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Introduction.

My name is Frances Hall. I have lived at Sandspit for 20 years.

I have a BA in two foreign languages and have completed four Science papers towards my BSc.

I am a Primary School Teacher with current registration and current Practising Certificate.

I have been a member of Forest and Bird for 40 years.

I am a current member of Miranda Naturalists' Trust (M.N.T.) and the Ornithological Society of New Zealand (O.S.N.Z.).

Although I have a deep love for our estuary it has in no way clouded my accurate and focused observations over this intensive survey period from 24 January 2010 to the 17th April 2010.

This detailed evidence is in response to the Commissioners request on January 22nd, 2010 for conferral with ornithologists, to the applicants of Sandspit Yacht Club Marina Society (SYCMS).

I thus took them literally and started my own investigation for obvious reasons.

I have sought advice on bird watching techniques from several reputable sources, including Gwenda Pulham of Fairy Tern Conservation fame and long term member of O.S.N.Z. and Eila Lawton of M.N.T.

I have sought information and advice from Dr John Dowding, who amongst other areas of expertise is on the Expert Panel Membership of The N.Z. Threat Classification System (N.Z.T.C.S.) of Dept of Conservation (D.O.C.) and one of two authors of the N.Z. Dotterel Recovery Plan. 2004-2014.

I have consulted with Miranda Naturalists' Trust. After consultation with David Lawrie (President OSNZ) and Keith Woodley, the plight of the Matakana estuary was discussed in M.N.T. council meeting. I was thus sent a letter concerning the Matakana

estuary which I include in my appendices. I intend to read it in it's entirety. It directly addresses the Poynter Supplementary Evidence.

Other experts who have aided this scientific enterprise are;

Dr. Robert Hoare, of Landcare Research, Lepidoptera Curator.

Mr Alan Emerson, chairperson of North Shore Forest and Bird, (moths expert)

Mr Dene Andre, chairperson of South Auckland Forest and Bird, (Native freshwater species expert of the Native Freshwater Fish Soc. He was involved in the Orewa bypass motorway fish passage.

Dr Peter Maddison immediate past President of Forest and Bird.
I will call on Dr Peter Maddison, as my expert witness, after my presentation.

I have cross referenced the Power Point Presentation (PP) with this written presentation of evidence, wherever possible.

1.0 **Roosting Areas**

The only remaining roosting beach, for waders, in the Matakana Estuary is on the western side of the spit. It will not only be threatened but also eliminated if there is a consent for the proposed Sandspit marina. (Refer to the Beach Roosting Areas of Sandspit.A3 coloured photo in the appendices).

This is the only remaining roosting beach because of human interference on all suitable sites on the east side of the spit. There are no other suitable sites within the Matakana estuary. Three of our members (A. Asher, M. Taplin and F. Hall) have spent much time investigating every 'nook and cranny,' from the estuary entrance to Kawau Bay, to the North, North-Eastern, Southern and South-Western reaches of our estuary, frequently, at high tide, in quiet kayaks. I alone, have probably spent at least 50 hours in my kayak, since 23 Jan 2010, investigating, recording, and photographing the bird life of the Matakana estuary. Such is the passion I feel for this beautiful area, I call home.

The birds, already easily disturbed by human and dog activity, will be forced out of the estuary to roost. Years of construction, with it's ensuing noise, machine movement, spectator and construction staff presence, destruction of beach contour, creation of a new beach, i.e. a convenient place to dump excavated sand, followed by degradation of the current beach, not frozen in form (App. M. 4.3.2. Poynter) will all lead to it's demise.

The shelly, sandy beach is currently, continually naturally replenished by wave action on sand and shells. This will cease if the marina is constructed over some of the foraging areas blocking the passage of same.

The current roosting areas are what the birds have chosen, suiting their requirements.

The order of vulnerability to disturbance of our waders are as follows; Godwits, Pied Stilts, Caspian terns, SIPOs and VOCs. The Godwits are the most easily disturbed.

1.1 The beach which is the western face of the car park lagoon is currently a favoured roosting spot (PP10) and has been, presumably since the shell banks were formed. They are certainly there in the 1930's photo, (PP10).

