging seasons. The molting period for waterfowl follows the breeding season, lasting for several weeks. During this period of flightlessness, birds have high energy requirements and are more vulnerable to predation, inclement weather, and disturbances. Some species fly hundreds of miles to reach traditional molting areas (Sterling and Dzubin 1967, Salomonsen 1968) which are usually areas with escape cover

and a good food supply. Sterling and Dzubin (1967) found that nonbreeding Canada Geese traditionally used certain molting areas, but could vacate them if disturbed. Staging occurs concurrently with and/or following molting in most species. Molting and staging areas are necessarily highly productive of foods preferred by birds, and must be considered critical birds habitats during the period birds are concentrated on them (Green et al. 1979).

Effects on Mammals

Norton (1972) reported that a single brown lemming appeared uninjured after two SK-5 overflights. Because no other published information concerning the effects of ACV's on mammals exists, the following brief discussion of potential impacts is based on responses of mammals to other forms of human activity (e.g., vehicle traffic, noise, boat traffic) that I judge would have effects similar to ACV operations.

ACV operations along certain routes could result in the temporary or permanent displacement of mammals along these routes. The most likely response of most mammals to a closely-approaching ACV would be to flee. Although this results in increased energy expenditures by the animal, the effect of the disturbance would usually not be serious except during certain periods of critical energy balance (e.g., winter), or if the disturbance was repeated frequently. The effects of human disturbances on the energy balance of mammals is discussed by Geist (1975).

The effects of ACV operations would be more serious in areas where mammals are concentrated, or in certain habitats which are in short supply. For example, the use of ACV's along river channels in winter could disturb important denning areas for wolves, foxes, mink, and

wolverine (Burns 1964, Rausch and Pearson 1972, Quimby and Snarski 1974). Walrus may stampede if disturbed at haul-out areas on coastal beaches and barrier islands, resulting in the death of some animals and increased energetic stress (Salter 1979). Other potential impacts of ACV's and other forms of transportation on mammals are discussed at length by Green et al. (1979) and Sopuck et al. (1979).

Effects on Fish

Stream courses along the western and northern coasts of Alaska may serve as major ACV routes during both summer and winter. Important fishery resources exist in some of these streams. ACV operations in certain locations could effect the fish populations by (1) increasing stream siltation, (2) blowing vegetation into the water and thereby lowering the dissolved oxygen level, and (3) thickening the ice layers in critical winter habitats, thereby lowering the quality or quantity of habitats.

Slaney and Co. (1973) found that turbidity and the amount of suspended organic matter in shallow water (< 1.0 m) increased during Voyageur trials at land/water interfaces. Increased siltation caused by ACV operations would have the most serious effects in gravel spawning beds. The eggs and larvae of many freshwater fishes develop in gravels and require flowing water carrying oxygen for normal development (Doran 1974). Siltation in gravel reduces the supply of oxygen-bearing water to the developing eggs by filling the gravel interstices with silt.

Another effect of siltation is the smothering of fish foods or the change in the kinds of benthic food organisms as mean sediment size decreases. These and other effects of siltation on fish have been reviewed by Cordone and Kelley (1961), Cooper (1965), EIFAC (1965), and Chutter (1969).

Bacterial decomposition of vegetation blown into waterbodies by an ACV will increase oxygen demand in water. During winter, oxygen levels in water under ice may be already low because of the lack of water flow and/or the separation of water from the atmosphere by ice (Doran 1974). The increased demand may aggravate existing oxygen shortages. However, in most waterbodies the amount of vegetative matter introduced to the water by ACV operations would be small compared to the amount added by natural processes. In addition, the rate of biochemical oxidation of dead vegetative matter in cold water would be very slow.

Repeated winter use of river and stream channels as ACV routes will compact the insulating snow layer on the ice and may result in the development of a thicker layer of ice (Thomson 1963). Thickening of ice in the vicinity of critical fish overwintering areas will concentrate fish and so aggravate problems of low oxygen and limited food (Green et al. 1979).

