

NAVIGATION REPORT

ON APEX MARINE FARM LTD'S PROPOSAL FOR

NEW OYSTER FARMS IN ONAPUA BAY

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BY

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1. Executive Summary

- 1.1 Apex Marine Farm Ltd has asked me, because of my qualifications and experience as detailed below, to assess the effects on navigation of Apex Marine Farm's proposal for new marine farms sited in Onapua Bay. There is some conjecture about the name of this Bay. Originally the whole bay was known as Opuia, not just the head of the bay, as it is now, and Anapua/Onapua the name of the farm in the bay. Because that was the name on the mailbag, (as has happened elsewhere), it gradually became the name given to the bay itself.
- 1.2 However, that aside, in summary, my view as an experienced navigator, both within Marlborough and elsewhere is that, if the proposed farm is set up according to the planned layout and meets the conditions that I believe the harbourmaster will impose on it, then it will have the following effect on navigation in the bay:
- 1.3 Vessels accessing Tawa Bay and Opuia will have to move slightly further south if they wish to stay in the middle of the fairway between the farms and the South west shore of the bay.
- 1.4 In complying with the letter of the 200 metre 5 knot rule, vessels will have about 200 metres extra to steam at reduced speed until clear of the South end of the outer farm.
- 1.5 In terms of the conditions:
 - (a) The farms will have to be lit according the Harbourmaster's instructions.
 - (b) I recommend the use of at least 2 radar reflectors marking the seaward extremities of the outer farm.
- 1.6 My understanding of the nature of oyster farming means that there is only a small amount of crop carried on the longlines compared with mussel farming, so using the same anchoring methods as used with mussel farms will ensure that there is no chance of a longline breaking free.

2. Introduction

Current Position

- 2.1 I am now retired from my last employment as Master with Interislander, because of ill health.

History of life and involvement in the Marlborough Sounds

- 2.2 In brief, I grew up in the Pelorus Sounds and worked in my grandfather's long established family business, Eric Johnson and Sons Ltd. The business involved passenger launches, mail launch contracts and barging operations. As a family we were also involved in logging the last of the available native timber in the Sounds and in general bulldozer work in the Sounds.
- 2.3 We later converted one of our vessels to a fishing vessel for trawling, scalloping, tuna fishing and mussel farm work.

- 2.4 Also during this period we had the use of, and later owned one of the last coastal scows, the Vesper, which we used to carry logs as well as a bulldozing support vessel. Also, for a short period during this time I was commercial fishing in my own vessel.
- 2.5 I then went to sea and was away from the area continuously for about 4 years, by which time I was a qualified junior deck officer and working under an employment contract which had leave provisions in excess 6 months per year. By this time E. A Johnson and Sons had been split up and partially sold.
- 2.6 The boatyard, the fishing vessel and the barging operation were retained in the family as separate entities.
- 2.7 The bulldozing business was sold soon after putting in fire breaks at Onapua for the intended pine plantation.

Aquaculture

- 2.8 I, through the family trust, am a member of the Marine Farming Association. The trust owns mussel farms at Yncyca Bay, Old Homewood Bay and in Port Gore. Within my immediate family there are also farms owned at Maori Bay and Port Underwood.
- 2.9 I have previously appeared as a witness on navigational matters involving aquaculture before the Marlborough District Council, either in support of, or in opposition to the application.

Marine Education and Training

- 2.10 By 1986 I had left the sea and was working as a tutor at the New Zealand School of Fisheries in Nelson. Later, the then Ministry of Transport divested the examining role to us. I was involved in tutoring and examining all subject areas (except engineering) in all statutory grades up to and including Skipper Deep Sea Fishing Vessel and in the recreational (Coastguard) certificates.

Qualifications

- 2.11 I obtained the qualification Master of a Foreign Going Ship in 1980. This entitled me to command any vessel worldwide provided that I also held the appropriate ancillary certificates where required for specialised ships and Certificates of Equivalency for the different countries of registry.
- 2.12 Immediately following that I did the part of the Extra Master syllabus relating to magnetic compass, did the required practical section under a licenced adjuster and so since then have been a licenced adjuster myself.
- 2.13 I also passed the engineering section of the Commercial Launchmaster certificate as is required to operate small vessels.
- 2.14 I have held pilot exemption certificates for Auckland, Tauranga, Wellington, Lyttelton, Timaru, Queen Charlotte Sound and Tory Channel.

- 2.15 The NZ Maritime School invited me to be an examiner from outside their system to help with their foreign going certificate examining but I found after almost completing the process of becoming qualified, that there were too many demands on my time so didn't pursue it.

Experience on Large Vessels

- 2.16 During my first period of time at sea, I worked on various ship types including roll on roll off vessels, bulk cargo, general cargo vessels and oil tankers.
- 2.17 After the period ashore of about 9 years, I returned to sea as one of the masters on the first of the fast ferries, but soon after joined Strait Shipping with the arrival of the Suilven.
- 2.18 I then took an opportunity to be master on a new coastal roll on roll off service. Later this business folded with the halving of freight rates on the coast, so I then joined Silver Fern Shipping, working on the coastal tankers until 2000.
- 2.19 In 1999 I started working for The Interisland Line (IIL) on a part time basis, leaving coastal tankers and becoming full time with IIL initially as a junior officer. With the arrival of the vessel Purbeck into the fleet, I joined as mate then became master soon after.
- 2.20 It is impossible for me to accurately assess how often during my time on the Cook Strait run that I passed Onapua whilst actually on duty but my best estimate is somewhere in excess of 5 000.
- 2.21 I retired three and a half years ago due to ill health. Prior to that I was serving as a Master with Interislander on the Cook Strait ferries.

