

MINUTE SHEET

Department:

Subject:

Section:

File No.

Date:

49918A-150,000 yds/7/80 MK

To=

Bay of Islands

Paroa Bay NZMS 1. 12/675510

Waewae Looea Passage 12/727595

Manawara 12/704546

Hope Passage 12/715602

Housepoint to Cape Wiwike 11/627635 to 11/632656

Wakale Bay 11/615639

Wairoa Bay 11/585627

1/2 mile South Wairoa R. 11/576622

Motuaroa Island 11/595587

Robinsons (Robinsons) Motuarohia 12/670562

Possibly to puni

Bay ~~Paranui Bay~~ ^{Paranui?} = pt. 11/575614~~Onemutu Bay~~ Paranui Bay 11/602660

Loring Bay Beach 11/640528

~~Ruakaka~~

Pahia.

N 11 / 598 504

Matauri Bay.

N 11 / 416 797

Tauranga Bay.

Marble Bay

~~Fotaran Beach.~~

Ahi Para.

N 9413 645 613

Whanganaki Spit N. 16 / 075229.

Ngunguru spit N 20 / 023083

Marsden Point N 24 / 010815

Ruakaka River mouth N. 24. 975750

Waipae R. mouth N. 24 / 996640.

Pukoi Spit. N 38 230998

Habbs Bay (Wangaparua).

N 38 : 305887

Te Muri Str.

Whirinaki.

Alvers Beach (Et. Barrier)

NZMS 259: 724736.

Oreere Beach.

Auckland

N 43 752486

Hansons Island.

Burgess Bay.

Gulf

N 34 : 387098.

Emu Point.

Gulf

N 42 427672

Masick Point

Gulf

N 42. 417610.

Simpsons Beach.

Coromandel.

N 44 : 218670

Calm Bay

Wide Berth

Whangapoua. (Et Barrier)

NZMS 259 : 674844

Parengarenga.

Haratonga Bay (Et Barrier)

NZMS 259 730800

Kaitoke (Et Barrier)

NZMS 259 724716

Christian Bay (Takatua.)

NZMS 34 : 305176

Pekihi Island.

N. 43 : 665535

Ocean Beach.

NZMS 1 N 24 068865

Pouto Point.

N 33 : 706190

Tapaka Point.

Whale Bay.

Paranui Bay

Putatana Beach Matauri Bay.

Mangonui

Rangiputa Beach (Karikari) NZMSI. N7: 788997

Taupo Bay.

~~Mattsons Beach.~~

Bucklands Beach.

N42. 417585.

Muriwai Beach.

{ Matakatea Bay } ~~Whangaparaoa.~~

Matakauer

N34 244162

Harvick

1

Pataua

N20 036983

Takerau Beach.

NZMSI N7: 878915

Cable Bay

" N7: 988844

Coopers Beach.

" N7: 015845

Manga Whai head.

NZMSI N29: 115532.

Lady Franklin Bank.

N33: 730220.

1956 Hurricane

SITE 07805 Rangitopuni of Walkers.

Tikiniui

N27: 499468.

Papa Aroha Coromandel

N39: 932785

Thames Coromandel

Irarima Str. "

N39: 909934

Okahutahi "

N35+36: 960000.

Goat Bay "

N35: 833019.

Big Bay Coromandel

N39: 966896

N34 256034

Kauaotunu "

N40. 215761

Reef Point Ahirapa.

N9+13: 575624

Miti Miti. (Hokianga)

N2MS1 N14: 785308.

Omamari Beach.

Unetiti.

N24: 982685

Waitete Bay.

Hydes Bay.

Tauhou channel (Kai Para).

N33 080135.

Army Bay (Whangaparaoa)

N38: 326907

Mullett Point Martins Bay.

N34 294105.

OAKura. (Whangarua)

16 851.375

Palcatoa Is.

N43 702672.

Rotoroa Is

N43 705650.

Kaiaua. (Firth Thames)

N48: 800290.

Miranda. "

N48: 828206

Taramaire. "

Kape Katu "

Pukorokoro Creek.

N48: 824204.

~~Creek.~~ "

New Brighton

Lagoon Bay (Takaka.)

Hokitika Harbour

Opononi Beach. (Hokianga)

N2MS1 N14: 906214

Omapere. "

N2MS1 N18+22: 905185

Rangitapu "

N2MS1 N14: 893274

Waiwhatawhata Str. (Hokianga Co.)

N2MS1 N18+22 890161

Tapuae-tahi (Takaka Bay)

N11 485691

Waimui Beach.

Step Island

N11: 460800.

ussell

N11: 626527

One Whero beach (B & I).

N11: 564568.

Te Puni Beach. "

Motunoa Island. "

N11: 590590

Molau Bay Whangaruru.

N16: 858359.

No. 5 Island Whangaruru.

N16: 870355.

Helena Bay.

N16: 869323.

~~Mangawau~~

Pakiri

N29: 215366.

Whangateara

N34: 292234

Saddle Island.

N34 264015.

Sandersons Beach. Okupu & Barrier.

NZMS 259: 687696.

Hook's Bay Waiheke.

N. 39: 676733

Goat Island (Mayne Is).

NZMS1 N34 300125.

Waiwera Beach.

N38: 226976

Hatfields Beach.

N38: 214953

Wai Kariri Beach.

N34 322177

Takatu Jones Bay.

" Schickles

Mattsons Beach (Leigh)

N34: 308269.

Te Arai

NZMS1 N29: 165440

Whangaparaoa Beach.

~~Kariki Beach (St. K. Creek)~~

Mehine Poua

Putataua Beach.

Tinopai (Kaipara)

N28: 774230.

Red Beach (Whangaparaoa.)

N38 227903

2rewa.

N38 215928

Mangatawhiri spit

Longs Beach.

Wai pu Cove.

Subject:

Section:

File No.

Date:

49918A-150.

oada/7/80 MK

To-

Whangarei files

18/5/290

9/1 9/50.

11/3/8.

Maryamhai

TOVR/SAO'L

46

AUCKLAND.C.1. 13 November 1950

SAND AND SHINGLE IN AUCKLAND AND COROMANDEL
AREAS.

MEMORANDUM for:

The Commissioner of Works
Ministry of Works
WELLINGTON C 1

With reference to your memorandum M4/1965 of 28 April last, the necessity for reporting on the supply of sand and shingle from foreshores in the Auckland and Coromandel areas came about as a result of representations made by members of the Auckland Scow Owners' Association. A meeting was held with that organisation during January last when various difficulties were discussed the solution of which called for an overall review of both the supply and demand of sand and shingle in so far as foreshores might be affected.

During the year most of the foreshores in these areas have been visited and investigations made of the conditions relating to any particular locality.

Information has been obtained from observations and also from discussions with persons who claim to have a knowledge of conditions and activities in the past, together with previous departmental reports and photographs.

The recommendations outlined have been made as a result of careful consideration of both commercial and local requirements of beach materials along with the all important matter of taking care of the future of the coast line both from the view point of minimising erosion and preserving the natural beauty which is proving such an attraction for local as well as overseas visitors. Any royalty obtained by the Crown is in the long run held to be of little account and as no serious difficulty is envisaged in providing for the demands of industry, even allowing that any alternatives mean greater monetary cost, there is a strong case for taking early steps to safeguard for posterity the valuable asset of the coastal contour and beauty.

For the purpose of this report investigations have been divided into headings as follows:-

- 1 General
- 2 Manukau Harbour
- 3 Hauraki Gulf-Auckland Southwards
- 4 Hauraki Gulf-Auckland Northwards
- 5 North Auckland
- 6 Coromandel

GENERAL

In the past the industrial requirements of suitable sand, shingle and shell combined with the difficulty in obtaining alternative supplies, no doubt justified the wholesale removal of material from foreshores in the Auckland Province. With the development in recent years, however, of the many volcanic deposits of high grade stone on the Auckland isthmus by improvement of access and the establishment of a number of crushing and processing plants, industrial requirements of coarse aggregates and metal are now being largely provided for, with the result that there should be little or no necessity for obtaining supplies of shingle from foreshores. Under the heading of coarse aggregate there is a call for such material known as 'peg gravel' for special purposes. This material is now limited to very few localities to which reference will be made under the heading of the particular beaches affected.

6,000 cubic yards per year is stated by the Scow Owners' Association to represent the total amount of all grades of shingle at present being shipped to Auckland. This does not include material known as McCallum's red or manganese shingle obtained by dredging adjacent to the foreshore at Pakihi and from a quarry on the Karamuramura Island, the latter being worked when there is sufficient demand. This 6,000 cubic yards is relatively small when compared with the quantities which were obtained when industry was dependent upon beach aggregate.

At the present time the installed capacity of quarry plant in the Auckland centre is stated by the Quarry Owners' Association as being of the order of 276,000 cubic yards per annum and there is talk of stepping up the capacity by another 200,000 cubic yards when the demand justifies such an increase. From our observations the existing plants have measured up to demands with a little to spare during the past year or so.

It is obvious that the process of change over from beach shingle to crushed metal for industrial purposes has been in progress for some years, the inference being that it is more economical to quarry and crush aggregate compared with obtaining and shipping shingle from foreshores. Any tightening of the contröll of removing shingle from foreshores which would have the effect of further reducing the quantity of material available for the market should, due to the relatively small quantity concerned not embarrass the interests concerned.

A different position obtains, however, respecting the supply of sand and until alternative sources of supply can be developed beach and river sands must be depended upon.

The present demand of the Auckland Metropolitan area is of the order of 100,000 to 110,000 cubic yards of sand per year as aggregate, together with 25,000 cubic yards of a special grade of silica sand used in the process of glass manufacture. These requirements are at present being obtained from river estuaries and beaches and it is considered that this rate of supply can be maintained from existing sources without undue adverse effect for at least the next ten years and probably 20 years, provided steps are taken to control the rate of removal from the various beaches from which supplies are maintained. Ten years supply at the existing rate represents a total of 1 1/4 million yards and it is obvious that such a quantity obtained from any particular beach would have a serious effect on the beach level with resulting recession of the adjacent foreshore. To ensure, therefore that the adverse effect is kept to a minimum a system of periodical inspections should be initiated and comparisons made with previous known conditions. There will, however, come a time in the not very distant future when in the interests of preserving our beaches for

posterity consideration must be given to the restriction and possibly ultimate prohibition of removal of beach materials.

In past reports on the subject it is noted that there was a tendency to give the question of availability of sand and shingle and the royalty to the Crown relatively more weight than would be the case these times when there is an increasing public demand, perhaps better described as a substantial need, for the preservation of the natural contour and beauty of our foreshores. This is apart from the also important matter of reducing danger to coastal works and the destruction of adjacent fertile lands.

In some localities the adverse effect on the foreshores is such as to justify total prohibition which has been applied in some instances, but there are cases where material has been removed and where there has been no apparent effect. From what has happened and what is still happening, however, from past activities the position should be very carefully reviewed and adjoining owners and shipping interest should be prepared for a tightening up of control and, in the case of some foreshores, a reduced rate of removal and possibly total prohibition.

There are localities such as the beaches adjacent to Auckland where prohibition already applies. Due to the increasing popularity of such resorts as Kawau Island, Bay of Islands, and Mercury Bay, the policy of general prohibition should be immediately extended to cover these and any other localities which are at present used by the public or are considered to have potentialities as future public and recreational amenities.

During investigations and discussions with interested parties it became necessary to refer to the amendment to the Harbours Act 1948, upon the provisions of which the Marine Department depends for authority to control excavations which may affect foreshores. This Act does not apparently provide for the lodging of applications by the owners concerned to the Department for permission. The owner, therefore, is within his rights to make any such excavation without application up to his boundary and in the case of an owner possessing riparian rights, to M H W mark. Even allowing that he has a knowledge of the authority of the Department he is apparently entitled to proceed until a direction is received from the Marine Department imposing restrictions.

There are quite a number of semi-isolated localities where excavations of this nature could proceed for some considerable time prior to such activity being brought under the notice of the Department, with the result that excavations could, and apparently do, get to a stage which will ultimately adversely affect the foreshore prior to investigations being made and the necessary restrictions being imposed.

To reasonably safeguard the position, it appears that some provision is necessary whereby the Department is made aware of the owner's intentions and has a reasonable opportunity of stipulating the necessary conditions prior to excavations being commenced. It appears that to remedy the position, no excavations whatsoever should be permitted within 1 chain of the foreshore without control and that applications for permission to excavate within these limits should be made mandatory.

Until there is such Statutory provision then the Marine Department must depend largely upon its own staff to exercise the necessary supervision.

The position, however, could no doubt be made easier by soliciting the co-operation and assistance of local authorities. Some local authorities do take a big interest in the in the preservation of foreshores but it is doubtful whether the intentions and provisions of the 1948 Amendment are fully realised by all Local Body executives. In fact, some Local Authority officers, when the matter was under discussion, admitted that they were not aware that such an amendment to the Harbours Act existed.

