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INITIAL RESULTS OF SONNE CRUISE SO-15 ON THE EAST AUSTRALIAN CONTINENTAL SHELF, SEPTEMBER-NOVEMBER 1980

by

J.B. COLWELL, H.A. JONES and P.J. DAVIES.

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ABSTRACT

Sonne cruise SO-15, arranged under the auspices of the German-Australian Science and Technology Agreement, was undertaken to investigate the stratigraphy and depositional environments of superficial sediments on the east Australian continental shelf, and particularly the nature and distribution of heavy minerals in the offshore sequences. Four areas - Newcastle to Forster, Yamba to Byron Bay, Brunswick Heads to North Stradbroke Island, and Off Fraser Island - were studied using shallow seismic profiling (small-capacity airgun and 3.5 kHz pinger) and surface and subsurface sampling (van Veen grab, Kiel and Geodoff vibrocorers, and Geodoff counter-flush drill system). 815 stations were occupied.

Extensive surface grab sampling undertaken in the areas revealed considerable variations in surface sediment composition. The sediments range from fine to medium-grained brown-grey quartzose sands in the nearshore zone to brown coarse-grained carbonate sands on the outer shelf.

Coring and counter-flush drilling revealed a complex picture of late Quaternary sedimentation. In most places, Holocene marine sands, often with a basal conglomerate layer, overlie Late Pleistocene/early Holocene estuarine or back-barrier deposits, Pleistocene weathered or Late Pleistocene/early Holocene leached or partially cemented sands.

Initial heavy-mineral separations and XRF determinations of Zr, Ti and Fe, in surface and core sediments indicate generally low abundances of heavy minerals (less than 1%) on the shelf except for the near-shore zone (less than 35 m of water). This is probably the result of the onshore movement and reworking of heavy minerals during the Holocene and possibly earlier transgressions. The highest concentrations of heavy minerals (up to 6.4%) occur in sediment "bulges" off Cape Byron, Lennox Head, and Point Lookout and off southern Fraser Island in shallow water. Generally the concentration of economic heavy minerals in the heavy-mineral fraction of these sediments is fairly low owing to the presence of substantial amounts of unstable heavies, particularly hornblende and magnetite.

INTRODUCTION

The West German research vessel Sonne cruise SO-15 was undertaken to investigate the stratigraphy and depositional environments of the east Australian shelf superficial sediments, and particularly to learn more of the nature and distribution of heavy-mineral occurrences in the offshore sequences. The cruise started in Sydney on 24 September 1980 and ended in Brisbane on 20 November. Port calls were made at Newcastle (30 September) and Brisbane (23-25 October). Scientific staff were exchanged by launch at several points on the New South Wales and Queensland coasts during the survey.

The project was arranged under the German-Australian Science and Technology Agreement and is one of several co-operative marine surveys carried out in recent years between the FRG Institute of Geoscience and Mineral Resources (BGR) and the Bureau of Mineral Resources. The cruise leader was Dr U. von Stackelberg of BGR; BMR staff were on board Sonne throughout the cruise, and scientists from the Geological Surveys of New South Wales and Queensland took part during the first and second halves of the cruise respectively. All four institutions will participate in the analysis and reporting of the cruise data.

Navigational support was provided by the Australian Survey Office, which provided the substantial shipboard and on-land effort needed for the successful operation of the Decca Trisponder navigational system.

The survey strategy put forward during early cruise planning discussions involved reconnaissance coverage of the whole shelf from Newcastle in the south to Fraser Island in the north. Chiefly because of the difficulties likely to arise in seismic correlation between widely-spaced profiles, this plan was abandoned in favour of more detailed coverage of four smaller areas. The four areas chosen were Newcastle-Forster, Yamba-Byron Bay, Brunswick Heads-North Stradbroke Island, and off Fraser Island. A seismic leg followed by a geological leg was run in each case.

This record describes the methods used during the survey, lists the station data, and gives a summary account of the lithologies sampled and their significance.

METHODS

Surface sampling

Of the 815 stations occupied during the cruise, by far the largest number employed a standard van Veen-type grab (Fig. 1). This is a simple mechanical device which takes a bite out of the seafloor sediment, closure of the two halves of the grab being effected by leverage of the lifting arms. Sonne's grabs had a capacity of about 40L, and recovery of 5 to 10 L of sediment was usual. A Shipek grab was used as an under-way sampler at a number of locations off northern Fraser Island.

Bedrock, hard-ground, "beachrock", and other lithified substrates were sampled on a few occasions using a chainbag dredge, a rectangular-mouthed dredge of heavy-gauge steel construction designed for tearing fragments off rock outcrops.

Subsurface sampling

Geodoff and Kiel vibrocoring systems were used.

The Geodoff vibrocorer (Fig. 2) is an electric-powered hydraulic-operated unit of Dutch manufacture capable of taking undisturbed cores down to about 10 m, or counter-flush samples down to about 11 m. Penetration rate and inclination are monitored at the surface. The Geodoff weighs some 6 tonnes and is a complex and unwieldy piece of machinery for shipboard operations; it could not be handled on a ship lacking the extensive deck space and specialised cranes of R.V. Sonne. Some dealys in Geodoff coring operations were caused by mechanical failure of the steel coring tube (10 cm diameter casing), hydraulic and electrical malfunctions, and by the plastic

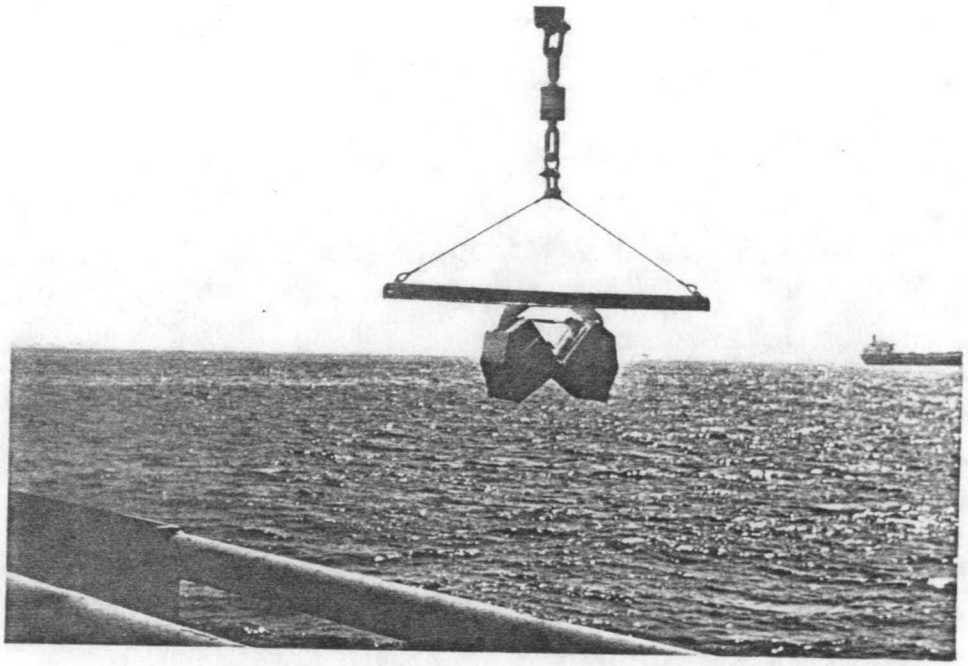

Fig 1 Van Veen Grab.

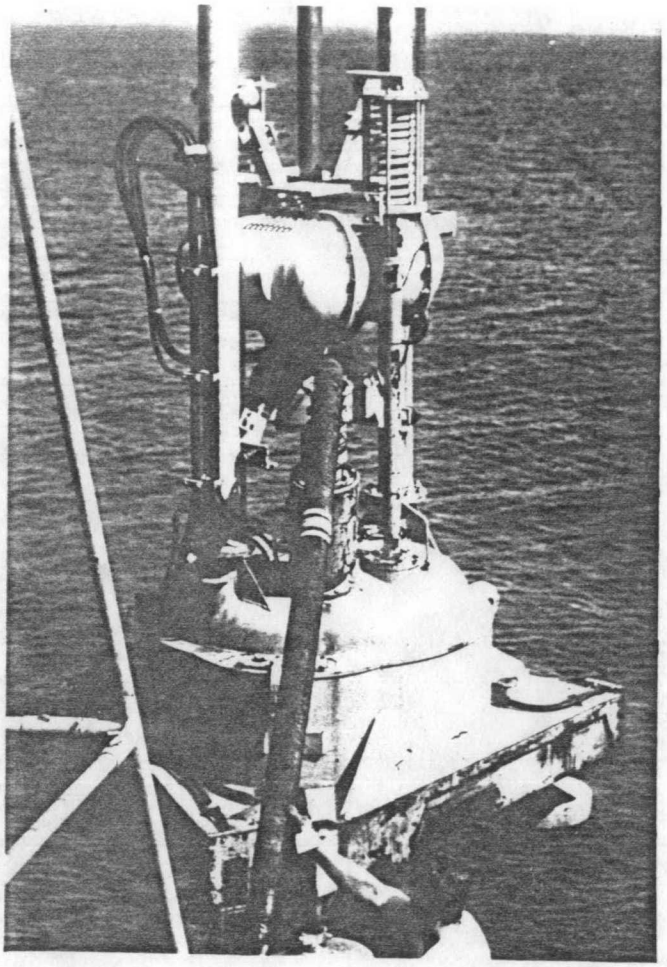

Fig 2. Geodoff Vibrocorer

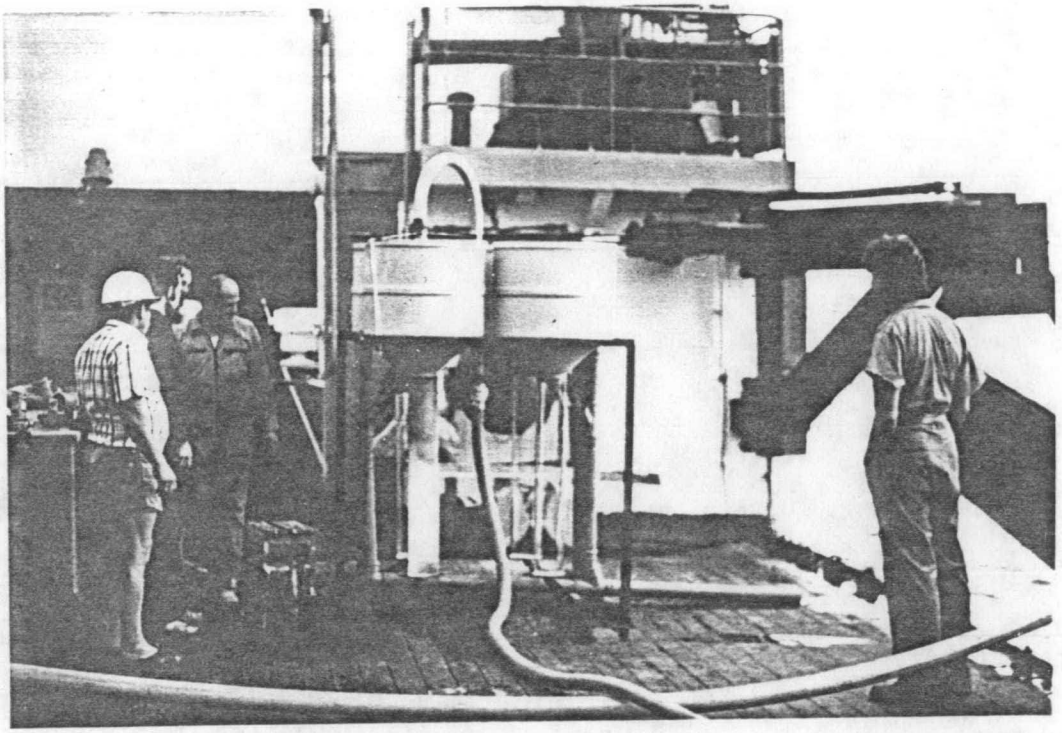

Fig 3. Collection bins for the Geodoff counter-flush system.

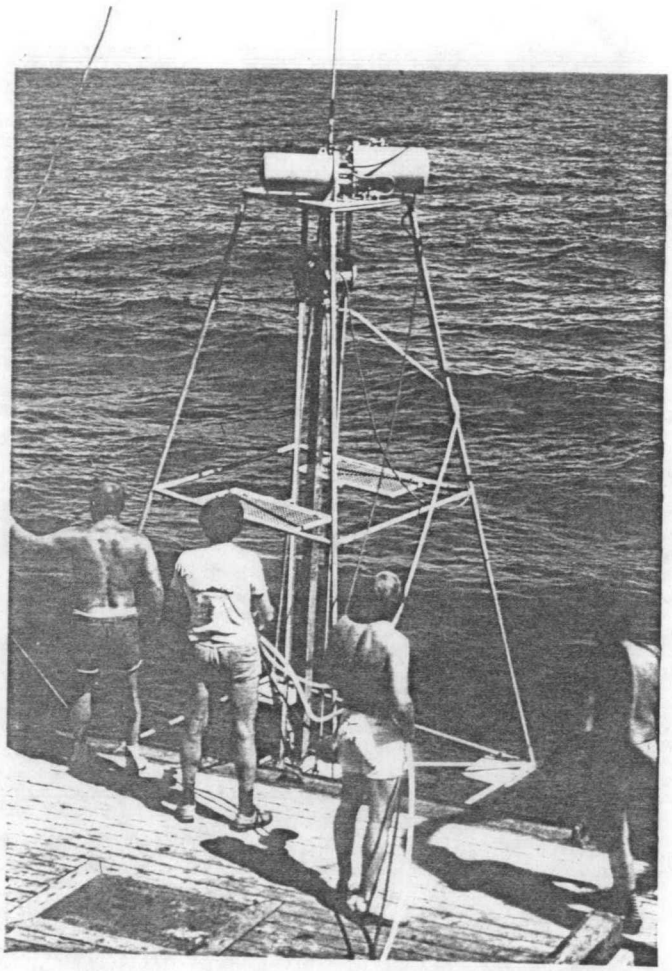

Fig 4. Kiel Vibrocorer

core liners becoming stuck in the coring tube. Nevertheless, 44 coring stations were successfully occupied and 277 m of core was recovered; sediments cored ranged from coarse gravels to stiff clays.

The Geodoff was also used for counter-flush drilling in which compressed air was injected at the top of the coring tube and the return air/water/sediment slurry passed up a central 4-cm diameter pipe within the coring tube and was delivered to the surface via a flexible, armoured, thin-walled hose about 12 cm in diameter. Collection of the sample on deck was effected in a baffle-tank connected to a battery of settling tubes (Fig. 3). Surface monitoring of penetration rate allowed crude correlation between the samples recovered in the settling tubes and in intervals penetrated by the coring tube.

The Kiel vibrocorer (Fig. 4) is a lightly-constructed device taking a 10-cm square section box core up to 4 m in length. It is powered by an electric vibro-hammer and is fitted with an electric winch for extracting the box core. The box core is made of light-gauge metal sheeting in two halves bolted together, and the core is exposed on deck by unbolting the two halves. The Kiel vibrocorer recovered about 114 m of core at 66 stations, but had neither the power nor robustness of construction to penetrate coarser and more resistant lithologies.

Seismic reflection profiling

Seismic profiling was carried out using a small airgun and single-channel streamer, and with a 3.5 kHz pinger. Only analogue records at 0.5 s and 0.25 s sweep were preserved. A modified Huntec boomer was also carried in the ship, but repeated breakdowns occurred and little useful data was collected with this equipment. Profiling was conducted at about 4 knots, and about 3000 km of seismic lines were run during the cruise. Airgun data quality was generally good, bearing in mind the limitations in terms of resolution inherent in this technique. Sub-bottom penetration was only sporadically achieved with the 3.5 kHz pinger, and where this occurred, direct correlation

between seismic reflectors and Geodoff cores was possible.

Sidescan sonar

Sidescan sonar traverses were usually run in conjunction with the 3.5 kHz profiles. The instrument used was an EG & G Model 272 transducer, which operated satisfactorily throughout the cruise although commonly only on one channel. It was not established whether this was a fault in the tow fish itself or in the analogue recorder.

Underwater television

Several short traverses were run with a sledge-mounted television system to which a still camera and light source were also fitted. The on-board monitor was linked to a video-tape recorder and a still camera trigger. The winch controlling the towing cable was remotely controlled by an operator in the TV monitor compartment.