Key References

- 2.22 In this report, I will refer to some key references.
- 2.23 The United Kingdom Hydrographic Office publishes a set of Sailing Directions designed for use by the mariner on all classes of seagoing vessel. They are complementary to Admiralty Standard Nautical charts. Volume 51, also known as the New Zealand Pilot, is the relevant volume for New Zealand.
- 2.24 The New Zealand Pilot is considered to include up to date information about navigating vessels around New Zealand shores. It provides information, general description of the area, hazards, pilotage regulations, traffic regulations, reporting regulations, anchorages, sailing directions and cautions. The pilot book should be read in conjunction with the use of nautical charts. It does not however contain some close inshore information which small pleasure vessels may find useful.
- 2.25 Land Information New Zealand (LINZ) produces official nautical charts to aid safe navigation covering its area of responsibility. Charts relevant to this proposal are:
- (a) NZ 615 Marlborough Sounds.
 - (b) NZ 6153 Queen Charlotte Sound.

- 2.26 Using charts safely involves keeping them up to date using Notices to Mariners, published fortnightly. They are the authority for correcting New Zealand and British admiralty charts in the New Zealand area of charting responsibility.
- 2.27 The New Zealand Cruising Guide. "Central Areas" was first published in 1979. It was compiled by Keith Murray and Baron Ralph Von Kahorn with the assistance from a number of people with extensive local knowledge and experience of the Marlborough Sounds. There have been a number of editions published since the original.
- 2.28 The publication is useful for recreational boaties, providing information from the many experienced contributors regarding bay and land shape, sea floor, tide and weather. These topics don't need updating, but despite instructions about how to have corrections included in subsequent editions, only minor changes to some lights and their characteristics have ever been made. The couple of errors that existed in the original text, remain. However, it is still relevant for the content which is not subject to change. In recent times the electronic version has been made available on line. I have looked at Onapua Bay on this app.

3. **Scope of Report**

- 3.1 I have been asked by representatives of Apex Marine Farm Ltd to provide my professional opinion on navigational issues surrounding these proposed marine farms. My report concerns the impact on the vessels, both commercial and private, that are likely to use the bay. I am happy to recommend a lighting system and also radar reflectors that would not only provide safe navigation to mariners but also make the bay more readily accessible at night and in poor visibility.
- 3.2 My evidence is based on my own knowledge and experience of the Marlborough Sounds as detailed above.
- 3.3 I have also referred to a series of documents which assist in assessing whether these farms will cause a navigational issue. Before referring to those documents, I stress that it is the responsibility of the navigator to be safe. This is detailed in rule 22.40 of the Maritime Rules which is analogous to Rule 2 of the International Rules for the Prevention of Collisions at Sea 1972. (The "General Prudential Rule"). What is paramount is avoiding or minimising the effects of a collision rather than blindly following the rules to the letter.
- 3.4 In the course of my assessment I have considered:
 - (a) Maritime Rules made by the Ministry of Transport under the Maritime Transport Act 1994.
(Maritime Rules)
 - (b) The Navigation Bylaws which have been in force within the Marlborough Sounds and which were made by the Marlborough District Council.

- (c) The Guidelines for Aquaculture Management areas and Marine Farms issued by Maritime New Zealand in December 2005 (The Maritime New Zealand Guidelines).
- (d) Guidelines for Port and harbour Risk assessment and safety Management Systems by Maritime New Zealand in 2004.

4. The Marlborough Sounds from a Navigation Perspective

Navigation

- 4.1 Navigation, is the art of finding the vessel's position at sea and conducting her safely from place of departure to destination.
- 4.2 From a navigation perspective the area is complex with a strongly indented coastline. In parts of the Sounds there is a significant amount of boat traffic.
- 4.3 All the Marlborough Sounds are within the Marlborough Sounds Harbour limits. This means that the Marlborough District Council Navigation bylaw applies, subject to the Maritime Rules.
- 4.4 The standard of seamanship of small commercial vessels is generally high. They have no trouble navigating past and among existing farms.
- 4.5 Indeed, the motorised mussel work barges have to work amongst the longlines of the farms. The available space between longlines may be only a few metres because of tide and occasionally small movement of anchor blocks.
- 4.6 There is a significant recreational fleet based in the Marlborough Sounds.
- 4.7 The Marlborough Sounds are full of hazards including a highly indented landform, shallow areas and rocks which would be unexpected if navigating by landforms alone, large Interisland ferries navigating in a narrow channel, unpredictable and often gale force winds caused by the topography and the proximity to Cook Strait among others. In order to get to the area of this proposed farm, a boat operator will need to navigate past more complex obstructions than this oyster farm.

Electronic Navigation

- 4.8 Modern electronics have completely changed marine transport in the 21st century. I recall, for example, in the early '70s as a junior officer, being on the bridge of a ship creeping into Auckland at about 3 or 4 knots.
- 4.9 Now on ferries using the Sounds we reduce speed, as is required by New Zealand Maritime Rule part 22, but only by a few knots.
- 4.10 We have good positional awareness and good ability to avoid collision through the use of this equipment. Tory Channel entrance presents no difficulty in fog. The first view of terra firma, from the bridge, is often when the wharf appears part way along the ship as we back in alongside it.

- 4.11 This technology has a ready market in all sectors of the industry, even down to small runabouts which usually have some electronic systems fitted. Entry level can be a small single screen combination echo sounder, electronic chart, GPS and log. Radar is pretty much standard on commercial vessels and larger private vessels.
- 4.12 A primary barrier to having these technologies is cost. A fixed VHF radio will cost about \$250. A combination GPS chart plotter echo sounder and log approximately \$2 000.
- 4.13 In its simplest form a regular operator will save a track on the electronic chart that has been laid down during clear weather, then will set it up so that subsequent tracks are not saved. Then, in fog, the operator need only keep the vessel on this track. This is effective and easier than trying to insert waypoints etc.
- 4.14 Radar has now become a backup to the electronic chart display in that it is not now used as the primary means of establishing position in fog, but as a means of verifying that which is displayed on the electronic chart. Its use in collision avoidance in fog remains as a primary role.