The position is considered to call for a circular from the Marine Department to all local authorities having jurisdiction over territories fronting or immediately adjacent to the coast line, drawing attention to the amendment and asking for assistance in exercising the control intended by the Act.

MANUKAU HARBOUR

Sand has been obtained from the foreshore and in banks of the Manukau Harbour for industrial purposes in the Auckland Area for many years. In 1913 control was vested in the Auckland Harbour Board, from which time until the year 1940 many complaints were received from permanent and casual visitors occupying the properties and Ratepayers, Local Bodies and other Organisations respecting damage caused to foreshores by the removal of sand partly from beaches and partly from property fronting the foreshores.

During 1940 sand was being removed at the rate of approximately 25,000 cubic yards per annum, when the position became so acute that it was reviewed by the Board. At this stage it was realised that several beaches had been adversely affected and in the event of removal being permitted to continue at the rate, then sand beaches would eventually disappear. Action was taken, therefore, to control the position by restricting the removals to a

predetermined rate, at the same time giving consideration to the requirements of industry. However, by the year 1948 the rate of removal for the Auckland market had dropped to an average of 600 cubic yards per month and at the present time the average rate is of the order of 300 cubic yards per month.

The beaches have been closed against taking sand for industrial purposes, 300 cubic yards per month being obtained from privately owned land adjoining the foreshore in different localities. This quantity represents a relatively small portion of the total shipped to Auckland for industrial purposes and a representative of the Scow Owners' Association stated that in the event of the supply of sand from Manukau being discontinued then the effect would be of little concern to Auckland interests.

In addition, there is a small quantity taken by motor trucks from the actual beaches under cover of permits issued by the Auckland Harbour Board. These are generally limited to applications from local farmers and are subject to prior recommendation of local organisations concerned such as 'Ratepayers' of Progressive Associations.

The in harbour foreshore of the Awhitu Peninsula was the principal source of supply of sand from the Manukau when removal was taking place on a liberal scale. At that time Awhitu was only in a partial state of development.

The position now, however, is that the area has developed into a prosperous farming district with a corresponding substantial increase in population.

The demand for public recreational amenities in the nature of beaches is therefore now much greater than hitherto.



PHOTOGRAPH 1

Glenbrook beach Manakau. Looking north from southern end of beach showing erosion of foreshore. 29 August 1950.



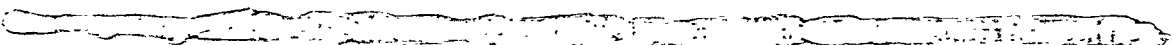
PHOTOGRAPH 2

Patangaroa (Binnies) Beach Awhitu - Manakau. 17 August 1950. Showing sand spits immediately in near or foreshore.

In view of the demand for preservation of existing beaches and the restoration of adversely affected foreshores, there is a good case for the Marine Department to approach the Auckland Harbour Board as controlling authority, with the object of establishing total prohibition. Such a measure would only affect the supplies to local farmers who should be able to obtain the necessary supplies of sand from liberal deposits adjacent to the West Coast. In order to give those concerned a reasonable opportunity to develop an alternative supply, a period of at least 2 years should be allowed for the change over. In view of the detrimental effect of the removal of sand from private properties adjoining the beaches a general prohibition should be enforced against the removal of sand from within 1 chain of high water mark in the case of all Manukau Harbour foreshores.

Glenbrook Beach: Situated on the Eastern shore of the Waiuku River and has developed into a seaside resort for the adjacent district, and practically the whole of the area adjoining the beach is occupied by a good standard of beach residences.

Considerable erosion has occurred and is continuing, no doubt due to the removal of sand from the foreshore which, from information obtained from the officers of the Franklin County, was on a liberal scale. Portion of the beach is now closed but the condition of the foreshore is a good illustration of the adverse effect of the indiscriminate removal of sand. Individual attempts have been made by several owners concerned to arrest erosion by the construction of timber and other types of revetment but the solution appears to call for a comprehensive scheme, particularly along the southern half of the beach. The prohibition of the removal of sand from the foreshore should be rigidly observed and on no account should sand be permitted to be removed even for local purposes.



The accompanying photograph taken during August last illustrates the seriousness of the erosion towards the south end of the beach.

Brooks Beach-Southern Portion: Situated immediately to the North of Dale's Point.

The land fronting this beach was owned by the late Mr Brooks who took special steps to preserve this most desirable beach by refusing to agree to any permits for the removal of sand from the foreshore or from in-shore. This beach now appears to be in its original condition there being no evidence of any removal of sand. The Franklin County Council is desirous of having this beach preserved as a future public recreational amenity and is thinking in terms of acquiring some of the adjacent land for development accordingly. This portion of the foreshore happens to be the only undisturbed beach left on the West of the Manukau Harbour, sand having been removed from practically all the others. There is every merit, therefore, in preserving this beach and both the owner and the local authority are to be commended on the attitude taken. The beach should be definitely closed and, furthermore, no sand should be permitted to be taken from in-shore.

Brooks Beach-Northern Portion: This beach fronts the property purchased about 5 years ago by Mr Galichan, an ex-serviceman settler, for about 12 chains, and that of the Brooks Estate for about 3 chains. The Franklin County Council has made information available to the effect that large quantities of sand were removed from in-shore of the beach in the past. From an inspection of the beach during July last it would appear

that a strip generally 1/2 chain wide from H W M was excavated practically the whole length of the beach and the sand removed by scow. The pit so formed has been partially filled with sand from the adjoining beach by wave action and which has apparently resulted in a recession of the general alignment of approximately 6 feet. To remove sand from the original pit will no doubt result in further recession, and if repeated a sufficient number of times there is a prospect of the beach being ultimately depleted of sand.

This beach is not only considerably valued as a future public amenity but constitutes essential protection for the adjoining property against wave action, particularly during North-easterly storms. In the interests of preserving the beach, therefore, total prohibition should be applied to the removal of sand from the beach and, furthermore, sand should not be taken from within 1 chain of the High Water Mark in terms of the provisions of the Harbours Amendment Act, 1948. Such a prohibition affects the existing owner's interest in that the Land Sales Court in approving the sale estimated the value of the sand available at £600, which sum according to Mr Calichen; was added to the purchase price. Mr Galichen has sold sand to the value of £100 since his occupation and is still £500 down. He considers that there is not the quantity available at 1/6 per yd. royalty to represent the figure of £500 and has, therefore, been in recent touch with the Land Sales Committee respecting a rebate. In the old pit immediately to the rear of high water mark it is estimated that only 1800 cubic yards of sand is available, but as pointed out in the above, it should not be permitted to be removed.

This aspect of the purchase of the adjoining property by Mr Galichen has been discussed with the staff of the Commissioner of Crown Lands, Auckland, who

have made investigations of the finding of the Land Sales Committee. Although not specifically stated in the finding of the Committee it would appear from a perusal of the figures that the sum of £500 was allowed in the purchase price for the value of sand available for sale. At the time of the transfer (1944-45) there was no restriction by law to the removal of sand from immediately inshore of Highwater Mark and therefore the enactment of the 1948 Amendment creates an anomaly as far as Mr Galichen's interests are concerned. Even allowing this confliction of interests it is considered that there is still justification to apply restrictions. Perhaps the matter could be initiated by a discreet letter being addressed to the removal of sand for 1 chain in-shore of HWM under a provision of the new legislation. The nature of the reply received would perhaps give a lead as to the next step to take in effecting the desired ultimate prohibition.

Lees Beach, opposite Dickey's Landing: This beach was visited during July when Mr Lee, who owns land adjoining the beach, was found to be manufacturing building blocks from sand obtained from the foreshore fronting his property. Sand is chiefly obtained from a spit at the mouth of the Kauritutahi Creek which is maintained as the result of tidal action. Mr Lee stated that he uses a total of about 200 cubic yards per year for the manufacture of his blocks. The practice is for settlers requiring blocks to obtain permits for the removal of the necessary sand from the Auckland Harbour Board with the prior recommendation of the local Progressive Association. Mr Lee subsequently removes the sand from the foreshore on the particular settler's behalf and manufactures blocks. Sand exists in very limited quantities on this short beach and immediately opposite Mr Lee's house the foreshore is partially denuded of sand. Removal of sand from the spit must obviously adversely affect the adjoining beach.



PHOTOGRAPH 3

Grahams beach - Awhitu - Manakau 17 August 1950.
Showing results of past erosion.



PHOTOGRAPH 4

Pakihi (Sandspit) Island. Portion of Western foreshore between
Aotea Roa and Puketoka Points showing erosion. 28 September 1950.

Adjoining Mr Lee's property is a landing reserve fronting the adjacent foreshore; therefore any adverse effect on the foreshore as a result of Mr Lee's activities will apply to the foreshore fronting the landing reserve. In the interests of preserving the foreshore alignment a sand covering to resist wave action appears essential and therefore the removal should be under very strict control and limited to bare essentials. Furthermore, consideration should be given to closing the beach in two years time in terms of the general recommendation for Manukau Harbour.

Apparently the Marine Department takes little interest in the removal of sand from this and adjacent foreshores and it appears that it would be advisable that some measure of control and supervision of the Auckland Harbour Board's activities in granting permits should be exercised.

Tatangaroa Bay: On visiting this locality during July last the discovery was made that excavations had recently been carried out on 3 different areas of Tangaroa Bay for the purpose of obtaining sand from the low lying flat immediately in-shore of the high water mark. No barriers were being left at high water mark with the result that at high water the sea has access to these excavations.

Such activities not only reduce the low lying land to a condition of perpetual swamp but seriously affect the foreshore alignment. The land affected is Lots 1 and 2, DP 26243, Lot 1 DP 30930 and Lot pt. 34 & 35, DP 2634. The owners of adjoining land, according to survey plans, possess riparian rights and it is considered that there is justification to apply

restrictions in terms of the Harbours Amendment Act, 1948. In this connection it is recommended that no excavation should be permitted within 1 chain of H W M and a notice should be served on the owners accordingly. The accompanying photograph illustrates the effect of the method adopted.

Graham's Beach: Large quantities of sand have been removed from this beach in the past for industrial purposes and, typical of other Manukau foreshores, the make up is negligible, which results in a marked recession. The beach is now closed against the removal of sand for commercial purposes but limited quantities are permitted to be removed for local purposes. On account of the popularity of this beach it is considered that action should be taken to completely close the beach against all removal, however small.

Riparian rights apparently exist along the whole length of the beach and some adjoining owners have permitted the removal of sand from the frontage of their properties adjacent to the foreshore. This has had a very marked spoiling effect on what was once a very desirable spot. Although considerable damage has been done it is considered that steps should be taken to control this class of activity by restricting future removals to areas removed 1 chain from the existing high water mark. Appropriate notices, therefore, in terms of the provisions of the Harbours Amendment Act should be served on all owners fronting this beach.

The accompanying photograph indicates the extent of recession which has taken place on the foreshore.

Big Bay: A good sandy beach exists in this locality backed by a swampy low-lying flat on which a few cottages have been erected. The beach is used as a summer resort and although adversely affected by liberal removal of sand in the past should now be protected against any further removal.

The beach is now closed against the taking of sand for commercial purposes and this should be extended to prohibit the taking even for local purposes.

Orua Bay: This is an attractive beach, iron sand predominating, and is much used by the public and adjacent section holders. The area has been well developed and quite a number of good standard beach residences have been erected.

From information available no sand was taken actually from Orua Bay but from the vicinity of Kauri Point at the eastern end of the Bay sand was taken in large quantities which apparently has had the effect of lowering the level of the Orua Bay beach. Revetments from 3 to 4 feet in height have been erected by most property owners having beach frontage. This step has been necessary to resist erosion by wave action resulting from the recession of the foreshore. The necessity for this comprehensive protection against erosion resulting from lowering the beach by the wholesale removal of sand is well demonstrated at Orua. The beach is now closed and should remain so indefinitely.

HAURAKI GULF - AUCKLAND SOUTHWARDS

For the purpose of this report it is understood that the whole of the foreshores of the principal islands in the Hauraki Gulf including Rangitoto, Motutapu, Rakino, Waiheke, Hunui, Browns, Motuihe, Rotoroa and Pakatoa, are closed against removal of beach materials. The only island where the removal of sand or shingle from or adjacent to the foreshore is permitted is Pakihi (Sand Spit Island). A similar prohibition applies to the whole of the foreshores of the mainland from the Auckland Harbour southwards to Orere Point and it is considered that such prohibition both in respect to the islands and the mainland should continue.

Pakihi (Sand Spit Island): This island and the adjacent Karamuramu Island are owned by McCallum Bros. who in the past have removed considerable quantities of shingle from the foreshores. At the present time dredging for shingle is being carried out adjacent to the southern limit (Te Okowai) of Pakihi, which apparently does not result in any adverse effect on the foreshore and the sea bed. On a smaller island known as Karamuramu a large quarry has been developed. Shingle and metal from both sources are supplied to Auckland and to adjacent rural areas.