SUMMARY AND RECOMMENDATIONS

The results of studies on the effect of ACV operations on the arctic environment indicate that in most situations ACV operations would not cause serious or permanent damage to the vegetation and terrain of an area. Comparisons with results from tests with wheeled and tracked vehicles suggests that ACV's impact the vegetation and terrain less than other modes of surface transportation.

The effects of ACV operations on birds, mammals and fish are less certain, primarily because of a paucity of data. Information from studies on the effects of ACV's on birds, and from comparisons with the effects of other forms of transportation on wildlife suggest that ACV operations in certain areas (e.g., wildlife concentration areas, denning areas) and during certain time periods (e.g., bird nesting season) could adversely affect wildlife populations.

The effects of the smaller ACV's (such as the SK-5) on vegetation and terrain have been adequately documented. However, the impact on vegetation and terrain of ACV's equipped with "light-footprint" tires, such as the D-PAAC hoverbarge, remain to be investigated. Because of the variable traction of these ribbed tires (the tires may spin on uphill grades), it is not possible to predict their impact on tundra from the existing literature.

Surveys to identify wildlife concentration areas and important habitats should be conducted along potential ACV routes prior to commencing ACV operations. The impact of ACV operations on fish and wildlife needs to be determined before recommendations and mitigative measures for specific ACV use areas can be developed.

R

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APPENDIX I

Snow Compaction Tests

I studied snow compaction by the 1-ton Tiger ACV in March 1981. Because I was unable to obtain permission to operate the ACV on the tundra, the tests were restricted to areas on the frozen Kuskokwim River near Bethel. Only one small area (approximately 0.002 km²) of undisturbed snow could be located along the river, and therefore the sample sizes were necessarily small.

No tests were conducted with the hoverbarge because I was unable to locate a suitable test area on the river. Also, the hoverbarge operators believed that the vehicle would not be able to negotiate certain areas where overflow on the river had produced a thin ice layer over underlying air spaces.

The degree of snow compaction was determined by collecting and weighing 500 cm³ cylinders of snow before any ACV overpasses, and repeating the process after 10 and 20 passes of the ACV. The mean weights calculated during the trials were as follows:

	<u>Sample Size</u>	<u>Mean Weight (grams)</u>	<u>Standard Deviation</u>
Before trails	10	187.0	10.45
After 10 passes	10	191.9	8.49
After 20 passes	10	198.9	10.96

The mean weight of the snow samples taken after ten passes of the Tiger ACV was not significantly different from the mean weight of the

sample taken before the trials (t-test; $t=1.15$; 18 df; $p > 0.20$). However, the mean weight after 20 passes was significantly greater than that before the trials ($t=2.48$, 18 df; $p < 0.05$).

Although the path of the ACV in the snow was clearly noticeable after 20 passes, there was no measurable erosion of the snow. The depth of the snow taken at the center of the test lane following the trials (18 cm) was identical to that taken before the trails. The snow had been refrozen after partially thawing, and different results may be expected in other types of snow (i.e., new-fallen snow).

APPENDIX 2

Scientific Names of Species Mentioned in TextPlants

alder	<i>Alnus crispa</i>
birch	<i>Betula glandulosa</i>
buckbean	<i>Menyanthes trifoliata</i>
horsetails	<i>Equisetum arvense</i>
Labrador tea	<i>Ledum palustre</i>
marsh fivefinger	<i>Potentilla palustris</i>

Birds

Arctic Loon	<i>Gavia arctica</i>
Black Brant	<i>Branta bernicla</i>
Canada Goose	<i>Branta canadensis</i>
Greater Scaup	<i>Aythya marila</i>
Mallard	<i>Anas platyrhynchos</i>
Oldsquaw	<i>Clangula hyemalis</i>
Red-throated Loon	<i>Gavia stellata</i>
Red Phalarope	<i>Phalaropus fulicarius</i>
Whistling Swan	<i>Olor columbianus</i>

Mammals

Brown Lemming	<i>Lemmus trimucronatus</i>
Mink	<i>Mustela vison</i>
Walrus	<i>Odobenus rosmarus</i>
Wolf	<i>Canis lupus</i>
Wolverine	<i>Gulo gulo</i>

Environmental Impact Assessment For Recreational Light Hovercraft in Coastal Environments

Summary

The Cruising Hoverclub UK (CHCUK) represents recreational light hovercraft operators in the UK, and has conducted an environmental impact assessment to determine the effects of light hovercraft operation on the environment, including a review of available published data.