Weather

- 4.15 New Zealand lies in middle latitudes in the path of a prevailing South westerly airstream containing migrating anticyclones and depressions with their associated fronts. This flow is partially blocked by the Southern Alps. Some of this airstream is forced and accelerated around the northern end of the South Island and is funnelled and therefore further accelerated by the ranges of the Southern North Island. The Marlborough Sounds lie in the path of this, what has then become a North westerly airstream.
- 4.16 Similarly, southerly airstreams are funnelled by the Kaikoura ranges.
- 4.17 So, the weather is generally changeable with only relatively short settled periods, depending on the season.
- 4.18 On occasion winds of up to 80 knots may be experienced in the area. The Beaufort scale describes such winds as hurricane force.
- 4.19 Within the Sounds the hills create both shelter and funnelling. Winds which are benign can shift to being dangerous in a short distance or in a short period of time.
- 4.20 Wind blowing over a large expanse of water (called "fetch") can result in large waves. This effect is particularly noticeable in one part of the Pelorus Sound.
- 4.21 Wind on tide also creates areas of higher and steeper seas. So called tide rips. This effect occurs in a number of places in the Sounds.

Visibility

- 4.22 In this area poor visibility occurs during times of exceptionally heavy rain, occasionally with sea fog and in winter with land fog.

- 4.23 Heavy rain causes the need for extra vigilance on a ship, but on a small boat, being able to see only half a nautical mile is less important. In the close confines of the Sounds in a small boat, it is certainly a nuisance without a windscreen wiper.
- 4.24 Radar performance is also affected by heavy rain to the extent that small targets can become lost in the clutter without careful and constant monitoring of the controls. Plastic and wooden vessels are weaker targets than those built of aluminium and are therefore more easily lost.

Fog

- 4.25 The New Zealand Pilot states that Wellington experienced sea fog once a year during a 6 year observation period. I saw it as often as 4 days in a row, however, one year. This is, though, out on the Straits and in Wellington rather than in the Sounds where once a year is probably accurate. It is a rare event.
- 4.26 In anticyclonic conditions in winter, land fog is a relatively common occurrence in the Sounds. In the Queen Charlotte Sound this can be as a result of drainage out of the Pelorus Valley and across through Linkwater, or it may occur in patches, or indeed fill the whole Sound, having been generated locally.
- 4.27 In fog the visibility may reduce to less than 100 metres. It is fair to say that it removes some of the pleasure in boating, so traffic in general is much reduced. Such small boat operators as there are in these conditions will usually only venture out with electronic navigational equipment. Those without any, rely on their manoeuvrability and short stopping distance to avoid incident.

Tides

- 4.28 The Sounds is influenced by two out of phase tidal systems, the Tasman and the South Pacific. These meet at Cook Strait and give rise to big tide flows but little range in height.
- 4.29 Tory channel entrance and French Pass are notable areas.
- 4.30 Tory Channel long ago was a valley which drained out through the Northern Entrance and with Okukari at its head. The Eastern entrance to the channel is over what was once a saddle in the hill. The current flows in the channel run at half tide at about 2 to 3 knots, increasing slightly as the channel narrows to the east and to over 6 knots at the entrance.
- 4.31 The bays in Tory Channel are generally out of this tide flow as evidenced by their shoal areas of sediment which form where the current slows.

Marine farms

- 4.32 There are over 550 marine farms in the Marlborough Sounds.
- 4.33 Marine farms are generally located in the strip between 50 and 200 metres out from the mean low water mark. The 50 metre strip allows small vessels to move along the coast in the lee of the farms.

- 4.34 To my knowledge there has never been a reported navigational incident between any of these farms and a passing vessel.

5. **Navigation in Tory Channel**

- 5.1 All vessels over 350 Gross Tonnes (GT) within Tory Channel are required to carry a pilot or an exempt master. In broad terms, Gross tonnage is a measure of the volume of all enclosed spaces on a vessel. 350 GT relates commonly to a vessel of about 35 metres length.
- 5.2 As changes to timetables and fleet configurations continue I am no longer familiar with common meeting places of the ferry fleet in Tory Channel. It appeared to be the cause of much anxiety with visiting yachts that insisted on travelling up the centre of the channel to be confronted with ferries coming from both directions.
- 5.3 The prescribed ferry tracks keep them far enough off the headlands they round enroute that small vessels can stay 200 metres offshore but still inside and clear of the ferry traffic.
- 5.4 The only area at issue is between Ruaomoko (Heaphy) and Dieffenbach where small vessels generally go straight from one to the other and so mingle with the ferries.
- 5.5 Tory Channel contains a number of large bays including Oyster Bay and Onapua Bay. The coastline is such that smaller boats often take refuge from the ferries in the embayments if required.

6. **Navigation and Marine Farms**

Large commercial Vessels

- 6.1 Large commercial vessels are generally unaffected by marine farms. The farms are, in the main, in bays where they would never navigate, except perhaps in the case of dire emergency.
- 6.2 All such vessels must adhere to a preapproved passage plan and any substantial deviation should be with the prior approval of the Harbourmaster.
- 6.3 Under modern Bridge Resource Management practices any deviation from the intended track must be with the full and prior knowledge of the bridge team.
- 6.4 All vessels over 350 GT navigating in Tory Channel must have a pilot or pilot exempt master on board. The written and oral examination required to be passed before being qualified to assume the role ensures that these vessels are under the control of a person with detailed knowledge of the area.