When visiting the locality during September last a note was made of the rather serious erosion of the foreshore which had occurred and is still occurring in the Bays between Aotearoa and Puketoka Point on the West Coast and immediately to the west of Te Okawai on the East Coast of Pakihi Island. What were originally gentle sloping foreshores are now vertical faces, in some cases up to 15 ft. high, brought about by the lowering of the beach and the resulting recession of the foreshore.

The removal of shingle from these affected foreshores has been discontinued by the owners for some time, which is considered to be the only reasonable course in view of the adverse effect which has actually resulted. This erosion can be taken as a very striking example of the effects of the comprehensive removal from foreshores of beach materials in localities where the only make up is relatively small and should remove any doubt as to the lengthy period necessary to restore the foreshore to its original natural condition if such is possible.

All beaches on this island should be closed against the removal of shingle. There is no objection to the continuations of dredging at Te Okawai. The accompanying photograph illustrates the nature of foreshore erosion due to removal of beach materials.

From Orere Point for a distance of approximately 4 miles southwards to a point where the Kawakawa-Miranda road joins the foreshore, the coastline consists mainly of decomposed rocky cliffs and small alluvial flats. The beaches have a covering of hard boulders which comprise essential protection of the softer coastal rocks against erosion by wave action. To preserve the existing coastal alignment and contour these beaches should be left in their natural condition, no permits for the removal of stone, shingle or sand should therefore be issued.

For the next 2 miles, that is from Col. Adams' homestead southwards the road has been formed by excavating a shelf at the foot of a steep soft rock face and is proving difficult to maintain owing to slopes and to sea erosion. The adjoining beach has a covering of hard blue boulders and to maintain

the greatest measure of natural protection the beach as in the case of the adjoining 4 miles to the North should be left undisturbed.

For the next 2 miles southwards the road is separated from the foreshore by a strip of land a few chains in width and which is generally in pasture or occupied by seaside residences. The adjoining length of foreshore also depends upon the covering of boulders and shingle as protection against wave action. The southern limit of this last mentioned length is represented by a point situated approximately 1 mile North of the boundary between Manukau and Franklin Counties, and it is along this last mile of foreshore and adjoining flat in the Manukau County that a liberal quantity of boulders and coarse shingle exists, the former predominating. In the event of there being many future calls for this particular class of material then the removal could be permitted on a commercial basis subject to reasonable periodical reviews. It is very doubtful, however, whether the crushing of the boulders would be economic as a supply of aggregate for the Auckland Metropolitan area.

From the County Boundary southwards to the village of New Brighton (Kaiaua) the beach has a similar covering of boulders and shingle with progressive increase in the latter as one proceeds south. In the interests of the protection of the adjoining road and land no removals should be permitted along this length.

At New Brighton the nature of beach material changes from boulders and shingle to shell in a relatively short distance. It was from New Brighton and Miranda foreshores which were originally well clothed with shell of a good commercial value that large quantities of shell were removed and which has resulted in a somewhat serious recession of the foreshore alignment. Special reports have already been prepared and are available of its condition under the

heading of "Te Moko Block, Fairview Estate and Miranda". The present arrangement is that the removal of shell from the foreshores in these localities is prohibited and, furthermore, restrictions have already been applied under provisions of the Amendment of Harbours Act 1948 to the removal of shell from private holdings immediately in shore of the high water mark even where riparian rights exist. The prohibition of the removal of shell should also apply to that portion of the foreshore extending from Miranda to the Waitakaruru Stream.

While restrictions applied to the removal of shell from the foreshores and areas immediately adjoining may ultimately adversely affect the production of shell lime in this locality, there is considered to be sufficient justification for exercising this control on account of the erosion resulting from indiscriminate removal of shell in the past.

HAURAKI GULF AUCKLAND NORTHWARDS

As in the case of the Hauraki Gulf foreshore situated to the south of Auckland, the removal of material from beaches to the North of Auckland as far as Whangaparaoa is generally prohibited and it is not the policy of the Marine Department to issue any permits for removal from beaches either above or below high water, or for dredging off shore. This prohibition should continue to be meticulously enforced.

Pine Island: About 25 years ago shell was taken from a bank adjoining the north-western foreshore of Pine Island for the purpose of surfacing footpaths on that island. Erosion of the northern foreshore has been taking place for some years and is causing the owners affected some concern. There is little



PHOTOGRAPH 5

Shakespeare Bay, Whangaparoa 8 August 1950 Looking east from west end of beach.



PHOTOGRAPH 6

Shakespeare Bay 8 August 1950 Looking west from east end of beach.

doubt that the removal of the shell in the past has been a contributing factor to this erosion. This matter has been mentioned for the reason that a recent suggestion has been made to remove further shell for surfacing footpaths on Pine Island and it is recommended that any applications for permits for the removal of any shell whatsoever should be declined.

Whangaparaoa: Shakespeare (Te Haruhi) Bay: This beach is about 50 chains long, is rock bound and is comprised of sand consisting of fine shell, quartz and stone and contains a little large shell. Low sand hills exist immediately behind the beach. On account of the large shell the sand is considered to have a limited commercial value but nevertheless quantities are removed. It is being taken from the beach under cover of a permit, removals being at the rate of 500 cubic yards per year. As no large quantity of sand has been removed there is no indication as yet of any detrimental effect.

This is a most desirable beach as a future recreational amenity and road access being readily provided the area would sub-divide to advantage into desirable seaside sections. In this connection it is worthy of mention that it is the only remaining worthwhile beach suitable for development as a seaside resort at Whangaparaoa Peninsula. The beach should therefore be preserved in its present attractive natural condition and should be closed against the removal of sand. Taking into consideration, however, that the current license exists, it is recommended that the permit be limited to 500 cubic yards per year for the next two years and the beach be closed at the end of that period.

A small quantity of sand was recently removed from immediately behind the foreshore and although the owner has riparian rights the practise should be controlled by limiting any removals from areas situated over 1 chain from high water mark. The two accompanying photographs illustrate the present nature of the beach and surroundings.

In the same area there are 2 small beaches, namely Okoromi Bay on the South and a short beach on the opposite side of the Peninsula immediately to the north. These beaches flank a low lying fertile flat and as an insurance against the possibility of a future break through of the sea both beaches should be preserved and therefore closed against removal of sand.

All other beaches on both north and south coasts of Whangaparaoa should be closed against all removal even for local purposes.

Waiwera and Hatfield's Beaches: These beaches are at present closed and should remain so indefinitely.

Marked erosion on the foreshore of the latter has occurred during the last 10 years to 15 years and is a good example of the slow rate of make up and that restoration to its original natural condition is likely to be a very lengthy process.

Waiwera Beach: A charming and popular sea side resort, the beach being in



PHOTOGRAPH 7

Waiwera beach. Looking north from end of wall near wharf.
8 August 1950.



PHOTOGRAPH 8

Waiwera beach looking south from end of wall near wharf.
8 August 1950.

a good natural condition.

The northern portion is fronted by a legal road and narrow landing reserve for a portion of its length. On the southern section of the beach owners of properties have riparian rights.

On the northern extremity exists a spit formation comprising a little quantity of sand and which it may be thought could be removed without adverse effect. This spit is formed and maintained by natural tidal conditions and is considered to be essential for preserving the existing contour of the beach and therefore no removal of sand should be permitted from the beach or from this spit. Applications for permits from the beach or from this spit, even for small quantities should, under the circumstances, be declined.

Sand is removed from time to time in small quantities by un-authorised persons and as a warning a notice should be displayed prohibiting all removals. Furthermore, the appointment of a local honorary inspector might be an advantage.

The accompanying two photographs illustrate the attractiveness of the beach and surroundings.

Waiwera to Takatu: From Waiwera to Takatu a limited number of small beaches exist but none have sand in sufficient quantity as to be practical from a commercial point of view. Furthermore, these beaches are relatively

close to centres of population and what little sand exists should be preserved for the use of the public as future recreational amenities.

While there is no objection to the granting of permits for bare essentials for local purposes applications for permits for removals on a commercial scale should be declined. In any case applications should be carefully screened and a general policy of prohibition adopted.

Kawau Island: Most of the beaches on Kawau Island consist of rock and manganese rubble and mud with the exception of Vivian Bay on the North coast and a small cove about a mile to the east adjacent to Stip Island. These two beaches are comprised of sand and being the only two such beaches on the island nothing should be permitted which would in any way detract from their value as bathing places.

Kawau Island is a recognised holiday area and is most popular during the summer season and could be safely described as a mecca for holiday makers.

Many areas of land along the foreshore have been subdivided into building lots and a number of residences have been erected. More development can be expected in the future.

Being so attractive as a holiday resort there is every justification for closing the whole of the foreshore against the removal of materials above or below high water mark. It is recommended, therefore, that any current permits be terminated forthwith and no further ones issued.

This recommendation cannot be reconciled with the opinion expressed in the 1923 report that Vivian Bay is the only portion of the coast where a quantity of sand was stated to exist, and could be opened to allow removal. The report also stated that a number of bays and inlets on the north and west coasts also contained deposits of shingle or sand and which could be safely removed. The present view is that the material which could be economically obtained from the foreshore at Kawau is very limited and would contribute to a very small extent to the demands of industry. The value of preserving the foreshore for the use of the public outweighs many advantage which could be gained by the removal of beach materials in either small or large quantities.

Waikauri Beach: Situated on the south coast of Takatu Peninsula between Jones' & Christian's Bays. It is a shingle beach adjoining land owned by Mr Trevor Collins of Warkworth.

Shingle is at present being taken from the foreshore by lorry for local purposes and judging from the extent of the recession of the foreshore considerable quantities of shingle appear to have been taken to date. The beach is about 10 chains long and the small adjoining flat has been, as a result of erosion, considerably decreased in area and is now only about 2 chains wide. This bay cannot be regarded as a future public amenity and on account of the hilly nature of the adjoining country the loss of the remaining portion of the small flat area should be of little concern. Therefore no restrictions are proposed meantime.

The accompanying photograph gives a general view of the beach.



PHOTOGRAPH 9

Waikauri Beach. Between Jones and Christians (Tudor Collins)
Looking east showing extensively eroded foreshore. 26 September 1950.



PHOTOGRAPH 10

Takatu Shingle beach south side (SCHICK'S) formerly known as Jones.
Looking east from west end of beach showing recent erosion of foreshore.
26 September 1950.

Takatu-(Jones) Bay: This is a shingle beach fronting Mr Schick's property on the south coast of the Takatu Peninsula and was originally known as Jones Beach. A special report was submitted on the 3rd February last relating to conditions and appropriate action has been taken by the Marine Department. This beach has been closed for the past twelve months but a Mr Hyde takes shingle from the adjoining land by arrangement with the present owner, Mr Schick. In terms of the Amendment to Harbours Act, 1948, a condition was imposed to the effect that no shingle may be taken within 3 chains of the foreshore.

A visit to the beach during September last disclosed that serious erosion of a shingle bank comprising the foreshore opposite Mr Schick's residence had recently occurred. See accompanying photograph. This recent development is causing the owner much concern as the safety of the in-shore low lying fertile flat is menaced. This recent erosion supports the opinion expressed in my report of 3rd February last to the effect that the beach should be permanently closed and, furthermore, is an example of the delayed adverse effect of earlier removals of shingle, of which large quantities were removed from this beach in the past.

Takatu Beach, Omaha (Schick's): A sand beach situated on the northern coast of the Takatu Peninsula and fronting Mr Schick's property, about 1 mile in length and is separated into two portions by a low rocky spur or reef. It is comprised of good quality quartz sand suitable for industrial purposes and Mr Hyde, the previous owner of the adjoining property, has the sole right for dredging sand off shore.

This beach has been under observation since June 1949 when the erosion of the foreshore, apparently the result of removal of sand, was brought under the notice of this Department. For two years prior to this date sand was being removed at the rate of 10,000 cubic yards per year but the rate of earlier removals is uncertain.

During January of this year the beach was again inspected when it was observed that the rate of erosion had decreased and the previously eroded face of the foredune had healed and was protected by vegetation. For six months prior to this visit only 2,718 cubic yards were removed and until more information could be made available and the overall position reviewed permits were tentatively limited to 3,000 cubic yards per six monthly period. Meantime the survey fixing the foreshore alignment and to serve as a basis for future observations and comparisons was authorised. See special report of 3rd February, 1950 and subsequent reference of the Secretary to Marine, M4/1965 of 28th idem. This survey has now been completed and plans are in the course of preparation.

On the occasion of a visit during September last it was discovered that erosion of the foredune had again taken place. About 25 chains of the eastern portion of the bay was affected. The nature of the erosion of the foredune is shown on the accompanying photographs and has resulted in a vertical face of from 4 to 7 feet. At the extreme western end of the bay erosion has also occurred which has resulted in a vertical face to the foredune from 2 to 3 feet in height over a length of several chains. During the six months ended June last a total of only 1,463 cubic yards was dredged off shore of this beach. The eroded portion of the foredune is generally opposite the position from which sand is dredged.