Navigation

The position of the ship during the survey was determined by a Decca Trisponder Model 202 distance measuring system. The Decca Trisponder utilises microwaves with a line-of-sight range of over 80 km to give distances simultaneously to up to four remote stations; resolution of the distance measurements is 0.5 m and accuracy is claimed to be $\pm$ 3 m. Experience during the survey indicates that the integrated system consistently gave the ship's position to better than 10 m accuracy.

The Decca Trisponder is a development of the radar-ranging systems invented during World War II which were based on the principle of using the travel time of pulsed radio energy between two points to determine their distance apart. Two or more ranges from the ship to shore stations whose locations are known allow the ship's position to be calculated. The master unit of the Decca Trisponder system is situated on the ship and transmits at a frequency of 9480 MHz from an omni-directional antenna. The return pulse

from the onshore remote stations is at a frequency of 9325 MHz, the different stations being distinguished by pulse coding.

Although the system simultaneously measures distances to four remote stations, the manufacturer's design allowed only two to be utilised at any one time without manually switching channels. Consequently the distance measuring unit was modified by BMR so that all four distances could be simultaneously recorded, so allowing immediate assessment of the accuracy of the Decca ranges to be made. The Trisponder data were fed into a BMR Data Acquisition System which provided a visual display, hard-copy printout, and magnetic tape recording of all relevant navigational data at update intervals selectable down to 10 seconds. Finally, manual plotting of the computer-derived fixes was carried out.

Although the range of the Trisponder microwaves approaches 50 nautical miles, the effective range in practice is a function of the elevation of the shore station and shipboard antennae. Maximum range was not exceeded during this survey. Unfavourable geometry of the land-based remote stations in relation to the ship when working close inshore was sometimes unavoidable and in these cases, and on the few occasions of equipment malfunction, positioning of the ship was carried out by Sonne's Magnavox satellite navigation system supported by radar.

Heavy-mineral separations

A limited number of heavy-mineral separations were carried out on board ship. Separations were made using glass funnels and tetrabromoethane (S.G. 2.97); most samples were selected for separation on the basis of on board XRF analyses of Zr, Ti and Fe.

RESULTS

Area 1 - Newcastle to Forster

Grab and subsurface sampling and seismic profiling were undertaken from just south of Redhead (33°03'S) to Cape Hawke (32°13'S) (Figs. 5 - 7). Sampling was carried out in water between 22 m and 144 m deep.

Previous seismic data over the area consist of a regional coverage of the middle and inner shelf by BMR sparker lines at 5 to 10 km spacing, and a close network of inshore sparker lines in Newcastle Bight by the Geological Survey of NSW. Previous geological sampling consist of regional coverage of surface grab samples by BMR at a spacing of 10 to 20 km, and closely spaced grab samples by Geological Survey of NSW in Newcastle Bight. Also counter-flush drilling had been carried out by a mining company at a number of locations in water depths of about 30 m, but the results of this work are not fully documented.

Surface sediments

Four major lithologies occur in the region:

(1) Brown to dark brown medium and coarse-grained quartzose sands with variable amounts of shell material, which extend from close inshore to water depths of about 55 to 70 m off Newcastle. These sands probably represent a near-surface layer subject to intermittent transport and reworking. Rippled surfaces were observed during an underwater television scan in water depths of about 50 m in Newcastle Bight. A superficial veneer of black mud a few millimetres thick occurs in many of the grab samples and cores, and this represents contemporary deposition since the last major swell-induced disturbance of the bottom.

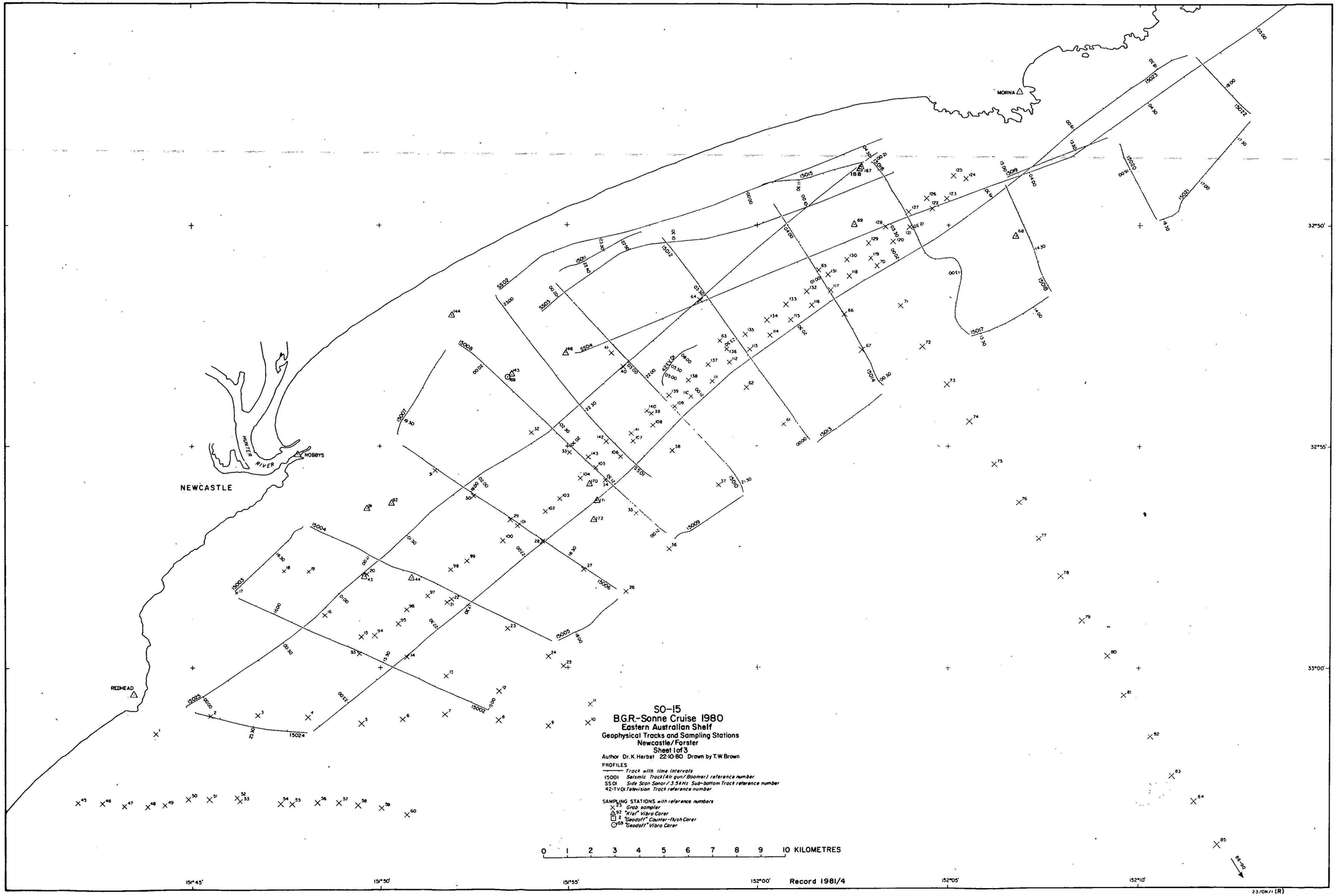

FIG. 5 GEOPHYSICAL TRACKS AND SAMPLING STATIONS, NEWCASTLE TO FORSTER AREA, SHEET 1.

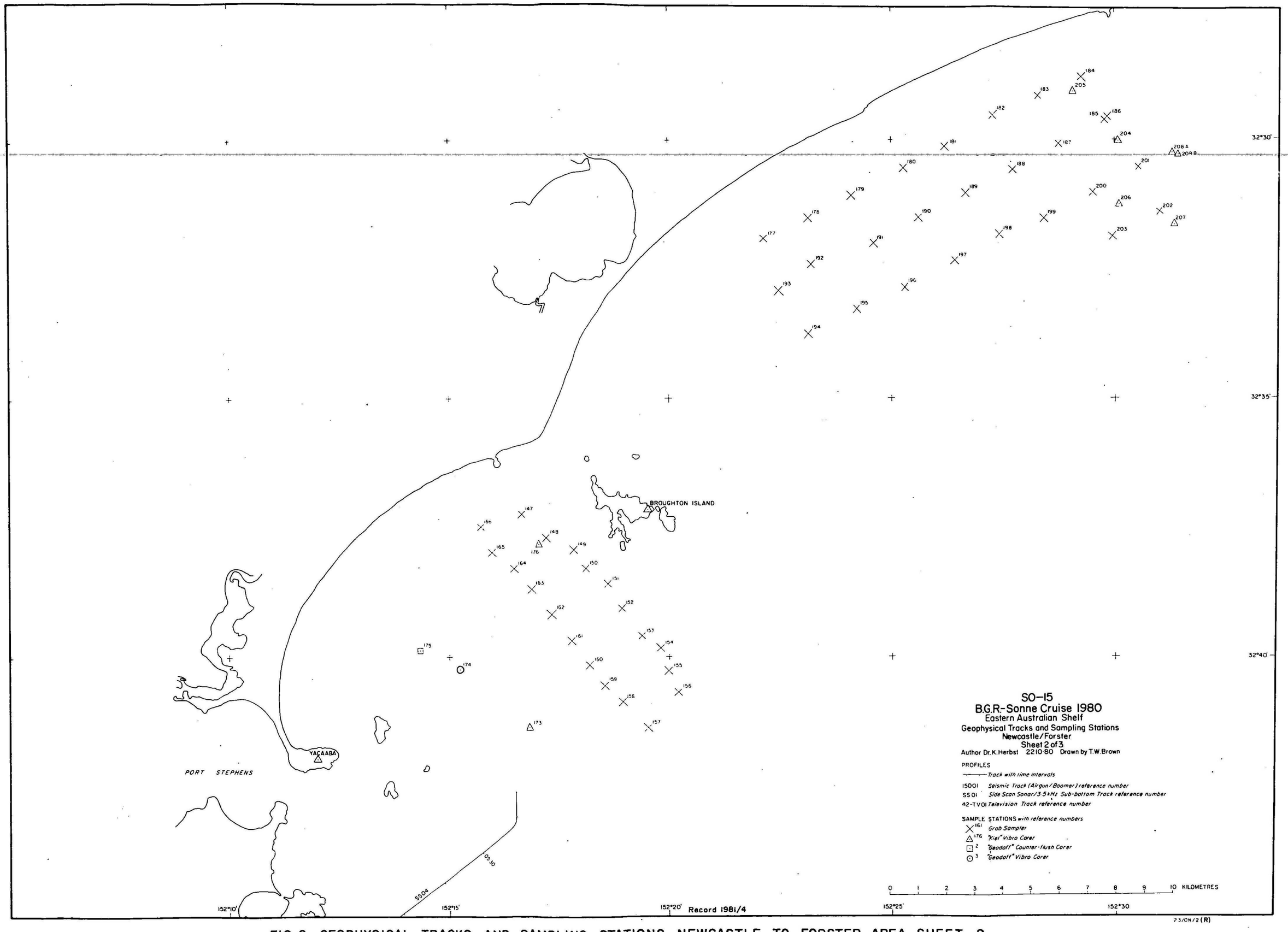

FIG. 6 GEOPHYSICAL TRACKS AND SAMPLING STATIONS, NEWCASTLE TO FORSTER AREA, SHEET 2.

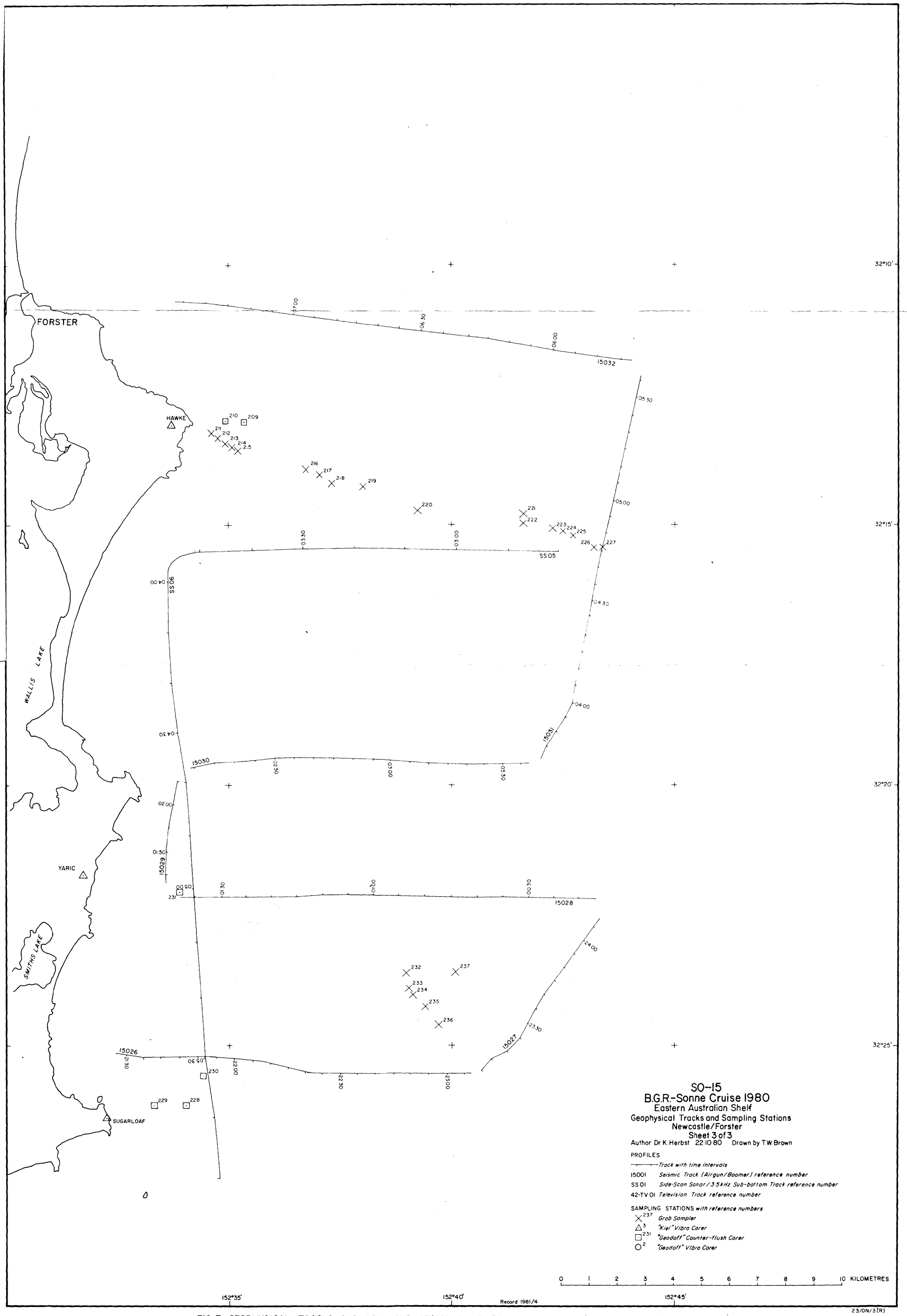

FIG.7 GEOPHYSICAL TRACKS AND SAMPLING STATIONS, NEWCASTLE TO FORSTER AREA, SHEET 3.

(2) Grey and olive-grey muddy quartzose and calcareous sands, sandy muds, and muds. These sediments are restricted to the southern part of the area off Newcastle and occur in water depths of about 70 to 130 m. They may represent marine deposition since the Flandrian transgression, although it is difficult to envisage the transport mechanism of the coarse terrigenous fraction.

(3) Olive-grey and brown muddy calcareous sands, in places glauconitic. These occur in water depths of 130 to 140 m off Newcastle and in somewhat shallower depths farther north. The sand-sized component is dominated by foraminifera, and the sediment represents late Holocene marine deposition.

(4) Brown coarse-grained calcareous sands and gravels. These occur on the outer continental shelf in water depths of over 140 m off Newcastle and about 90 m off Cape Hawke. They represent shallow-water relict winnowed lag deposits with a variable, usually large, component derived from the existing benthos and little or no modern terrigenous material.

