BEFORE COMMISSIONERS APPOINTED BY NORTHLAND REGIONAL COUNCIL

UNDER	the Resource Management Act 1991 (**RMA**)
AND	
IN THE MATTER	of an application for a resource consent to build a replica of the Mangawhai Wharf
BY	**THE MANGAWHAI HISTORIC WHARF TRUST**
	Applicant

STATEMENT OF EVIDENCE OF DR JOHN LAURENCE CRAIG FOR THE MANGAWHAI HISTORIC WHARF TRUST

(ECOLOGY)

Dated: 4 September 2020

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1. INTRODUCTION

1.1. My full name is John Laurence Craig.

1.2. I respond to the evidence of:

a) New Zealand Fairy Tern Trust;

b) Royal Forest and Bird Protection Society (**Forest and Bird**);

c) Department of Conservation (**DoC**);

d) Mr Ian Southey; and

e) The Northland Regional Council (**the Council**) Officer's Report.

2. SUMMARY

2.1. Submitters provide considerable information. Their analysis is inappropriate and inconclusive. There are multiple variables discussed including: weather events, predation, increased predator control from 2012, mangrove removal in 2015, fish availability, disturbance by boats, disturbance by people and dogs, age of birds and infertility. All analysis is by individual variable as if the others play no part. This is poor science and allows no conclusions to be drawn.

2.2. Many submitters argue that the 2015 removal of mangroves has had a negative effect on fairy tern breeding. They provide no evidence that would support this. Their own analysis shows information that both supports and refutes the hypothesis yet Forest & Bird, DoC and the Council Officer accept the hypothesis without considering the information provided.

2.3. Submitters ignore the well known and documented behavioural response of habituation and assume that fairy terns at the site of the proposed wharf will be unable to feed and have failed breeding. No mention is made of the pairs in the lower harbour who continue to use the area in spite of considerable disturbance from water skiing and high boat use. Similarly, the pair that includes the causeway also has a potential to be subjected to considerable interference.

2.4. The Council Officer's report is an uncritical restatement of unsubstantiated hypotheses especially from Mr Southey.

3. RESPONSE TO SUBMITTERS" CLAIMS

3.1 Effects of the proposed wharf on birds, especially the New Zealand Fairy Tern, is the focus of all of the above submissions. The dominant issue relates to potential effects on feeding in the harbour. All argue that the effects will be detrimental, and some consider that they are cumulative on top of the negative effects of mangrove removal. It is important to evaluate if the evidence used to support these claims is compelling or whether it is attached to an ideology of no change.

3.2 New Zealand conservation theory and practice has long been dominated by the ideology that current people and their developments are the primary cause of ongoing biodiversity loss. All land habitats have introduced predators and competitors which continue to degrade the habitat and the large cost of predator control makes achieving Section 6(c) of the Resource Management Act 1991 (**RMA**) which requires "protection of the significant habitats of indigenous fauna", challenging. Developments which may fund protective measures offer an option to reverse current losses whereas doing nothing supports ongoing degradation.

3.3 The large scale of land use changes and historic introductions has left New Zealand with a poor biodiversity record. Only a minority of native birds are considered not Threatened or At Risk of extinction. Many species, including two (NZ fairy terns and NZ dotterel) at Mangawhai, have a conservation status qualifier of CD or conservation dependent attached to their Threat Status. This reflects the importance of communities and government agencies actively managing the environment of these species.

3.4 Given the current belief that people alive today and their developments are the cause of biodiversity loss, on-going human population growth means that if New Zealand's native birds are only safe where there are no people or few people and few environmental changes then the long-term future for the birds will be increasingly dire. The assumption that people are the problem limits strategies for conserving threatened and common species. Yet, the Conservation Dependent qualifier affirms that people and science are also the solution. The more people know about native birds and the more communities understand and can support their local biodiversity, the better the future for New Zealand birds.