It appears obvious that the relatively small quantity of sand dredged for the six months period to June could not account for the necessary lowering of the beach level as would result in the erosion as described. The explanation appears to be, therefore, that the unbalanced condition is the result of earlier dredging and insufficient quantity of sand produced by natural agencies to take care of the lowering of the sea floor by dredging on this particular section of the coast. In this connection dredging is carried out from low water to some distance off shore and there is a prospect that some of the depressions so formed are beyond the zone of influence of wave action during normal weather and storms of moderate intensity. It therefore could be only during heavy weather coinciding with low water spring tides that the more distinct off shore depressions would be disturbed and filled by a general levelling process. This could occur at some considerable time subsequent to the actual dredging. Such unstable conditions would be aggravated by future removal of any worthwhile quantity of sand and it would appear that the time has arrived for serious consideration to be given to the closing of this length of beach. As mentioned in my previous reports, damage to the foredune by continual erosion will in all probability result in the disappearance of the existing foredune system, resulting in quantities of sand being carried in shore by wind and causing damage to the nearby fertile pasture lands. This would be of considerable embarrassment to the owner, Mr Schick, and notwithstanding any agreement at the time of purchase between the original owner, Mr Hyde, and Mr Schick, there appears to be a good case for the Marine Department to apply such restrictions as will safeguard the existing foreshore contour and alignment.

Due to the relatively small quantity of sand obtained from this particular locality the closing of this beach should not materially affect the overall

position of sand supplies to the Auckland Metropolitan area, but to give Mr Hyde, who has the sole permit, an opportunity to reorganise plans for sand supplies he should be permitted to carry on for a limited period of 12 months, say to December, 1951.

The existing permit for 3,000 cubic yards for six months should, however, be reduced to a limit of 1500 cubic yards per six months, which is comparable with the quantity taken for the period to June last. The accompanying photographs generally illustrate the beach and the nature of the erosion.

Fraser's Beach, Omaha: This beach is about 2 1/2 miles long and is situated on the eastern or outer side of the spit which forms Whangateau Harbour. It is comprised of good quality quartz sand suitable for industrial purposes which is dredged from low water mark and beyond and transported by scow to Auckland. It constitutes a small alternative supply to Pakihi and Mangawai particularly when weather conditions render the working conditions of the two latter areas difficult.

During the 6 months period January to June 1950, a total of 5,200 cubic yards was dredged by the several permit holders.

As the result of a meeting held in Auckland on the 25 January this year between representatives of the Scow Owners' Association, Mr Fraser and Officers of the Marine Department, the sole rights which were previously held by the adjoining owner, Mr Fraser, were cancelled. The Marine Department now issues permits direct to shippers, collects royalty and takes full responsibility for any necessary compensation to the owner on account of any damage which may result to the land adjoining the foreshore.



PHOTOGRAPH 11

Takatu sand beach north side. (Schick's) looking west from low spur about half way along beach. 26 September 1950.



PHOTOGRAPH 12

Takatu sand beach north side (Schick's) Looking east from end of beach. 31 January 1950.



PHOTOGRAPH 13

Takatu sand beach north side (Schick's). Looking east about $\frac{1}{3}$ way along western portion of beach from rocky spur showing recent erosion of foredune. 26 September 1950.



PHOTOGRAPH 14

Takatu sand beach north side (Schick's) Looking west from end of beach. 31 January 1950.



PHOTOGRAPH 15

Takatu sand beach. North side (Schick's) Looking west from low rocky spur about half way along beach. 31 January 1950.



PHOTOGRAPH 16

Mathesons beach Leigh. Looking south from north end of beach. Showing recent erosion. 15 August 1950.

With a view to establishing a basis for determining the effect on the foreshore contour and alignment of the removal of sand from below low water and as a means for assessing any compensation which may be due under the arrangement to Mr Fraser by the Marine Department, it was agreed that a survey to register the existing foreshore alignment together with the establishing of a fixed point for future references be carried out by the Works Department. The field work of this survey has been completed and plans are in the course of preparation.

The present position is that there is no evidence of any erosion of the foreshore or other adverse effect of the removal of sand, and considering the length of the beach 10 years dredging at the present rate of 10,000 cubic yards per year should not have any appreciable effect. Moreover, it should be reasonably safe to increase this figure to 20,000 cubic yards. In any case the beach should be kept under observation by making inspections at least once a year. In the event of there being found in the future any evidence of the lowering of the beach or erosion of the foreshore then the question of the future policy respecting removal of sand correlated with the demand and other sources of supply should be then reviewed.

Matheson's Beach (Leigh): This is a good beach about 5 chains in length, situated approximately one mile south of the village of Leigh, and is proving very attractive as a holiday resort. A number of seaside batches have been erected in the vicinity and furthermore it is a popular spot for day visiting. Access is available by metal road.

Considerable quantities of sand have been removed in the past and there is evidence of recent erosion of the adjoining foreshore, particularly at the northern end of the bay. Requests have been made of recent years to remove material from this beach but fortunately the Marine Department has declined to issue permits.

Although Mr Tanner's report of 1923 mentioned inter alia that "this beach has always been a favourite resort for securing shingle of good quality during westerly weather" I would point out that there is now no evidence of the existence of shingle. The surface of the beach now is comprised solely of sand. Judging from previous reports there has been erosion in the past and the positive evidence of recent erosion is an indication that even allowing the beach has been closed for the past year or so a condition of stability has not yet been reached.

Due to the configuration and the nature of the immediate coast it appears that the restoration of the beach to its original natural condition will be a slow and lengthy process. In this connection there is no evidence of any make up of the shingle.

In the public interests therefore this beach should remain closed and under no circumstances should sand be taken from the locality and the land immediately adjoining. The accompanying photograph giving a general view of the beach illustrates the original erosion of the foreshore.

Pakiri Beach: Pakiri beach extends from Okakari in the south to Te Arai Point in the north, being a distance of 8 1/2 miles. On the northern section it is backed by sand dunes over a distance of approximately 5 miles and both beach and dunes are of quartz sand, that of the former being very suitable for industrial purposes. Sand has been taken from this locality on a commercial scale for the last 30 years and it is now regarded as one of the chief sources of supply for the Auckland area.

The beach is divided into two sections by the Pakiri River estuary, the southern portion being about 1 1/2 miles long and the northern portion 7 miles. The southern portion was inspected during August last when it was found that a natural foredune was generally in existence. Signs of erosion by wave action of the toe of the foredune for several chains were discovered at a point situated about half a mile south of the Pakiri River. At this point a two ft vertical face was showing. The position of this erosion is generally opposite the area from which sand is removed by scow from approximately the low water position and it is probably the result of the comprehensive removals of sand from this portion of the beach.

It is most desirable that the tendency to erode be checked from time to time and therefore it is suggested that this section of the beach and foredune be inspected at least every twelve months.

Permits for the removal of sand from Pakiri are meantime limited to the length south of the Pakiri River from which it is estimated that from 35,000 to 45,000 cubic yards per year is dredged from adjacent to the low water mark. The accompanying photograph was taken and looks south from a point about 20 chains south of the Pakiri River and illustrates the nature of the foredune.



PHOTOGRAPH 17

Pakiri Beach, from Pakiri Beach southwards. Beach and foreshore looking southwards. 15 August 1950.



PHOTOGRAPH 18

Pakiri Beach (northern section) In-shore limit of sand dune fronting Mr Thom's Property looking north and showing the effect of travelling dune and foreshore about 300 feet to the east. 14 September 1950.

From Pakiri River northwards to Te Arai Point the beach appears to be in its original natural condition. A foredune is in existence generally along the southern portion (3 1/2 miles). The accompanying photograph taken during September last gives a good impression of its characteristics.

The existence of this foredune has apparently substantially checked the inroads of sand to the adjoining land, for along the northern 3 1/2 miles where no foredune exists the moving sand dunes are much larger and extend in places over one mile inland, whereas along the southern portion the dunes extend inland for distances varying from 200 yards to half a mile.

Along the whole 7 mile length there is a tendency for sand to travel inland, the rate depending on the intensity and frequency of easterly winds. The accompanying photograph illustrates the nature of the face of the advancing sand dunes and the partially covered vegetation. At the point where the photograph was taken the dunes were about 300 yards wide.

The land immediately in the rear of the dunes is comprised generally of rich fertile flats either developed as pasture or in the process of development. Some years ago the Works Department planted marram and lupin on 600 acres of the dunes extending northwards from the Pakiri River for approximately two miles. Although some of the planting has deteriorated for want of maintenance the effect has been a tendency to stabilise the dune system.

Any disturbance of the natural beach conditions is likely to result in erosion by the sea or wind of the foredune system which in turn would allow

sand to travel inland more rapidly. Under the circumstances there is good reason to restrict the removal of sand from this portion of the beach and immediately outshore. It was for this reason particularly that permits for the removal of sand have been limited to the section of the foreshore south of the Pakiri River.

Considering, however, that the foredune system extends only approximately 3 1/2 miles northwards from the Pakiri River and that due to the direction of the littoral drift there is a tendency for sand to accumulate on the Te Arai end of the beach, there appears no objection to allowing the removal of sand from the 3 mile section of foreshore situated immediately to the south of Te Arai Point. This represents an extension of the length of the foreshore from which sand is at present being taken.

The intervening 4 mile length situated immediately to the North of the Pakiri stream should remain closed meantime.

Allowing that the existing rate of removal of 35,000 to 40,000 cubic yards per year is maintained, and assuming that 500 feet represents the total width of beach influenced by wave action, then 10 years' continuous dredging would have the equivalent effect of lowering the 4 1/2 miles of beach by approximately 1 ft. To what extent make up from adjoining beaches or from sand produced by the several erosive agencies would counter this lowering is very problematical and it is considered that the only reliable method of registering the overall effect of wholesale removal is by periodical observation based on a previously determined fixed points.

For this purpose the existing alignment and contour of the Pakiri beach should be recorded by the survey and fixed points established for the purpose of facilitating these future comparisons.

Due to the erosion of the foredune which has already occurred such survey required should be undertaken in the very near future of the 1 1/2 miles south of the Pakiri River in the first instance, to be followed as soon as practicable by survey to the north of the Pakiri River. (3 photographs).

Mangawai: This beach extends from Eyres Point to the entrance to Mangawai Harbour, a distance of approximately 6 miles, and as in the case of Pakiri Beach comprises good quality quartz sand suitable for industrial purposes.

Along the southern 4 miles a natural foredune is in existence, in the rear of which is a wide belt up to one mile in depth, of dune sand rising to a height of 160 feet. The remaining 2 miles of the beach fronts a spit which forms the Lower Mangawai Estuary. No foredune exists along this spit and sand travelling westwards from the beach, is carried into the estuary, and comes under the influence of tidal currents. About 1 mile south of the entrance the spit during periods of high water is only approximately 10 chains wide and from 4 to 6 feet in height for a length of half a mile. During easterly storms waves break across this narrow portion of the spit into the estuary. To maintain the lower estuary in its present state it appears to be essential that the natural conditions of supply of sand to the spit should not be unduly disturbed. A total of 60,000 to 65,000 cubic yards of sand per annum is obtained from Pakiri and Mangawai beaches for Auckland requirements, approximately 20,000 to 30,000 c.yds. of which is obtained from Mangawai, the amount from each depending to a large measure on weather conditions in so

far as dredging and loading by barge or scow may be affected. As in the case of Pakiri sand has been obtained from Mangawai beach for industrial purposes in Auckland for the past 30 years.

At present sand is dredged from the Northern end of the spit actually in the entrance to the estuary and in lee of Sentinel Rock, and there appears to be no adverse effect as the result of the removal of sand to date. The littoral drift on this section of the coast is towards the north which no doubt accounts for the make-up of sand in the relatively small area from which sand is dredged.

To obtain reliable information as to the effects of removal of relatively large quantities of sand from the entrance to the estuary over long periods, a survey to give a registration of the existing conditions is required and which would provide a basis for future comparisons.

Both the ocean beach estuary alignment together with some levels of the spit should be observed. The necessary survey of the spit section should be put in hand in the near future, to be followed by that of the remaining length of the foreshore at various points.

Aerial photographs of the entrance at low and high water conditions should be arranged on the lines of similar observations which are being carried out at other estuaries on the New Zealand coast at the request of the Soil Conservation Committee. Meantime there is no occasion to depart from the present policy of issuing permits as required.



PHOTOGRAPH 19

Pakiri Beach northern section. Looking south from about mid point (opposite Thoms) showing nature of foredune.
14 September 1950.



PHOTOGRAPH 20

Langs beach near Waipu. General view looking south from north end. 30 October 1950.

NORTH AUCKLAND

Laing's Beach and Waipu Cove

Situated between Waipu and Mangawai, both of these beaches have developed into most popular recreational resorts and apart from the many casual visitors a considerable number of seaside residences of relatively good standard have been erected in ideally laid out sub-divisions.

The beaches are composed of quartz sand and are most attractive for bathers and both are invaluable as future public amenities. Under no circumstances, therefore, should the removal of material from above or below high water mark be permitted.