Cores

Throughout this area a relatively steep seafloor gradient occurs between about 45 and 75 m water depth. The possibility that this gradient represents the outer slope of an ancient sand barrier was recognised, and most coring was concentrated on this slope and in shallower water to the west. A few holes were sited to test the base of the sedimentary sequence resting on Palaeozoic basement. A number of Kiel vibrocores were positioned close to the lower (seaward) limit of the gradient referred to above, in water depths of about 70 m.

With the exception of the holes sited over shallow basement, and the deep-water Kiel vibrocores, most of the coring indicated a thin marine transgressive sequence resting on lagoonal or estuarine clays or leached fine-grained sands, commonly with carbonaceous partings. A thin gravel or conglomerate horizon in places occurs at the base of the marine sequence, and

evidence of subaerial weathering of the underlying paralic sediments was occasionally noted. The transition from continental to marine sedimentation is not clearly marked in many of the cores.

Seismic profiling

Seismic profiling in the Newcastle Bight area indicated the presence of at least 2 unconformity surfaces above acoustic basement.

Heavy minerals

Heavy-mineral abundances were determined for 67 samples from the area. Values range from 0.01% to 1.36% with an average value of 0.24%. No systematically higher concentrations associated with any possible strand-line features were recorded, although slightly higher values were recorded north of Port Stephens than in the Newcastle Bight area.

The suites, which were determined using polarising and binocular microscopes, range from mature (nearshore zone) to immature (mid-shelf and outer-shelf zones, where hornblende and epidote occur as major components). Zircon values generally range from 5 to 40% of the suite, and translucent rutile from 2 to 25% depending partly upon gransize. The major components of the suite are typically opaques, (mainly magnetite and ilmenite), tourmaline, zircon, rutile, and sometimes hornblende and epidote; components present in minor to trace amounts are garnet, andalusite, and pyroxene. Many of the zircon and rutile grains are well-rounded, suggesting a multicyclic source.

Routine XRF determinations of Zr in the sediments generally gave ZrO_2 values less than 0.05%. Slightly higher values occur off Cape Hawke, south of Blackfellow, and between Port Stephens and Broughton Island, coinciding with slightly higher heavy-mineral concentrations.

Area 2 - Yamba to Byron Bay

Seismic profiling at 4 km line spacing, and grab and subsurface sampling, were undertaken from 5 km south of Yamba (29°30'S) to Byron Bay (28°35'S) (Figs. 8 - 10). 284 stations were occupied, most between Ballina and Byron Bay. Sampling was undertaken between 15 and 80 m of water.

Previous seismic data over the area consist mainly of BMR sparker lines of variable quality. Previous geological data result from BMR grab sampling (generally on a 10 to 20 km grid) and detailed nearshore sampling by the Geological Survey of New South Wales (mainly in the Byron Bay area).

Surface sediments

Four major lithologies occur in this area:

(1) Olive-grey, olive -brown, and dark greyish brown fine-grained quartzose sands containing minor shell debris. These form an extension of the present beach profile out to a water depth of about 35 m and as sediment "bulges" off prominent headlands such as Cape Byron and Lennox Head. These sediment bulges appear to form as a result of interaction of southward-flowing currents and the headlands, and feather out in water depths of about 50 m. BMR seismic profiles over the area indicate that the bulge extending south from Cape Byron contains up to 30 m of relatively uniform sediment (see Fig. 11).

(2) Brown, olive brown, and grey fine to coarse-grained, commonly shelly quartzose sands, which generally extend from about 35 m out to the limit of sampling and represent modern marine deposits subject to intermittent transport and reworking.

(3) Small areas of olive-grey fine-grained muddy sands.

(4) Brown coarse to very coarse-grained carbonate sands associated with bedrock and "beachrock" outcrops.

Cores

Coring (Kiel and Geodoff vibrocorers) and counter flush sampling revealed a complex picture of sedimentation over the area. Most of the cores penetrated Holocene shelly marine transgressive sands overlying Late Pleistocene/early Holocene estuarine or lagoonal (back-barrier) muds and muddy sands, Pleistocene weathered clays or Late Pleistocene/early Holocene partially leached dune sands. A thin pebbly/shelly horizon commonly occurs at the base of the Holocene transgressive sequence. In a number of cores cemented "beach-rock" occurs below the Holocene transgression. Typical examples of the cores are shown in Figure 12.

Seismic profiling

Seismic profiling was of variable quality owing to a number of factors including sea-state conditions, ship noise (for which the Sonne is apparantly notorious), "bubble" interference, and seafloor reflections. The records largely remain to be interpreted.

Heavy minerals

Heavy-mineral contents of approximately 60 samples were determined (Appendix 2). The highest concentrations occur in the sediment "bulge" off Cape Byron and off Lennox Head. Here concentrations in the near-surface sediments reach 6.4% and decrease in abundance with depth in cores. The concentration averages 2.4% for the surface sediments in the bulge off Cape Byron and 2.3% for the surface sediments off Lennox Head. Elsewhere concentrations are generally well below 1.0%.

X-ray flourescence determinations of Zr generally show good agreement with the trends in heavy-mineral values determined by heavy-mineral separation.

The higher concentrations of heavy minerals in the Cape Byron and Lennox Head "bulges" are probably the result of current reworking of sediments

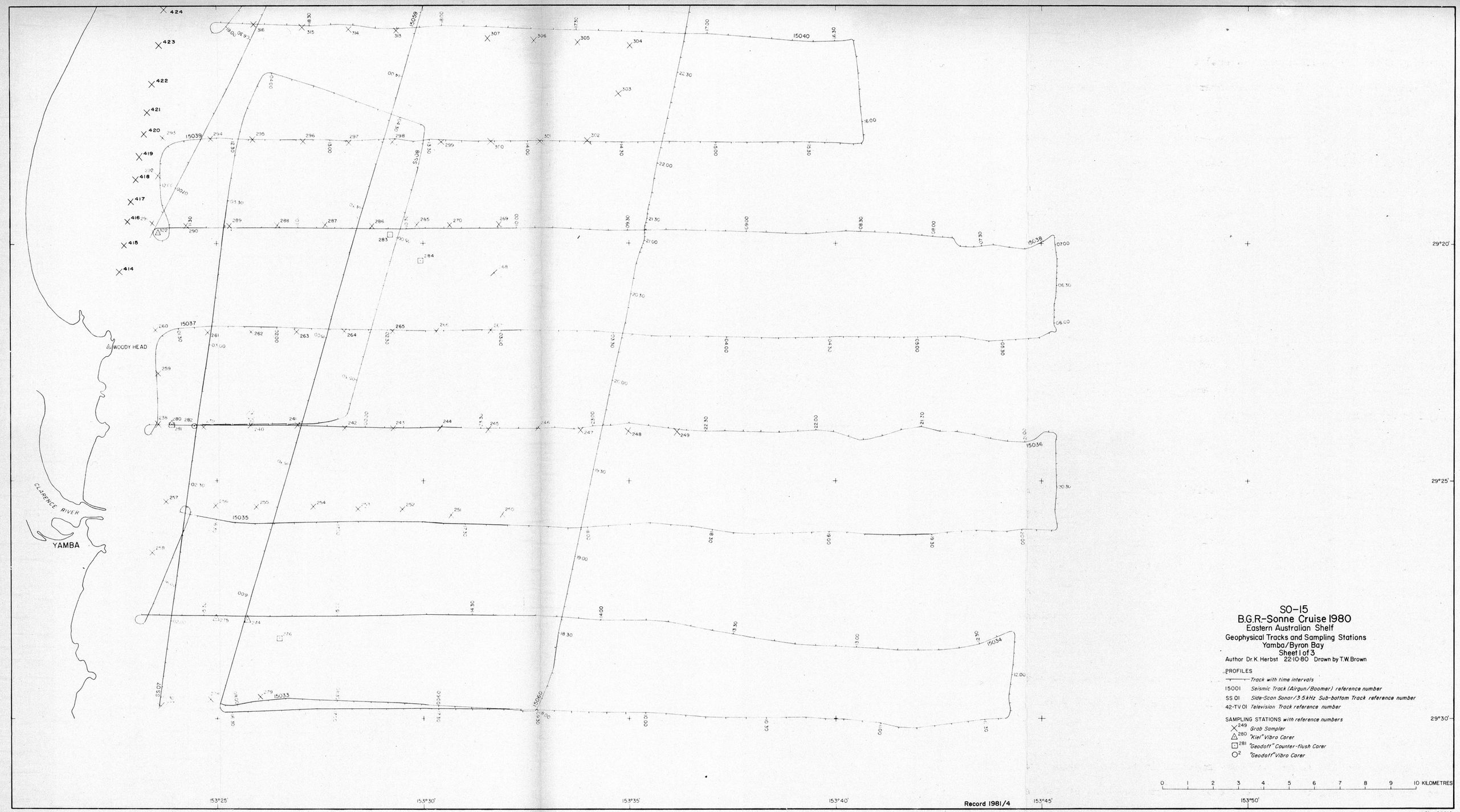

FIG.8 GEOPHYSICAL TRACKS AND SAMPLING STATIONS, YAMBA TO BYRON BAY AREA, SHEET 1.

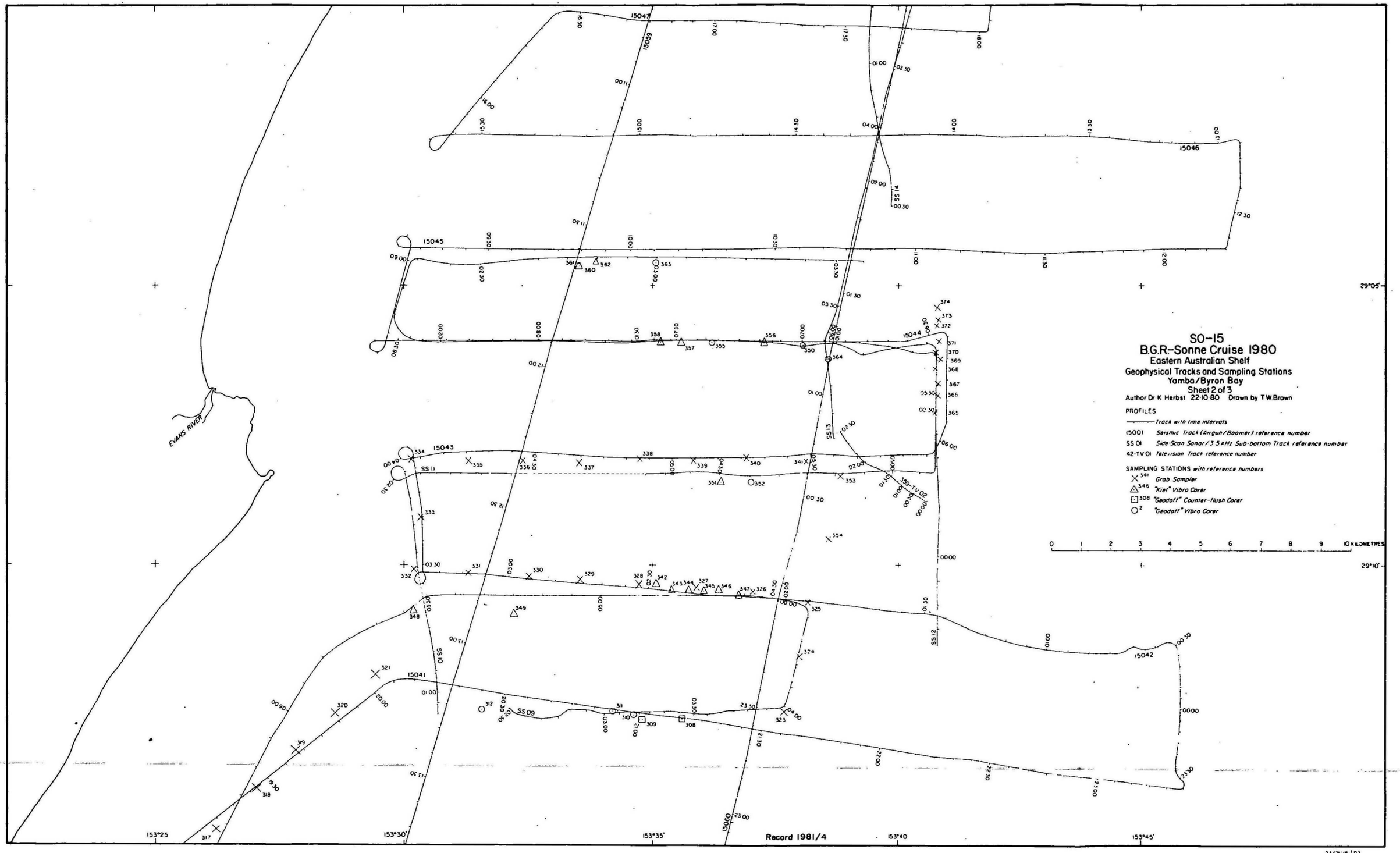

FIG.9 GEOPHYSICAL TRACKS AND SAMPLING STATIONS, YAMBA TO BYRON BAY AREA, SHEET 2.

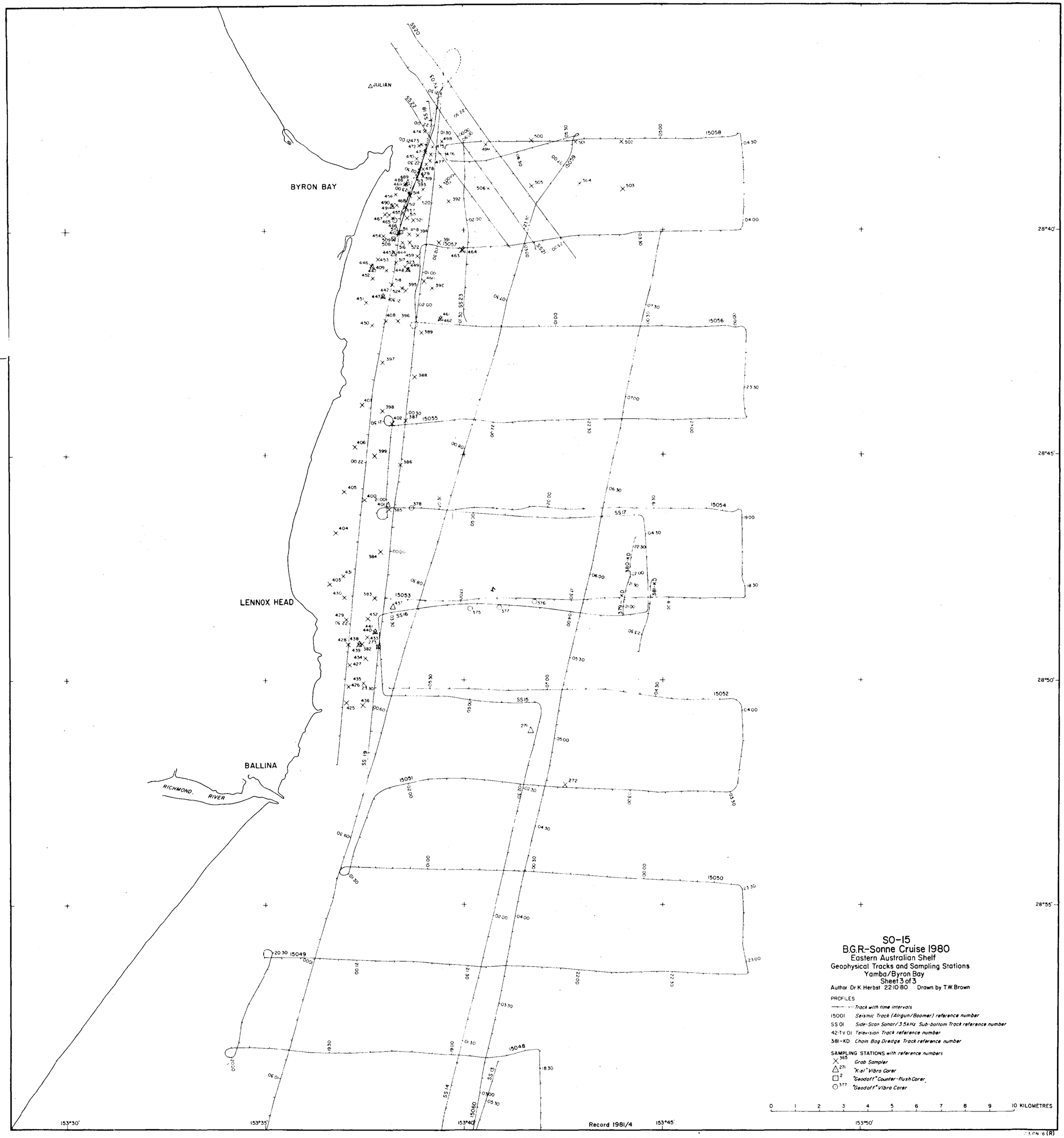

FIG.10 GEOPHYSICAL TRACKS AND SAMPLING STATIONS, YAMBA TO BYRON BAY, SHEET 3.