Note that in the 1992 photo of this beach,(PP22) taken in winter, the beach hosts not only 2 winter flocks of Godwits but also a flock of South Island Pied Oystercatchers (SIPO).One will notice a single Royal Spoonbill. The migration of the Royal Spoonbills from the South Island settles by June, each year. The number annually

which stays in our estuary, regularly roosting on the beach, settles at about 8 birds.(Gwenda Pulham. OSNZ)

If one counts the SIPOs in the photo, one will see that the number of these birds is consistent with current S.I.P.O. numbers.

Refer to 'Bird Count by Species, Roosting Areas on Spit' (Refer Appendix). (PP 5).

On March 9, there were 90 SIPO and 7 VOC.

The barge left anchored and tied illegally to mangrove trees currently on that beach, must be removed to allow adequate roosting area for SIPOs Variable Oystercatchers (VOC).Godwits, Caspian Terns and Pied Stilts and Royal Spoonbills. These birds, just like humans, like to stand with spaces between them. Restlessness and fighting breaks out, stressing the birds when their personal space is restricted. Further, roosting birds desire as close to a 360 deg line of view as possible, to feel safe.

1.2 SIPOs, VOCs and Caspian terns are well known for roosting on the car park, close to the roosting beach. When the car park is full, as it frequently is, the same birds, head for the beach. Crowded cars and trailers eliminate their sight line, apart from endangering the birds themselves.

1.3 The sandbar of the Dean's Island lagoon and the lagoon itself are also favoured roosting areas for SIPOs, VOCs, Pied Stilts, Caspian Terns, Godwits, and White Faced Herons.

1.4 When the tides are particularly high, birds use the grassed area of the recreation reserve area, the lower reaches of which, surrounded by glasswort and sea primrose become an additional, very small lagoon.

1.5 The current remaining roosting areas are the most sheltered from cold south west winds.

Not only birds but also squatter yachts choose this small area for the same reason. The squatter yachts need removing. The marina proposal needs declining.(PP26)

The birds must keep their favoured customary title to their roosting areas.

1.6 Amenity Value of the Roosting Areas.

'Wiktionary' defines amenities as, "The quality of being pleasant or agreeable whether in respect to situation, climate, manners or disposition".

The amenity value of these roosting areas fits the definition requirements for our birds.

Not only does it fit the birds, but also the Matakana estuary's birds, on their roosting areas have great amenity value to humans, if we use the same definition.

1.7 Recreation Reserve.

The roosting areas are on Recreation Reserve and these reserves include native fauna and flora. Recreation means not only relaxation and play areas for humans, but also re-creation for our fauna and flora. Birds should be able to re-create without human interference.

1.8 Thus, the effects of the disturbance and destruction of these areas are not minor. They are MAJOR.

2.0 Foraging Habitats

One can not separate the birds of the estuary from their foraging habitat.

I will focus on the diet of just three of our species of shorebirds.
A more detailed foraging list for various species is included in the appendices.

The SIPO., the Northern New Zealand Dotterel and the Godwit.

2.1 South Island Pied Oystercatcher (SIPO)

Threat status: At Risk (Declining) (PP4)

SIPOs eat mainly molluscs, especially bivalves, chitons, estuarine worms, small fish and crustaceans, such as crabs.

It is estimated that one SIPO. may eat 230 (Bradstock) to 350 (Arkins) cockles per day. If one takes an average of those two estimates, one bird may eat, on average 290 cockles per day. There was an average of 68 birds (not including VOCs which have a similar diet) daily, during the 33 days of counts, on the roosting areas at high tide. Therefore, on average, there are possibly 19,700 cockles per day, being eaten by hungry autumn and winter SIPOs.

SIPOs are not the only species which eat cockles. Cockles are favoured by both bird and fish species.

Not one area of cockle bed in the Matakana estuary should be permitted to be destroyed or disturbed.

2.2 Northern New Zealand Dotterel (PP24-31). Threat status: Threatened (Nationally vulnerable). Conservation dependent (PP4).

N.Z. Dotterels eat crustaceans, such as crabs,(the larger ones bashed into pieces), shrimps, small molluscs such as nut shells, small fish, insects, spiders and worms. Banded dotterels have a similar diet when at the coast.
Is it any wonder that they love the low tide beach of the proposed marina footprint, so rich in these delicacies.

2.3 Eastern Bar-tailed Godwits (PP15-23)
Threat status: Internationally threatened migrant by habitat loss. (Woodley. P216)

Godwits eat small pipis, small mussels, wedge shells (Macomona), nut shells (Nucula) and other small bivalves, whole, such as cockles, crabs (dismembering them before swallowing), insects, small amphipods, ostracod crustaceans, small gastropods, fish, shrimps and especially Polychaete worms.