Small commercial vessels

- 6.5 During the Hoki season there is an influx of smaller fishing vessels using Picton as a discharge port. They each go past Onapua every couple of days depending on the health of the fishery but never go into the bay.

- 6.6 Fishing vessels, primarily during the Hoki season, discharge in Picton. Currently two of these vessels are over 500 GT.
- 6.7 Other commercial operators in the area are charter passenger vessels and small inshore fishing vessels. The only commercial vessel that I have seen go up into the bay is the logging barge "Patiki".
- 6.8 The standard of seamanship of these operators appears to be generally high. I conclude that this farm will not pose any difficulty for a commercial small boat operator.

Recreational small boats

- 6.9 Picton and Waikawa marinas have over 800 marina berths between them. There are also a number of swing moorings in Waikawa and Shakespeare Bays and in Picton harbour. In 2004 it was estimated that there were 38 500 recreational shipping movements and that there were 1 976 recreational vessels based in Marlborough.
- 6.10 There are a number of visiting yachts each year using Tory Channel and at least one yacht race per year, Wellington to Tory Channel Entrance.
- 6.11 I remember making the observation that in Tory Channel there is normally one small vessel in view at any one time during the day. This obviously varies greatly.
- 6.12 Despite all of these vessels in the area and all of these movements, I do not recall ever seeing a recreational craft entering or leaving Onapua whilst I was on the ferries, but would often see a couple of them at the western entrance to the bay stopped and probably fishing.

Collisions between vessels and marine farms

- 6.13 While it is true that the only ability needed to operate a private vessel is the ability to obtain it in the first place, my observation is that the vast majority of operators appear competent.
- 6.14 However, in the context of this report it is not possible for me to assert that there will not be a case where a vessel might collide with this farm. However, there are over 550 farms in the Sounds and close to 40 000 vessel movements per year, but only anecdotal evidence of there ever being one collision between a vessel and a marine farm.
- 6.15 However, accidents will happen and are normally the result of an unfortunate combination of circumstances and seldom just one factor. So occasionally, even the most experienced and competent operator may, unfortunately, become involved in an accident.
- 6.16 There are many examples of accidents involving small vessels, but as previously stated, none involving marine farms.
- 6.17 The nature of the marine farm structure is such that there is little likelihood of serious damage to a vessel should it collide with a longline nor injury to the occupants given the resilience of the longline.

- 6.18 In my opinion, because so many farms have been in existence for so many years and with so many vessel movements around them, the systems in place for approvals of the sites and the rules relating to the lighting of them must be said to be effective.
- 6.19 However, it could also be argued that, because after all this time there have been no notified accidents, maybe the criteria for approving the positioning of these farms as laid down in the Maritime New Zealand Guidelines has been over cautious.

Interaction between vessels and marine farms

- 6.20 During the day marine farms are obvious to navigators. The farms are properly lit and are also sufficiently obvious at night. This is evidenced by the lack of any reported collision.
- 6.21 The Marlborough District Council has included in its navigation bylaw a rule requiring vessels to reduce their speed “through the water” to 5 knots when within 200 metres from a structure (defined to include a marine farm) and from the shore. Because speed through the water cannot be policed, speed “over the ground” is enforced.
- 6.22 This rule appears to be effective in that the recreational boatie with only limited knowledge of the rules need only know that he or she has to keep 200 metres offshore when travelling at speed.
- 6.23 In Theory:
- (a) There is enhanced safety around marine farms due to slow speeds.
 - (b) The area 200 metres from a marine farm becomes an exclusion zone due to navigators avoiding the area to avoid reducing speed.
- 6.24 If the bylaw is followed it has that effect. However, lack of knowledge or ability to judge, by eye, a distance of 200 metres, or lack of regard for the rule means that adherence to the rule is variable.

7. Specific navigational issues relating to Onapua Bay

- 7.1 Onapua Bay lies on the south side of Tory Channel and extends about 2 miles to the head of the bay. It is about 600 metres wide for the first three quarters of a mile, whereupon it bends, then soon after narrows to 400 metres between the headlands on opposite shores. There are two sunken rocks away from the proposed site which are close inshore adjacent to headlands, but there are no outlying dangers to navigation.
- 7.2 To obey the letter of the 200 metre rule with its 5 knot speed restriction, all vessels proceeding further up the bay once it has narrowed to 400 metres should reduce to 5 knots. However, for reasons given in para 6.24, I do not imagine that this will happen in practice.
- 7.3 The first and most obvious point made by the MNZ Guidelines is that the proposed farm should be a distance off a recognised navigation route so that it doesn’t interfere with navigation on that route. The extent to which this is important will vary according to the amount of traffic, the type of traffic,

the distance between the traffic and the farm and other variables such as wind, sea and visibility which all play a part in navigation and accordingly have a bearing on where marine farms should be sited.