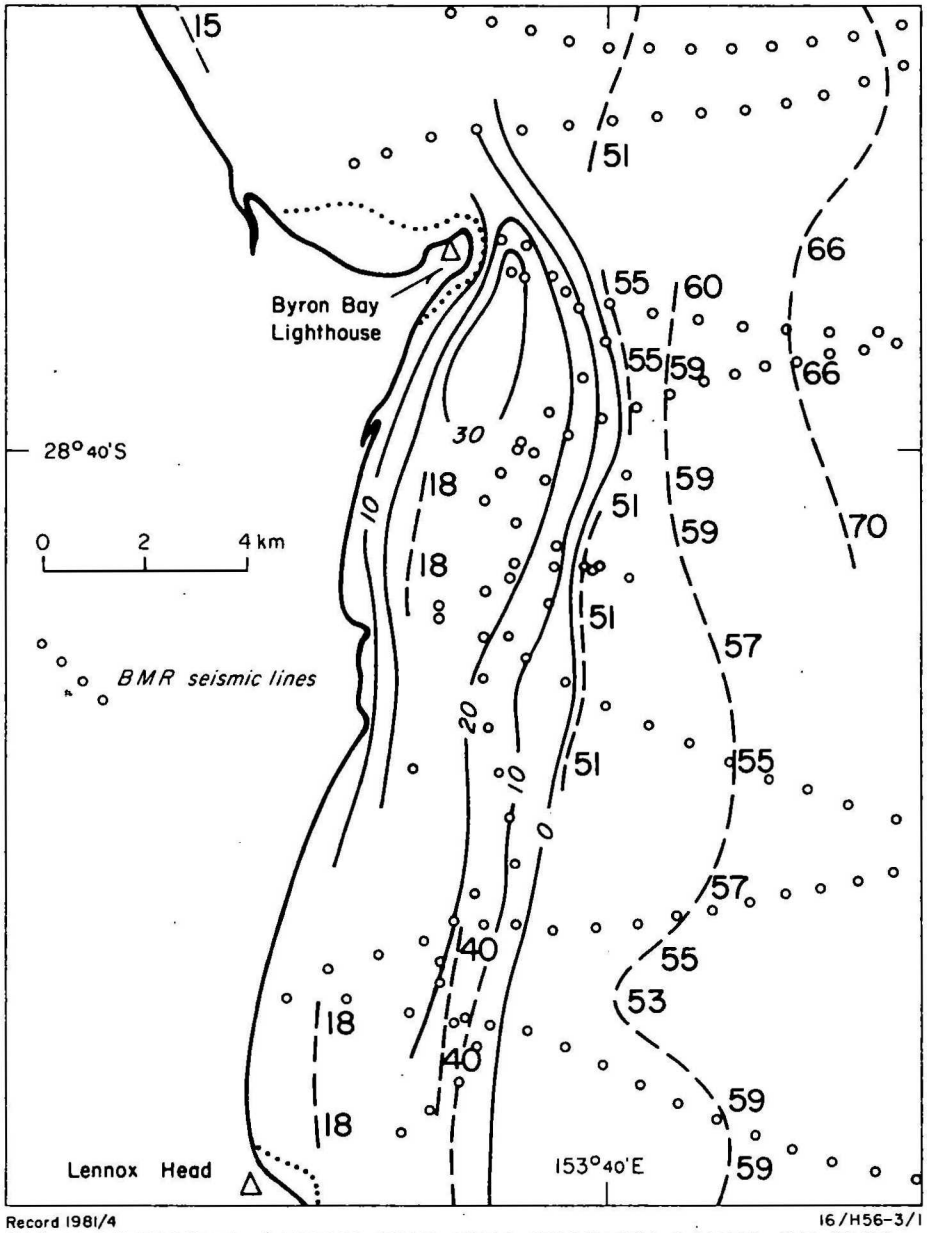

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FIG.11 ISOPACH (m) FROM BMR 1974 SPARKER LINES OF THE SEDIMENT "BULGE" OFF CAPE BYRON ASSUMING A SEISMIC VELOCITY OF 1500 m/s. DASHED LINES WITH WATER DEPTHS (m) INDICATE CHANGES IN SEA FLOOR GRADIENT.

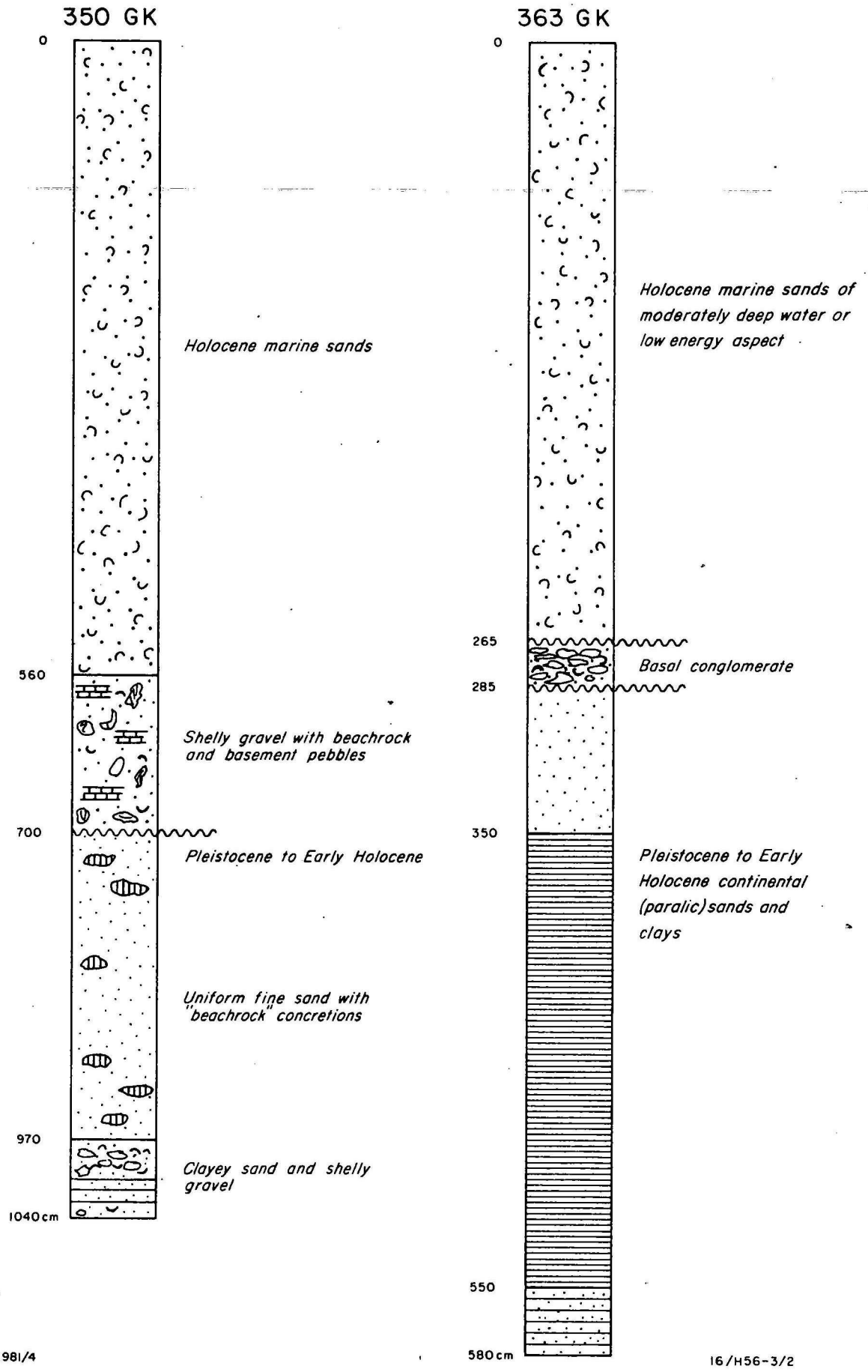

FIG.12 TYPICAL CORES AREA 2(YAMBA TO BYRON BAY).

largely derived by littoral drift from the present-day beaches and nearshore zone. The suites present in the area are, in general, moderately mature or immature, containing between 5 and 50% hornblende. The main minerals present are opaques (probably including some opaque rutile), hornblende, zircon, tourmaline, translucent rutile, garnet, and epidote with minor to trace amounts of andalusite, pyroxene, and "others". Zircon values generally range from 10 to 30% and translucent rutile values from 2 to 5%.

Area 3 - Brunswick Heads to North Stradbroke Island

Seismic profiling was undertaken in this area from just south of Brunswick Heads (28°35'S) to the northern tip of South Stradbroke Island (27°46'S). Because of the thin cover of sediments over acoustic basement in the southern part of the area and reduced time available, grab and surface sampling were limited to areas off South Stradbroke Island, off the Central Gold Coast, and off the northern part of North Stradbroke Island (27°28'S) (see Figs. 13 & 14), in water depths ranging from 21 to 64 m.

Previous seismic data over the area consist of a regional coverage of the inner and middle shelf by BMR sparker lines (mainly in the area to the south of South Stradbroke Island) and detailed seismic profiling recently undertaken by a mining company as far south as Tweed Heads in connection with the search for offshore heavy-mineral deposits. Previous geological data consist of widely spaced BMR surface grab samples and some company drilling.

Surface sediments

Four major lithologies were recorded in the area:

(1) Greyish brown, light brownish grey and light olive-brown fine-grained quartzose sands containing minor shell material. These generally extend from the present beach out to about 30 m of water and form an extension of the present shoreface.

(2) Brownish yellow and yellowish brown medium to very coarse-grained sands. These are quartzose and commonly shelly and extend from about 30 m of water out to at least 64 m, the limit of the present sampling.

(3) Olive-brown fine to medium-grained slightly shelly sands. These occur off the central Coast in water depths between 35 and 80 m.

(4) "Beachrock".

There is some indication of an accummulation of nearshore sands in deeper water in the area to the south of Point Lookout at the northern end of North Stradbroke Island. This is possibly due to the impingement of the southward-flowing East Australian Current on the headland to which sand is being supplied by northward littoral drift in the nearshore zone, a situation similar to that at Byron Bay and elsewhere.

Cores

Only 16 cores or counter-flush drill holes were taken in the area, most either off South Stradbroke Island or in a line off the central Gold Coast. Most of the cores indicated marine sands overlying either restricted marine/estuarine sediments, older shoreface sands, or weathered and cemented Pleistocene sediments. In a number of cores a pebbly and shelly gravel occurs at the base of the marine transgressive sequence.

Seismic profiling

Seismic profiling indicates the presence of three main reflectors (A, B & C) defining four major seismic sequences:

(1) Acoustic basement (below reflector C),

(2) Sequence C-B which is seismically semi-transparent,

(3) Sequence B-A which is well-bedded and onlaps sequence C-B and basement, and

(4) Sequence A - water bottom which is somewhat chaotically bedded.

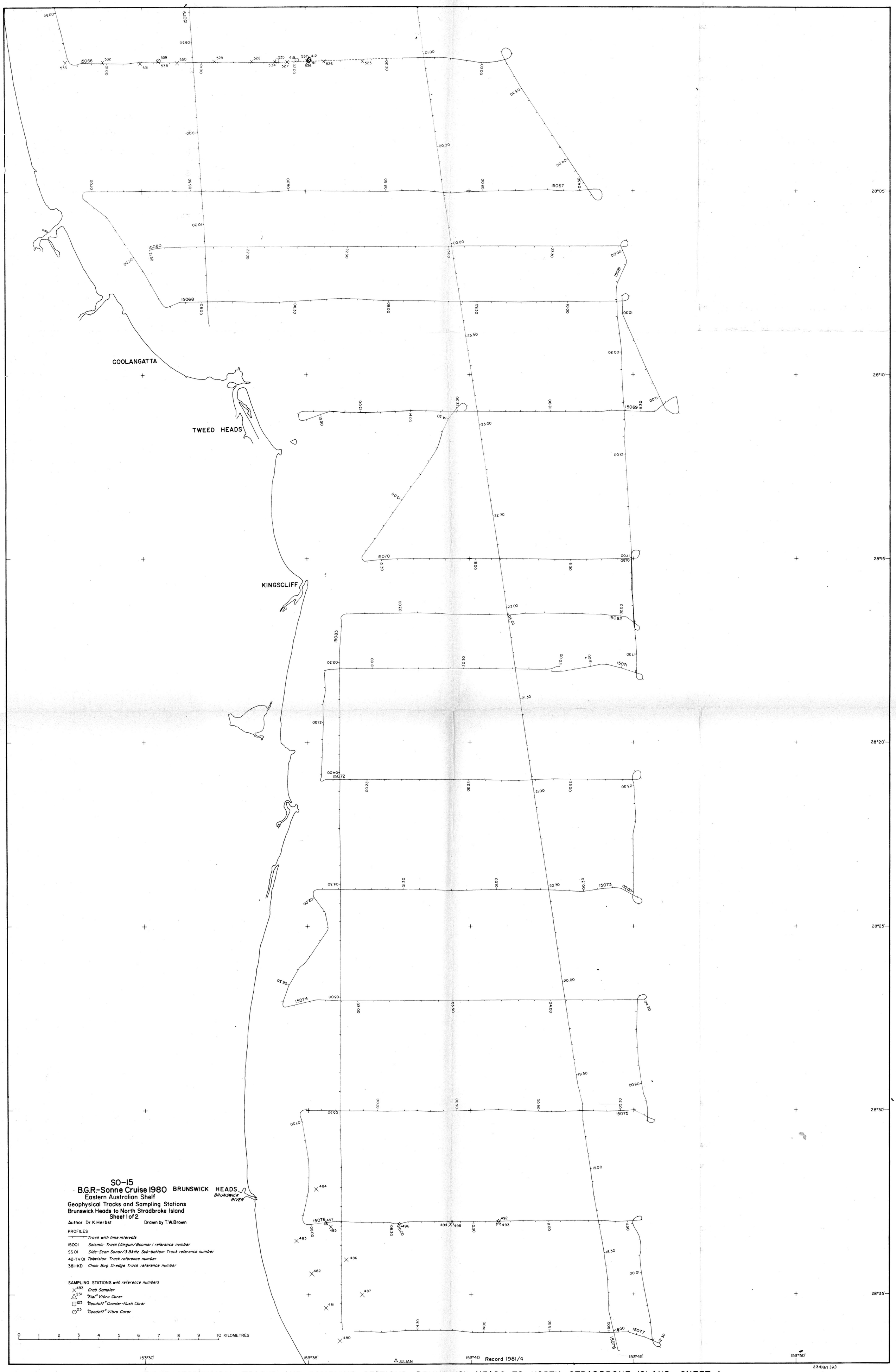

FIG. 13 GEOPHYSICAL TRACKS AND SAMPLING STATIONS, BRUNSWICK HEADS TO NORTH STRADBROKE ISLAND, SHEET 1.