“They eat day and night,” depending on the state of the tide. “Disturbance either of feeding or roosting grounds only adds unnecessary stress.”(Woodley P61)

“A Godwit needs to double it’s mass before a migration flight, which means it must find good feeding habitat before departure, … if it is to survive the journey and arrive on the breeding grounds, in Alaska in good condition. Degradation or loss of such habitat increases pressure on remaining habitat, which has to support greater numbers of birds, ultimately threatening the migration of Godwits.” (Woodley.P.215)

“Any factors decreasing foraging success could force them to move to another area.” (Woodley P.61).

These birds fly non stop from New Zealand to the Yellow Sea, a journey of approx. 10,300km and to Alaska it is a further 6,500km. (Hunt)

Their need to fly out of our Matakana estuary,(PP20) daily at high tide, due to human disturbance on the roosting beach, could, as Woodley says threaten the migration and ultimately the breeding success of (our) Godwits. (Woodley P217)

Godwits tend to be site faithful.(Woodley P216). It is my opinion that we see the same birds or their offspring year after year. The only change is that their roosting area at Sandspit is currently perceived, by the birds, as too risky to settle on, during high tide.

2.3.1 This problem can be reversed.

Human Interference can be minimised to at least 1992 status by legislation, it's enforcement and community good will.

No cars parked on the roosting beach, no squatter yachts, no dogs and a limit to human presence on those areas.

There is increasing public awareness of this amazing species, highlighted by Janet Hunt's book "E3 Call Home". 2009

A marina would destroy the Matakana estuary's chance of seeing these amazing birds roost at Sandspit ever again.

2.4 All these birds need a high protein, quality diet to ready themselves for moult, followed by successful breeding.

"The whole environment of a mudflat is said to be as rich in the comparative amount of food it produces as a tropical rainforest." (Ell.P.52)

"An estuary is typically four times more richly productive than that of good New Zealand grassland." (Woodley P56)

The proposed marina footprint is a rich foraging area for many bird species. Not only is it a rich foraging area, but it also acts as a nursery of colonisation for other foraging areas.

Currently the birds foraging there are not as numerous as the area could support, due to human interference (Illegal squatter yachts, illegally parked cars, and people walking with or without their dogs. I have seen the dogs chasing after the wading birds, from time to time).

Dogs represent Arctic foxes which predate Godwits, in Alaska.
Humans represent predators to Godwits since they are part of the human diet in some parts of the East Asian Australasian Flyway, including illegal harvesting in New Zealand.(Woodley. P127/128.)

Most people, to whom the similarity of appearance of domestic dogs and foxes is explained, are happy to desist bringing their dogs to this stretch of beach, knowing that there are many kilometres of beach on the eastern side of the spit, from Sandspit to Brick Bay and on to Snells Beach, offering very pleasant, interesting walks. No shore birds appear to nest along those kilometres and any Little Blue Penguins nesting areas will have long gone due to shore based predators and domestic dogs' freedom

The current decreased use by shore birds of the proposed marina footprint can be changed, by legislation and community action. Whereas a marina's effect can not be mitigated, as the whole area with it's rich diversity of biota, will be removed, if a consent for it's construction is granted.

The proposed destruction of marine biota and bird habitat is not minor. It is MAJOR.

In the decision to decline the proposed marina at Tairua, (A108/2005) Judge Shepherd said;

"[333] We accept from the evidence that the birds for which protection is required do use the marina footprint area. Whether that is transitory or ongoing is not significant. We are not able to assess with any certainty whether the proposed roosting areas on the breakwaters will be effective. But the proposal would physically alter an area of estuary that the birds inhabit, and they would not be able to use parts of it which are currently available to them."
There will be similar loss of roosting habitat (the beach/shoreline) and feeding habitat (the inter-tidal area) at Sandspit should the proposed marina be allowed to be constructed.

"Overall the intertidal footprint of the proposed marina should be regarded as a productive and healthy area of invertebrate habitat. It's removal to create a marina basin and the associated structures is MORE than a minor adverse effect and can only be justified on the basis of a strong and unequivocal community demand for a marina facility and an absence of practical alternatives that would have a lesser impact." (Poynter. Appendix M 4.1.1)

There is a strong community demand, to have NO marina.