- 7.4 There are no dwellings adjacent to these farms (on the eastern side of the bay). So, I would consider the planned access ways within and between the farms as standard practice necessary only to avoid inconvenience to anybody, should they want easy access to the foreshore.
- 7.5 There are however 5 or 6 bachs scattered around Opua Bay and one in Missionary Bay. Of these bachs all but one appear to have road access or access via a short walking track to the logging road over from Port Underwood. The state of repair of one wharf and the comparative lack of moorings indicates to me that the road access may be used on occasion for access to these bachs although I cannot be sure.
- 7.6 This issue I mention because in the past objection has been raised when it is stated that the presence of the marine farm would preclude the bach owners from hugging the shore in bad weather in order to go to the bach or return on a "must go that day" basis.
- 7.7 In this case, however, I don't believe this can be a valid argument because of the lack of fetch on the bay in both Northerly and southerly weather so that if the sea state on Onapua creates a problem then the area around Dieffenbach certainly would. Also it would appear that only one bach doesn't have the road option.
- 7.8 There is a log loading platform in Opua used by the motorised barge "Patiki"
- 7.9 The company that owns "Patiki" has recently acquired two tugs and two dumb barges. One of these units has, for a number of years, been used to transport export logs from the Pelorus Sound to Shakespeare Bay. I don't know if the intention is to use either of these vessels to transport logs from Opua.
- 7.10 A similar but somewhat smaller tug and barge operates successfully out of Havelock, so Onapua will present no difficulty to the tug and barge units even with the proposed farms in place.
- 7.11 Although Tory Channel is an area where there are some strong tide flows, this, like many other bays off Tory Channel, is out of that flow. There is little tide flow in and out of the bay because of the small tidal range in the Sound.
- 7.12 There are no moorings in the vicinity of the farms. However there is a boating club mooring in Tawa Bay and one in Missionary Bay. There are no recognised anchorages mentioned in the Cruising Guide in the area of the farm. It does advise against anchoring overnight in the main body of the bay. It, however, mentions anchorages close into the shore right up in the head of the bay, well away from the proposed farm.

- 7.13 The New Zealand Pilot lists a number of bays off Tory Channel where it is possible to anchor. Of Onapua it states, "Affords anchorage in depths of 11 to 20 metres except on the shoal patch of 9.4 metres". Historically this might have been possible on small coastal vessels which are now almost non-existent. However, in a bay 600 metres wide and with the ships which now use the area approaching 200 metres long, there is simply not enough room.
- 7.14 The smaller vessels which frequent the area are fishing vessels, primarily the Cook Strait Hoki vessels. These are size limited for this fishery. I have seen them at anchor, but only in the vicinity of Te Awaiti. Onapua is wide enough in the entrance area that there will still be sufficient room for vessels of this size to anchor with the farms in place.
- 7.15 There are no recommended anchorages charted in the bay.
- 7.16 Visiting yachts use the next bay, Hitau Bay, as a place to rendezvous and are often seen there, at anchor (or maybe on the club moorings). I have never seen any at anchor in Onapua Bay. Of course, the club moorings in Missionary and Tawa Bay are not visible from Tory Channel, so I cannot say how often they are used.
- 7.17 These farms will not prevent any vessel from seeking safe haven in the bay in the very unlikely probability that they would wish to do so.

Site specific conclusions

- 7.18 The proposed farms lie adjacent to the north-eastern shore of the bay. They initially extend out to the 200 metre line until the bend in the bay where the distance reduces to 100 metres wide and therefore only extends to 150 metres to seaward of the two minor headlands that they sit in front of. The two inner farms together extend about 800 metres along the coast. At present then, a vessel proceeding into Onapua Bay en route to Opua Bay should first stay reasonably close to the centre of the bay to keep beyond 200 metres from the shore, then after rounding the bend, proceed for a further 200 metres or so and then reduce speed to 5 knots.
- 7.19 The three farms will allow shore access between them. There is about an 80 metre gap for vessels entering the small bay. In practical terms of course, the navigable width is greater, given the anchor warp lengths. There is the mandatory 50 metre spacing between the low water mark and the inside of the farm. Certainly, all small boats will be able to navigate between the farms and the shore.
- 7.20 The presence of the proposed farm will have the effects outlined below on traffic using the bay, again, assuming that they adhere to the letter of the 200 metre, 5 knot law.
- 7.21 I estimate that vessels such as the logging barge proceeding outward from Opua Bay and from Missionary Bay towards Picton would:
- (a) Have a further 200 metres to steam and at 5 knots until clear of the southern end of the outer farm.

- (b) They would also have to travel slightly closer to the South-Western shore if wanting to stay midway between that shore and the inner two farms. Then once clear of the outer farm and able to travel at normal speed, have only a minor deviation to keep 200 metres clear of the outer western shore of the bay. When proceeding inward, they would follow the same track.
- (c) Vessels accessing Tawa Bay would not be unduly affected by the inner end of the inner farm as it terminates inside the line of the headland on the North- East side of the bay.

- 7.22 Vessels proceeding to or from eastern Tory Channel will only be inconvenienced to roughly the same extent as vessels heading up the Sound. This is because there is only a little extra steaming involved between Katoa Point and into the bay on the new track passing to the west of the outer farm, as compared to the current track, passing down, more or less, the centre of the bay.
- 7.23 Vessels accessing the south side of Onapua will be virtually unaffected.
- 7.24 There may be concern expressed by the yachting community that the presence of these farms will lessen their ability to tack in the bay with head winds when going to or leaving their club moorings. I am not convinced that them having to do a few extra tacks because of the reduced sea room constitutes enough reason to decline this application particularly if there is no certainty that the occasion would ever arise.
- 7.25 This may, at worst be considered a, "minor inconvenience," no more and as such, in my opinion would not be grounds for declining this application.
- 7.26 I do not know how much traffic uses the bay. The bay is a destination rather than the farms being adjacent to a recognised route. I therefore assume that apart from the "Patiki" the traffic will be mainly limited to bach owners in the head of the bay and also boating club members using the 2 moorings. I watched the "Patiki" entering and leaving the bay on occasion, but don't recall ever seeing private vessels entering or leaving the bay so am of the opinion that it must be an irregular occurrence. I don't recall ever having seen a vessel entering or leaving the bay by night.
- 7.27 The barge operator in the Pelorus Sound has told me that because of high transport costs, forestry in the Sounds is only marginally profitable. So, logs are usually only harvested in times of high log prices. This meant that, on one occasion, no logs were harvested for a whole year out of the Pelorus Sound. I don't remember noticing long absences of the "Patiki" but assume the same economics hold true in the Queen Charlotte Sound.
- 7.28 The *Guidelines for Aquaculture Management Areas* by Maritime New Zealand state that inshore farms should be away from and not be closer than 200 metres from a recognised trade route. There is also a stated minimum distance for farms that extend beyond the 200 metre line of 500 metres. The Guidelines were apparently drawn up with industry involvement. However, the title, in my and apparently, Maritime New Zealand's opinion, says it all Guidelines. Consider for example a farm in