It is concluded that following consideration of local conditions and the implementation of any locally required mitigations there will be no significant damage or negative impact to flora, fauna or biotopes as a result of hovercraft operations. The operation of light hovercraft in accordance with these details may therefore be considered to be a sustainable activity.

The results of this assessment are consistent with DEFRA studies which list hovercraft as an activity of “Low Concern” in relation to conservation of bio-diversity (15.)

Author: I.L. Brooks

Date: 12th March 2014

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1 Introduction

Light hovercraft have operated around the UK coast for approximately 40 years.

The Cruising Hoverclub UK represents hovercraft operators in the UK, is working with responsible authorities as appropriate to ensure that hovercraft operations are safe, sustainable and take account of other stakeholders needs.

2 Details of proposal

Hovercraft require no fixed infrastructure to launch, or may use existing infrastructure, therefore it is unlikely that there will be any plans or projects associated with hovercraft operation. This impact assessment therefore deals with actual or potential operational environmental impacts, which are generalised and therefore not location specific. Any infrastructure or location specific impacts should be covered by an assessment relating to specific proposals. However, this document will be useful in determining those factors which are common to all proposals.

3 Environmental Assessment

This environmental assessment has been completed to determine the environmental impact of light hovercraft operations. In particular, it is intended to:

- Identify possible environmental effects
- Determine what is known about each environmental effect
- Propose measures to mitigate adverse effects

Using this study, it is intended to:

- Minimize or avoid adverse environmental effects before they occur
- Incorporate environmental factors into decision making

4 Environmental Risks associated with hovercraft

In order to consider the level of environmental risk associated with hovercraft operations, it is first necessary to identify all possible (actual or potential) environmental interactions, whether or not there is evidence that these exist. However, this list is restricted to interactions that have a plausible basis or are described in the literature.

Reference 15. lists noise, habitat disturbance and engine emissions as the principle environmental risks associated with hovercraft use. Further consideration and a review of the literature (1., 5., 16.) add to this, and the principle environmental risks are listed below:

- Surface interactions (i.e. damage to surface terrain, compaction, etc.)
- Water interactions (i.e. wash, turbidity etc.)
- Damage to flora

- Damage to birds nests, birds eggs
- Bird disturbance
- Cetacean disturbance
- Pollution & emissions
- Noise

Habitats Directive definition of “disturb”

In this work, the meaning of the word “disturb” is defined by the Habitats Directive, Article 12. This makes it clear that interrupting an individual animal from its normal behaviour is not to be considered to be disturbance, but rather that disturbance should be considered at the level of local populations. For example, causing a single bird to cease feeding and become alert would not be disturbance, but causing a local population to abandon a good feeding ground for a poor feeding ground would be disturbance.

5 Potential effects on the environment

The potential effects on the environment are discussed here, whilst the actual effects are considered later in the document, together with mitigating provisions leading to a discussion of the end effects of each potential risk factor.

5.1 Surface interactions

There is a risk that damage to surface terrain may occur due to hovercraft movements, skirt pressure or lift air escape. This may include displacement of surface material or compaction.

5.2 Water interactions

There is a risk that water interactions causing wash due to the passage of the hovercraft, or the escape of lift air.

5.3 Damage to flora

There is a risk that damage to flora may occur by abrasion, crushing, by the passage of the craft, or by the escape of lift air.

5.4 Damage to birds nest, birds eggs

There is a risk that damage to ground nesting birds nests or eggs may occur by the passage of hovercraft.

5.5 Bird disturbance

There is a risk that disturbance to feeding, nesting or loafing birds may occur due the sight or sound of passing craft.

5.6 Seals, cetaceans and fish harm

There is a risk that seals, cetaceans and fish may come into contact with passing hovercraft and harm may occur due to impact.

5.7 Cetacean disturbance

There is a risk that disturbance to cetaceans may occur due the sight or sound of passing craft.