Dr Peter Maddison orchestrated a community benthic survey of this area. (31 March 2010) Following my presentation, he will address this foraging habitat and other related material, in detail.

2.5 Poynter (App M and Supp. Evidence) estimates that the removal of the proposed marina footprint area will represent just 1.6% of similar feeding area in the estuary.

From my observations of where birds forage, and the effects of human disturbance, this figure is grossly inaccurate (PP37).

(Refer to appendices for traced map of estuary and calculations.)

I have taken Fig 5 of Appendix M and assigned letters to areas which he marked as similar feeding areas.

Area A. The proposed marina footprint,.

Area E. Shark Bay

This is not similar feeding area. It is deep mud, overlaid with cockle shells, which have presumably been deposited there by wave action from the opposite cockle beds. Investigating that area by kayak and on foot, sinking deeply into the mud, I found only 3 live cockles in about a metre square and digging to a hand's depth. Further, only an occasional Pied Stilt feeds there. Black Backed Gulls breed in that bay. Therefore it does not appear in calculations.

Area D Cockle beds between the wharf and the Sandspit camp.

Much of this area is similar foraging habitat.
However, it is only in the main, available to the birds for foraging, in off peak human activity periods.

SIPOs, VOCs, Godwits, NZ Dotterels and Banded Dotterels need these areas at exactly the same time as human peak use of them. At these times one can observe some birds using the far fringes, closer to the estuary entrance. The majority move to area B (Rainbow's End cockle beds) Further, the effects of children in particular,

collecting biota of all types, degrades the close to shore habitat. Too many parents do not instruct their children in "looking, but not taking," from my observation. The parents do not back up what primary schools teach in the curriculum, from my observation.

Area C. Tongue Farm cockle beds

Godwits, SIPOs, VOCs, and Red billed gulls, amongst other non waders use this area. It is a similar feeding habitat.

Area B Rainbow's End cockle beds.

These stretch from Rainbow's End to the Glen Eden River and Matakana River. However B(i) is not similar feeding habitat. It is mudflats, rather than cockle beds. with many overlaid cockle shells and sprouting mangroves.
I have not witnessed Godwits feeding there, or NZ Dotterels. A few SIPOs use it from time to time. Pied Stilts are more frequent there, along with herons and Kingfishers, reflecting their preferred diet as they move around the muddy areas of the estuary.

Area F Channel Island and attached 'peninsula'. Both 'peninsula' and 'channel island' are joined at very low tides.

It is similar feeding habitat. It is very popular with Godwits, SIPOs, and VOCs, It's low tide fringes and the very shallow channel between there and the main cockle beds are popular with Royal Spoonbills, Reef herons, and White Faced Herons.
This area would be excavated along with Area A

Rather than 1.6% (Poynter) the proposed area, based on my data represents approx.8.6% of total similar feeding area. (PP 37 and attached appendices.)

However, at peak human interference of Area D, the proposed excavated area will represent closer to 34.6% of similar feeding areas.

2.6 Not only does the proposed marina basin, the excavation of the channel and it's associated areas of intertidal banks (Areas F and part of B), decrease considerably the foraging areas of birds, along with it's benthic population and fish species' inhabitants, it also has the collateral damage, stretching further into Area B, as foraging birds avoid the disturbed areas, remembering that proposed construction and the resulting disturbance stretches into years.

2.7 Poynter argues (App. M and Supp. evidence) that only a tiny proportion of similar habitat will be lost. I argue that his estimate is considerably incorrect. If a marina is constructed there will be inevitably loss of habitat by all the above-mentioned species.
The loss of intertidal habitai for shorebirds will have an impact on them, even if the marina footprint is used for a short time in each tidal cycle.

I attest that the destruction of roosting beaches, along with the excavation of the proposed marina footprint and Area F will virtually see the end of the Matakana estuary as a viable, diverse bird habitat.

3.0 Ramsar convention, Resource Management Act (RMA) and New Zealand Coastal Policy Statement. (NZCPS) (PP34)

3.1 The RMA and the NZCPS which gives effect to the RMA, in the coastal zone, both say that it is a national priority to protect significant habitat of indigenous flora and fauna.