the Pelorus Sound, about 300 metres from a recognised trade route, in a bay. The outer longline was found to be offsite and so the farm was shifted seaward, to include the outer line and also clear the rocky foreshore. The farm now extended 20 metres beyond the 200 metre line. This was in a direction parallel, not closer to, the recognised trade route. So it is now some 200 metres too close to it for the farm to comply with the explicit wording of the Guidelines. This is but one of scores of similar examples. Clearly this example, like the many others, were not envisaged when the Guidelines were drawn up.

- 7.29 An email chain dated 17 April 2012 between Maritime New Zealand and a Marine farm applicant notes that Maritime New Zealand regard the guidelines as just that, guidelines, with no force of law.
- 7.30 While these guidelines were intended as a loose fit for the whole of New Zealand, given that the vast majority of aquaculture occurs in the Sounds, it is fair to say that the guidelines should have been drafted here, then modified for the rest of the country as necessary.
- 7.31 So, returning to these proposed farms in Onapua, open to interpretation is whether the visits to the bay of the logging barge, while the pine forest is being harvested, necessarily makes the bay into a trade route. Also open to interpretation is whether the width of the passage past the farm as the barge proceeds into the bay is adequate, despite the passing distance being less than 200 metres, if the barge stays midway between the farms and the southwest shore. Consider the width of the channel into Havelock that the less manoeuvrable tug and logging barge negotiates often, sometimes on a daily basis, without incident. Admittedly they would prefer a much wider channel, but this example helps to illustrate that by comparison, the navigable water space past the farm at close to 270 metres wide will not interfere with safe navigation into the bay.
- 7.32 There is no potential danger to navigation with the anchor warps because the warp length to depth ratio is such that, in a matter of a couple of metres out from the end of the longlines, the depth over the warp is such that small power driven vessels will be unaffected by their presence.
- 7.33 I note that the proposed longline spacing is 10 metres. In light of the possibility that public access is desirable between the longlines I consider this to be adequate for this farm, by virtue of it being an oyster farm. My reasons are:
- (a) Oyster farms have a much lower biomass than mussel farms which means less tension on the anchor warps which in turn lessens the chances of the of the anchor blocks moving. This will effectively maintain that spacing in contrast to mussel farms where small movements of the anchor blocks sometimes cause the spacing to be much reduced.
 - (b) The tide at this site, such as it is, will flow along the farm reducing the bowing of the lines. There is opinion that mussel farms are better if the tide flows across the farm and this causes the lines to bow.

- 7.34 On a typical 3 ha farm often 8 longlines is preferred. This is feed driven and is said to result in better cropping. It has nothing to do with farm or other vessels access between the lines.
- 7.35 Assuming that the reasons for the public wanting access among the lines is to fish, while a harvest is happening, or just for sightseeing, as against looking for a meal of a few cultivated oysters, then we can also assume that this will be in good weather.
- 7.36 I note that the majority of farm vessels working among the marine farm long lines are light draught, high windage aluminium vessels, who work in most weathers. Sometimes single screw and, I think with only one bow thruster amongst the lot of them. They are much larger than the usual recreational vessel.
- 7.37 So, in reasonable weather I must assume it is possible to conn a small vessel along these 10 metre wide corridors at slow speed otherwise it would follow that getting back onto the trailer or into the berth will present real difficulty. However, there will also be no damage done to the boat if at slow speed there is the occasional touching of a float.
- 7.38 Where, for example in the Pelorus Sound a runabout boat hits a piece of semi submerged driftwood there is the initial impact then sometimes the noise of the propeller hitting it. By way of contrast, in this instance a boat hitting one of the floats will cause, at 5 knots, an impact similar to landing on the trailer rollers whereupon the float, being buoyant will roll down the side of the vessel. Even if it hit directly under the stem, the deadrise of the hull will cause the buoy to pop up to one side and not hit the propeller.
- 7.39 There will, in contrast to the "Flightless" accident, be no impact injuries.
- 7.40 This means that, depending on the crop loading and hence the buoy spacing, small runabouts will be able to navigate along the farm, without risk of damage to the boat, or injury to its occupants or indeed, damage to the floats themselves.
- 7.41 In my opinion the mussel floats to be used are little different to mooring buoys. They are bigger than the ones commonly in use in the Sounds now but there is no maximum size for mooring buoys. However, in the context of this application this matter assumes some importance because of the issue of how far the "Patiki" must deviate in order to comply with the 200 metre rule. Other traffic it can be assumed will stay in the middle of the bay.
- 7.42 The "Patiki" is slow, at about 7 knots full sea speed and so but for the sake of a knot or two, particularly if pushing what tide there is, could go as close as she likes to the farm, without fear of prosecution.
- 7.43 This then becomes, somewhat, an academic argument, but I think, one that needs to be addressed.
- 7.44 While that 2 knots may seem trivial I know that vessels travelling in the vicinity of Cullens Point at 10 knots over the ground have been apprehended for exceeding the speed limit of 8 knots, by 2 knots.

(However, as this was travelling with at least 2 knots of tide so the speed was less than 8 knots through the water and therefore legal).

