
Report prepared for the Environmental Protection Authority

**Addendum to: Review of economic analysis
submitted in support of Coastal Resources
Limited marine dumping consent
application**

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Contents

Introduction.....	5
Overview	5
Qualifications.....	6
Assessment of demand for dumping dredged material at sea	7
Information provided by applicant and submitters.....	7
Existing consent may be sufficient for existing maintenance dredging.....	9
Little additional explanation of expected growth in dredging.....	10
Composition of dredged material	11
 Tables	
Table 1 Estimates of dredging volumes to maintain existing activities	8
Table 2 Total dredging Port of Auckland	9

Introduction

Overview

1. I have prepared a report reviewing the economic analysis submitted in support of Coastal Resources Limited's (CRL) marine dumping consent application, dated 1 November 2018. I recommended the EPA seek further economic analysis of the 5 fold increase in demand for dumping of dredged material at the Northern Disposal Area predicted by CRL and a disaggregated analysis of the alternatives for disposing or utilising that increase in dredged material.
2. Evidence from submitters was filed after I finalised my report. Some additional information on the demand for dredging and the economics of disposing of dredged material are provided in the evidence submitted by:
 - Mr Mark Thompson, on behalf of Dredging New Zealand¹
 - Mr Craig Shearer, on behalf of Empire Capital Limited.²
3. In this addendum, I review the additional material provided by Mr Thompson and Mr Shearer. I collate and compare the information provided in the application, the applicants evidence and submitters evidence on the:
 - history of disposals at the Northern Disposal Area
 - existing maximum consented dredging volumes
 - predicted volumes of dredged material.
4. Unfortunately, the data submitted is incomplete and is insufficient to allow an assessment of the both current and potential demand for disposal of dredged material from sites in Auckland and the outer areas not in the inner Hauraki Gulf (for example, the Coromandel, Firth of Thames, Great Barrier Island, Marsden Point) and the disposal options other than the Northern Disposal Area.
5. With this qualification, a comparison of the information in the submissions, evidence, and application documents suggests that the existing consent for the Northern Disposal Area may be sufficient for existing maintenance dredging, including the maintenance dredging by the Ports of Auckland. The implications for an economic analysis of the application include:
 - the concern expressed by Property Economics, that not granting the consent would have a material adverse impact on existing economic activity, appears misplaced; existing investments made in infrastructure, commerce, and life-style which rely on maintaining navigable waters would seem capable of being

¹ Statement of evidence of Mark Edward Thompson on behalf of dredging New Zealand.

² Statement of evidence of Craig McGregor Shearer on behalf of Empire Capital Limited.

- sustained, at least for now, within the existing consent for the Northern Disposal Area
- the quantity of dredged material that would need to be disposed of by an alternative means to the Northern Disposal Area to enable existing dredging activities to continue would appear comparatively small; this may mean that alternatives not explored in the economic assessment because they would be feasible only for relatively small quantities may be relevant considerations
 - the assumptions made by Property Economics that tankers would be needed to transport material to an alternative means of disposal do not reflect the composition of dredged material resulting current dredging practice.
6. After reviewing the submissions, I remain of the view that the EPA should seek further economic analysis that considers the geographical source of the material, the composition of the dredged material from that source, and the hence the alternatives for that source of dredged material (paragraph 3 of my 1 November report).
7. As existing dredging activity can broadly be accommodated by the existing consent for the Northern Disposal Area, it would be useful if that additional economic analysis assesses whether the predicted increase in demand for disposing of dredged material would still arise if the developers had to incur the cost of alternative means of disposal, or would only arise if an option became available to dump additional quantities at the Northern Disposal Area.

Qualifications

8. My qualifications are set out in paragraphs 4 to 9 of my 1 November report.
9. I confirm that I have read the Code of Conduct for expert witnesses contained in the Environment Court of New Zealand Practice Note 2014, and that I have complied with it when preparing this addendum. Other than when I state I am relying on the advice of another person, this evidence is entirely within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

Assessment of demand for dumping dredged material at sea

Information provided by applicant and submitters

10. In my 1 November report, I recommend the EPA seek further economic analysis of the 5 fold increase in demand, for dumping dredged material at the Northern Disposal Area, predicted by CRL. Some additional information regarding the expected demand for disposing dredged material is provided in the evidence submitted by Mr Thomson and Mr Shearer.
11. In the tables below, I collate and compare the information provided in the application, the applicants evidence and submitters evidence on the:
 - history of disposals at the Northern Disposal Area
 - existing maximum consented dredging volumes
 - predicted volumes of dredged material.
12. Unfortunately, the data provided is not complete nor in the same format (for example, some information is expressed as maximum totals and some is expressed as annual averages). Table 1 presents the information provided on *maintenance* dredging over the past 6 years, expressed as annual average volumes. The table also shows the maximum consented volume for dredging at each marina (where that information is included in submissions) and the annual volume CRL predicts the marina would seek to dump at its site over the next 10 years. The values shown for the historical annual average should be treated with caution as the calculation is sensitive to the number of years the data is averaged over, considers only material dumped at the Northern Disposal Area,³ and past maintenance may not reflect future maintenance.