Laing's Beach is rock bound and the natural make up of sand would in all probability be a very slow process. Towards the southern end of this beach a short road has been formed to a sand deposit immediately above high water mark and sand is being removed to such an extent that the foreshore is being adversely affected, the sand being swept during storms from the beach into the adjacent depression made by the removal of sand. Immediate steps should be taken to prohibit any further removals and it is recommended that the owner of the adjoining property, Lot 39 (Mr W R Laing), who apparently possesses riparian rights, be notified accordingly in terms of the provisions of the Amendment to the Harbours Act 1948.

The accompanying photograph gives a general view of the beach and surroundings.

At Waipu Cove there are indications that a small quantity of sand has been removed from the adjacent mouth of the creek. Although the quantity taken is apparently so small as to have had no effect as yet, at the same time the principle is wrong and the practice should be discontinued. The Waipu Cove Domain Board who is apparently the controlling authority of the adjoining area should be notified accordingly.

An alternative supply of sand for local purposes could be obtained without much difficulty from dunes situated to the north of the Waipu Township.

Waipu Beach This beach, some 10 miles in length, is composed of quartz sand suitable for industrial purposes and dredging is carried out adjacent to the mouth of the Waipu River for sand required in the Whangarei area. Permits are at present being issued for the removal at the rate of 10,000 cubic yards per year and at this rate it is estimated that little or no effect should result for the next 20 or 30 years. It is suggested, however, that the removal of sand be confined to the beach to the north of Waipu River mouth. This would be beneficial in having a tendency to slow up the rate of movement of the outlet of the Waipu River towards the south as the result of littoral drift.

Whangarei Harbour At one stage sand was removed from beaches within harbour limits but due to the adverse effect on the foreshore the practice was discontinued some years ago and at the present time the removal from any of the foreshore within harbour limits is prohibited, Waipu Beach, as mentioned under that heading, being the source of supply for the Whangarei area.

The Whangarei Harbour Board is exercising control on behalf of the Marine Department and judging from discussions with the Harbour-master supervision both in respect of Whangarei Harbour and Waipu Beach is satisfactory.

The Harbour-master made information available to the effect that even allowing a prohibition for some years the rate of recovery of the beaches within the harbour from which sand was removed is practically negligible. This can be accepted as yet another good example of the slow rate of natural make up on beaches.

Whangarei to Helena Bay No material in commercial quantities is at present being removed from the foreshores from Whangarei Harbour towards the north to and including Helena Bay. Many attractive sand beaches are in existence along this length of the foreshore which have developed into popular holiday resorts for many visitors and campers. A general prohibition should therefore be applied but permission could be given for the occasional small quantity required for individual settlers purposes, but the beaches should not under any circumstances be commercialised. The small shingle beaches on this foreshore including those in Tutukaka Harbour should also be protected and closed against commercial use of materials.

Helena Bay situated a few miles south of the engrance to Whangaruru Harbour.

This bay has been the subject of recent investigations respecting an application by the Scow Owner's Association for the removal of shingle as source of supply for Auckland. See my report of 16 February last. In this connection it was revealed that approximately 42,000 yards of material



PHOTOGRAPH 21

Helena Bay near Whangaruru. Shingle beach looking north.
Low water. 24 October 1949.



PHOTOGRAPH 22

Mokau bay Whangaruru. Southern portion of beach looking south.
Low water. 24 October 1949.

was removed from this relatively small bay between the years 1935-1945 and to date there has been very little if any recovery of the resulting adverse effects. Apart from erosion which has taken place, the Whangarei County Council has taken a practical interest in the development of the adjoining Domain and would protest at any attempt to allow any further removal which would adversely affect the beach as an attraction to campers and holiday makers. Furthermore, local residents support the Council in taking steps to preserve the beach. It was, therefore, recommended that the removal of any further shingle be definitely prohibited.

Recent studies of the overall shingle supply position and the effect on the foreshore go to confirm this earlier recommendation. The accompanying photograph illustrates the foreshore erosion towards the south end of the beach as it was in October 1949.

Mokau Bay, Whangaruru This bay consists of two sections, north and south, separated by a rocky bluff. The northern section is about 5 chains in length and is composed of shingle suitable for concrete aggregate. Shingle is dredged from immediately below low water and is transported to Auckland by scow. Erosion to the foreshore has resulted and although the beach has not as yet been used to any extent by the public it is considered that with the object of resisting further erosion and protecting what remains of the beach immediate steps should be taken to reduce the rate of removal and in two years time at least to close this portion of the bay.

Along the southern portion of the bay the shingle is more plentiful and the beach is more attractive for visitors, the metal road coming within about half a mile. Furthermore, the foreshore upon investigation has been found to be a native burial ground and for this reason objections have been raised by the Maoris to any proposal to remove shingle. Taking into consideration these factors there appears to be ample justification for keeping the beach closed and it is recommended that all applications for removal of materials both from above and below high water be declined. The accompanying photograph gives a general view of both beaches.

Nop's Island, Mokau Bay, Whangaruru Permits have recently been issued for the removal of shingle from offshore of low water mark where deposits of shingle exist, the extent of which, however, has not been determined. The foreshore of this small island is of a rocky nature any tendency to erode due to removal of adjacent shingle could not be regarded as serious. This deposit is one which could be removed with confidence and although there has been trouble respecting royalty in the past any claim for damage by the owner would appear to be difficult to sustain. Furthermore, there appears to be no justification to pay any proportion of the royalty to the native owners of the island.

Mokau Bay to Cape Brett On this section of the coast shingle has been obtained in the past from beaches in both Whangaruru and Whangamumu harbours, to which reference was made in the report of March 1924. Although there has been no recent opportunity to make any inspections the comments of Mr Tanner

in his report make it clear that the local beaches in both harbours were adversely affected. With the object, therefore, of the ultimate restoration of the beaches they should be definitely closed. In any case members of the Scow Owners' Association have not expressed any recent interest in the locality as a source of supply of shingle.

Bay of Islands Shingle and sand are to be found on several of the beaches in the Bay of Islands and requests are received from time to time to utilise the deposits as a source of supply for local and commercial purposes. The area was the subject of a brief reference by Mr Tanner in his 1924 report when he expressed the opinion that beaches within the Bay of Islands should be kept closed.

The Bay of Islands has become a mecca for thousands of holiday makers including many overseas visitors and sportsmen, especially those interested in deep sea fishing. With its natural beauty and attraction the bay is undoubtedly one of the show places of New Zealand and there is every justification for taking steps to safeguard the natural beaches and foreshore notwithstanding any pressure which may come from commercial and local interests for removing sand or shingle. Permits are at present being issued on a restricted scale, but the time has arrived when the conditions respecting any particular beach should be carefully reviewed. The Auckland Scow Owners' Association are interested in removal of shingle from beaches at Onewhero, Tu Puni, Moturua and Robinson's Islands and for local purposes there is a demand for shingle from Russell Beach and sand from Long Bay.



PHOTOGRAPH 23

Mokau Bay Whangaruru Northern portion of beach looking south.
Low water. 24 October 1949.



PHOTOGRAPH 24

Tepuni beach Bay of Islands. Situated near Wairoa Bay and Marsden
cross looking west, low water 23 October 1949.

Onewhero Bay situated about 3 miles to the north of Waitangi, contains a beach about 15 chains long composed of fine shingle of the pea gravel variety, which is in demand for special processes. It is rather a pleasing beach, to which it is proposed to construct a metalled road. With a road access, and being within a short distance of Russell by launch this beach has marked possibilities as a future picnicking area. It should therefore be preserved in its natural state as a future amenity.

Some time ago the opinion was expressed that removal could be permitted up to 1500 cubic yards per year, subject to annual review. It is now considered, however, that the annual rate of make up will be extremely slow and the removal at such rate would result in a lowering of the beach and recession of the foreshore. Furthermore, information has been available to the effect that the owners of the adjoining property are opposed to the removal of shingle from the beach and foreshore. Taking the long range view it is considered that in the interests of preserving the natural attractiveness of the Bay of Islands as a whole this beach should be closed against the removal of shingle from both above and below high water.

Tu Puni Beach Situated on the mainland and to the north of Moturoa Island, it is composed of good quality shingle which in the past has been removed for commercial purposes. The accompanying photograph shows erosion of the foreshore which apparently has been the result of the lowering of the general level of the beach.

As in the case of Onewhero, Scow Owners have an interest in this beach but due to the historical significance of this portion of the foreshore (Marsden's Cross being situated only two miles away), it is considered that here again there is justification for taking steps to preserve the coast line

in its present natural state. In this connection the removal of further shingle in any quantity must result in the beach becoming less attractive in that further erosion and recession of the foreshore would occur. I understand that the owner of the adjoining property realises this would be the case and is generally opposed to shingle being taken from the beach except in very limited quantities.

In reviewing the position it is now considered that the recently suggested rate of removal of 1,000 cubic yards per year would have an adverse effect and would definitely not be in the best interests of the public. Furthermore, in the event of permits being issued there is a prospect of the Department coming under the criticism of those organisations interested in the preservation of the natural resources of the Bay of Islands. The recommendation now is that permits be issued on a minimum scale until December 1951, subsequent to which date the beach should be closed.

Moturua (Mita's Island)

Is situated between Russell and Cape Brett on the west coast of which a good shingle beach exists and from a future recreational amenity point of view has not the same possibilities as other bays in the area. Erosion due to recession of the beach could not be regarded as a serious matter from the owner's or the public's point of view. The deposit of shingle, therefore, could be safely regarded as a source of supply for scow owners trading with Auckland and for local purposes. This deposit appears to be the only workable beach in the Bay of Islands where the removal of shingle can be permitted with any degree of confidence. At the same time the position should be reviewed periodically and steps taken as necessary to prevent possible unsightly erosion.



PHOTOGRAPH 25

Moturua Island Bay of Islands. Shingle beach on shore (Western) taken from boat, low water. 23 October 1949.



PHOTOGRAPH 26

Robinson's Island Bay of Islands. Eastern end of beach looking east showing narrow remaining strip of foreshore connecting two portions of island. Low water. 23 October 1949.



PHOTOGRAPH 27

Robinson's Island Bay of Islands Looking north from southern beach
through one of the eroded gaps. Low water 23 October 1944.



PHOTOGRAPH 28

Robinsons Island Bay of Islands. General view of southern beach
looking west. Low water 23 October 1949.

The accompanying photograph gives a general view of the beach and adjacent country.

Motu Arohia (Robinson's Island): A good shingle beach which appears to be in its original natural state exists on the southern coast of this island and which was mentioned by representatives of the Scow Owners' Association as a possible source of supply of shingle for Auckland. The island is a most picturesque spot and the good beach and pleasant surroundings are invaluable as a resort for visitors. The northern foreshore of this island is exposed to the full force of Pacific Ocean storms and has eroded to such an extent that three gaps have developed which tend to divide the island into four separate areas. The removal of shingle from the southern beach would result in recession of the shore line and which, combined with the natural erosion on the north, would add to the risk of breaks-through of the sea. It is understood that the owner realises this risk and is much opposed to any proposal to remove shingle. In any case there is ample justification to prohibit any removal at either above or below high water mark and it is recommended that all applications for permits be declined. The accompanying three photographs illustrate the position referred to.

Russell: Until recently it had been the practice to permit shingle to be removed in limited quantities for local purposes from the foreshore fronting the township of Russell and which has resulted in protests from local residents. On account of the very limited natural make up any removal of shingle would inevitably result in the recession of the foreshore and would have a definite adverse effect. Both the Russell Town Board and

the Bay of Islands Harbour Board have an interest in the issue of permits. The maintenance of this beach is essential in the interests of the township as a tourist resort and the prohibition which was recently applied should be observed without any reservation.

When reporting on the question recently reference was made to an alternative supply of shingle from Te Peka beach. Te Peka happens to be one of the local beauty spots and is situated about one mile from Russell by road and is becoming popular with local residents and visitors. It does not appear wise, therefore, to permit removal of the very limited quantity of sand and shingle remaining and so spoiling the bay for all time. It is recommended, therefore, that Te Peka be closed against the removal of materials.

For local purposes shingle can be obtained by barge from Moturua Island, the extra cost involved being more than offset by the value to the district of leaving both Russell and Te Peka beaches undisturbed.

Oneroa (Long) Bay: Situated about half a mile by metalled road from Russell township is one of the very few sandy beaches in the Bay of Islands. Being so near Russell it has developed as an important recreational amenity for both local residents and the many visitors. Furthermore, owners of allotments adjoining Oneroa Bay foreshore recently have erected quite a number of seaside residences. The sand both on the beach and on the adjoining foreshore is suitable for local construction purposes. That on the foreshore has developed into a source of supply for the immediate surrounding district. The Russell Town Board is the executive local authority and issues the necessary permits. While it is agreed that the quantity taken is not large there is a strong objection to removing

any sand whatsoever. In this connection protests have been voiced by local residents and there is little doubt that a very good case can be made for the total prohibition of the removal of sand both from the beach and from the adjoining foreshore reserve. It is recommended, therefore, that all applications for permits to remove sand from the beach be declined and that a notice be issued to the Town Board under the provisions of the Amendment to Harbours Act 1948, to the effect that no sand is to be removed from the foreshore reserve.