5.8 Pollution & emissions

There is a risk that emissions of fuel or lubricating oil may, unless mitigations are considered, pollute the ground or sea. Emission of CO₂ may contribute to global warming. Emission of unburned hydrocarbons may pollute the environment.

5.9 Noise

Whilst noise is considered to be a nuisance, it is not of itself an environmental risk except in so far as it may contribute to disturbance. However, due to the nuisance factor it is concluded specifically in this work.

6 Review of what is known about hovercraft operations

There is a considerable body of relevant data available relating to the environmental impacts of hovercraft, and this data is discussed and referenced here.

6.1 Surface interactions

It is convenient to consider typical ground terrain types found in the UK coastal environment in order to determine the possible effects of light hovercraft operation.

6.1.1 Coastal Saltmarsh

Light hovercraft have a hover-clearance which is limited to 2-3 cm plus a soft-skirt of 15 to 25cm. As a result they cannot operate on vegetation of length greater than approximately 10 cm. The vegetation found on coastal saltmarsh prevents light hovercraft from operating in these regions therefore there can be no damage or disturbance to such terrain.

6.1.2 Floodplain and coastal grazing marsh

Light hovercraft have a hover-clearance which is limited to 2-3 cm plus a soft-skirt of 15 to 25cm. As a result they cannot operate on vegetation of length greater than approximately 10 cm. The vegetation found on floodplain and grazing marsh prevents light hovercraft from operating in these regions therefore there is no damage or disturbance to such terrain.

6.1.3 Littoral sediments and sands

The hovercraft has an extraordinarily low ground pressure (5. 3.18.). Ground pressure of a hovercraft is compared to other vehicles, and people in Table 1.

A ground pressure of less than 14kPa (2psi) or less is recommended (4.) for fragile ecosystems like marshes to avoid compaction or damage, and it is apparent that hovercraft are able to satisfy this requirement with significant margin of safety

The passage of hovercraft over even very soft mudflats leaves virtually no physical evidence (22.). The mud surface takes on a slightly “brushed” appearance, which persists for a few hours before the original surface appearance is regained. There is no other damage to the surface and no significant displacement of material (14.).

Passage of hovercraft over littoral sediments and sands will therefore leave no permanent damage and indications of such passage will be erased on or before the next tide (14. 22.).

In the context of surface disturbance, light hovercraft operation may therefore be considered a sustainable activity.

Item	Ground pressure kPa (psi)
Hovercraft	0.6-1.0 (0.09-0.15)
Motor vehicle	190-230 (28-33)
Human Footprint	60-80 (8.7-11.6)

Table 1 - Ground pressures

6.2 Water interactions

In a study on the Kuskoswim river delta in Alaska, a large commercial hovercraft was operated a part of a postal service. Monitoring was undertaken and there is no damage due to wash, and there was no fish or fry dislocation (1.).

A study was undertaken to determine whether large commercial hovercraft could be used to impart a vertical mixing component in surface waters in connection with oil spill cleanup operations. It was found that there was no vertical mixing of surface waters (17.) and therefore no increase in turbidity.

The following conclusions are drawn in the studies referenced:

- Underwater noise levels are considerably lower than conventional vessels (19.)
- There is no increase in turbidity (16.)
- No emissions to the water (eg contaminated cooling water, bilge water 3.
- No anti-fouling applied (stored on land)
- No craft storage on mudflats.

6.3 Damage to flora

Light hovercraft are unable to operate in vegetation exceeding approximately 10 cm in height, which in practise means that ungrazed land is beyond reach.

Passage of large hovercraft over the surface of fragile ecosystems was studied by Abele and Brown (1977) (5.), who conducted a detailed study in the summer of 1971, near Barrow, Alaska, on the effects of a mid-sized ACV (Air Cushion Vehicle or hovercraft) on wet and dry tundra. It was found that surface damage was limited to detached vegetation with weak root systems, with no other surface damage occurring. These effects were considered as slight.

In the case of light hovercraft, which could not operate in the areas described in this study (section 6.1.1 to 6.1.3), these slight effects will not occur.