3.5 My scientific expertise[1] is in animal behaviour and ecology. I have spent the majority of my professional career building opportunities for New Zealanders to interact with and understand native birds. This started with Tiritiri Matangi Island and other island sanctuaries, Waiatarua redevelopment and private sanctuaries such as Tahi (www.tahinz.com/sustainability-biodiversity/). My wife and I live with Threatened species feeding and breeding near our house including Australasian bittern (Threatened – Nationally Critical), Grey Duck (Threatened – Nationally Critical), North Island brown kiwi (At Risk – Declining), North Island fernbird (At Risk – Declining), New Zealand pipit (At Risk – declining), brown teal (At Risk – Recovering), pied shag (At Risk – Recovering), New Zealand dabchick (At Risk – Recovering). We have dogs and these birds have only come here because we put in safe habitat. So, they are here because of us not in spite of us. People and their developments should be viewed as a solution, not assumed to be the problem. Alienating people and their activities is the way to alienate their natural heritage. Managing peoples' behaviour by encouraging appropriate behaviour is key.

3.6 Submissions by the New Zealand Fairy Tern Charitable Trust (**NZFTCT**) (submitted by Glenys Mather) and Mr Ian Southey both provide considerable information on fairy terns. The information in my opinion does not support the arguments they make. Their arguments include the following:

a) Disturbance by people using the wharf will reduce feeding activities of fairy tern, especially feeding associated with breeding including courtship feeding, chick feeding and feeding by fledglings.

b) The proposed wharf will remove an area currently used by individual banded birds for feeding.

c) The proposed wharf will engender increased boat usage which will prevent fairy terns from feeding either because of disturbance or increased turbidity because of boat wakes.

d) Increased human use will see an increase in uncontrolled dog use of the foreshore which will disturb feeding fairy terns (Threatened –

[1] Appendix 1.

Nationally Critical), New Zealand dotterel (At Risk – Recovering), variable oystercatchers (At Risk – Recovering), and eastern bar-tailed godwits (At Risk – Declining).

3.7. Further, Mr Southey and the NZFCT argue that these negative effects are cumulative with the negative effects of the mangrove removal. The submission by Forest and Bird argues that the Coastal Policy Statement requires that all effects are avoided rather than being seen as less than minor. I will now address these propositions and whether there is evidence to support them.

Will the presence of people disturb birds from feeding?

3.8. All animals respond to stimuli in similar ways. The first encounter with a different stimulus (such as the presence of a person, a dog, a wharf) will be increased alert. If there is continuing or heightened stimulus (such as a dog running at them) they will move away. If the stimulus does not escalate but remains the same, animals will likely remain. The next time in the area they will be more accepting of the change and so they begin to habituate. This is equivalent to an acceptance that the stimulus is just another part of their environment and it is not threatening. Habituation is a well understood animal behaviour.

Is there evidence that Threatened New Zealand birds including fairy tern are highly sensitive to threats such as structures, people or dogs in their environment?

3.9. There are multiple examples that show Threatened and At Risk native birds readily accommodate structures in their environment. NZ dotterel (At Risk – Recovering) have their largest breeding grouping among the oil tanks at Marsden Point, another large grouping of this “shore” bird can be found inland on the tailings dams of the Waihi mine. Black-billed gulls (Threatened – Nationally Critical) have established a breeding colony on the concrete dam at Tokanu and another on the wharf at the Port of Napier. Wrybill (Threatened – Nationally Vulnerable) forage around the wheels of international planes at Auckland Airport (even with vehicles moving among them - personal observation) and they also use the roof of nearby deserted buildings at Westfield for high tide roosting. Red-billed gulls (At Risk – Recovering) adopted a downtown building in Oamaru as a breeding site. There are many

other examples such as white heron (Threatened – Nationally Critical) roosting on wharves and white-fronted terns (At Risk – Declining) roosting and nesting on marina piles in Auckland. Most birds readily accept and adopt structures into their environment, and it is likely that the proposed wharf at Mangawhai will be similarly accepted.