Policy 1.1.2 of the NZCPS says;

"It is a national priority for the preservation of the natural character of the coastal environment to protect areas of significant indigenous vegetation and significant habitats of indigenous fauna in that environment by:

(a) avoiding any actual or potential adverse effects on…
…(ii) areas containing nationally vulnerable species…"

This is a strong statement. It means that actual and potential impacts need to be avoided, not just mitigated.

There are six Nationally Vulnerable species in the area.

They are; Reef heron, Northern New Zealand Dotterel, Banded Dotterel, Caspian Tern, Red-billed Gull and Pied Shag. (Conservation Status of New Zealand Birds, 2008. Miskelly, Dowding, et al.) (PP4).

Black-billed gull

In the Poynter report (App. M 3.7) Black-billed gulls are said to have been observed (Bioresearches 1985,1988).

During my intensive observations in all areas in the Matakana estuary, I did not observe this species.

The black-billed gulls which I did observe appeared to be juvenile Red-billed gulls. 'Sea and Shore Birds' (Medway) states ; "Black-billed gulls are found mainly inland eastern South Island. on larger rivers, lakes and arable land. They disperse after breeding, mostly to coastal areas, some migrating to southern North Island." However, in private correspondence with Dr John Dowding, he states that it is possible for Black-billed gulls to be present in the Matakana estuary.

If indeed there are Black-billed gulls then the Matakana estuary has six Threatened (Nationally Vulnerable) species and one Threatened (Nationally Endangered) species.

Under the NZCPS, potential impacts on them should be avoided.

3.1 **Godwits, SIPOs and Royal Spoonbills.**

Since Godwits forage in the estuary, pre-migration, along with over wintering birds such as SIPOs and Royal Spoonbills the NZCPS (Policy 1.1.2) applies to them.

"It is a national priority for the preservation of the natural character of the coastal environment to protect areas of significant indigenous vegetation and significant habitats of indigenous fauna in that environment by;

(b) avoiding or remedying any actual or potential adverse effects of activities on the following areas…

…(iii) areas important to migratory species, and to vulnerable stages of common indigenous species, in particular wetlands and estuaries.

This specifically offers protection to the habitat of migratory species, which includes in the Matakana estuary, Godwits, SIPOs and Royal Spoonbills.

The loss of inter-tidal habitat for shorebirds including Godwits and NZ Dotterels would have a significant impact on them. The NZ Dotterel, has a very vulnerable stage of it's life during nesting.

Added to this, the Long Finned eel is an endemic, migratory species.
The above policy therefore refers to this species.

Although not a bird, the BrickBay Stream which flows through the proposed marina footprint has been demonstrated to be a significant habitat for long finned eels (Dene Andre's survey of 19 April 2010).
The long finned eel is assessed by DOC as a Threatened species.

3.2 Ramsar Convention (1971).

New Zealand is a contracting party to this Convention, which came into force in this country in December1976. The Convention covers estuarine and coastal habitats (Strategic Framework, Appendix A) and specifically includes shorebirds (Strategic Framework, Appendix B)

Criterion 2 states that:
"A wetland should be considered internationally important if it supports vulnerable, endangered, or critically endangered species or threatened ecological communities."

The NZ Dotterel, Banded Dotterel, Caspian tern, Pied Shag, Reef Heron, and Red-billed gulls are all Threatened (Nationally Vulnerable).

Therefore, under Ramsar Criterion 2 ,Matakana estuary is internationally important and I would argue constitutes significant habitat for the NZ Dotterel which is

conservation dependent for it's continued survival, along with the 5 other Nationally Vulnerable taxa.

Add to this the Black-billed gull,(Nationally Endangered) which Poynter attests is present in the Matakana estuary.
The above conditions of the Ramsar Convention and NZCPS apply to these species.

4.0 At Risk Species and Naturally Uncommon species (PP4).

At Risk (Declining) species.

Pied Stilt,
South Island Pied Oystercatcher SIPO,
White Fronted Tern.

At Risk (Recovering).

Variable Oystercatcher VOC

Naturally Uncommon species.

Little Black Shag (migratory, currently arriving. April 2010. Annual winter population.
Royal Spoonbill (migratory, currently arriving. April 2010. Annual winter population. Migration settles in June. Number of birds usually settles to 8 (Gwenda Pulham. OSNZ).