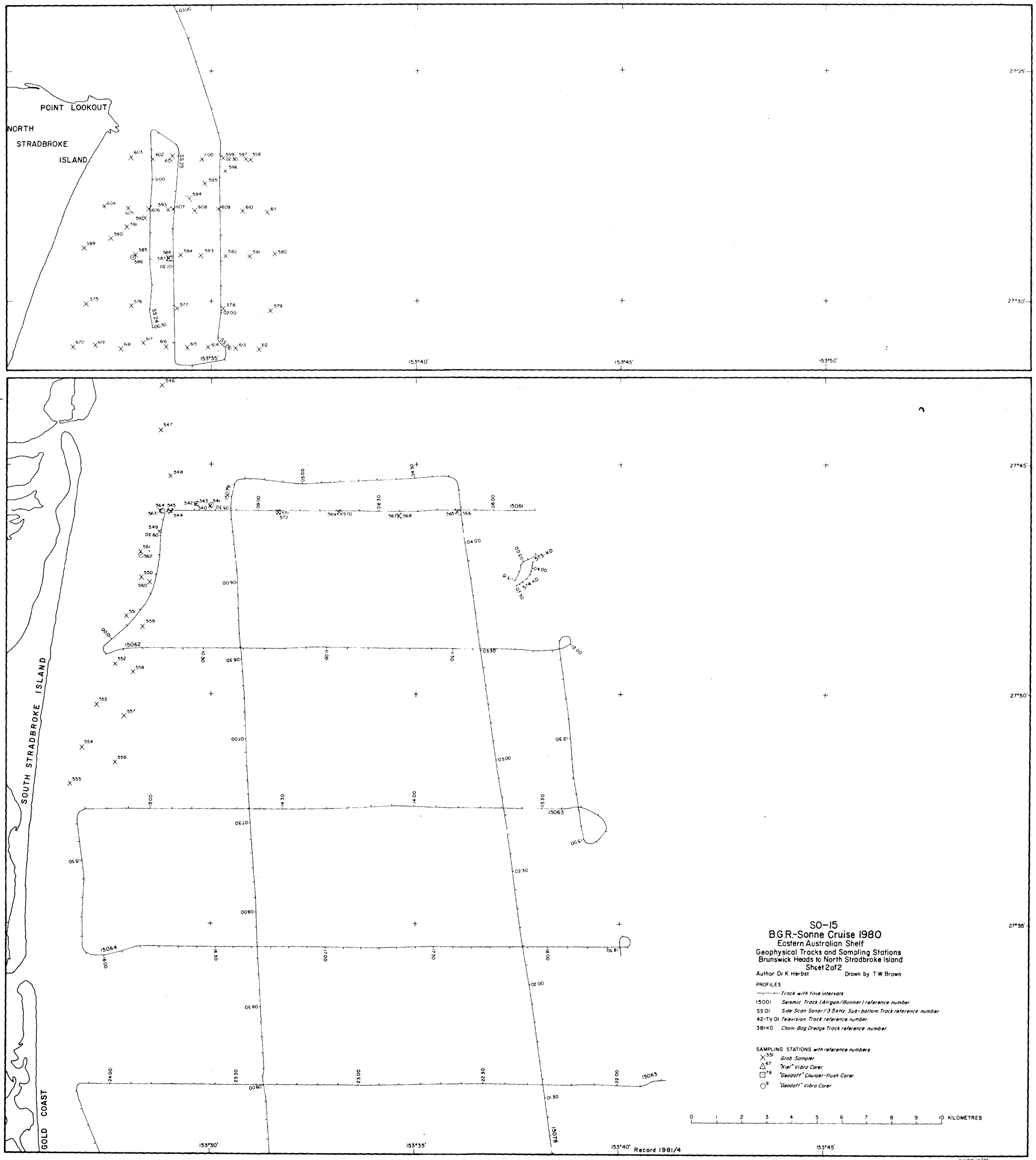

FIG. 14 GEOPHYSICAL TRACKS AND SAMPLING STATIONS, BRUNSWICK HEADS TO NORTH STRADBROKE ISLAND, SHEET 2

Seismic profiling on lines 61, 63, 66, and 67 revealed the presence of a number of subparallel "reefs" in water depths of 60-80 m. These structures, which have a vertical relief of 15-20 m within the sedimentary section and frequently crop out on the sea-floor, appeared to be above basement. Subsequent dredging over one of the structures produced a large haul of siliceous sponges and "beachrocks". Examination of the rocks and seismic interpretation suggest that the structures represent lithified banks, probably cemented both intertidally and subaerially due to changes in sea leval. Similar structures occur off Lennox Heads in about 80 m of water and consist of peloidal bioclastic limestone cemented with marine high-magnesium calcite. Lithification probably took place under shallow water conditions.

Heavy minerals

Heavy-mineral separations on 13 samples from the area revealed total heavy-mineral abundances ranging from 0.4 to 3.3% (average 1.25%). Highest concentrations occur close inshore (less than 35 m of water) in the area off the northern part of North Stradbroke Island where it appears that nearshore sands are being supplied to deeper water. XRF values of ZrO_2 taken through the entire area are generally below 0.05% except for the close inshore areas.

The suites present in the sediments are typically moderately mature or immature (see Appendix 2), probably reflecting the input of unstable heavies (notably hornblende, ilmenite, and magnetite) from Tertiary volcanics onshore. Zircon values generally range from 5 to 15% and translucent rutile from 2 to 5%. Other minerals commonly present in the suite are tourmaline, epidote, garnet, pyroxene, and andalusite.

Area 4 - Off Fraser Island

Seismic profiling and grab and subsurface sampling were undertaken from the southern tip of Fraser Island (approx. 25°43'S) to Waddy Point (24°57'S) (see Figs. 15 & 16). Seismic lines were run at approximately

4 to 14 km line spacings; 191 sampling stations were occupied in water depths ranging from 18 to 57 m.

Previous seismic and geological data over the area consist mainly of 1970 BMR sparker lines (20 to 30 km apart) and BMR grab sampling on a 10 to 20 km grid.

Surface sediments

Six main lithologies occur in the area:

(1) Olive grey, light olive brown and greyish brown fine-grained quartzose sands, slightly shelly in places. These are widely distributed through the central and southern parts of the area extending out to at least 50 m of water.

(2) Olive grey to very dark grey slightly muddy-muddy fine-grained sands. These sediments occur in a number of patches off central and southern Fraser Island in water depths ranging from 40 to 50 m.

(3) Light brownish grey to light yellowish brown fine and coarse-grained (bimodal) shelly sands. These occur around the margins of Facies 6 and represent a zone of mixing between Facies 1 and Facies 6 sediments.

(4) Light yellowish brown fine to medium-grained quartzose sands. These occur in patches off central and southern Fraser Island.

(5) Brown coarse-grained carbonate sands. These occur at about 50 m water depth off central northern Fraser Island.

(6) Coralline algae, shell gravel, and coralline algae-encrusted "beachrock". These occur extensively off northern Fraser Island.

Considerable differences exist between the surface sediments sampled off Fraser Island and the surface sediments in the three other areas. These differences probably reflect differences in depositional history and sediment supply.

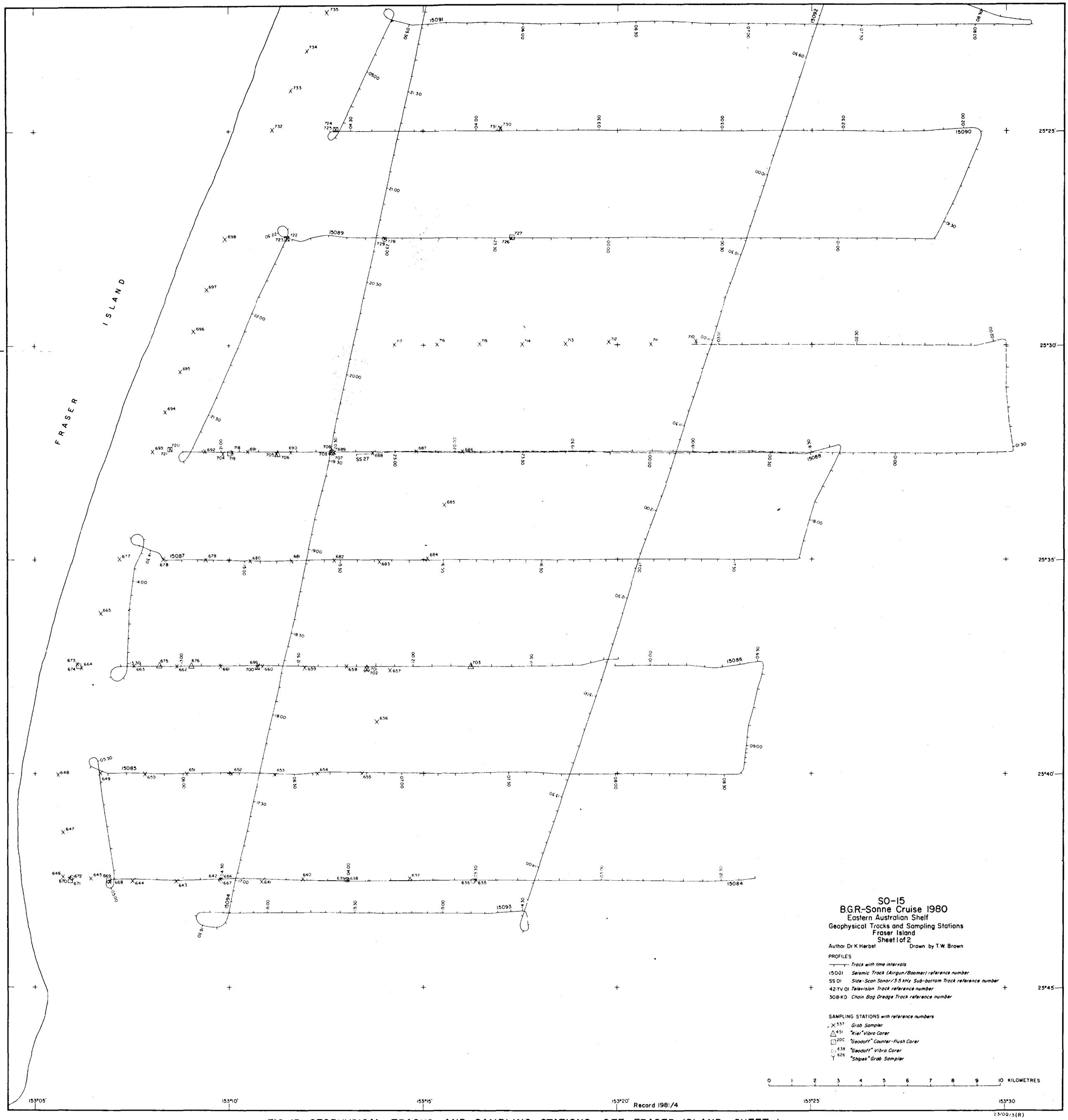

FIG. 15 GEOPHYSICAL TRACKS AND SAMPLING STATIONS, OFF FRASER ISLAND, SHEET 1.

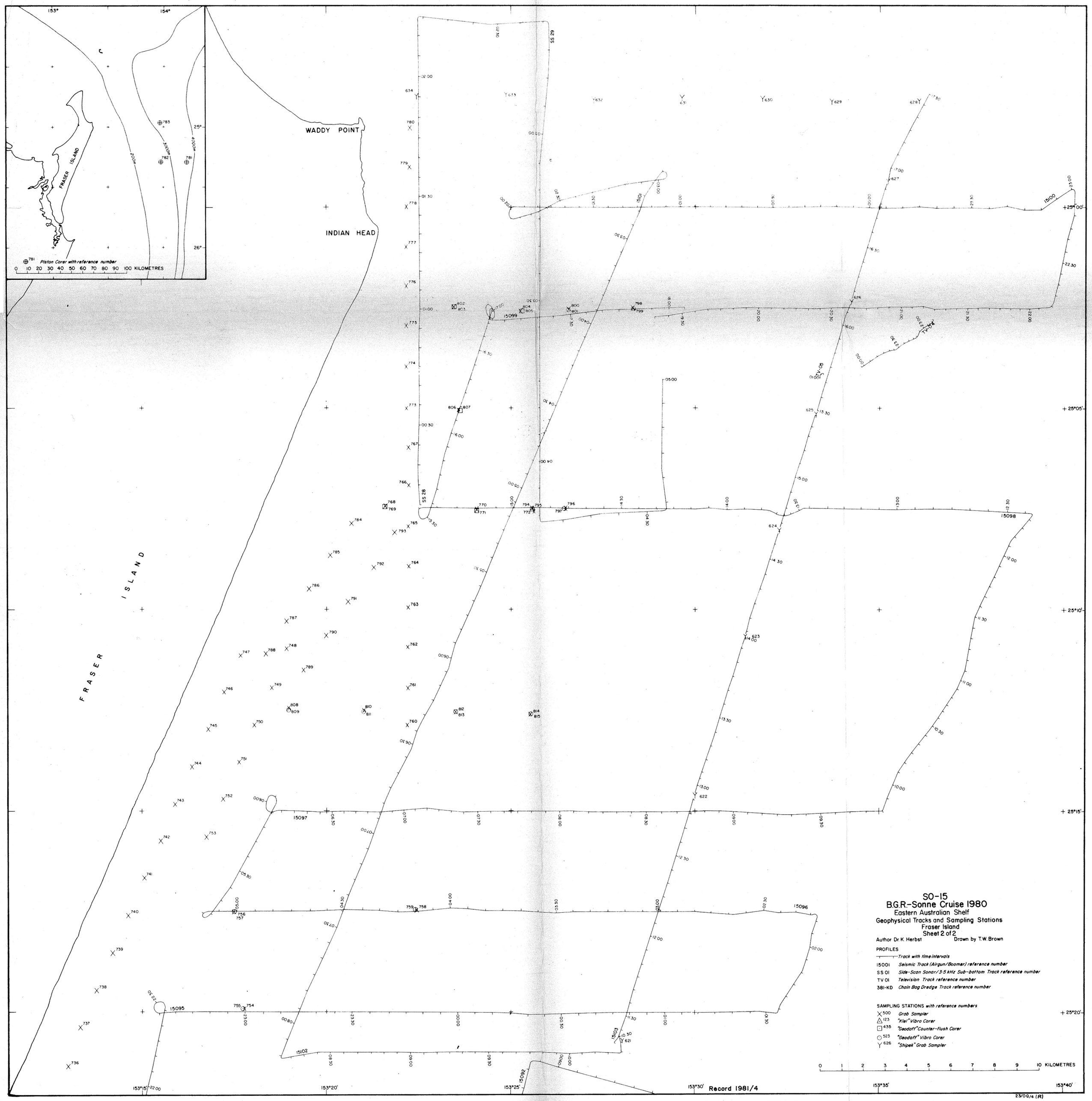

FIG. 16 GEOPHYSICAL TRACKS AND SAMPLING STATIONS, OFF FRASER ISLAND, SHEET 2.

Cores

Thirty-seven cores or counter-flush drill holes were put down in the area. These reveal a complex picture of late Quaternary, mainly sand, sedimentation. In many cases no clear distinction exists between sands deposited after the Holocene transgression and underlying probable beach/dune sediments. In some cases the Pleistocene (possibly early Holocene) sediments include humic-cemented sands ("sandrock") and/or carbonate-cemented sediments. Estuarine/restricted-marine sediments occur in places and probably represent sedimentation behind landward retreating barriers as sea level rose.

Seismic profiling

Seismic profiling produced records of variable quality. Profile 86 shows at least three seismic sequences overlying basement.

Heavy minerals

Heavy-mineral separations were carried out on 12 samples from close inshore (less than 30 m of water); abundances range from 0.4 to 3.4% (average 1.4%). These were the only samples showing XRF ZrO_2 values greater than 0.05%. Suites are typically immature with amphibole, pyroxene, and epidote combined totalling more than 20%, less than 10% zircon, and less than 5% translucent rutile.

SUMMARY AND CONCLUSIONS

1. Extensive surface grab sampling in the four areas revealed considerable variations in surface sediment composition. In Area 1 (Newcastle to Forster) nearshore brown, medium to coarse-grained quartzose sands are replaced in the mid-shelf zone by dark grey muddy sands and muds. Brown coarse-grained carbonate sands and olive grey and brown calcareous sands occur on the outer shelf.

In Areas 2 (Yamba to Byron Bay) and 3 (Brunswick Heads to North Stradbroke Island) olive grey, olive brown and greyish brown fine-grained quartzose sands containing minor shell material extend from the present beach face out to about 35 m of water as well as forming convex-up "bulges" off prominent headlands such as Cape Byron, Lennox Head, and Point Lookout. These sediments are replaced in deeper water by typical inner shelf brown, greyish brown, and brownish yellow medium to coarse-grained iron-stained shelly quartzose sands. Brown coarse to very coarse carbonate sands occur on the outer shelf as well as in association with bedrock and lithified "beachrock" banks.

In Area 4 (off Fraser Island), olive grey to greyish brown fine-grained quartzose sands predominate except north of approximately 25°07'S where coralline algae, shell gravel, and coralline algal-encrusted "beachrock" predominate.