3.10. Is there evidence that fairy terns accommodate structures and disturbance in their feeding territories? Pair 9 (third Fig of NZFTCT evidence; Fig 4 of Mr Southey's evidence) have a feeding territory that includes the causeway which is regularly used by both people and vehicles (see Dr McDemott's evidence). Mr Southey has also undertaken fish sampling immediately adjacent to this causeway (Fig 5) and this along with the area of the proposed wharf were the sites with the highest numbers of food fish for fairy terns. In addition, fences and hides are erected in the nesting area – all to assist the birds and they appear to have no detrimental effect. Also pairs in the lower harbour are subject to considerable boat use and a ski lane (see evidence of Dr McDermott).

3.11. Perhaps the presence of people and dogs is more of an issue. I was involved in research into the influence of people on birds at Tiritiri Matangi Island[2]. This demonstrated that a few species moved further away from tracks when people were present (only meters) whereas other species were attracted closer to tracks when people were present. Overall, there was no effect on breeding with the presence of people. Southey (5.18) describes fairy tern as "fairly tolerant of disturbance". Wardens every year put up mesh fences to keep people away from the immediate vicinity of nests, so that people walking by do not disturb nesting birds. The Fairy Tern Trust (para 6) record that they encourage people to go to the area of the proposed wharf to view feeding fairy terns and offer a photograph to show this. So even those people who work closely with fairy terns believe that the presence of people is not necessarily a negative issue. Despite this, Mr Southey describes human disturbance as "the elephant in the room" (7.1) but admits that it has not been studied in this species. Despite this lack of evidence, he suggests that the problem is the density of people. He goes even further to suggest that the bird may have

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[2] Lindsay, K., Craig JL, & Lowe, M. Tourism and Conservation: the effect of track proximity on avian reproductive success and nest selection in an open sanctuary. Tourism Management 29:730-739. (2008).

survived in Northland largely because it is an area of fewer people. In contrast, the number of people in Mangawhai has doubled in the last 10 years[3] and the number of feeding territories on the harbour has increased from 5 to 9. If his argument had credibility, the trend would have been the reverse. Also, the birds at Papakanui on the Kaipara should be the most successful.

3.12. Southey (Fig 8) claims to show the potential for disturbance from walkers and a dog, yet some of the birds in the photo are closer than 10m and are not disturbed. If people have the opportunity to walk their dogs on the wharf rather than on the mudflats, birds will readily habituate to their presence as the disturbance will not be reinforced by actual chasing. Just as birds are habituated to the causeway and associated human activity, so they will habituate to activity on a wharf.

3.13. Mr Southey points out in paragraph 111 that disturbance of bird roosts is unlikely if disturbance is 200m distant or 500m if the disturbance is loud or large. Yet in his experimental measurement of availability of fish for fairy terns, he sampled fish within 200m of the causeway. Given his claims about the potential of the wharf to disturb feeding terns, it could be expected that the causeway would create considerable disturbance and the area of sampling not be used by the birds. Because birds, including fairy terns, will readily habituate to benign disturbance, it is expected that people, people with dogs and even loud vehicles on the road over the causeway will not disturb feeding terns. None of the submitters consider that the causeway is an issue which appears in conflict with their concerns over the proposed wharf. Similarly, at Pataua North where I and many others walk dogs on the estuary and beach, roosts of variable oystercatchers and NZ dotterels are rarely disturbed unless dogs approach within 30m and run at the birds.

Are there cumulative effects after mangrove removal?

3.14. The NZFTC Trust (6) and Mr Southey (3.6 – 3.9) consider that any negative effects of the proposed wharf should be considered as cumulative with the negative effects of the previous mangrove removal. Mr Southey provides a range of measures which he argues demonstrate a negative effect of mangrove removal. He argues that there is an increase in the number of non-

[3] Appendix 1 of Dr McDermott's evidence.

breeding pairs, a reduction in the number of nests per breeding pair and a reduction in the mean number of chicks fledged per pair. This information offers no support for Mr Southey's conclusions.