Contrary to Poynter (Supp. Statement of Evidence), Royal Spoonbills are NOT an occasional visitor. There is a regular winter population of 8 Spoonbills. The residents of Sandspit eagerly await their arrival. Their displacement from the roosting beach will be a loss of amenity to both the birds and to those who gain so much joy from their presence.

Banded Rail. (Probably due to local predator control, this species is on the increase with frequent sightings.)

5.0 Reverse Displacement.

Poynter (App. M 4.3.2) and Supp. Evidence 6 and 7.

Poynter suggests that the Matakana Estuary's birds can fly away to another estuary such as at Whangateau or Tawharanui.

This reveals a severe lack of understanding of bird ecology and a lack of appreciation or understanding of the results of conservation efforts at those alternative sites.

5.1 NZ Dotterels were attempting to breed at Sandspit in 1992. (PP24,24)
The birds in breeding plumage and the attempts of the birds to 'lead me away' type behaviour, attests to this.

Poynter (Supp.evidence.6) states that DOC (Warkworth) refers to these sightings as anecdotal.

Photos of these birds, caught on film camera, after being banded are NOT anecdotal.

5.2 As DOC and community based conservation in such areas as Omaha result in increased population, in particular of the Northern NZ Dotterel, which has a conservation dependent status attached to it's Threatened / Nationally Vulnerable status, young birds will tend to move away from such protected areas and look for new territory to re-populate.

In other words reverse displacement takes place, making our Matakana estuary, essential to Dr Dowding's Recovery plan. The following are quotes from this plan.(2007);

"4.1"Long term recovery goals.

"Threats to Northern NZ Dotterels to be managed and habitat protected so that present distribution is secured, the breeding range has expanded and the population has increased to at least 2200 birds by 2030.

…… "4.2.1 Management

The population of the northern sub-species.." (i.e. The one seen at Sandspit. My comment.) "to have increased in size to 1900 birds and there to have been no loss of range by 2011 census."

"3.2 Cultural importance

"Because the NZ Dotterel is endemic, in low numbers and is vulnerable to predators and development, many people, particularly residents of the North Island coast are increasingly advocating it's protection."

(NZ dotterel recovery plan, 2004-14. Dowding and Davis. 2007)

The Matakana estuary, on one day of observation alone had 14 NZ Dotterels (12.4.10) foraging at Sandspit. This was witnessed by 3 people. (PP31)

Seventeen NZ Dotterels constitutes 1% of the population of this species, close to the threshold required for it to become an internationally important site under the Ramsar Convention Criterion 6.

Criterion 6 states that:

"A wetland should be considered internationally important if it regularly supports 1% of the individuals in a population of one species or sub-species of waterbird."
" 1% of the dotterel population is 17 birds." (Dr John Dowding in private correspondence with F. Hall.)

In the commissioners' wisdom to decline the marina proposal, we can swing into action as a community to aid Dr Dowding's aim, now that we know there are so many foraging NZ Dotterels at Sandspit. If Omaha can do it we can do it.

As soon as we know that the marina application has been declined, then I, for one, will be applying to the Miranda Naturalists' Trust to attend the 2010 'Conservation Management of NZ Dotterels-Training Course in September this year, which is run by Dr Dowding.

However, if the marina is consented, the chance of NZ Dotterels breeding successfully at Sandspit will be most unlikely.

This is a MAJOR impact, not a minor one.

6.0 Cumulative Effects.

Not only must one consider the effects on the roosting areas at Sandspit and the foraging areas in the Matakana estuary, one must consider the cumulative effects.

6.1 The definition of effects in the RMA includes cumulative effects.

"Meaning of Effect

In this Act, unless the context otherwise requires, the term effect includes----
(d)any cumulative effect which arises over time or in combination with other effects-regardless of the scale, intensity, duration or frequency of the effect".

I quote from a brief of evidence which Dr John Dowding wrote on this topic, referring to NZ Dotterels.

"In assessing potential effects on NZ Dotterels locally, I believe it is also useful to consider the status and future of this taxon in a broader context. More than 80% of the population of Northern New Zealand Dotterels is now found on the coastal strip

between North Cape and East Cape (Dowding and Moore 2006). Within that range, the taxon is widely spread, with the majority of sites having relatively few birds. This distribution results in a perception that impacts on any particular site may be acceptable because they affect only a small absolute number of birds. However the North Island east coast is subject to heavy and increasing pressure from the human population, particularly through housing and marina developments and recreational use of the coastline. As noted in the New Zealand Dotterel Recovery Plan. (Dowding and Davis 2007);

"In the medium to long term, the **cumulative** impact on a few pairs at many sites will inevitably have an adverse effect on the taxon as a whole, by reducing numbers and range."