6.4 Damage to birds nest, birds eggs

6.4.1 Below mean high springs

Birds do not nest below mean high spring, and therefore damage to birds nests and eggs in the intertidal zone is not possible

6.4.2 Above mean high springs

Many ground nesting birds require some level of vegetation in which to nest. It is not possible for light hovercraft to operate in vegetation exceeding approximately 10cm in height, therefore effectively protecting ground nesting birds from hovercraft operation.

Some ground nesting birds nest in simple scrapes, eg Oystercatchers, and these may be found in sandy ground just above the mean high springs lines in some locations.

6.5 Bird disturbance

6.5.1 General

Studies have been conducted that show that bird disturbance by hovercraft is similar to that caused by other water vessels (18., 22.). This conclusion is supported by observations in relation to appropriate assessments made by Natural England (14.) that birds are less disturbed by hovercraft than by people on foot. It was noted that hovercraft provided little disturbance to feeding birds during trials in the Lindesfarne area (20.) In studies on the Solent (22.), observers concluded that waterfowl react to hovercraft in a manner similar to a motorboat, and that there were no significant differences in the birds reaction to these two types of craft (22.)

6.5.2 Type of disturbance

Disturbance was categorised according to its potential effects on birds, (13.). Figure 1 details four types, hovercraft activity falls into the “Active high-level infrequent” category. This chart suggests that under this type of disturbance the site will maintain its attractiveness to bird populations.

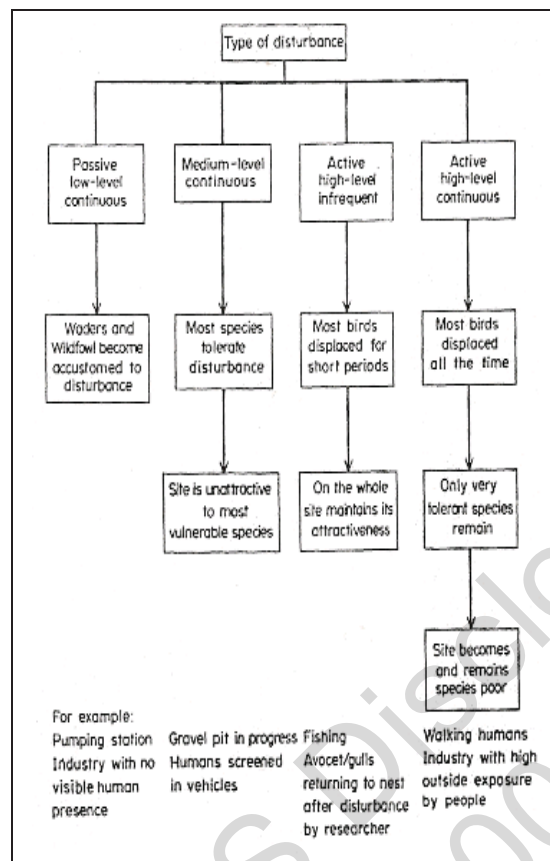


Figure 1 - Disturbance categories

6.5.3 Effects of disturbance

Disturbance of birds reduces the time and habitat available for feeding, and in addition increases the energetic load on the individuals, reducing bodyweight and leading to increased chance of mortality.

Individuals-based modelling has been used to predict the overwinter mortality of waterbirds when subject to various disturbances (6.,8.), and has been shown to provide accurate assessments of the effects of proposed sources of disturbance on bird population mortality and bodyweight (6.).

6.5.4 Seasonal disturbance

Disturbance is more likely to cause a significant increase in mortality when it occurs in the overwintering period, especially later in the winter (after 1st December (6.)) when food is less plentiful (8.).

It was shown (6.) that disturbance of over-wintering birds in the early winter period (before 1st December) has lesser effects than disturbance in the later winter period. This study shows no significant increase in mortality when disturbance is limited to the early winter period, and a very small increase in mortality when disturbance is limited to daytime only for a small portion of the feeding range.

6.5.5 Set-back zones

A 150m set-back zone (6.) was shown to eliminate the effects of disturbance and ensure that mortality will not increase above the background rate.