3.15. Many factors influence breeding of fairy terns. This includes age and experience of breeding birds, effectiveness of predator control (both introduced mammals and native birds), weather events, food availability, availability of mates, number of infertile birds and other chance events. Furthermore, if mangrove removal were a key determinant, it could be expected that those birds who have feeding territories where mangroves were removed would have shown greater reduction in breeding output than those that were not directly affected. This analysis is not provided and all Mangawhai pairs are lumped together. The period of Southey's analysis also included the introduction of a professional trapper for increased predator control (2012-2013) and a season (2018-2019) of no chick production from Mangawhai (including pairs least affected by mangrove removal). This season was also a very low year for all fairy tern breeding sites so was not restricted to Mangawhai (NZFTCT Table 2). Mr Southey also notes that there are three congenitally infertile males in the population (3.7). The number of nests per pair is also a measure of nest failures and hence an increase is certainly not necessarily favourable. Simplistically analysing one factor when there are multiple known variables is an invalid use of statistics.

3.16. Mr Southey argues that there have been fewer nests per pair since mangrove removal and that this is problematic. He suggests this may reflect lower food availability yet Baird et al.[4] record that pairs that lose a nest typically move to the Kaipara Harbour to feed prior to renesting. Hence reduced renesting is not a reflection of food availability at Mangawhai. The reasons Southey uses to link the small difference with mangrove removal are unknown and is confounded by other known differences between the two periods.

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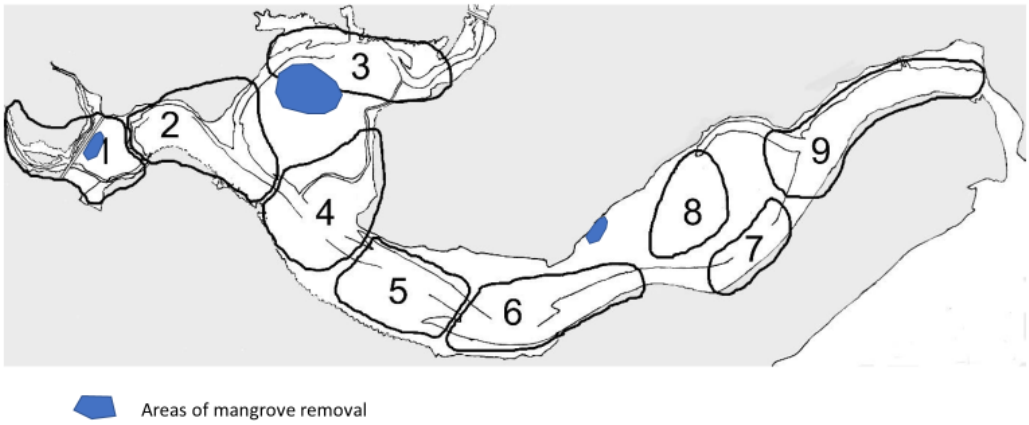
[4] Baird, K; Ismar, SMH; Wilson, D; Plowman, S; Zimmerman, R & Bellingham, M. 2013. Sightings of New Zealand fairy tern (Sternula nereis davisae) in the Kaipara Harbour following nest failure. Notornis 60: 183 – 185.



3.17. Contrary to Mr Southey's assertion that fairy tern have been negatively affected by mangrove removal is the increased number of feeding territories on the harbour (5: 9). Indeed feeding territory size has declined (evidence of Dr McDermott) – the reverse of what could be expected if mangrove removal was detrimental. Also the preliminary results of the fish surveys demonstrate that the site E near the site of the proposed wharf and near the largest mangrove removal (from Sand Island) and Site K immediately adjacent to an area of mangrove removal and adjacent to the causeway are the areas with the highest numbers of feed fish (Southey Fig 6) during January, February and March.