- 7.45 Safe speed is dealt with under the collision rules putting the onus on the master to assess what is safe, based on 6 criteria for any condition of visibility and a further 5 in a vessel with operational radar.
- 7.46 The 200 metre rule has its origins in the Harbour and the Water Recreation Regulations, dating from the time when engines were invented which allowed vessels to travel fast enough to create a wash. The wash was recognised as an issue which had to be addressed because of damage it caused to mooring lines, wharves and other structures and also, to the foreshore. That is why speed through the water is specified.
- 7.47 It is the reason why it is stipulated that 50 metres is sufficient distance to pass from another vessel or mooring, because then wash doesn't matter.
- 7.48 However, with evolution of the rules over time it has morphed to become a navigational safety issue.
- 7.49 The first mussel farms were rafts with dimensions of about 10 by 12 metres, consisting of wooden framework sitting on two large ferro cement pontoons. They were called structures because they didn't look very much like vessels and they were not intended to move.
- 7.50 At that time, public knowledge of the 200 metre rule didn't exist. This meant that the ramifications of people such as the then Harbourmaster treating these early mussel farms as structures rather than permanently moored vessels were never considered.
- 7.51 I grew up in a family whose business was with commercial vessels in the Pelorus Sound. From an early age we were all expected to contribute, which meant that even from early childhood I would spend time on the wheel.
- 7.52 I learnt about point to point navigation, and how to avoid the tide by hugging the coast, what points were steep to, which could be passed a few metres off and the ones that had to be given a bit wider berth etc. The only vessels that kept 200 metres off were the navy patrol vessels that showed up occasionally. They were the butt of many jokes about how long it took them to steam up the Sounds steering those courses. But with everything that I was taught through those years never once was there any reference to a 200 metre rule.
- 7.53 What was instilled early on, however was the need to not make a wash near wharves where moored vessels could be damaged.
- 7.54 It was only years later, at Nautical School, studying regulations, that I found out about the rule.
- 7.55 It is therefore easy to understand why nobody pointed out that by labelling these, floating mussel growing platforms, structures, it would create 200 metre slow speed zones around them, because

nobody knew of the existence of the rule, or if they had ever been told of its existence, had forgotten about it.

- 7.56 And nobody ever did slow down, when in close proximity except when intending to come alongside, only because it is bad seamanship to arrive alongside before your wash arrives.
- 7.57 I am sure that, had the 200 metre issue been recognised, then a more appropriate title would have been applied.
- 7.58 However, once the title of “structure” had been applied to the original farms it stuck and was subsequently transferred over to the longlines, once they became the norm.
- 7.59 There is no need for vessels to stay 200 metres from a marine farm from a wash point of view, in that wash from a passing vessel has no effect on a mussel farm.
- 7.60 There is, in my opinion a great inconsistency when then considering the 50 metre rule where, for example, a barge over 40 metres long was anchored in the designated anchorage area north of the Snout for some months having, legally, only a single, fixed, white light visible, most of the way, around the horizon.
- 7.61 The barge was radar conspicuous but black and hard to see visually at night and the light’s visibility was entirely dependent on the barge’s aspect. A vessel proceeding up the main body of the Sound would see only a radar target because the light, even if visible, was lost among the backscatter of the lights of Anikiwa in the distance. However, it must also be stated that this level of lighting is clearly inadequate and has resulted in a death in New Zealand.
- 7.62 As I said, under the rule this vessel has only a 50 metre exclusion zone. Moorings too have only a 50 metre “exclusion zone”.
- 7.63 In the latter days of the Havelock Harbour Board the channel up to Havelock wasn’t dredged so we had a mooring at Cullens Point in about 2 metres of water, for when our vessels couldn’t get up the channel at low tide.
- 7.64 The buoy was a rivetted steel ball about one metre in diameter and weighing a couple of hundred kilograms.
- 7.65 The only limiting factor for the number of moorings in a place like Waikawa Bay is the space needed for each vessel.
- 7.66 Bearing in mind these arguments and placing them in the context of this proposed farm I see the following:
- (a) This farm structure will present only a line of buoys on the surface.
 - (b) The mussel buoys, or floats as they are termed, are bigger than the mooring buoys commonly used in the Sounds now but could still fit the definition of mooring buoys.

- (c) The buoys are secured to the longlines but will have some freedom to move under impact, as does a mooring buoy.
- (d) They will be much closer together than a usual swing mooring array obviously, but there will never be boats secured to them and they are lit and visibly conspicuous during the day.

- 7.67 The conclusion I therefore draw is that these proposed oyster farms, more so even than modern mussel farms, be considered in the same light as moored vessels, for the purposes of the “200 metre rule” rather than as structures, which was, more understandably, the term applied to the original mussel farms which were indeed, rigid rafts, albeit, unaffected by wash from passing vessels.
- 7.68 It then follows that the farms will have a 50 metre “exclusion zone” rather than 200 metres.
- 7.69 The effect of this will be that vessels proceeding into or out of Onapua bay will technically be able to stay closer to the farms than the South West shore and are therefore, less inconvenienced by their presence.
- 7.70 In practical terms, however, this determination will make no difference at all to the way that the travelling public treat the farm because they won’t know. The only difference will be that the only regular user of the bay, the “Patiki”, will not legally have to give the farms such a wide berth and so be less inconvenienced by their presence.
- 7.71 These farms, in my opinion, will present infinitely less of a danger to navigation than a big, poorly lit, steel barge sitting in the middle of the Sound.