2. Seismic profiling (small-capacity airgun and 3.5 kHz pinger) revealed up to three major units overlying acoustic basement. These units include "transparent", well-bedded, and "chaotically-bedded" units.

3. Coring and counter-flush drilling revealed a complex picture of sedimentation. In most places, Holocene marine sands, often with a basal conglomerate layer, overlie Late Pleistocene/early Holocene estuarine or back barrier deposits, Pleistocene weathered deposits, or Late Pleistocene/early Holocene leached or partially cemented sands. In some areas it appears that the Holocene marine transgression completely destroyed the early Holocene deposits and eroded directly into the underlying weathered Pleistocene sequence. In most areas it appears that there has been fairly extensive reworking of former beach/dune deposits with the Holocene transgression.

4. Initial heavy-mineral separations and XRF determinations of Zr, Ti and Fe indicate generally low abundances of heavy minerals (less than 1%) on the shelf except for the nearshore zone (less than 35 m of water).

This is probably the result of the onshore movement and reworking of heavy minerals during the Holocene and possibly earlier transgressions.

The highest concentrations of heavy minerals (up to 6.4%) occur in sediment "bulges" off Cape Byron, Lennox Head, and Point Lookout and off southern Fraser Island in shallow water. Generally the concentration of economic heavy minerals in the heavy-mineral fraction of these sediments is fairly low owing to the presence of substantial amounts of unstable heavies such as hornblende and magnetite. Any plan to exploit these resources would have to face the considerable environmental problems likely to arise from large-scale dredging operations in areas close inshore.

APPENDICES

APPENDIX 1 - STATION DATA AND SUMMARY SEDIMENT DESCRIPTIONS

2 - HEAVY-MINERAL ABUNDANCES AND ASSEMBLAGES

APPENDIX 1. STATION DATA AND SUMMARY SEDIMENT DESCRIPTIONS

STATION NUMBER/ EQUIPMENT*	POSITION S	POSITION E	AREA	CORRECTED WATER DEPTH (m)	RECOVERY (CORES) (cm)	SEDIMENT DESCRIPTION
1 GR	33°01'29.5"	151°44'04.7"	1	28	-	Brown (10 yr 5/4) c.gr. qtz sand
2 GR	33°01'05.3"	151°45'29.4"	1	37	-	Brown c.gr. qtz sand
3 GR	33°01'05.5"	151°46'43.8"	1	44	-	Dk. brown m-c.gr. qtz sand
4 GR	33°01'07.6"	151°48'03.7"	1	57	-	Dk. brown (10 yr 4/4) slightly muddy sand
5 GR	33°01'15.4"	151°49'13.5"	1	75	-	Dk. olive grey (5 y 3/2) sandy mud
6 GR	33°01'10.8"	151°50'36.2"	1	83	-	Dk. olive grey (5 y 3/2) sandy mud
7 GR	33°01'04.0"	151°51'43.9"	1	95	-	Dk. olive grey (5 y 3/2) slightly sandy mud
8 GR	33°01'11.1"	151°53'09.2"	1	91	-	Dk. olive grey (5 y 3/2) v. slightly sandy mud
9 GR	33°01'19.1"	151°54'20.5"	1	107	-	Dk. olive grey (5 y 4/3) v. slightly sandy mud
10 GR	33°01'15.4"	151°55'33.2"	1	113	-	Dk. olive grey (5 y 3/2) v. slightly sandy mud
11 GR	33°00'48.4"	151°54'20.0"	1	105	-	Dk. olive grey (5 y 4/2) mud
12 GR	33°00'31.9"	151°53'09.7"	1	97	-	Dk. grey (5y 4/3) slightly sandy mud
13 GR	33°00'11.1"	151°51'46.4"	1	88	-	Dk. olive grey (5 y 4/3) sandy mud
14 GR	32°59'45.9"	151°50'42.5"	1	70	-	Dk. olive grey (5 y 4/3) muddy sand
15 GR	32°59'18.0"	151°49'29.7"	1	50	-	Dk. brown (10 yr 5/6) m-c.gr. sltly muddy sand
16 GR	32°58'48.9"	151°48'31.6"	1	41	-	Dk. brown (10 yr 5/6) m-c.gr.v. sltly muddy sand
17 GR	32°58'18.9"	151°46'10.8"	1	29	-	Brown (10 yr 5/8) m-c.gr. sand
18 GR	32°57'49.2"	151°47'28.5"	1	32	-	Brown (10 yr 5/8) m-c.gr. sand
19 GR	32°57'50.0"	151°48'06.0"	1	35	-	Brown (10 yr 5/8) m-c.gr. sand
20 GR	32°57'54.0"	151°49'39.4"	1	39	-	Brown (10 yr 6/8) m.gr. slightly muddy sand
21 GR	32°58'31.8"	151°51'48.6"	1	60	-	Dk. olive grey (5 y 3/2) muddy shelly m.gr. sand
22 GR	32°58'27.7"	151°51'54.5"	1	59	-	Dk. olive grey (5 y 3/2) v. muddy shelly m.gr. sand
23 GR	32°59'6.6"	151°53'23.1"	1	89	-	Dk. olive grey (5 y 3/1) sltly sandy mud
24 GR	32°59'44.8"	151°54'29.1"	1	97	-	Dk. olive grey (5 y 3/1) sltly sandy mud
25 GR	32°59'56.8"	151°54'53.6"	1	102	-	Dk. olive grey (5 y 3/1) sltly sandy mud
26 GR	32°58'16.6"	151°56'32.5"	1	97	-	Dk. olive grey (5 y 3/1) v. sltly sandy mud
27 GR	32°57'47.3"	151°55'27.1"	1	88	-	Dk. olive grey (5 y 3/1) mud
28 GR	32°57'09.1"	151°54'20.1"	1	63	-	Dk. olive grey (5 y 3/2) v. muddy f.-m.gr. sand
29 GR	32°56'40.4"	151°58'28.1"	1	53	-	Olive brown (5 y 4/3) m-c.gr. sand

STATION NUMBER/ EQUIPMENT*	POSITION S	POSITION E	AREA	CORRECTED WATER DEPTH (m)	RECOVERY (CORES) (cm)	SEDIMENT DESCRIPTION
30 GR	32°56'07.6"	151°52'31.1"	1	43	-	Brown m-c.gr. qtz sand
31 GR	32°55'33.1"	151°51'30.4"	1	36	-	Brown (10 yr 5/4) m.gr. qtz sand
32 GR	32°54'43.0"	151°54'02.3"	1	43	-	Brown (10 yr 5/4) m.-c.gr. qtz sand
33 GR	32°55'08.6"	151°55'03.7"	1	50	-	Brown (10 yr 4/3) c.gr. sand
34 GR	32°55'46.4"	151°55'59.7"	1	61	-	Dk. olive grey (5 y 5/2) muddy sand
35 GR	32°56'37.7"	151°56'49.2"	1	84	-	Dk. olive grey (5 y 3/2) mud
36 GR	32°57'20.1"	151°57'41.3"	1	96	-	Dk. olive grey (5 y 3/2) v. sltly sandy mud
37 GR	32°55'53.2"	151°59'00.1"	1	90	-	Dk. olive grey (5 y 3/2) mud
38 GR	32°55'5.4"	151°57'46.0"	1	69	-	Dk. olive grey (5 y 3/2) mud
39 GR	32°54'15.5"	151°57'13.4"	1	57	-	Dk. olive brown (10 yr 4/4) muddy sand
40 GR	32°53'12.7"	151°56'28.9"	1	43	-	Brown (10 yr 5/8) m.-c.gr. shelly qtz sand
41 GR	32°52'53.4"	151°56'10.4"	1	39	-	Brown (10 yr 5/8) c-v.c.gr. shelly qtz sand
42 TVS	Along approx. 50 m line					
43 KH	32°57'56.2"	151°49'35.6"	1	41	100	c-v.c. qtz sand c large mollusc shells
44 KH	32°57'59.2"	151°50'50.2"	1	47	120	Brown v.c. shelly qtz sand
45 GR	33°03'02.4"	151°41'56.7"	1	28	-	Brown m.gr. qtz sand
46 GR	33°03'02.9"	151°42'36.1"	1	31	-	Brown (10 yr 5/4) sltly shelly m.gr. qtz sand
47 GR	33°03'06.5"	151°43'10.8"	1	33	-	Brown (10 yr 5/4) m.-c.gr. qtz sand
48 GR	33°03'07.8"	151°43'47.8"	1	35	-	Brown (10 yr 5/6) shelly qtz sand
49 GR	33°03'05.4"	151°44'16.5"	1	36	-	Brown (10 yr 5/4) m-c.gr. qtz sand
50 GR	33°02'58.1"	151°44'54.4"	1	40	-	Brown (10 yr 5/4) m.gr. sltly shelly qtz sand
51 GR	33°02'58.3"	151°45'27.1"	1	45	-	Brown (10 yr 5/4) m-c.gr. sltly shelly qtz sand
52 GR	33°02'56.2"	151°46'11.6"	1	55	-	Brown (10 yr 5/2) m.gr. sltly shelly qtz sand
53 GR	33°03'00.0"	151°46'16.6"	1	60	-	Dk. olive grey (5 y 3/2) muddy f.gr. sand
54 GR	33°03'04.4"	151°47'21.7"	1	70	-	Dk. olive grey (5 y 3/2) v. muddy sand
55 GR	33°03'04.1"	151°47'39.5"	1	74	-	Dk. olive grey (5 y 3/2) sandy mud
56 GR	33°03'02.6"	151°48'19.7"	1	79	-	Dk. olive grey (5 y 3/2) sltly sandy mud
57 GR	33°03'02.5"	151°48'54.0"	1	81	-	Dk. olive grey (5 y 3/2) sltly sandy mud
58 GR	33°03'06.7"	151°49'25.0"	1	85	-	Dk. olive grey (5 y 3/2) very sandy mud
59 GR	33°03'01.6"	151°50'10.6"	1	91	-	Dk. olive grey (5 y 3/2) sltly sandy mud

STATION NUMBER/ EQUIPMENT*	POSITION S	POSITION E	AREA	CORRECTED WATER DEPTH (m)	RECOVERY (CORES) (cm)	SEDIMENT DESCRIPTION
60 GR	33°03'19.1"	151°50'42.3"	1	96	-	Dk. olive grey (5 y 3/2) v. sltly sandy mud
61 GR	32°54'30.1"	152°00'42.4"	1	87	-	Dk. olive grey (5 y 3/2) mud
62 GR	32°53'41.3"	151°59'43.0"	1	76	-	Dk. olive grey (5 y 3/2) sltly sandy mud
63 GR	32°52'37.4"	151°59'00.8"	1	50	-	Brown (10 yr 4/4) m-c.gr. calc. qtz sand
64 GR	32°51'48.8"	151°58'20.5"	1	39	-	Brown (10 yr 4/4) c.gr. calc. qtz sand
65 GR	32°51'00.4"	152°01'36.5"	1	45	-	Brown (10 yr 4/3) c.gr. calc. qtz sand
66 GR	32°51'59.8"	152°02'16.6"	1	68	-	Dk. olive grey (5 y 3/2) sandy mud
67 GR	32°52'48.5"	152°02'43.9"	1	84	-	Dk. olive grey (5 y 3/2) mud
68 KH	32°50'30.0"	152°06'45.0"	1	78	220	Dk. olive grey mud (5 y 3/2) becoming more sandy towards base; overlying at 195 cm grey m-c.gr. sltly muddy sand
69 KH	32°49'59.5"	152°02'32.1"	1	40	125	C-v.c. qtz sand c rounded qtzite granules; pebble layer at base
70 GR	32°50'55.1"	152°03'09.4"	1	56	-	Brown (5 yr 5/2) muddy c.gr. sand
71 GR	32°51'49.4"	152°03'44.9"	1	76	-	Dk. olive grey (5 y 3/2) sltly sandy mud
72 GR	32°52'44.5"	152°04'20.2"	1	90	-	Dk. olive grey (5 y 3/2) mud
73 GR	32°53'36.0"	152°04'59.7"	1	102	-	Dk. olive grey (5 y 3/2) sltly sandy mud
74 GR	32°54'26.8"	152°05'33.0"	1	116	-	Dk. olive grey (5 y 3/2) sandy mud
75 GR	32°55'27.9"	152°06'11.8"	1	119	-	Dk. olive grey (5 y 3/2) sandy mud
76 GR	32°56'15.8"	152°06'51.4"	1	125	-	Dk. olive grey (5 y 3/2) sandy mud
77 GR	32°57'05.6"	152°07'22.4"	1	122	-	Dk. olive grey (5 y 3/2) sandy mud
78 GR	32°57'56.0"	152°07'56.9"	1	129	-	Dk. olive grey (5 y 3/2) sandy & shelly mud
79 GR	32°58'56.7"	152°08'30.5"	1	130	-	Dk. olive grey (5 y 3/2) sandy mud
80 GR	32°59'43.5"	152°09'10.6"	1	131	-	Dk. olive grey (5 y 3/2) sandy mud
81 GR	33°00'36.6"	152°09'40.8"	1	132	-	Dk. olive grey (5 y 3/2) v. sandy mud
82 GR	33°01'32.4"	152°10'	1	133	-	Dk. olive grey (5 y 3/2) muddy sand
83 GR	33°02'76.2"	152°10'53.2"	1	135	-	Olive grey (5 y 4/3) m.gr. muddy sand
84 GR	33°03'08.7"	152°11'26.1"	1	136	-	Olive grey (5 y 4/3) m.gr. muddy sand
85 GR	33°04'07.5"	152°12'02.4"	1	137	-	Olive grey (5 y 4/3) m.gr. muddy sand
86 GR	33°04'59.0"	152°12'41.9"	1	138	-	Olive grey (5 y 4/3) m.gr. muddy sand
87 GR	33°05'51.6"	152°13'14.9"	1	139	-	Olive grey (5 y 4/3) sltty muddy sand
88 GR	33°06'37.1"	152°13'51.4"	1	142	-	Olive brown (10 yr 3/3) med.gr. sand
89 GR	33°07'39.2"	152°14'30.1"	1	144	-	Olive brown (10 yr 3/3) m.-c.gr. sand

STATION NUMBER/ EQUIPMENT*	POSITION S	POSITION E	AREA	CORRECTED WATER DEPTH (m)	RECOVERY (CORES) (cm)	SEDIMENT DESCRIPTION
90 GR	33°08'21.7"	152°14'55.1"	1	144	-	Olive brown (10 yr 3/3) m.-c.gr. sand
91 KH	32°56'25.2"	151°49'40.2"	1	32	110	Olive grey med.-c.gr. muddy sand overlying 95-110 dark grey to black sandy mud.
92 KH	32°56'18.0"	151°50'18.0"	1	22	55	0-23 cm: Light brown c.gr. qtz sand; 23-55 cm grey muddy qtz sand c lenses and layers of dark grey mud.
93 GR	32°59'40.8"	151°49'26.4"	1	53	-	Brown (10 yr 5/4) m-c.gr. qtz sand
94 GR	32°59'00"	151°50'30"	1	55	-	Brown (10 yr 5/4) m-c.gr. qtz sand
95 GR	32°59'19.2"	151°50'04.8"	1	56	-	Greyish brown (10 yr 4/2) sltly muddy m-c.gr. qtz sand
96 GR	32°58'42.0"	151°50'42.0"	1	56	-	Brown (10 yr 5/4) sltly muddy c.gr. qtz sand
97 GR	32°58'24.0"	151°51'18.0"	1	57	-	Dk. greyish brown (10 yr 4/2) sltly muddy m.gr. qtz sand
98 GR	32°57'48.0"	151°51'54.0"	1	56	-	Brown (10 yr 5/3) m-c.gr. qtz sand
99 GR	32°57'36.0"	151°52'19.8"	1	55	-	Brown (10 yr 4/3) c.gr. qtz sand
100 GR	32°57'09.0"	151°53'15.0"	1	57	-	Brown (10 yr 5/4) c.gr. qtz sand
101 GR	32°56'48.0"	151°53'39.0"	1	55	-	Brown (10 yr 4/3) c.gr. qtz sand
102 GR	32°56'30.0"	151°54'24.0"	1	55	-	Brown (10 yr 4/3) m-c.gr. silty muddy sand
103 GR	32°56'12.0"	151°54'48.0"	1	56	-	Brown (10 yr 4/3) c.gr. sand
104 GR	32°55'45.0"	151°55'21.0"	1	56	-	Brown (10 yr 4/3) c.gr. sand
105 GR	32°55'30.0"	151°55'45.0"	1	55	-	Brown (10 yr 4/3) c.gr. sand
106 GR	32°55'14.4"	151°56'12.1"	1	56	-	Brown (10 yr 4/3) m-c.gr. sltly muddy sand
107 GR	32°54'53.9"	151°56'44.3"	1	58	-	Brown (10 yr 3/3) m.gr. muddy sand
108 GR	32°54'32.0"	151°57'15.9"	1	62	-	Brown (10 yr 3/3) muddy sand
109 GR	32°54'06.7"	151°57'49.7"	1	62	-	Brown (10 yr 3/3) m.gr. muddy sand
110 GR	32°53'52.9"	151°58'15.7"	1	62	-	Brown (10 yr 3/3) f-m.gr. muddy sand
111 GR	32°53'31.9"	151°58'48.8"	1	67	-	Dk. brown (10 yr 3/2) f-m.gr.v. muddy sand
112 GR	32°53'06.5"	151°59'15.5"	1	62	-	Dk. brown (10 yr 3/2) m.gr. muddy sand
113 GR	32°52'48.9"	151°59'48.7"	1	62	-	Dk. brown (10 yr 3/2) m.gr.v. muddy sand
114 GR	32°52'28.6"	152°00'20.6"	1	62	-	Dk. brown (10 yr 3/2) m.gr. muddy sand
115 GR	32°52'07.9"	152°00'52.9"	1	60	-	Dk. brown (10 yr 3/2) m.gr. muddy sand
116 GR	32°51'46.7"	152°01'25.8"	1	58	-	Dk. brown (10 yr 3/2) m.gr. muddy sand
117 GR	32°51'28.1"	152°01'54.5"	1	57	-	Dk. brown (10 yr 3/2) muddy sand