As an alternative supply for local purposes sand can safely be made available from Opito Bay, situated about 1 mile to the south of Long Bay. No road access is available to Opito but here again the extra cost of barging the sand would be considerably less than the ultimate loss to the community by the irreparable damage to Long Bay as a present and future recreational area.

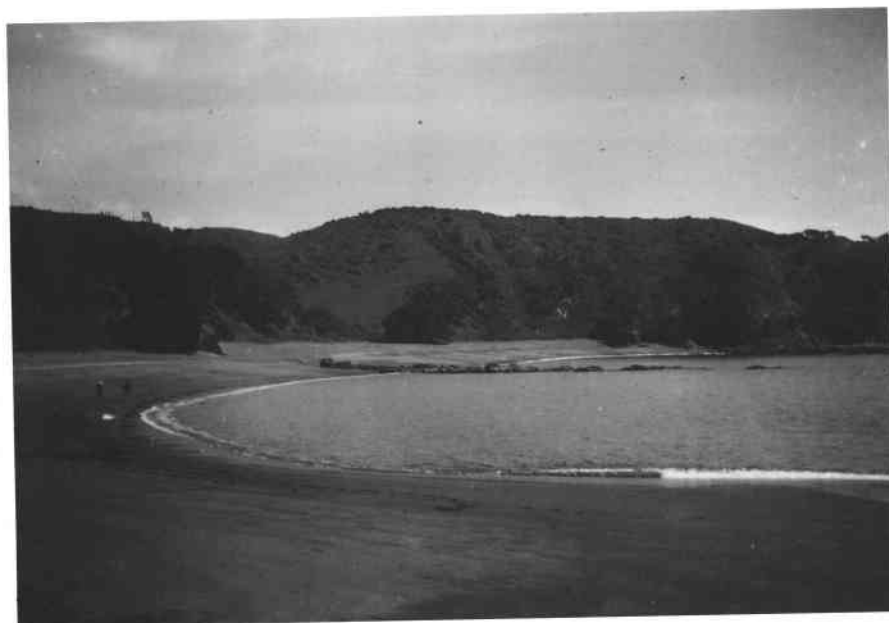
Bay of Islands to Whangaroa: North of the Bay of Islands there are two sources of shingle in which the Scow Owners' Association have expressed an interest, namely Step Island and Wainui Bay.

Step Island: A good shingle beach exists here and considering that the island is not suitable or attractive as a public amenity and, furthermore, that the result of any recession of the foreshore due to removal of shingle would not be serious, there can be little objection to shingle being removed from this particular beach. It is recommended that permits be issued as required.



PHOTOGRAPH 29

Wainui bay Between Cavalli Islands and Whangaroa looking north.
Low water 22 October 1949.



PHOTOGRAPH 30

Wainui Bay Between Cavalli Islands and Whangaroa looking north
low water 22 October 1949.

Wainui Bay: This bay is situated on the mainland and connected by a metal road to the township of Whangaroa, is one of the beauty spots of the far North. The beach is composed of shingle somewhat small in texture for the purpose of concrete aggregate. It is a pleasant beach with attractive surroundings and is becoming popular as a camping resort. A very desirable picnic area adjoins and with the all weather road access this bay has a bright future as an adjunct to Whangaroa. The local Maoris own the adjoining land and possess riparian rights and therefore have a considerable interest in the preservation of the beach and foreshore in their existing natural state. The removal of shingle on a commercial scale, therefore, would no doubt be the subject of a protest.

1,000 cubic yards per annum was previously suggested as the maximum rate of removal but in reviewing the possible ultimate effect it is considered that there is justification for closing the beach and the adjoining foreshore against removal of shingle on a commercial scale. There should be no objection, however, to a small quantity being removed under control for local purposes.

The accompanying photographs give a general view of the beach and background.

Cooper's Beach:

Cable Bay :

Taipa Beach : As the result of requests for the removal of sand from these foreshores investigations have recently been made by the Department and it has been recommended that in each case the beach should be closed.

The Marine Department has accepted these recommendations and it is made clear that notwithstanding the additional cost involved in procuring sand for local purposes from elsewhere these popular beaches are not to be despoiled.

Parengarenga: Any report on the sand deposits and beaches of North Auckland would not be complete without a reference to Parengarenga as the source of supply of a special grade of quartz sand used for the manufacture of glass at Penrose, Auckland.

25,000 cubic yards generally represent the annual quantity removed for this purpose. Sand is dredged from the toe of the large spit situated immediately to the south of the entrance to Parengarenga Harbour.

This spit is composed almost entirely of quartz sand and the depressions formed by dredging should readily be filled from the liberal quantities available. Undoubtedly the alignment of the foreshore of the spit will ultimately be affected but this should not have any undue adverse effect. Removal at the existing rate for the next 50 years should make only a relatively small impression on the large quantity available. There can be no objection, therefore, to the issue of permits on a commercial scale.

COROMANDEL AND PAEROA

Generally the West Coast beaches extend from Thames to Cape Colville and are composed of good quality shingle which has been removed in the past in substantial quantities and transported by scow to Auckland. From Tapu southwards some of the beaches contain a proportion of sand which has increased their popularity as bathing resorts.

On the East Coast of the Peninsula beaches are composed of good quality quartz sand and, unlike the beaches on the West Coast, have not as yet been spoiled as future recreational areas by the comprehensive removal of sand for industrial purposes.

During a short discussion with some members of the Coromandel County Council reference was made to the importance of natural beaches on both the East and West Coast to the future prosperity of the district. Thousands of motorists visit the Peninsula during the summer holiday period, and every bay and inlet both large and small, even in localities where access is difficult, are well patronised and organised motor camps are to be found even in the most isolated localities.

In Whitianga it has been estimated that 4,000 motor vehicles were in the locality on the same day during last summer (Christmas-New Year holiday period). Traffic tallies taken in the township of Coromandel by the Council staff between 7 am and 6 pm from 26 December to 5 January last gave

a daily average of 492 motor vehicles. At Whitianga during the same period the figure was 499. Other localities on both coasts of the Peninsula are also most popular and at Whangamata the rate of development in the nature of erection of seaside residences and retail establishments has been amazing.

The picturesque coast line with the colourful pohutukawas is proving increasingly attractive and there is much merit on the Council's suggestion that nothing should be permitted which will in any way adversely affect the natural charm of this most beautiful holiday resort.

Coromandel as a community is somewhat impecunious and depends to no small measure on the revenue obtained from the spending of the many visitors attracted to the district. In dealing with applications for permits for the removal of beach materials, therefore, the preservation of the natural foreshore conditions should be given preference over industrial requirements.

In this connection a general tightening up of existing permits should be undertaken and no further permits issued unless there is no reasonable alternative and then only on a very limited scale.

Waihou River: A good quality quartz sand suitable for industrial purposes is available from the lower reaches of the Waihou River and considerable quantities have been removed in the past for local and Auckland markets. Furthermore, a very substantial proportion of the material required for the construction of a comprehensive system of stopbanks comprised sand which was dredged from the river by the Works Department.

The Waihou River is at present under the control for the purpose of the removal of sand, of the Thames Borough Council and the Works Department. The former, which assumed the responsibilities of the Thames Harbour Board as the controlling authority from Turua to the river mouth, a distance of approximately 6 miles and issues permits and collects royalties in respect of sand dredged from the river bed on that particular length. The Works Department, being the controlling authority from Turua to Te Aroha issues permits and collects royalties in respect of sand dredged from this length of the river. Practically the whole of the sand being removed at the present time is being shipped to Auckland.

The average quantity removed is of the order of 25,000 cubic yards per annum, approximately 8000 cubic yards of which is removed from the portion of the river which is under the control of the Thames Borough. As a result of discussions with the staff of the Works Department, Paeroa, the present rate of removal does not appear to be adversely affecting the regimen of the river; on the other hand there appears to be some benefit in the nature of channel improvement.

To what extent sand of a commercial quality will continue to be available in the future is problematical on account of the quantity of tailings from the quartz gold mining process having access to the river. It may be, however, that there is sufficient make up of good quality sand from the upper reaches of the river to take care of the existing rate of removal. In any case it is tentatively estimated that 10 years' supply at the existing rate of renewal is available.

Apparently no control is exercised by the Marine Department of sand removal activities and it is considered that in the interests of developing and maintaining the best navigational conditions and safeguarding the foreshore against erosion, some measure of control and inspection should be instituted. On the length under the control of the Works Department these factors are well taken care of by the interest the Department has in maintaining the best conditions for coping with flood discharge and protecting the stopbanks which it has the responsibility of maintaining. On the length under the control of the Thames Borough Council, however, there is in all probability not the same incentive to give the necessary consideration to these two important aspects. In this connection it is understood that there is little or no supervision given to the activities of the Scow Owners removing sand. This is a matter which should be rectified and one effective remedy appears to be to arrange with the district Engineer, Hamilton, for the Public Works staff at Paeroa to supervise on behalf of the Marine Department activities relating to the removal of sand under cover of permits issued by the Thames Borough Council. It is recommended that the necessary steps be taken accordingly.

Coromandel Area (West Coast) : From the Borough of Thames to Otuturu Bay previous reports recommended that the foreshore should remain closed. The beaches on this section of the coast are composed of sand and shingle and apart from having become popular as recreational areas they generally support the coastal road formation.

It is understood that in the past substantial quantities of sand and shingle were removed from this length of foreshore and even allowing the beaches have been closed for some years the process of restoration

is very slow. These are very good reasons for the application of strict prohibition of the removal of sand and shingle in even small quantities for local requirements.

Cemetery Bay and Tapu: In the report of 1923 no objection was raised to the removal of coarse shingle in limited quantities from below high water mark. The position now is viewed somewhat differently in that any shingle reaching the foreshore from Tapu Creek should be allowed to accumulate and be dispersed by wave action on the foreshore towards the south, which will have the effect of at least partial restoration of the original beach conditions. This will be beneficial to the bays from a public point of view and, furthermore, should result in the maintenance of the road format being more economically carried out. Both of these beaches should be definitely closed.

Te Mata and Cutina Bays: These are situated to the north of Te Mata Creek and were referred to in the 1923 report when the opinion was expressed that limited quantities of sand and shingle could be removed from below high water mark without risk. The present position is, however, that the supply of shingle coming down the Te Mata Creek is required to make good the loss on the adjacent beaches by wave action and also to replace at least some of the material which has been removed under license in the past and so build up the beaches to a condition comparable with the original contour, both for the benefit of the public and the stability of the adjacent road formation.



PHOTOGRAPH 31

Coromandel west coast. Waikawau beach. Looking south at low tide 10 October 1950.



PHOTOGRAPH 32

Coromandel west coast Long beach looking north at low tide. Compare with 1911 Photograph. 10 October 1950.

Waikawau: Judging from previous reports Waikawau beach has been a somewhat important source of supply of shingle. At present permits are still held. There remains quite a good deposit of shingle on the foreshore and there are indications that quantities were recently removed from below high water mark and utilised for raising the level of the adjoining land.

This beach, along with others, has been a source of revenue for the Marine Department in the past and despite the large quantities which it is understood have been removed, the immediate foreshore shows little adverse effect although in the past the recession of the foreshore necessitated the relocation of the adjacent highway. Immediately to the south, however, considerable difficulty has been experienced in maintaining the road formation against erosion due to wave action and there is little doubt that removal of large quantities of shingle from Waikawau foreshore has upset the balance of natural conditions. At this point of the coast the littoral drift is towards the south and the removal of shingle from the mouth of the adjacent creek reduced the rate of natural supply to the adjoining beaches so necessary to make good the wastage by wave action. Erosion has therefore resulted which has caused recession and which adds substantially to the cost of maintaining the adjacent state highway. The accompanying photograph looking towards the south taken on the 10 October last for the purpose of comparison, was taken on the same alignment as the one accompanying the 1911 report. From a close comparison of these two photographs it is to be noted that since 1911 a marked recession of the foreshore immediately beyond the shingle bed in the foreground has taken place. This is illustrated by the beach line now being in the rear of what



PHOTOGRAPH 33

Coromandel west coast. Long beach looking north at low tide.
10 October 1950.



PHOTOGRAPH 34

Coromandel west coast. Wilsons beach. Looking south at low tide.
Compare with 1911 Photographs. 10 October 1950.

was shown on the 1911 photograph as a rocky point. This is to some measure typical of what has occurred some distance to the south where it became necessary to construct substantial revetments to support the threatened road formation.

Taking the whole of the factors into consideration, therefore, there appears to be a good case for prohibiting of further removals both from the foreshore and below low water and it is therefore recommended that existing permits be cancelled forthwith. Furthermore, the removal of shingle or sand from the area between the highway and the foreshore, privately owned as it may be, in terms of the provisions of the Amendment to the Harbours Act 1948, should be likewise prohibited and it is recommended that appropriate notices be served on the owners.