³ Mr Shearer observes that until recently much of the material from the Empire Capital Marinas was disposed of at the Auckland Explosives Dumping Ground, now closed; however, he does not elaborate whether in the period assessed by CRL (2013 – 2018) all material dredged from the marinas was dumped at the Northern Disposal Area.

Table 1 Estimates of dredging volumes to maintain existing activities

Source of material	Average annual volume 2013 – 2018 m ³	Consented ⁴⁵ amount per annum m ³	CRL predicted ⁶ per annum m ³
Bayswater Marina		5,000	4,000
Buckland's Beach Yacht Club	279 ⁷	1,800	
Half Moon Bay Marina	1,000 ⁸		2,000
Henderson Creek	388 ⁹	5,000	
Hobsonville Marina (and channel)	4,732 ¹⁰	25,000	27,000 ¹¹
Pine Harbour Marina	7,587 ¹²	13,000	9,000
Sandspit Marina	n/a ¹³		6,000
Whitianga Marina	442 ¹⁴	3,000	1,500
Totals	14,428	52,800	49,500

⁴ Mr Shearer - Table 1, page4, op cit.

⁵ Mr Thompson pages 2-3, op cit.

⁶ Mr Simon Male, 25 October 2018, figure 6 paragraph 55, applicant's evidence.

⁷ Mr Male – figure 5, paragraph 44, op cit, disposal of 1,674m³ divided over 6 years.

⁸ Mr Male –figure 5, op cit, disposal of 6,000m³ divided over 6 years.

⁹ Mr Male – figure 5, op cit, disposal of 2,328m³ divided over 6 years.

¹⁰ Mr Male – figure 5, total of 28,393m³ divided over 6 years.

¹¹ This figure appears to exceed the consented volumes. According to Mr Shearer, the annual dredging consents for the Hobsonville Marina are separated between marina (20,000m³) and channel (5,000m³), a total of 250,000m³ over ten years whereas CRL anticipate a total of 270,000m³ from the Hobsonville Marina over that period.

¹² Mr Male – figure 5, total of 45,523m³ divided over 6 years.

¹³ New development with no maintenance dredging history.

¹⁴ Mr Male – figure 5, total of 2,652m³ divided by 6 years.

Existing consent may be sufficient for existing maintenance dredging

13. The information provided by the applicant and submitters to date suggests it may be possible to continue with existing maintenance dredging within the currently consented volumes.
14. Over the 6 years the Northern Disposal Area has been used, a total of 223,205m³ was disposed equating to 37,200m³ annually. This figure is taken from Mr Male’s evidence,¹⁵ and is updated from the quantities presented in the Property Economics report (Mr Male’s figures are to 1 October 2018, whereas Property Economics’ figures were to April 2018). As I observed in my 1 November report (paragraph 18), the Northern Disposal Area has mostly been utilised for capital dredging associated with new developments. The Sandspit and Hobsonville Point developments were responsible for 136,635m³ (61%) of total volumes disposed at the North Disposal Area.¹⁶ The remaining 86,570m³ (39%) was maintenance dredging required for the continued functioning of marinas and the associated use of the marine environment – this volume equates to an average of 14,428m³ per annum for the approximately 6 year period 2013 to 1 October 2018.
15. These figures do not include dredging by the Ports of Auckland. In its 2008 Annual Review, the Ports of Auckland provides the following information:

Table 2 Total dredging Port of Auckland

	2014	2015	2016	2017	2018
Total dredging used as environmentally friendly fill, including mudcrete (m ³)	34,000	13,700	47,854	31,000	67,448

Source: Ports of Auckland Annual Review 2018, page 38

16. On the basis of these figures, the Ports of Auckland dredge an annual average of 38,800m³. This figure is somewhat higher than the average of 30,000m³ CRL estimates the Ports of Auckland will require over the next 10 years.¹⁷ Adding this amount to the annual average from the marinas currently utilising the Northern Disposal Site would imply an annual average of around 53,000 m³ (38,800 + 14,428 = 53, 228) of dredged material is produced from maintenance dredging. This figure

¹⁵ Mr Male, paragraph 44, op cit.

¹⁶ Kieran Murray, (2018), *Review of economic analysis submitted in support of Coastal Resources Limited marine dumping consent application*, table 1, pages 9 – 10.

¹⁷ Mr Male, figure 6, paragraph 55, op cit.

is consistent with, but at the upper end, of the estimate provided by the applicant's expert that:¹⁸

Auckland area ports and marinas typically accumulate 10,000 to 50,000 m³ of in-filling deposited sediment per year that must be dredged in order to maintain navigation access for vessels.