STATION NUMBER/ EQUIPMENT*	POSITION S	POSITION E	AREA	CORRECTED WATER DEPTH (m)	RECOVERY (CORES) (cm)	SEDIMENT DESCRIPTION
118 GR	32°51'08.8"	152°02'24.4"	1	53	-	Brown (10 yr 4/4) m-c.gr. sltly muddy sand
119 GR	32°50'44.0"	152°02'57.6"	1	50	-	Brown (10 yr 4/4) m-c.gr.v. sltly muddy sand
120 GR	32°50'21.7"	152°03'33.0"	1	48	-	Brown (10 yr 4/4) c.gr. shelly sand
121 GR	32°50'02.1"	152°03'58.9"	1	46	-	Brown (10 yr 4/4) c.gr. shelly sand
122 GR	32°49'37.4"	152°04'33.9"	1	44	-	Brown (10 yr 4/4) c.gr. sltly shelly sand
123 GR	32°49'24.1"	152°04'57.3"	1	44	-	Brown (10 yr 4/4) c.gr. silty muddy & shelly sand
124 GR	32°48'57.6"	152°05'28.3"	1	43	-	Brown (10 yr 4/4) c.gr. shelly & pebbly sand
125 GR	32°48'53.0"	152°05'08.0"	1	41	-	Brown (10 yr 4/4) c.gr. shelly sand
126 GR	32°49'23.9"	152°04'25.2"	1	42	-	Brown (10 yr 4/4) c.gr. shelly sand
127 GR	32°49'42.2"	152°03'57.0"	1	41	-	Brown (10 yr 4/4) c.gr. shelly sand
128 GR	32°50'02.4"	152°03'22.0"	1	44	-	Brown (10 yr 4/4) c.gr. shelly sand
129 GR	32°50'24.7"	152°02'55.4"	1	44	-	Brown (10 yr 4/4) c.gr. shelly sand
130 GR	32°50'46.5"	152°02'20.0"	1	46	-	Brown (10 yr 4/4) c.gr. shelly sand
131 GR	32°51'06.2"	152°01'50.8"	1	49	-	Brown (10 yr 4/4) c.gr. sand
132 GR	32°51'29.3"	152°01'17.5"	1	51	-	Brown (10 yr 4/4) c.gr. shelly sand
133 GR	32°51'47.1"	152°00'45.5"	1	52	-	Brown (10 yr 4/3) c.gr. shelly sand
134 GR	32°52'08.2"	152°00'15.6"	1	53	-	Brown slightly muddy sand
135 GR	32°52'28.7"	151°59'41'3"	1	54	-	Dk. brown (10 yr 3/3) sltly muddy sand
136 GR	32°52'49.1"	151°59'11.9"	1	55	-	Dk. brown (10 yr 3/3) sltly muddy c.gr. sand
137 GR	32°53'09.8"	151°58'42.3"	1	57	-	Brown (10 yr 5/3) c.gr. sltly shelly sand
138 GR	32°53'30.8"	151°58'11.4"	1	58	-	Greyish brown muddy sand/c.gr. clean qtz sand
139 GR	32°53'52.0"	151°57'40.9"	1	57	-	Brown sltly muddy c.gr. qtz sand
140 GR	32°54'12.4"	151°57'06.4"	1	54	-	Dk. brown (10 yr 4/4) sltly muddy c.gr. qtz sand
141 GR	32°54'41.9"	151°56'41.6"	1	54	-	Dk. brown (10 yr 4/4) shelly qtz sand
142 GR	32°54'59.4"	151°56'09.5"	1	52	-	Brown c.gr. shelly qtz sand
143 GR	32°55'18.1"	151°55'35.9"	1	52	-	Brown (10 yr 4/4) c.gr. sltly shelly sand
144 KH	32°52'06.7"	151°51'57.2"	1	27	400	0-285: Brown and grey sltly shelly sands; 285-305: v.dk. grey mud; 305-320: gravel containing pebbles up to 4 cm across; 320-400: f & v.f.gr. partly mottled sand
145 KH	32°53'23.8"	151°53'30.4"	1	34	215	Light brown. 0-100: c.gr. sand passing into shelly & gravelly sand; 100-215: m & c.gr. sand becoming gravelly towards base.

STATION NUMBER/ EQUIPMENT*	POSITION S	POSITION E	AREA	CORRECTED WATER DEPTH (m)	RECOVERY (CORES) (cm)	SEDIMENT DESCRIPTION
146 KH	32°52'53.6"	151°54'58.1"	1	35	190	0-65: Brown (10 yr 6/6) v.c. shelly & gravelly sand; 65-190: Light grey (10 yr 7/1) f-m.gr. qtz sands.
147 GR	32°37'15.0"	152°16'42.0"	1	27	-	Greyish brown (2.5 yr 6/2) m.gr. sltly shelly qtz sand
148 GR	32°37'42.0"	152°17'13.2"	1	30	-	Light brown (2.5 yr 6/2) m-c.gr. sltly shelly sand
149 GR	32°37'57.0"	152°17'52.2"	1	34	-	Brown (2.5 yr 5/4) c-v.c. shelly qtz sand
150 GR	32°38'18.0"	152°18'06.0"	1	36	-	Brown (2.5 yr 5/4) v.c.gr. shelly qtz sand
151 GR	32°38'42.0"	152°18'36.0"	1	42	-	Porphyry
152 GR	32°39'04.8"	152°18'54.0"	1	51	-	Brown (10 yr 3/3) f.gr. sand
153 GR	32°39'36.0"	152°19'24.0"	1	54	-	Brown (10 yr 3/3) c.gr. shelly sand
154 GR	32°39'51.6"	152°19'48.0"	1	63	-	Dk. brown (10 yr 3/2) c.gr. shelly sltly muddy sand
156 GR	32°40'42.0"	152°20'12.0"	1	88	-	Dk. olive grey (5 y 3/2) sandy mud
157 GR	32°41'22.8"	152°19'31.2"	1	91	-	Dk. olive grey (5 y 3/2) sandy mud
158 GR	32°40'51.0"	152°18'57.0"	1	77	-	Dk. Olive grey (5 y 2.5/2) mud
159 GR	32°40'33.0"	153°18'33.0"	1	70	-	Dk. olive grey (5 y 3/2) v. sandy mud
160 GR	32°40'09.0"	152°18'12.0"	1	60	-	Brown (10 yr 4/4) v.c.gr. shelly & pebbly sand
161 GR	32°39'42.0"	152°17'48.0"	1	47	-	Sponge only
162 GR	32°39'12.0"	152°17'21.0"	1	44	-	Brown (10 yr 4/4) m.gr. sand
163 GR	32°38'42.0"	152°16'54.0"	1	39	-	Brown (10 yr 4/4) m.gr. sand
164 GR	32°38'18.0"	152°16'30.0"	1	34	-	Brown (10 yr 4/4) m.gr. sand
165 GR	32°38'00.0"	152°16'00.0"	1	32	-	Brown (10 yr 4/4) m.gr. qtz sand
166 GR	32°37'30.0"	152°15'45.0"	1	28	-	Brown (10 yr 4/4) m.gr. sand
167 KH	32°48'42.8"	152°02'42.9"	1	33	220	0-88: Lt yell. grey (10 yr 7/2) c.gr. shelly & sltly pebbly qtz sand; 88-130: v. dark grey (7.5 yr 3/0) mud; 130-160: Yell. grey (10 yr 5/1) shelly & pebbly v.c-c.gr. qtz sand; 160-220: Grey (2.5 y 5/0) f.gr. qtz sand
168 GK	32°48'43.7"	152°02'42.7"	1	33	265	0-95: Brown-grey shelly sand; 95-96: black clay; 96-125: Grey (10 yr 4/1) c.gr. shelly sand; 125-128: black clay; 128-238: m. grey (10 yr 4/1) sltly shelly sand; 238-250: shelly gravel; 250-265: m. grey sand.

STATION NUMBER/ EQUIPMENT*	POSITION S	POSITION E	AREA	CORRECTED WATER DEPTH (m)	RECOVERY (CORES) (cm)	SEDIMENT DESCRIPTION
169 GK	32°53'27.5"	151°53'21.5"	1	34	670	0-160: c.gr. pebbly & shelly sand, Lt. brown; 160-270: v.c. pebbly & shelly sand; 270-620: m. & c.gr. grey-brown qtz sand c occ. small pebbles & wood frags; 620-670: Dk. grey sandy clay, layers of qtz grit
170 KH	32°55'51.8"	151°55'36.7"	1	58	255	0-60: Brown (7.5 yr 5/6) c.gr. shelly sand; 60-185: Grey-brown (7.5 yr 4/2) m-c.gr. shelly sand; 185-255: Grey (10 yr 4/2) sltly shelly sand
171 KH	32°56'14.4"	151°55'48.4"	1	65	160	0-0.5: Dk. olive grey mud; 0.5-160: Dk. olive grey (5 y 3/2) sltly muddy f-m.gr. qtz sand. Shelly.
172 KH	32°56'40.4"	151°55'42.7"	1	74	350	0-70: Dk. olive grey (5 y 3/2) muddy & shelly f.gr. sand; 70-140: Dk. olive grey (5 y 3/2) muddy sand; 140-350: Dk. olive grey (5 y 3/2) slightly muddy & shelly f.gr. sand
173 KH	32°41'22.3"	152°16'48.7"	1	74	140	Dk. olive grey sltly muddy shelly sands
174 GK	32°40'16.3"	152°15'18.2"	1	36	590	0-160: Brown (10 yr 5/4) c & v.c.gr. pebbly and shelly sand; 160-220: c & v.c. brown (10 yr 5/6) sand; 220-330: Brown (10 yr 7/8) sands; 330: black carbonac. layer; 350-590: F.-m.gr. uniform loose sand.
175 GS	32°39'52.3"	152°14'19.2"	1	30	550	0-200: Lt. brown (10 yr 6/3) m-c.gr. sltly shelly qtz sand; 200-550: Grey (5 y 7/1) c. & v.c. sltly shelly qtz sands.
176 KH	32°37'48.6"	152°17'03.3"	1	31	150	0-60: Lt. yell. grey (5 y 6/2) shelly c.gr. qtz sand; 60-93: Grey (2.5 y 6/1) f.gr. sand c trace shell material; 93-150: stiff black organic-rich clay.
177 GR	32°31'55.6"	152°22'15.6"	1	31	-	Lt. yell. brown (10 yr 6/4) c.gr. sltly shelly qtz sand
178 GR	32°31'31.5"	152°23'08.3"	1	34	-	Lt. yell. brown (10 yr 6/4) c.gr. sltly shelly qtz sand
179 GR	32°31'04.9"	152°24'07.0"	1	34	-	Lt. yell. brown (10 yr 6/4) c.gr. sltly shelly qtz sand

STATION NUMBER/ EQUIPMENT*	POSITION S	POSITION E	AREA	CORRECTED WATER DEPTH (m)	RECOVERY (CORES) (cm)	SEDIMENT DESCRIPTION
180 GR	32°30'33.7"	152°25'15.4"	1	35	-	Lt. yell. brown (10 yr 6/4) c.gr. sltly shelly qtz sand
181 GR	32°30'07.7"	152°26'11.5"	1	34	-	Lt. yell. brown (2.5 yr 6/4) m.gr. qtz sand
182 GR	32°29'34.3"	152°27'17.2"	1	35	-	Pale yellow (2.5 yr 7/2) c.gr. qtz sand
183 GR	32°29'09.8"	152°28'18.3"	1	34	-	Lt. brown (2.5 yr 6/2) c.gr. sltly shelly sand
184 GR	32°28'47.2"	152°29'14.6"	1	34	-	Lt. brown (2.5 yr 6/2) m-c.gr. sltly shelly qtz sand
185 GR	32°29'38.2"	152°29'46.9"	1	39	-	Brown (10 yr 4/4) c.gr. sand
186 GR	32°29'34.6"	152°29'50.0"	1	42	-	Brown (10 yr 4/4) m.gr. sand
187 GR	32°30'05.2"	152°28'46.0"	1	40	-	Brown (10 yr 4/4) f-m.gr. sand
188 GR	32°30'35.6"	152°27'43.7"	1	42	-	Brown (10 yr 4/4) f-m.gr. sand
189 GR	32°31'01.9"	152°26'40.0"	1	42	-	Brown (10 yr 4/4) f-m.gr. sand
190 GR	32°30'35.1"	152°26'11.3"	1	43	-	Brown (10 yr 4/4) f-m.gr. sand
191 GR	32°31'59.5"	152°24'36.1"	1	42	-	Brown (10 yr 4/4) c.gr. shelly sand
192 GR	32°32'24.5"	152°23'31.6"	1	40	-	Brown (10 yr 4/4) c.gr. shelly sand
193 GR	32°32'54.4"	152°22'28.1"	1	38	-	Brown (10 yr 4/4) m.-c.gr. sltly shelly sand
194 GR	32°33'45.1"	152°23'08.8"	1	44	-	Brown (10 yr 4/4) f-m.gr. sand
195 GR	32°33'15.9"	152°24'13.3"	1	47	-	Brown (10 yr 4/4) f-m.gr. sltly shelly sand
196 GR	32°32'50.8"	152°25'18.1"	1	48	-	Brown (10 yr 4/4) f-m.gr. sand
197 GR	32°32'19.7"	152°26'25.1"	1	47	-	Brown (10 yr 4/4) c.-v.c.gr. shelly sand
198 GR	32°31'50.1"	152°27'25.1"	1	49	-	Brown (10 yr 4/4) m-c.gr. shelly sand
199 GR	32°31'31.2"	152°28'31.3"	1	49	-	Brown (10 yr 4/4) c.gr. shelly sand
200 GR	32°31'01.4"	152°29'30.0"	1	51	-	Brown (10 yr 4/4) c.gr. shelly sand
201 GR	32°30'31.3"	152°30'31.7"	1	52	-	Brown (10 yr 4/4) c.gr. shelly sand
202 GR	32°31'25.0"	152°31'00.5"	1	76	-	Dk. olive grey (5 y 3/2) muddy f.gr. sand
203 GR	32°31'52.6"	152°29'56.3"	1	75	-	Dk. olive grey (5 y 3/2) muddy f.gr. sand
204 KH	32°30'01.1"	152°30'02.3"	1	44	260	0-26: Lt. yell. brown (2.5 y 6/2) c-v.c. sltly shelly qtz sand; 26-102: Lt. brown to grey m. & c.gr. sands; 102-260: Grey - dark grey (2.5 y 5.5/0) f.gr. qtz sand c organic material; traces of mica.