Long Beach: Waitorotora Beach: Green Bay: Jamieson's Beach: Otakeao Beach:

These beaches are situated between Waikowau in the south and Wilson's Bay in the north.

At the time of the inspection during August 1911 a liberal quantity of shingle was in existence along the section of the coast. By the end of 1923, however, Waitorotora was stated to be pretty well bare of shingle and the recommendation at that stage was to the effect that these beaches, with the exception of Otakeao, be closed. The country behind these bays is generally precipitous which called for improvement in the width of the road and involves widening on the shore side. Any future removal of shingle from the beaches with the resulting recession of the foreshore will probably add to the difficulty and cost of maintenance

and improvement to the standard of the state highway. This in itself is sufficient reason for prohibiting any further removals of shingle.

Otakeao Beach should therefore be closed along with the others.

Recent photographs taken of Long Bay give a comparison with that taken in 1911.

Wilson's Beach: A large quantity of shingle was removed from this area in the past and although the beach has been closed for many years there is little indication of any recovery. Very little shingle is now on the beach and the foreshore shows the effect of past erosion. The area should remain closed indefinitely. The photograph recently taken gives a comparison with that of 1911.

Foster's Beach mentioned in the 1923 report as being cleaned up was not visited, but on the assumption that the rate of recovery is comparable with that on other portions of the coast where positive comparisons are possible, then this beach should remain closed.

Kirita Bay: The shingle beach at this point fronts and protects an adjacent developed fertile flat from erosion and for the purpose of maintaining the existing beach alignment no removal of beach material should be permitted.

Manaia to Koputauaki: This portion of the coast including the Manaia, Te Kouma and Coromandel Harbours, together with Kikowhakarere Bay, should remain closed as recommended in the 1923 report.

Koputauaki Bay: This bay along with other adjacent bays has become very popular as a camping and picnicking resort and in the interests of the public it should be preserved in its present condition as a recreational amenity. The 1923 report indicated that unlimited quantities of fine shingle, sand and shell could be made available for commercial purposes from the shallow bar and banks within the bay. Such a view may have been acceptable at that time but conditions have now changed to such an extent as to justify a general prohibition of removal of any materials from any portion of the bay or foreshore. Steps should be taken, therefore, to completely close this bay.

Okahu and Hautapu Beaches: Both of these beaches were the subject of comment in the 1923 report, the opinion then being expressed to the effect that due to substantial removals of shingle both should remain closed.

Owing to lack of time these particular beaches were not visited on the occasion of the recent general inspection but on the assumption that the rate of make up is as slow on these beaches as on others visited then there is good reason for keeping the beaches closed.

Papaaroha Beach: This beach although closed to the removal of shingle by barge is at present open for the purpose of making available limited supplies of shingle for local purposes and permits are at present issued up to a limit of 50 cubic yards in any one month. The 1911 report indicated that supplies of shingle were available and the 1923 report stated that considerable quantities had been removed for years and the opinion was expressed that the beach "will always make up again". At the same time it was admitted that the beach was at a considerably lower level than hitherto.

When comparing present conditions with those shown on the photograph taken on the occasion of the 1911 inspection, it was noted that quite substantial alterations to the foreshore contour had taken place, no doubt as the result of the substantial removals referred to. A camping ground has been established on the low fertile flat adjoining the beach and therefore good reason exists to restrict any activities which would tend to slow up the rate of recovery of the beach. Furthermore, the littoral drift at this point of the coast is towards the north and the shingle coming down the Papaaroha Creek should be allowed to travel naturally northwards and so make up the wastage by wave action on the foreshore to Amodeo Bay, to which point the road to Colville is located on a rocky ledge above the beach, the maintenance of the foreshore alignment being essential for the stability of the difficult 2 miles of road formation.

Although there appears a good case for closing the beach, under existing conditions there appears no reasonable alternative but to allow shingle to be taken from this locality for essential local requirements, but the beach should not be exploited for any comprehensive works and the restriction of 50 cubic yards per month should be permitted to give a temporary source of supply until such time as quarries are established in the district. In discussing this question with the County Council officials it was understood that there is a prospect of one or two quarries being developed in the Coromandel area. In any case the position should be carefully reviewed periodically and it is recommended that an officer of the Works Department visit the beach at least once in every year for the purpose of checking on the activities of licensees and the effect of the

removal of shingle as permitted. It was noted that under the existing permits shingle was being taken from the neck of the spit adjacent to the mouth of the creek. If this practice is continued there is every prospect of the creek cutting a new channel through the beach which would in all probability affect the adjacent foreshore alignment. Licensees should therefore be notified that shingle should be taken only from the nose or tip of the spit.

From Papaaroha to Colville Bay: Limited shingle exists on this section of the coast and as a safeguard against erosion of the precipitous foreshore and damage to the coastal road this section of the beach should remain closed as recommended in the 1923 report.

Cabbage Bay:

Ahirau (Big) Bay:

Both of these bays are shallow sandy inlets with large areas uncovered at low tide. The road to the north is located adjacent to the foreshore and in the case of Big Bay it has been necessary to provide protection against wave action. The fertile flats at the head of both bays have been developed for dairying purposes and the shallow estuaries provide the necessary protection against erosion by wave action. The removal of sand from these areas should therefore be prohibited.

Otautu Bay: In the 1911 report the opinion was expressed that large quantities of sand could be taken without any damage to adjacent land. Substantial quantities of sandy shingle were subsequently removed with the result that the foreshore fronting the low lying fertile flat was seriously eroded and which necessitated during the year 1935 the relocation of the coastal road further inland. There is at the present time little



PHOTOGRAPH 35

Coromandel west coast. Waiaro beach general view looking south at low tide. Compare with 1911 photograph. 10 October 1950.



PHOTOGRAPH 36

Coromandel west coast Waiaro beach. Looking south from above mid point showing typical erosion of foreshore. 10 October 1950.

remaining of the present road formation. Several residences which were at one time in the rear of the road are now no distance from the foreshore and any further recession of the beach would become a menace to the owners concerned. A good case can be made therefore for the prohibiting of any further removals. For local requirements applicants should preferably be referred to Waiaro. It is recommended that the beach be closed against the removal of any further material from either above or below high water mark.

Waiaro Beach: This is a beach comprised of coarse shingle and from the 1911 report the impression is that liberal quantities were available for removal. The 1923 report indicated that considerable quantities had been taken both above and below high water. The two photographs taken during October last compared with those taken during 1911 reveal erosion and recession of the beach and foreshore. Immediately behind the shingle foreshore there exists an extensive fertile flat in grass and any further erosion resulting in the destruction of the remains of the protecting shingle bank would leave this flat wide open to erosion by wave action. Apart from the threat to the adjoining land shingle brought down by the Waiaro Creek is apparently carried generally in a northerly direction and originally gave protection to the precipitous foreshore extending in the direction of Cape Colville, along which the access road to the north has been built. This condition should be permitted to be restored and taking into consideration the interests of the adjoining owner at Waiaro there is a good case for prohibition of the removal of shingle from immediately above or below high water for commercial purposes. Removal by scow, therefore, should be prohibited and permits limited to supply for local requirements. In this connection there should be an overall limit of 300 cubic yards per year and it is recommended that restrictions be applied accordingly.



PHOTOGRAPH 37

Coromandel east coast. Whangapoua. View of harbour entrance looking east, showing scours in position for loading sand. 11 October 1950.



PHOTOGRAPH 38

Coromandel east coast Whangapoua beach to west of harbour entrance. General view looking west. 11 October 1950.

McDonald's (Urarima) Bay: Situated about a mile to the north of Waiaro this bay was not visited but information has been made available by Ministry of Works officials to the effect that large quantities of shingle were removed in the past which necessitated relocation of the Colville-Port Jackson Road at this particular point. No further removals should therefore be permitted. Likewise, prohibition should apply to the whole length of the coast line between Waiaro and Port Jackson where the road has been formed generally along the precipitous face.

Whangapoua: Whangapoua comprises two sandy beaches namely:

- a that situated to the west of Whangapoua Harbour entrance extending in a northerly direction from Te Rehutai Point for approximately 1 mile, and
- b that fronting Omaro spit and known as Whangapoua Beach.

Both beaches are comprised of good quality quartz sand suitable for industrial purposes.

A permit is in existence which gives authority for the removal of sand from the full length of the former and from the nose of the Spit and from the bed of the Whangapoua harbour adjacent to the latter.

From information available sand is loaded by scow from the harbour entrance; none is known to have been removed from the beach to the west. The photograph taken on the 11 October last shows scows positioned for loading.

The western beach together with the low foredune system fronts and gives protection to a well developed fertile flat. Road access is available and this beach is proving attractive to campers and holiday makers in its natural and unspoiled state. It is estimated that 50 camps were erected adjacent to this beach during last Christmas holiday period.

To preserve the full natural charm of this beach as a public recreational amenity and as protection against recession of the foreshore and erosion of the foredune system the removal of sand above and below high water mark should be prohibited, and it is recommended that the limit of the existing permit be modified accordingly. The accompanying photograph gives a general view of the beach.

The Omaru Spit which largely encloses Whangapoua Harbour is approximately 2 1/2 miles in length and averages half a mile wide. It is comprised almost entirely of sand.

The sand is at present obtained from below low water at the average rate of approximately 5000 cubic yards per year. At this rate the effect on the adjacent foreshore is negligible. Even in the event of the rate being increased tenfold it is estimated that there should be 10 to 20 years' dredging without any adverse effect to the adjacent foreshore and spit.

From the standpoint of a future holiday resort the beach fronting Omaru Spit is more difficult of access and is not so attractive as the beach to

the west of the harbour mentioned earlier, and considering that the demand for sand must be reasonably met, the Omaru Spit and adjoining beach could be safely exploited for the purpose. When the removal reaches a figure of the order of 50,000 cubic yards per year, then it would be advisable to make periodic observations with a view to checking up on the extent of the foreshore recession and the Crown's liability in respect of compensation which may be claimed by the owners. Meantime the quantity being removed is so limited that such special steps are not considered necessary.

In view of the general restrictions which should be applied to other sand beaches on the Coromandel Peninsula, this beach and adjoining spit having road access at its eastern extremity should be available for local purposes in addition to being utilised for supplying the Auckland market.

Kuaotunu: Two quartz sand beaches exist in this locality, eastern and western. Both have good road access and are popular as holiday resorts, both for campers and daily visitors. As yet no considerable quantity of sand is removed from either and so the natural contour is as yet undisturbed. Low fertile flats have been developed behind both beaches, therefore as protection to the adjoining land and as a seaside resort no activity should be permitted which would in any way affect the natural existing conditions.

Small quantities of sand are taken for local requirements and in the case of the western beach this should be limited to the small inshore deposits situated between the creek and the road. Definitely removal of sand from the beach should be prohibited.



PHOTOGRAPH 39

Coromandel east coast ^aKurotⁿu. General view of eastern beach
looking east. 11 October 1950.



PHOTOGRAPH 40

Coromandel east coast. Simpsons beach. Looking south from mid
point. 11 October 1950.

The eastern beach is the more popular and fronts Kuaotunu village where several permanent residences are in existence along the foreshore.

Sand for local purposes and for as far south as Waitangi is obtained from this beach under license and a borrow pit developed for this purpose was in evidence when the beach was visited on the 11 October last. A photograph taken that day indicates the position of the borrow pit in the foreground.

Although quantities taken are limited and the position is reviewed from time to time, it is considered that the time has now arrived when the Department would be justified in closing this beach. Such action may be a little inconvenient to those requiring supplies, but considering that improved road access is now available to Whangapoua, a distance of about 5 miles, the extra distance involved cannot be regarded as formidable. It is recommended that as existing permits expire applicants should be notified that as from December 1951 no further supplies will be available. Meantime permits should be restricted to the minimum requirements.

Simpson's Beach: A most attractive beach situated about a mile north of Buffalo Beach. Being situated within Mercury Bay and adjacent to good road access it has considerable potentialities as a holiday resort. It is popular with campers and picnickers at the present time but its popularity must substantially increase as road access to the district is improved.



PHOTOGRAPH 41

Coromandel east coast Simpson's beach looking north from mid point.
11 October 1950.



PHOTOGRAPH 42

Coromandel East Coast Hot water beach. Looking south and showing
position at hot water springs on beach. 12 October 1950.

In its unspoiled natural state it should be jealously preserved, and under no consideration should permits be given for the removal of sand even in small quantities for local purposes. Furthermore, the removal of sand from above high tide, even allowing the owners have riparian rights, should be prohibited.

The accompanying two photographs illustrate this beach.

Buffalo Beach: This is a beach adjacent to the Waitangi township and is one of the attractions of Mercury Bay. Thousands visit this locality during holiday periods and as a resort so much in demand it should be closed for the removal of sand without any reservations.

Between the road and the northern portion of the beach a narrow belt of low sand dune covered in vegetation exists which has considerable possibilities for future development. Nothing should be permitted which will render that future work more difficult or costly. In this connection it is noted that the County Council is permitting the removal of sand and excavations are being made below the existing road level.