3.18. Considering the potential effect of enhanced predator control from 2012 – 2013, this was followed in the next two breeding seasons by a large increase in fledglings from Mangawhai (NZFTCT Table 2). Given that this bird does not start breeding until an age of 2 (Southey 3.2), the large influx of new breeding birds from the higher nest success following professional pest control would have coincided with the time of mangrove removal. This increase in potential recruitment of younger inexperienced birds could also account for the increased number of non-breeding pairs which Southey argues are a sign of problems from mangrove removal. Fitting information to one possibility when there are other options does not confirm the only one mentioned.

3.19. In my opinion, there is no support for the hypothesis that mangrove removal has negatively impacted fairy terns at Mangawhai. The emphasis by Mr Southey and the NZFTC Trust on avoiding cumulative effects and Mr

Southey's comments (3.9) that mangrove removal could easily be responsible for recent declines in fairy terns should be dismissed. They are contradicted by fledgling numbers in 2020. Indeed, Mr Southey appears to dismiss his own thesis when he records (4.1) that there has been an increase in the number of pairs since mangrove removal!

Will the proposed wharf negatively impact on feeding areas?

3.20. Mr Southey and the NZFTC Trust assume that the presence of the wharf will reduce feeding areas available to fairy terns. Their evidence includes statements such as '*if any part of the harbour is made unavailable for feeding or roosting, the impact will fall solely on the particular fairy terns that use that part of the harbour. Other fairy terns will not adjust their territory boundaries to compensate*" (Southey 5.4). "*Because feeding territories mean exclusive use"* the pair where the wharf is planned "*are fully impacted and there is no adjustment to make any part of the wider habitat available"* (NZFTCT 7.2). These statements are in conflict with the figures of feeding territories in both sets of evidence. Between 2010 and 2019 there have been four new feeding territories added to the harbour and boundaries have changed. This counters their suggestions that territories cannot be adjusted.

3.21. Indeed, the NZFTC Trust appears confused because it states under 5 (para 4) that the proposed wharf "*is close to the confluence of three foraging areas*" but at 6.2, only one pair will be affected. Forest and Bird similarly suggest (3.4) that the proposed wharf is at the confluence of three territories but this does not fit with the map for 2019.

3.22. The evidence provided shows that foraging areas or feeding territories do change. Furthermore, the suggestions of impacts assume that fairy tern feeding and roosting will not habituate to the presence of the proposed wharf. Pair 9 has habituated to the causeway and most animals do habituate to non-threatening stimuli so it appears their "evidence" is just an expression of a concern which lacks support.

3.23. NZFTCT (6, second to last paragraph) and Forest and Bird (3.5) point to the high number of small fish at the location of the proposed wharf. Southey has been leading research into fish abundance and provides data in his Figs 6 & 7.

Unfortunately, these are preliminary results and despite having more than one sample from each site for each time interval (NZFTCT 6 para3), there is no variance shown so it is difficult to understand how different the sites really are. My guess is that variance is high and so differences between sites and months may be less clear. The claim by Southey (6.7 and NZFTCT (6 second to last paragraph that site E near the proposed wharf has the highest number of feed fish appears to hold for one month in one of the years but Site K near the causeway has more fish in some months and even site D appears to have more fish at important times during the breeding season.

3.24. Furthermore, the submitters provide no information that feeding territories in the lower parts of the harbour, which has fewer and larger fish, are in any way detrimental to breeding. Those areas are also subject to considerable disturbance[5]. Cherry picking pieces of information that appear to support an argument is not science. It is advocacy.

3.25. Southey (6.11) states that the greatest amount of fairy tern feeding in the vicinity of the proposed wharf is on the opposing shore 50m from the proposed wharf. He further states that birds do use the harbour within this distance from a kayaker and another person walking (7.2). Birds would more readily habituate to regular use of the wharf than a one-off event of a kayaker plus walker so again a single observation does not support a suggested problem.

Will the construction and presence of the proposed wharf affect the birds?

3.26. Forest and Bird point to the requirement that under the NZCPS all effects are to be avoided. The judgement of the Supreme Court[6] interprets this as it not being necessary that there are no effects just that they are transitory and/or minor. In my opinion, all of the birds listed in the submitters evidence as using the area, including fairy terns, will habituate to the wharf and continue feeding and roosting as before. Hence any effects of construction will be transitory and are timed when the birds are making little use of the harbour.