6.5.6 Rate of disturbance

In the Baie de Somme, France, an individuals-based model was used to predict how the effect of disturbance on Oystercatcher mortality interacts with food abundance. In this model, the birds were unaffected by up to 1.0-1.5 disturbances per hour, provided that cockle stocks were high. However, if, as sometimes happens in the Baie de Somme, large amounts of the cockle stock die in midwinter, the model predicted disturbances should be kept below 0.2-0.5 per hour to prevent increased Oystercatcher mortality (8.).

6.5.7 Flushing distance

The propensity to disturb, and therefore flush, birds is a function of distance from the disturbing influence. It has been established that disturbance by hovercraft is similar to that by other water vessels (18.).

In studies, the mean flushing distances varied from 22m (Tern) to 58m (Heron) (9.). This result is consistent with similar studies conducted in Australia (21.) Various studies have suggested buffer zones, and recommendations are typically in the range of 100-150m (Ref 6., 9., 10., 11.).

6.5.8 Waterfowl use of habitat in rivers subject to hovercraft traffic

In a study in the Solent, data was considered to determine whether wildfowl were likely to leave an area subject to hovercraft traffic in favour of other areas not subject to such traffic. It was concluded that recreational use of hovercraft would not have an adverse effect on waterfowl use of habitat (22.) This is confirmed in a separate study on the Kuskoswim Delta (16.)

6.6 Harm to seals, cetaceans, fish and other water creatures

Hovercraft have no surface piercing projections such as keels or propellers and therefore present an intrinsically low risk to seals, cetaceans, fish and other water creatures (18.).

Light hovercraft hard hull structure is carried 20-30 cm above the surface of the water by the air cushion, and therefore presents no risk to creatures at or below the surface of the water.

The hovercraft air cushion is contained by a soft fabric skirt which is unlikely to harm cetaceans, fish or other creatures since it is designed to conform easily to any obstructions encountered (18.)

A study was conducted on the Kuskokwim river delta to determine whether passage of a large commercial hovercraft would cause injury to fish or fry, including beaching the craft and the use of underwater cameras to observe the effects of the craft passing. No significant harm was caused to fish or fry (1.). There was no disturbance to the feeding of fish in the vicinity of the passing craft.

Underwater noise levels due to a large passing hovercraft (Griffon 2000 TD) have been studied (18. 19.) and were found to be considerably lower than similar sized conventional vessels, resulting in sounds being audible to an underwater observer for a distance some 20 to 60 times less than a conventional vessel.

6.7 Cetacean disturbance

In a study on the Forth, in which a hovercraft was operated on a pre-determined route whilst observers recorded the reactions of seals and porpoises, no reaction to the passage of the hovercraft was noted (18.)

6.8 Pollution & emissions

Modern light hovercraft are designed to minimise emissions into the environment.

6.8.1 Fluids

Hovercraft are designed with a water-tight hull into which is contained the machinery. Any spillage or leakage of fuel, oils, etc., will be contained in the hull and will not pollute the environment.

6.8.2 Exhaust gases

Modern hovercraft use 4 stroke engines designed to meet current legislation regarding exhaust fumes such as NOX or unburned hydrocarbons. There will be no significant release of polluting gases or unburned hydrocarbons.

6.8.3 CO₂

The hovercraft was conceived and developed to reduce the water-drag associated with conventional vessels. This is achieved by the provision of a lubricating cushion of air which separates the vessel from the water, thereby reducing friction.

Reduced hull friction reduces the power required to maintain forward motions, and this results in enhanced efficiency of the craft. The result is that a hovercraft consumes approximately 50% of the fuel of a similar sized conventional vessel at a similar speed, meaning that the release of CO₂ is similarly reduced.

6.9 Noise

Modern light hovercraft are designed specifically to reduce emitted noise. For example, two-stroke engines have been eliminated from modern cruising craft, which now use quieter four stroke engines. Considerable development has occurred recently, and new state-of-the-art craft can now operate at noise levels meeting the recreational craft directive.

Modern light hovercraft, operated at full power, produce noise levels under 84dB at 25m, with many craft now achieving levels less than 78dB. Under cruising conditions such craft produce less noise, with levels in the region of 75dBa being common. Ref 2. refers to the noise levels of a medium sized commercial (12m) craft which is larger than recreational craft (3m-5m) but is included as objective evidence of low noise levels.