The nature of these excavations is such that they cannot be claimed to be a contribution to the future road widening or the levelling of the area and the benefit of obtaining sand locally is considered to be far outweighed by the value of the natural contour of the area as a future picknicking and camping area adjoining the attractive Buffalo Beach. Furthermore, in the event of these excavations being permitted to continue there is a prospect that the adjacent creek in time of high flood will cut a new channel to the beach. This is another reason for discontinuing

the removal of the sand.

No further sand should be removed from this area and the amendment to the Harbours Act 1948 should be brought under the notice of the County Council as the controlling authority in so far as the provisions apply.

Cook's Bay: In addition to Simpson's and Buffalo Beaches, Mercury Bay includes another attractive beach at Cook's Bay. While a little more difficult of access than the two former, it is already becoming popular and has the makings of a future desirable recreational area. A general prohibition should therefore be applied to the removal of sand from this foreshore.

Hot Water Beach: Situated between Mercury Bay and Tairua, is a most attractive spot proving very popular with campers and picnickers. In addition to the natural charm of the locality hot springs are to be found on the beach during low tide conditions. This very substantially adds to the possibilities of an invaluable resort. Road access is within a few chains of the bay. There has been no demand as yet for sand from this locality and to ensure that the natural condition remains unspoiled total prohibition of the removal of sand both from the beach and foreshore should be applied. The accompanying photograph is a view of the south section of the beach and show the position of the hot springs.

Tairua Beach: The sandy beach and foredune system give protection to adjoining fertile flats against erosion, and furthermore, the area is proving popular as a seaside resort. The adjacent land is being subdivided by owners as building allotments and considerable future development is envisaged. There is good reason, therefore, to decline any applications for the removal of sand.

Whangamata: A charming spot as a camping and picnicking resort and is most popular. Development in the nature of building seaside residences has been amazing during the past few years. Last Christmas-New Year holiday period it was estimated that approximately 5000 visitors patronised this attractive locality.

Under no circumstances, therefore, should the removal of sand from beaches or foreshore be permitted.

Whiritoa: This beach is situated between Waihi and Whangamata, is a steep beach somewhat dangerous for bathing and is composed of good quality quartz sand somewhat large in the grain. Sand dunes exist in the rear of the beach from which sand for local requirements is obtained and there appears to be no objection to this practice continuing. It would be advisable, however, to keep a check on the rate of removal and any possible adverse effect. At the present rate of removal an inspection should be made every two or three years by the local engineer of the Works Department and it is recommended that arrangements be made accordingly.

SUMMARY OF RECOMMENDATIONS

1 GENERAL

- a Application by owners for permission to excavate within one chain of the foreshore be made mandatory.
- b Provisions of the Amendments of Harbours Act 1948 be brought under the notice of territorial local authorities, asking for co-operation and assistance.

2 MANUKAU

- a The Auckland Harbour Board as controlling authority be approached with a view to applying total prohibition within two years to the removal of sand from beaches.
- b A general prohibition of the removal of sand from private property within 1 chain of high water mark.
- c Notice be given to owners of land in Katangaroa and fronting Graham's Beach to cease excavations within one chain of high water mark.
- d Lee's Beach be closed within the next 2 years: Graham's Beach be closed against the removal of sand for local purposes.

3 HAURAKI GULF-AUCKLAND SOUTHWARDS:

- a The beaches on Pakihi Island be closed to dredging at Te Okawai by permit.
- b Foreshore from Oriri Point to a point immediately north of the County boundary be closed.
- c Foreshore from County Boundary to Waitakaruru Stream be closed on lengths where this action has not already been taken.

4 HAURAKI GULF - AUCKLAND NORTHWARDS:

- a Whangaparaoa: Removal of sand from Shakespeare Bay be restricted to 500 cubic yards per year for the next 2 years and then be closed.
All other beaches on Whangaparaoa be closed.
- b Waiwera Beach be closed and warning notices erected.
- c Beaches be closed for commercial purposes from Waiwera to Takatu.
- d Kawau Island: Any current permits be cancelled and the issue of any further applications declined.
- e Takatu Beach, Omaha: Mr Hyde's permit reduced to 1,500 cubic yards per six months until December 1951, subsequent to which the beaches be closed.

- f Matheson's Bay: Beaches be closed indefinitely.
- g Pakiri: Permits be issued for the 1 1/2 miles south of Pakiri River and 3 miles south of Te Arai Point. Survey be undertaken.
- h Mangawai: Survey be undertaken.

5 NORTH AUCKLAND:

- a Laing's Beach: Mr Laing be notified to cease removing sand from adjoining foreshore.
- b Waipu Cove: Notify Waipu Cove Domain Board that no sand to be removed from foreshore.
- c Waipu Beach: Removal of sand be confined to the north of the mouth of the Waipu River.
- d Mokau Bay; Whangaruru: Northern section of beach be closed in 2 years time and southern section to remain closed.
- e Bay of Islands: Onewhero Beach be closed.
Te Puni: Permits to be on a minimum scale until December 1951 when the beach be closed.
Moturua Island: Bay on West Coast to remain open.
Robinson's Island to remain closed.
Russell Beach to remain closed and Te Peka Beach to be closed.
Long Bay be closed and permits issued for local supplies of sand from Opito Bay.
- f Wainui Beach be now closed.

6 COROMANDEL AND PAEROA

- a Waihou River: Supervision by Works Department of sand removal from length of river under control of Thames Borough.
- b Coromandel Peninsula: All west coast beaches from Thames to Kopukaraki Bay be closed.
- c Papaaroa: Removal of shingle be limited to a maximum of 50 cubic yards per month; licensees to be notified that shingle be removed from toe of spit only.
- d Otutu Bay be closed.
- e Removals at Waiaro be limited to a maximum of 300 yards per year.
- f Waiaro to Port Jackson: All beaches be closed.
- g Whangapoua: Limit of existing licenses be amended to exclude bay situated to the west of the entrance to Whangapoua Harbour.
- h Kuaotunu Beaches be closed from December 1951.
- i Simpson's Beach be closed.
- j Buffalo Beach. Removal of sand from area between road and beach be prohibited.
- k Cook's Bay, Hot Water Beach, Turua Beach and Whangamata Beach be closed.

In the event of the recommendations as outlined being adopted the position respecting the supply of shingle and sand becomes:

Shingle is available for commercial purposes from Pakihi, Nop's, Moturoa and Step Islands.

Sand is available in commercial quantities from Omaha, Pakiri, Mangawai, Waipu and Whangapoua; also from Paringaringa for glass manufacturing purposes.

The summary of recommendations does not include reference to localities where appropriate action has already been taken.

In the long run there will be a tendency for the existing sources of supply of both sand and metal to become exhausted. Such a condition it is considered could be reasonably well taken care of in the case of metal supplies by utilising the substantial greywacke deposits situated between Hunua Gorge and the hills to the east of the township of Drury, together with the basalt deposits situated along the southern bank of the lower Waikato River.

In the case of future sand supplies there is no doubt that the time will arrive when the removal of sand from beaches must be prohibited, under which conditions large quantities, although not ideal in grading, should be available from the dune system adjacent to the West Coast of the Province and from the estuary of the Waikato River.

The cost of the surveys recommended is estimated at £250. Monetary authority for £150 of which should now be issued to allow the higher priority observations to be undertaken during this summer.

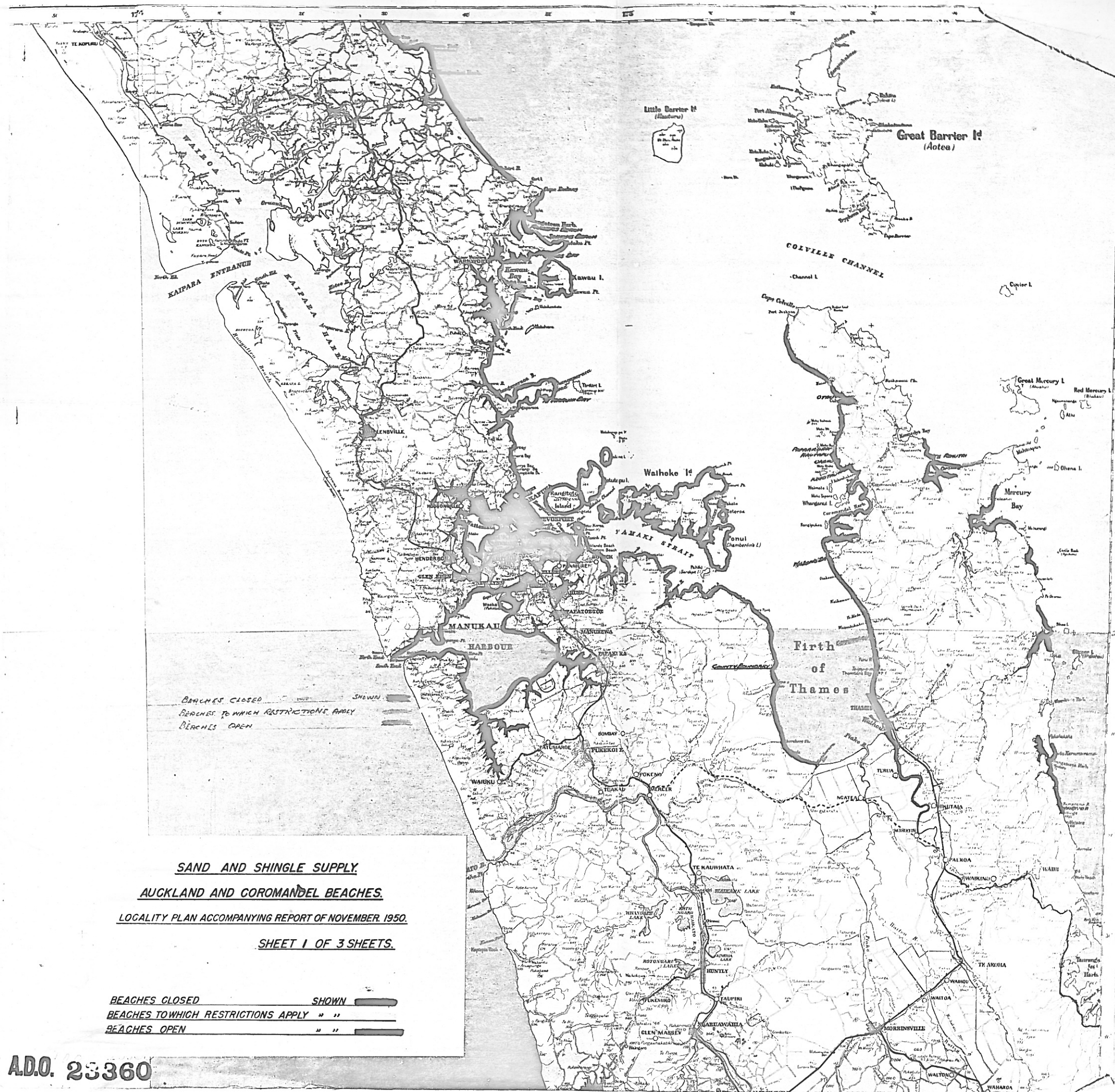
The photographs accompanying this report have for ready reference purposes been numbered and the corresponding number has been applied in appropriate positions to the margin of the text. Three sets of plans A.D.O.23360 have been prepared as a key to the localities described. Copies of this report, accompanying plans and post card enlargements of the photographs have been despatched to the Secretary of Marine, Wellington and the Superintendent of Mercantile Marine, Auckland.

(W L Bell)
District Engineer

U.S.C.:A.D.O.23360 - 3 sheets

43 photographs

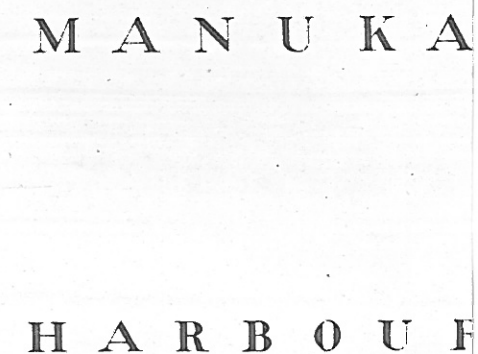
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SAND AND SHINGLE SUPPLY.
AUCKLAND AND COROMANDEL BEACHES.
LOCALITY PLAN ACCOMPANYING REPORT OF NOVEMBER, 1950.
SHEET 1 OF 3 SHEETS.

BEACHES CLOSED SHOWN
BEACHES TO WHICH RESTRICTIONS APPLY " "
BEACHES OPEN " "

AD.O. 23360



AUCKLAND AND COROMANDEL BEACHES.

Return to Plan Record Room,
M. of W., Auckland

SHEET 3 OF 3 SHEETS.

AUCK. OFF. RECORD

A.D.O. 23360

EACHES CLOSED

SHOWN

BEACHES TO WHICH RESTRICTIONS APPLY

BEACHES OPEN