17. This estimate relies on a 2008 study by Flaim and Healy included in the application documents.¹⁹ That 2008 study refers to a 1995 Parliamentary Commissioner for the Environment finding that maintenance dredging of approximately 40,000m³ per annum is required by the Port.²⁰ It would seem, therefore, that the requirements for maintenance dredging at the Ports of Auckland have not changed much in the past 20 years.
18. This data has several important implications for the economic analysis of the consent application:
 - the concern expressed by Property Economics, that not granting the consent would have a material adverse impact on existing economic activity, appears misplaced;²¹ existing investments made in infrastructure, commerce, and life-style which rely on maintaining navigable waters would seem capable of being sustained, at least for now, within the existing consent for the Northern Disposal Area
 - the quantity of dredged material that would need to be disposed of by an alternative means to the Northern Disposal Area to enable existing dredging activities to continue would appear comparatively small – perhaps of the order of 3,000 – 5,000m³; this may mean that alternatives not explored in the economic assessment because they would be feasible only for relatively small quantities (such as the proposed reclamation at the Westhaven Marina²²) may be relevant considerations.

Little additional explanation of expected growth in dredging

19. Reviewing the information provided by the applicants alongside the information provided by submitters shows that part of the 5 fold increase in dredged volume expected by CRL results from assuming existing consented marinas will increase maintenance dredging to their maximum consented quantities. On the basis of this

¹⁸ West, Simon. Bioresarches, (2017), *Northern Disposal Area – Assessment of source material, ecological and sediment quality effects assessment of disposal*, page 1, application document

¹⁹ Bryna Flaim and Terry Healy, (2008), *Dredged sediment disposal on the continental shelf in the EEZ environmental impact assessment*, page 9, application documents.

²⁰ Parliamentary Commissioner for the Environment (PCE), 1995. *Dredgings disposal in the Hauraki Gulf. Final report of the technical review panel*, page 1.

²¹ Property Economics Report – April 2018, chapter 4, appendix 6 to the application.

²² Mr Male, paragraph 44, op cit.

(inferred) assumption, CRL expects dredged material from marina maintenance to increase from the approximately 15,000m³ per annum currently to around 50,000m³ per annum in each of the next 10 years.

20. Mr Shearer suggests that:²³

“a key factor preventing dredging to these [consented] maximums has been the ability of berth holders to fund this level of dredging and subsequent dumping at the disposal sites. As sedimentation issues worsen I consider it is inevitable that these maximums will be required in the medium term.

21. However, Mr Shearer does not explain:

- why he considers berth holders are now willing and able to fund higher levels of dredging than they have in the past
- why he believes sedimentation issues will be worse in the future than in the past (and therefore require significantly increased dredging)
- what period of time he considers medium term (that is, when the maximums would be required because of worsening sedimentation); the CRL prediction assumes the maximums would be utilised in the first year of the consent.

22. Reviewing the submissions reinforces my view that the EPA should seek further economic analysis which assesses the predicted increase in dredging by the existing marinas (discussed above) and the extra demand CRL expects to arise from:

- two existing marinas – Pine Harbour and Half Moon Bay - undertaking new ‘capital’ dredging, with an aggregate 140,000m³ of dredged material to dump
- development of facilities associated with hosting the America’s Cup yacht race adding 70,000m³ of dredged material
- other unspecified maintenance of 50,000m³ per annum over the 10 year period, and unspecified new capital dredging of 100,000m³ per annum over the 10 year period.

23. It would be useful if the economic analysis assesses whether the predicted increase in demand for disposing of dredged material would still arise if the developers had to incur the cost of alternative means of disposal, or would only arise if an option became available to dump additional quantities at the Northern Disposal Area.

Composition of dredged material

24. When assessing alternative methods for disposal, Property Economics assumed that tankers may be required to transport the material:²⁴

²³ Mr Shearer, paragraph 13, op cit.

²⁴ Property Economics Report, page 17, op cit.

If the banded area was away from the dredging area then the spoil would need to be tankered to an off-site banded area with the volume being tankered approximately 5 x the volume of the spoil (owing to the salt water content). For example, 3000m³ of spoil would result in about 1500 truck movements (using 10m³ tankers).

25. However, this assessment by Property Economics does not appear to reflect current dredging practice. Mr Thompson advises that:²⁵

The material is removed from the sea floor by Hydraulic Excavators (Backhoe) and transferred into the Digger Barge's hopper where any excess water will run off the top leaving 90% dredged material, to then be transferred to an Offshore Hopper Barge, then transported to CRL's offshore dumpsite.

The dredging that we transport has a density of 1.5 to 1.8 tonne per m³ with less than 10% water content, with this reduced water content we have no dredged material slop out of the hopper bins on the way to the dump site. The material has the consistency of thick porridge.

26. I recommend that the EPA request that any updated economic analysis applies more realistic assumptions about the composition of dredged material than those adopted by Property Economics.

²⁵ Mr Thompson, paragraphs 8 and 9, op cit.