It should be noted that UK survey craft are specialised for their purpose, and are not typical of the cruising fleet. Experience gained though hovercraft survey work should not be extrapolated onto the Cruising fleet, which are typically 10-15dBa quieter.

7 Mitigations

7.1 Surface interactions

As described in section 6.1, the potential to damage surfaces is very low, and is largely self-mitigated by the very low surface pressure exerted by the craft. It is unlikely that any further mitigating provision will be required.

7.2 Water interactions

As described in section 6.2, hovercraft do not produce significant surface interactions such as wash or vertical mixing, and in tests it was shown that damage did not occur to banks, and there was no impact on fish or fry in shallow water. It is unlikely that any further mitigating provisions will be required.

7.3 Damage to flora

As described in section 6.3, hovercraft cannot operate in any significant vegetation and for this reason the risk of damage to flora is mitigated. It is unlikely that any further mitigating provisions will be required.

7.4 Damage to birds nests & eggs

As described in section 6.4, light hovercraft typically operate on the water, which clearly mitigates the risk to ground nesting birds. Whilst there is often a launch and recovery, which may cross intertidal margins, this will necessarily be from the road system and therefore subject to existing human activity making the presence of ground nesting birds unlikely.

The residual risk of damage to ground nesting birds may be mitigated by the provision of relevant information to hovercraft pilots such that they are aware of the presence of sensitive areas at certain times of the year. This will ensure that sensitive areas remain undisturbed. If appropriate, this information may be provided as part of local access schemes, or through information provided to hovercraft pilots via the Cruising Hovercraft Club.

7.5 Bird disturbance

Proposed operation of light hovercraft should be designed to minimise the effects of disturbance to birds. The following factors should be considered:

- ✓ Existing levels of disturbance by watercraft
- ✓ Locations of affected species & craft operating corridors
- ✓ Frequency of disturbances
- ✓ Time of year of disturbance & food supply
- ✓ Whether formal set-back zones are required
- ✓ Bird avoidance by pilots

Risk of disturbance may be mitigated by a combination of temporal and spatial separation, and avoidance of feeding flocks. Certain particularly sensitive locations should be avoided, and other locations may need to be avoided at certain times of the year. Consideration should be given to the use of launch corridors designed to route craft away from main local populations, and in some cases set-back distances from the

shoreline may be appropriate. CHC hovercraft pilots are trained to avoid feeding birds by steering a course to avoid them.

Using an appropriate combination of these measures, the risk of disturbance to bird populations may be mitigated.

7.6 Harm to seals, cetaceans, fish

As described in section 6.6, there is no significant risk of harm to seals, cetaceans or fish which are in the water. It is unlikely that any further mitigating provisions are required.

7.7 Cetacean disturbance

As described in section 6.7, in a study on the Forth estuary, it was noted that cetaceans were not disturbed by hovercraft passing. It is unlikely that any further mitigating provisions are required.

7.8 Pollution and emissions

As described in section 6.8, there are no emissions of fluids to the environment, and CO₂ emissions are reduced as compared to similarly sized conventional powered boats travelling at similar speeds.

7.9 Noise

Noise is substantially mitigated by engineering improvements to modern recreational hovercraft, which should not be compared to the current survey craft fleet (see section 6.9).

Whilst noise is not an environmental risk as such, it is considered to be a nuisance and may contribute to disturbance of wildlife. The residual noise nuisance is mitigated by ensuring that the exposure time is low. CHC pilots are trained not to pass the same location repeatedly, instead making a significant passage and only returning several hours later.

8 Summary & Conclusion

The Cruising Hoverclub UK (CHCUK) has conducted an Environmental Impact Assessment to determine the effects of light hovercraft operation on the Environment. This assessment includes a review of the available environmental data relevant to hovercraft operation.

There will be no significant damage nor other negative impact to flora, fauna or biotopes as a result of the hovercraft operations once local conditions described in this study are considered, and appropriate mitigations put in place. The operation of light hovercraft in accordance with the details of any required local mitigations may therefore be considered to be a sustainable activity.

The results of this assessment are consistent with DEFRA studies which list hovercraft as an activity of “Low Concern” in relation to conservation of biodiversity. (15.).