Weather in Onapua

- 7.72 Many years ago I spent a short time working in Opua Bay and would take the small boat from there up to Picton on occasion. However during that time I don’t recall any bad weather, so I am not able to compare this bay with any other from a small boat perspective.
- 7.73 What I can say is that during my time with Interislander, the worst of the wind and consequently the seas associated with it in this part of the Sounds were funnelled between Dieffenbach Point and Ruaomoko Point.
- 7.74 I recall, for example, a few years back, an incident where an aluminium runabout of reputable build and quite heavy construction, overturned off Dieffenbach, during a gale.
- 7.75 The wind, in the area of Dieffenbach/Ruaomoko seemed to either come out of, or blow into Maraetai and Hitau Bays rather than Onapua.
- 7.76 However, Onapua (Anapua on old charts) roughly translated means “stinking wind” because of the strength of the wind. The Cruising Guide talks about this being regardless of the wind direction, which I presume means either up or down the bay. But because of the small amount of fetch then it is not possible for the sea associated with this wind to build up within the bay, at least, in the vicinity of the proposed farm.

- 7.77 I am confident that this farm will not cause any impediment to a small boat trying to negotiate the high winds that are spoken of and the consequent seas.
- 7.78 I cannot foresee the occasion arising where a small vessel may want to use this piece of coastline to get under the lee of the hill and get some shelter in bad weather as they attempt to leave the bay and have this farm preclude them doing that. If anything, the farms will provide some shelter in the inside corridor.
- 7.79 When we consider the impact that these farms will have on navigation in fog, I am of the opinion that vessels using this area at such times will be regular users and will be prepared for such conditions. The use of radar and other electronic navigation systems has been previously described. They therefore will not be endangered or inconvenienced by the presence of these farms.

8. Conditions to be imposed

Lighting

- 8.1 The Harbourmaster will determine what lighting is appropriate for these farms prior to them being installed. This will be determined pursuant to the Maritime Transport Act 1994 and not the Resource Management Act 1991.
- 8.2 The proposed farms will lay alongside the route into the bay. This is usual. What is slightly unusual is the narrowness of the upper reach of the bay where vessels will steam along beside the farms for some distance. This is similar to steaming into an infilled bay. There are many instances however where bays have been infilled with marine farms out to as much as 400 metres from the shore and users of the bay must navigate the corridor between them, in order to access the bay.
- 8.3 I think that in this case it might be prudent to fit a passive radar reflector on the inner end of the seaward side of the outer farm. This would add some certainty to the position of that corner so that, in restricted visibility a vessel heading inward from the direction of Picton could be navigated safely between the farm and the south-western shore.
- 8.4 It may well be seen to be appropriate to fit radar reflectors marking the extremities of the farms at the corner. This would make a recognisable pattern and add some certainty.
- 8.5 I imagine that each farm will be lit separately. As there is no navigational lighting in the bay at all, these farms will have the effect of marking the North-Eastern side of the bay as if it were marking the port hand side of a channel, into a bay which can be currently described at night, like many other similar bays, as a black hole.
- 8.6 Given that the farms follow the North-East coast of the bay, consideration could be given to synchronous lighting on the farms to help remove any confusion a mariner may have as to their

location. I have contacted the installer of the Havelock channel synchronous lighting and found that the cost is significant and is probably prohibitive for this type of application.

- 8.7 However, lighting each farm may well be adequate, as is usual. This is the norm with ribbon development as in places such as Yncyca Bay.

Control and Compliance

- 8.8 This farm will be subject to the measures that the Harbourmaster has in place to ensure that all marine farms within his jurisdiction are properly managed by approved operators.
- 8.9 A regular regime of inspections will ensure compliance with the terms and conditions under which approval for the farm is given.

Notification to Mariners/Education

- 8.10 As these proposed farms are in the inshore zone and well away from major traffic flows I see no need to do anything more than the usual notification to LINZ.
- 8.11 Ultimately, I imagine, the largest scale paper chart of the area and electronic charts will have inserted, probably 3 symbols along the coast, indicating the presence of these marine farms.
- 8.12 If LINZ is notified prior to the installation of the long lines, then they may see fit to issue a preliminary Notice to Mariners, but this is unlikely.
- 8.13 It may be a matter of courtesy to inform the logging barge operator, Mr Simonsen and also the Boating Clubs who share the use of the two moorings.
- 8.14 I see no need to promulgate this over the radio, as this farm will not pose a danger to navigation such that this would be necessary.

Engineering

- 8.15 In light of the fact that oyster farming involves much less biomass than mussel farming it follows that using mussel farm methods for the ground tackle must be more than adequate for these farms to ensure that the lines remain securely in place.

9. Conclusion

- 9.1 In this preparing this report I have consulted the relevant rules and publications, I have analysed the weather in the bay and attempted to analyse the traffic flows in the bay and the effects that these proposed farms will have on that traffic.
- 9.2 I have concluded that these farms will pose no more danger to navigation than a row of tightly spaced mooring or navigation buoys and will, at night, be an aid to navigation into the bay.
- 9.3 I also attempted to discuss any potential negative effects from a navigational point of view on recreational craft and find them to be very minor, if not non-existent and will cause only minor inconvenience, if the operators act within the rules.

- 9.4 I am of the opinion, based on my observations in the past and by looking at the number of bachs, that there is very little traffic in the bay as whole and in this part of the bay in particular.
- 9.5 The only commercial operator using the bay on a regular basis is the "Patiki", and then, with a frequency dependent on log prices. This farm will cause her to deviate from her normal route, but not add significantly to the length or duration of the voyage.
- 9.6 While I accept that the committee must apply the relevant rules as they exist, invariably the rules lag behind changes within the environment they are designed to regulate. In this case, with this comparatively new type of marine farm, it would lessen the effect on the "Patiki" if the committee could accept that she could travel, legally, closer than 200 metres from the farm at full sea speed and so diminish the inconvenience caused to only very minor.