At the Environment Court hearing about the proposed marina at Tairua, Dr Dowding used much the same wording.

In his decision on the case (A108/2005), Judge Shepherd said

"[491]…

> [b] Those direct physical alterations would have….more than minor adverse effects on marine bird life which currently frequents Paku Bay….The loss of habitat would be cumulative on earlier loss of habitat elsewhere."

Note, that there has been considerable loss of similar habitat on the Sandspit .(PP7) No more habitat should be allowed to be destroyed.

Please refer to David Lawrie's letter to me. 25 February 2010.
"A factor which is often overlooked when considering specific developments on our coastlines, is the CUMULATIVE effects of multiple small-scale projects……we are also aware of the need to conserve shorebird habitat in this country."

And further he says: "The destruction of even relatively small estuaries increases the pressure on other areas or reduces the population of the species."

6.2 As far back as 1999, Forest and Bird's conservation director, Kevin Smith, is quoted as saying;

"Environmentalists warn that time is running out for migratory and coastal birds if developers continue intensive development around the New Zealand shore.
Such development was leaving coastal birds with a dwindling number of quiet estuaries and coastal areas essential for their survival."

In 'Godwits',(2009) by Miranda Naturalists' Trust author Keith Woodley, says;

"More effective protection of remaining habitat would be a good move. Holding the line, such as a moratorium on further development of intertidal areas within the range of Godwits, would be an effective starting point. Restricting our activities and disturbances within these zones may also be required."(P224)

7.0 Conclusions.

7.1 In order to attempt to protect the Matakana estuary, from the greatest threat it has had since the last marina proposal in the 1980's, the community has been burdened with an enormous financial, emotional and time cost.

However, in the wisdom of the commissioners ,the marina proposal being declined, the cost will have been worth it.

Further, a declined proposal will be the catalyst to form a Matakana Estuary Care Group, with the ongoing study, conservation and predator control needed to foster the protection of our beloved harbour and environs.

7.2 I will leave the last word to David Lawrie, Chairman of Miranda Naturalists' Trust and President of Ornithological Society of New Zealand.
In his letter to me of 25th February 2010, he says;

"The Trust therefore believes that every endeavour should be made to retain the present shorebird habitat and in particular the feeding areas and roosting areas within the Sandspit estuary".

We of the 'Save Our Sandspit Society', totally agree with him.
This marina proposal must be declined in it's entirety.

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G. Ell, G.Moon.1984

Shorebirds.
A. Arkins, L. Doel 2004

The Field Guide to the Birds of New Zealand.
Heather, Robertson 1996

Equipment used for Bird Observations.

Binoculars; Meade 8x21 383ft-1000yds

Bushnell-Sportview. 10x50 268ft-1000yds.

Cameras; Ricoh Shotmaster 130 Super f =38-130mm.
With zoom lens, panorama function, macro-function
2010 photos Film camera

Ricoh KR-5 Super SLR manual
XR Rikenon 1:2.2 55mm
1992 photos Film camera

Canon EOS 400D Digital autofocus with 120-400mm f 1:4.5-5.6 APO HSM at a range of approx 30-40m.
Dotterel photos on 1.4.10 and 12.4.10

Film; Fuji colour. X-TRA 400

Observations for high tide roost counts.

On foot, using binoculars.

Observations of Godwits for counts and photos, and birds around the estuary, from kayak, as close as practical.

Appendices

Bird count spread sheets.

- Bird Count by Species, Roosting areas on Spit
- Dotterel Sightings, Sandspit , Summer 2010
- Godwit Account by Location
- Godwit Count, from Rainbow's End, Feb-April. A. Asher
- Wader Count by Location-West side of Spit.

Beach Roosting Areas of Sandspit A3 Colour Photo.

Maps

- Similar feeding area map.
- Calculation grid for estimate of real area of foraging to be destroyed by proposed marina.
- Estimates of real of real area of foraging to be destroyed by proposed marina.

Miranda Naturalists' Trust letter to Frances Hall of Sandspit SOS Inc

NZ Threat Classification System (After Townsend et al. 2008).