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5 Evidence of Mr Leach & Dr McDermott.

6 Paragraphs [144] – [145] **Environmental Defence Society Inc v New Zealand King Salmon Company Ltd** [2014] NZSC 38.

3.27. Boat use of the wharf will likely have the same transitory effect as a boat in the channel does now. The photo of the wake of boats in the evidence of Mr Southey (Fig 9) overplays the effect of boats near the wharf in that it was generated by a boat towing a skier which is an activity and at a speed not allowed in the area of the proposed wharf. Both Mr Faris and Mr Leach deal with boat use and speeds in detail.

4. RESPONSE TO DEPARTMENT OF CONSERVATION

4.1. The DoC submission supports some of the points made by the NZFTC Trust. They record (7) that the fairy terns begin to use the harbour in September. They also list the factors that threaten the population (10) and these all relate to breeding activities away from the harbour. Under (12) they do suggest that any "impact of negative human interaction in this harbour would be disastrous". They then point to there being little intensive use of the middle and inner harbour by people at low tide and then suggest that any increase "is very likely to increase disturbance and threaten post-breeding behaviour". They fail to comment on the intensive use of the lower harbour and the fact that it is used by four pairs of fairy tern. It would appear that the birds persist even with intensive use of that part of the harbour so why suggest the other pairs will be different?

4.2 DoC update the Threat status of NZ biodiversity at least every five years. However, in their submission, they record threat status (6) from a pre-2000 publication. The most recent 2017 publication [7] lists NZ dotterel as At Risk - Recovering rather than the higher Threatened – Nationally Vulnerable that is listed in the DoC submission.

5. RESPONSE TO COUNCIL OFFICER'S REPORT (APPENDIX 3)

5.1. Ms Hansen's report (13) claims to identify data, information and assumptions considered in forming her opinion. Unfortunately, she omits to mention any assumptions and also omits to provide data to support her opinion.

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[7] Robertson HA; Baird, K; Dowding; Elliott, GP; Hitchmough RA; Miskelly, CM; McArthur, N; O'Donnell, CFJ; Sagar, PM; Scofield; RP; Taylor, GA. 2017 Conservation Status of New Zealand birds, 2016. Dept of Conservation 23pp.

5.2. In 17 Ms Hansen states that the low number of fairy terns is due to “human impacts”. The first mentioned is predation which results from the hunting of animals introduced during the 18th and 19th centuries. This effect which is the largest cause of past and ongoing loss is not linked to people alive today and occurs regardless of activities such as the current Resource Consent Application. Attributing this to people is a distraction.

5.3. Confounding variables is used again in 19. Here Ms Hansen claims that clutch size has reduced following mangrove removal (quoting Southey). Yet the difference is small (1.68 to 1.56) and Southey (3.6) using dubious statistics showed that there was no significant difference in clutch size before and after mangrove removal. This test also assumes that all pairs using the harbour are affected by the mangrove removal even though it only occurred in two of the nine territories. Surely a test of clutch size of the “affected’ pairs against the “unaffected” pairs in the same seasons would have been a better test of a potential effect of mangrove removal.

5.4. Ms Hansen also claims that infertility has increased since mangrove removal. But so has the number of pairs and the number of non-breeding pairs and an increased number of younger birds of breeding age. The underlying assumptions that allow Ms Hansen to suggest a link to mangrove removal are not stated. Indeed, these changes appear to relate more to the introduction of a professional trapper in 2012 (see 3.18 above) than the removal of a small number of mangroves in 2015. These statements appear to suggest an unquestioning acceptance of Southey’s narrative rather than an impartial assessment of available information.

5.5. In 25 Ms Hansen states that ‘the proposed wharf is within the foraging territory of one pair of fairy terns and is close to two other pairs’ foraging territories.” Yet looking at Southey’s Figure 4, the wharf is in the middle of the foraging area of pair 2.