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Date : 11/06/2018 1:34:31 PM

From : "PERRY Michelle (Manly)"

To : "MURRAY Kristy"

Cc : "LEGGETT Rhondda"

Subject : RE: Hovercraft documentation for your approval

Attachment : image002.png;image003.png;image004.png;image006.png;image009.png;image011.png;image012.png;

Hi Kristy,

Following up on Rhondda's suggestion below I was wondering whether we might be able to catch up next Wednesday (20 June 2018) say for 30min to run through [CTPI 49-Sch4](#) application to renew their marine park permit. I will be working at Manly on that day so if we can make something work on that day that would be great. I have training from 9am-12pm but am free anytime from say 12.30-3pm. I am also trying to tee up a time to talk with Rhondda so once I have heard back from you I will look to organise a time to catch up with her.

Thanks,

Michelle



Michelle Perry

A/ Principal Conservation Officer
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From: LEGGETT Rhondda

Sent: Monday, 11 June 2018 8:57 AM

To: PERRY Michelle (Manly) <Michelle.Perry@des.qld.gov.au>

Cc: MURRAY Kristy <Kristy.Murray@des.qld.gov.au>

Subject: RE: Hovercraft documentation for your approval

Thanks Michelle

None of your assessments/projects (with exception of [CTPI 49-Sch4](#)) have yet been allocated. We are having a team meeting next week and I'll do then.

[CTPI 49-Sch4](#) is going to be taken on by Kristy but she won't have capacity to pick for a week or two. Could you arrange a time/day with her please.

Cheers

Rhon



Rhondda Leggett

A/Assistant Principal Ranger, Technical Support
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Level 10, 445 Flinders Street, Townsville QLD 4810

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From: PERRY Michelle (Manly)

Sent: Monday, 11 June 2018 8:37 AM

To: LEGGETT Rhondda <Rhondda.Leggett@des.qld.gov.au>

Subject: RE: Hovercraft documentation for your approval

Thanks for that Rhondda I will move the documents as required so the most up to date ones can be used by assessing officers. FYI I will be working at the Manly office tomorrow if there is anything that you would like me to talk to anyone about ☺

M



Michelle Perry
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From: LEGGETT Rhondda
Sent: Monday, 11 June 2018 8:24 AM
To: PERRY Michelle (Manly) <Michelle.Perry@des.qld.gov.au>
Cc: MURRAY Kristy <Kristy.Murray@des.qld.gov.au>; KILPATRICK Carley <Carley.Kilpatrick@des.qld.gov.au>; SNEESBY Georgia <Georgia.Sneesby@des.qld.gov.au>; DELAFORCE Amanda <Amanda.Delaforce@des.qld.gov.au>
Subject: RE: Hovercraft documentation for your approval

Hi Michelle

Apologies for delay in getting this to you.

I've approved the process for assessing and issuing hovercraft permits for MBMP as presented. Signed memo is attached.

Thanks again for progressing.

Cheers
Rhon



Rhondda Leggett
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From: PERRY Michelle (Manly)
Sent: Wednesday, 23 May 2018 10:49 AM
To: LEGGETT Rhondda <Rhondda.Leggett@des.qld.gov.au>
Subject: Hovercraft documentation for your approval

Rhondda,

One of my outstanding tasks was to draft a memo outlining the current state of play with respect to the assessment of recreational hovercraft permits in MBMP for your approval which would then be attached to the class assessment document that any assessing could then see. The memo has been drafted using similar text to that which was sent to A&A back in March 2018 outlining the Region's position on this matter, which was approved. A copy of the memo is attached for you to sign somewhere – had to cobble together my own template as no such template exists in the Dept anymore apparently. I have also attached copies of the two associated documents to which minor amendments have been made. If the documents are OK with you they will be saved on the Manly network drive in the same location as the other permit documents.

At this stage the memo and documents only refer to the process to be used in MBMP. A similar set of documents should be produced for GSMP although I believe that the actual 30 page class assessment document itself for Great Sandy has been updated so the memo would need to be reworded to reflect that.

Hope this all makes sense, if not give me a call.

Michelle



Michelle Perry

Senior Conservation Officer

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