5.6. When discussing foraging (28) Ms Hansen lists increased disturbance preventing feeding. Yet pairs 6, 7, 8 & 9 have feeding areas in part of the harbour that includes the ski lane and boat launching areas that see considerable human activity during the peak of the breeding season (evidence of Mr Leach & Dr McDermott). These birds appear to accommodate this effect

so why will lesser activity from the wharf be catastrophic? No evidence is given.

5.6. Ms Hansen (28b) also repeats the concern of other submitters such as Southey that the wharf will increase recreational use of the area around the wharf ”from people walking and having dogs in the area.” This issue has little to do with the wharf. This issue of people and dogs is raised by others and can be solved for the whole harbour by Council imposing a ban on such activities during the breeding season. Alternatively, as my local Landcare Group has done, signs can be erected guiding responsible dog exercise behaviour.

5.7. Under 29, Ms Hansen omits to include her assumption behind the statement that territories are fixed and boundaries cannot change. As mentioned above, Mr Southey and the NZFTC Trust provide evidence that boundaries do change and if they did not fairy terns' behaviour would be unique in the bird world. Ms Hansen also assumes under 28 & 29 that the well known behavioural response of habituation does not occur in fairy terns. As she knows, fairy terns do habituate to the intensive management undertaken at nests.

5.8. In 30, she again repeats the unsubstantiated claim that fairy tern breeding has been impacted by mangrove removal and assumes that the wharf will eliminate the feeding territory of pair 2.

5.9. Under 31 she reduces construction time to between 1 April and 31 July. Others (NZFTC Trust and Southey) suggest 1 April to 1 September. No clear justification is given for the earlier stop to construction.

5.10. As a consequence of the above examples of misuse of information and lack of declaration of dubious assumptions Ms Hansen's statement in 33 that in her opinion the proposed wharf will have significant adverse effects should be considered as lacking support.

6. CONCLUSION

6.1 I stand by my earlier evidence that the effects will be less than minor and transitory.

Appendix 1

JOHN LAURENCE CRAIG

EDUCATION:

1990	Cert. General Management	Auckland University.
1975	Ph D	Massey University
1970	B Sc (1st Class Hons)	Otago University

KEY POINTS:

- Active in University of Auckland senior management (former Professor of Environmental Management: Deputy Dean of Science, Head of School of Environmental & marine Sciences).
- Active researcher with widely targeted publication record (103 referred papers, 2 books edited, 68 other publications).
- Broad environmental science / ecological skills that use an understanding of management, economics and social issues for research and policy that is aimed at effective environmental management.
- Extensive involvement with private and public initiatives that enhance biodiversity and public interaction with their natural heritage (started with Tiritiri Island).
- Independent consultant with Green Inc since 1998.
- Member NZ Ecological Society NZ, Birds NZ, Society for Ecological Restoration, Chair of Kiwi Coast Trust.

My experience includes the assessment of ecological effects associated with wind farms, subdivisions, mines, sustainable native forestry, motorways, bridges, reserve designs and various private and public developments. I have acted for Councils, Government Departments, Iwi, NGOs, companies and private citizens. I have also prepared assessments of resource consent applications for Councils. Whilst the majority of these have been in the upper North Island, a number have been in the South Island. Issues related to birds are a particular strength. I have also served on threatened species recovery groups and am a former member of the Auckland Conservation Board.

Awards:

2012	Officer of New Zealand Order of Merit for services to conservation
2009	Companion of North Shore City
2008	Life Membership of New Zealand Ecological Society
2001	Charles Fleming Medal for environmental achievement, RSNZ

1999 Distinguished Achievement Award, Society for Conservation Biology
(*for extraordinary leadership in the application of conservation biology to New Zealand's conservation challenges*)

1997 - 2000 LINK Fellowship, British Council

1990 - 2002 International Ornithological Committee
(fellowship, restricted to 250 worldwide)