STATION NUMBER/ EQUIPMENT*	POSITION S	POSITION E	AREA	CORRECTED WATER DEPTH (m)	RECOVERY (CORES) (cm)	SEDIMENT DESCRIPTION
205 KH	32°29'04.8"	152°29'04.3"	1	36	120	0-41: Lt. yell. grey (2.5 y 7/2) c-v.c.gr. partly shelly qtz sand; 41-43: shell grit; 43-120: grey (2.5 y 5/0) f.gr. qtz sand containing some organic material & traces of shell material.
206 KH	32°31'15.0"	152°30'06.0"	1	58	160	Brown to grey c.gr. sltly shelly sand
207 KH	32°31'39.5"	152°31'18.9"	1	81	380	Dk. olive grey muddy f. & m.gr. sand throughout
208 KH	32°30'15.8"	152°31'17.0"	1	54	160	0-120: Lt yell. brown (2.5 y 6.5/2) v.c.-c.gr. shelly sand; 120-160: Lt. yell. brown (2.5 y 6.5/2) grey sltly shelly f.-m.gr. qtz sand. Pebbles at 120.
209 GS	32°13'00.5"	152°35'30.7"	1	53	160	C. brown shelly sand overlying grey muddy sand c abundant black carbonac. frags. Large qtzite pebbles at base.
210 GS	32°12'59.9"	152°34'55.4"	1	36	750	Uniform lt. grey (2.5 y 6.5/0) clean f-m. gr. qtz sand c minor shell material.
211 GR	32°13'11.0"	152°34'36.4"	1	27	-	Lt. yell. grey f.-gr. sand
212 GR	32°13'19.6"	152°34'45.1"	1	33	-	Lt. yell. grey (2.5 y 6.5/2) f.gr. sand
213 GR	32°13'25.6"	152°34'55.2"	1	39	-	Lt. yell. grey (2.5 y 6.5/2) f.gr. sand
214 GR	32°13'30.5"	152°35'05.0"	1	45	-	Lt. yell. grey (2.5 y 6.5/2) f.gr. sand
215 GR	32°13'34.4"	152°35'13.0"	1	47	-	Brown (2.5 y 5/4) c. carbonate sand
216 GR	32°13'51.0"	152°36'43.4"	1	51	-	Bedrock. No recovery
217 GR	32°14'02.5"	152°37'03.5"	1	56	-	Brown (2.5 y 5/4) v.c. carbonate sand
218 GR	32°14'11.3"	152°37'18.9"	1	62	-	Bedrock. No recovery
219 GR	32°14'16.4"	152°38'01.0"	1	67	-	Brown (2.5 y 4/4) m-c. gr. carbonate sand
220 GR	32°14'44.3"	152°41'09.7"	1	87	-	Grey brown (2.5 Gy 4/4) m.gr. sltly muddy sand
221 GR	32°14'47.8"	152°41'37.1"	1	88	-	Grey brown (2.5 Gy 4/4) f-m. sltly muddy sand
222 GR	32°14'57.8"	152°41'56.7"	1	89	-	Olive grey (5 y 3/2) sltly muddy m.gr. sand
223 GR	32°15'05.3"	152°42'15.7"	1	92	-	Grey brown (2.5 y 3/2) sltly muddy m.gr. sand
224 GR	32°15'11.1"	152°42'29.0"	1	90	-	Grey brown (2.5 y 3/2) sltly muddy & shelly m-c.gr. sand
225 GR	32°15'13.3"	152°42'43.9"	1	91	-	Olive brown (2.5 y 3/2) m.-c.gr. shelly sand & pebbles
226 GR	32°15'27.2"	152°43'12.2"	1	93	-	Olive brown (2.5 y 3/2) m.-c.gr. sltly shelly sand

STATION NUMBER/ EQUIPMENT*	POSITION S	POSITION E	AREA	CORRECTED WATER DEPTH (m)	RECOVERY (CORES) (cm)	SEDIMENT DESCRIPTION
227 GR	32°15'26.4"	152°43'23.0"	1	97	-	Olive brown (2.5 y 3/2) m-c.gr. sltly shelly sand
228 GS	32°26'09.1"	152°34'02.3"	1	40	750	0-110: Fawn (5 y 7/3) m-c.gr. v. shelly qtz sand; 110-180: Lt. yell. grey (5 y 7/2) m.-c.gr. shelly qtz sand. Qtzite pebbles; 180-750: uniform grey (2.5 y 6/0) m.gr. sltly shelly qtz sand.
229 GS	32°26'07.9"	152°33'18.4"	1	39	750	0-10: Pale grey yellow (2.5 y 7/2) m.gr. qtz sand; 10-20: Pale yell. grey v. shelly qtz sand containing pebbles; 20-750: Uniform light grey (2.5 y 6.5/0) clear m.gr. qtz sand c minor shell material.
230 GS	32°25'31.1"	152°34'27.2"	1	59	750	Poor recovery. M-c.gr. grey (5 y 4/1) shelly sand
231 GS	32°22'03.6"	152°33'53.7"	1	62	260	0-200: Dk. grey (5 y 2.5/1) pebbly sand; 200-260: Dk. grey sandy conglomerate.
232 GR	32°23'36.5"	152°38'59.3"	1	102	-	Brown (10 yr 5/3) m.gr. carbonate sand
233 GR	32°24'07.7"	152°38'27.8"	1	105	-	Dk. brown (10 yr 3/3) m.gr. carbonate sand
234 GR	32°24'01.8"	152°39'08.4"	1	106	-	Dk. brown (10 yr 3/3) m.gr. carbonate sand
235 GR	32°24'15.4"	152°39'25.3"	1	105	-	Brown (10 yr 5/4) carbonate sand
236 GR	32°24'36.2"	152°39'41.9"	1	105	-	Brown (10 yr 5/4) m.gr. carb. sand
237 GR	32°23'39.3"	152°40'07.4"	1	106	-	Dk. brown (10 yr 4/2) m-c.gr. carbonate sand
238 GR	29°23'48.7"	152°23'34.9"	2	30	-	V. dk. greyish brown (2.5 y 3/2) qtz sand
239 GR	29°23'51.4"	153°24'40.4"	2	34	-	V. dk. greyish brown (2.5 y 3/2) qtz sand
240 GR	29°23'49.1"	153°25'50.4"	2	45	-	Dk. greyish brown sltly muddy f.gr. sand
241 GR	29°23'49.8"	153°26'57.6"	2	48	-	V. dk. greyish brown (2.5 y 3/2) f.gr. sltly muddy sand
242 GR	29°23'53.5"	153°28'05.3"	2	51	-	V. dk. greyish brown (2.5 y 3/2) f.gr. sltly muddy sand
243 GR	29°23'52.7"	153°29'16.6"	2	52	-	Brown (2.5 yr 4/2) m.gr. sltly shelly sand
244 GR	29°23'52.7"	153°30'24.8"	2	54	-	Brown (2.5 yr 4/2) m.gr. sltly shelly sand
245 GR	29°23°54.0"	153°31'34.7"	2	57	-	Olive grey (5 y 3/2) m-c.gr. shelly sand
246 GR	29°23'51.4"	153°32'46.7"	2	61	-	Olive grey (5 y 3/2) f.gr. muddy sand
247 GR	29°23'55.3"	153°33'49.5"	2	65	-	Dk. olive grey (2.5 y 3/2) m.gr. sltly shelly sand
248 GR	29°23'56.5"	153°34'58.3"	2	71	-	Olive grey (2.5 y 3/2) m.gr. sltly shelly sand
249 GR	29°23'57.4"	153°36'10.2"	2	76	-	Grey brown (10 yr 4/4) c-v.c. sltly shelly sand

STATION NUMBER/ EQUIPMENT*	POSITION S	POSITION E	AREA	CORRECTED WATER DEPTH (m)	RECOVERY (CORES) (cm)	SEDIMENT DESCRIPTION
250 GR	29°25'41.7"	153°31'54.3"	2	58	-	Olive grey f-m.gr. sltly shelly sand
251 GR	29°25'43.2"	153°30'38.8"	2	56	-	Grey v.f.gr. sand
252 GR	29°25'36.8"	153°29'29.9"	2	53	-	Brown (10 yr 5/6) c.gr. slightly shelly sand
253 GR	29°25'36.2"	153°28'26.4"	2	52	-	Olive grey (5 y 3/1) sltly muddy sand
254 GR	29°25'32.8"	153°27'20.1"	2	49	-	Grey brown (10 yr 5/4) c.gr.v. shelly sltly muddy sand
255 GR	29°25'33.6"	153°25'56.6"	2	47	-	Olive grey (5 y 3/2) shelly v. muddy m.gr. sand
256 GR	29°25'31.9"	153°24'57.2"	2	42	-	Black muc & grey f.gr. sand
257 GR	29°25'26.9"	153°23'46.9"	2	33	-	V. dk grey v. sandy mud
258 GR	29°26'31.1"	153°23'25.1"	2	30	-	V. dk grey (5 y 3/2) v. sandy mud
259 GR	29°22'44.2"	153°23'34.9"	2	27	-	Grey-brown (2.5 y 3/2) f.gr. sand
260 GR	29°21'51.9"	153°23'30.7"	2	27	-	Grey-brown (2.5 y 3/2) f.gr. sand
261 GR	29°21'52.6"	153°24'46.9"	2	30	-	Grey-brown f.gr. sand
262 GR	29°21'52.1"	153°25'49.7"	2	40	-	Olive brown (2.5 y 4/4) f.gr. qtz sand
263 GR	29°21'51.5"	153°26'55.7"	2	45	-	Dk. greyish brown (2.5 y 4/2) sltly muddy f.gr. qtz sand
264 GR	29°21'50.6"	153°28'05.2"	2	48	-	Olive brown (2.5 y 4/4) sltly shelly f-m.gr. sand
265 GR	29°21'51.3"	153°29'15.1"	2	50	-	V. dk. greyish brown (2.5 y 3/2) sltly muddy f.gr. qtz sand
266 GR	29°21'50.5"	153°30'18.5"	2	54	-	V. dk. greyish brown (2.5 y 3/2) sltly muddy f.gr. qtz sand
267 GR	29°21'48.8"	153°31'37.3"	2	55	-	Dk. greyish brown (2.5 y 4/2) f.gr. qtz sand
268 GR	29°20'37.1"	153°31'42.5"	2	56	-	Dk. greyish brown (2.5 y 4/2) f.gr. qtz sand
269 GR	29°19'35.4"	153°31'50.2"	2	55	-	Dk. greyish brown (2.5 y 4/2) v.f.gr. qtz sand
270 GR	29°19'36.0"	153°30'38.3"	2	52	-	V. dk greyish brown (2.5 y 3/2) f.gr. qtz sand
271 KH	28°51'08.0"	153°41'40.6"	2	61	-	Brown c.gr. shelly sand
272 GR	28°52'20.9"	153°42'35.9"	2	72	-	Brown v.c. carbonate sand
273 GR	28°49'15.7"	153°37'50.0"	2	39	-	Grey (2.5 y 5/2) f.gr. qtz sand
273 GS	"	"	"	"	950	Dk. olive grey f.gr. sand
274 KH	29°27'54.9"	153°25'42.8"	2	48	380	0-15: Brown v.c.gr.v. shelly sltly muddy sand; 15-50: Brown (10 yr 5/4) c. shell hash; 50-100: c. brn. shell hash to grey mud inc pebbles; 100-130: Dk. grey mud c oysters & other c. shell mat.; 130-260: Dk grey mud c large shells; 260-380: Dk grey v. stiff mud (2.5 y 3/0) c f. shell frags.

STATION NUMBER/ EQUIPMENT*	POSITION S	POSITION E	AREA	CORRECTED WATER DEPTH (m)	RECOVERY (CORES) (cm)	SEDIMENT DESCRIPTION
275 KH	29°27'53.5"	153°24'57.6"	2	42	380	0-110: Yell. grey (2.5 y 5/2) v. shelly m.gr. qtz sand; 110-155: transitional; 155-380: Dark grey (25 y 3/0) sltly muddy shelly f.gr. sands
276 GS	29°28'17.9"	153°26'30.1"	2	51	740	0-600: Dk grey (5 y 4/1) sltly sandy & shelly muds; 600-740: Stiff mottled clay.
277 GR	29°29'43.9"	153°23'38.0"	2	37	-	Igneous rock
278 GR	29°29'35.4"	153°24'49.5"	2		-	No recovery. Basement.
279 GR	29°29'35.6"	153°25'59.6"	2	52	-	Olive grey (5 y 4/2) shelly muddy sand
280 KH	29°23'47.9"	153°23'54.3"	2	31	175	0-18: Dk yell. grey (2.5 y 4/2) f.gr. qtz sand c tr. shell mat.; 18-23: Shell grit layer; 23-175: Uniform dk grey (2.5 y 4/0) v. sltly shelly f.gr. qtz sand
281 GS	29°23'48.2"	153°23'54.0"	2	31	880	0-340: Grey (5 y 5/1) f.gr.v. sltly shell qtz sand; 340-400: As above but c abun. shell mat. & rounded pebbles; 400-710: Grey (2.5 y 5.5/0) m-c.gr. qtz sand c frags of wood, traces of shell mat.; 710-830: grey (2.5 y 5.5/0) f.gr. qtz sand; 830-880: V. dk. grey mud.
282 GK	29°23'50.4"	153°24'27.8"	2	33	750	0-440: Grey f.gr. sand; 440-680: Grey (2.5 y 4/0) sltly mudd f-m.gr. sand, incl. mud & shell towards base; 680-690: Shelly pebbly sandy mud; 690-750: Dk. grey (2.5 y 2.5/0)v. sandy mud.
283 GS	29°19'48.7"	153°29'12.4"	2	48	950	0-100: Dk. grey f.gr. qtz sand; 100- 400: Olive grey (5 y 5/2) m-c.gr. shelly sands; 400- 600: Olive grey (5 y 5/2) m.gr. sltly shelly sands; 600- 850: Grey (2.5 y 5/0) f-m.gr. v. sltly shelly sands c minor wood frags.
284 GS	29°20'21.7"	153°29'56.7"	2	52	300	0-200: V. dk. grey (5 y 3/1) f.gr. shelly sands; 200- 300: Olive grey (5 y 5/2) f-m.gr. shelly sands. Frags. of qtz, calc. b'rock; 300: stiff yellow brown clay.
285 GR	29°19'35.8"	153°29'52.0"	2	50	-	Dk. olive grey (5 y 3/2) f.gr. sltly shelly sand
286 GR	29°19'37.0"	153°28'47.0"	2	48	-	Dk. olive grey 5 y 3/2) f.gr. sltly shelly sand

STATION NUMBER/ EQUIPMENT*	POSITION S	POSITION E	AREA	CORRECTED WATER DEPTH (m)	RECOVERY (CORES) (cm)	SEDIMENT DESCRIPTION
287 GR	29°19'34.7"	153°27'40.0"	2	45	-	Olive brown (2.5 y 4/4) f-m.gr. shelly sand
288 GR	29°19'36.0"	153°26'28.7"	2	42	-	Brown (2.5 y 4/4) c.gr. shelly sand
289 GR	29°19'36.5"	153°25'19.2"	2	38	-	V.dk. grey (5 y 3/1) sltly shelly f-m.gr. sand
290 GR	29°19'35.6"	153°24'16.4"	2	31	-	Olive grey (2.5 y 3/2) f.gr. sand
291 GR	29°19'32.9"	153°23'27.1"	2	27	-	Olive grey (5 y 4/3) f.gr. sand
292 GR	29°18'33.9"	153°23'35.8"	2	28	-	Olive grey (5 y 3/2) f.gr. sand
293 GR	29°17'47.4"	153°23'43.1"	2	28	-	V. dk. ol. grey (5 y 2.5/2) v. muddy f.gr. sand
294 GR	29°17'47.8"	153°24'50.8"	2	34	-	Olive grey-brown (5 y 3/1) f.gr. muddy sand
295 GR	29°17'49.0"	153°25'52.2"	2	39	-	Olive grey-brown (5 y 3/1) f.gr. muddy sand
296 GR	29°17'50.7"	153°27'04.9"	2	44	-	Olive grey (5 y 3/2) muddy v.f.gr. sand
297 GR	29°17'52.3"	153°28'11.2"	2	44	-	Brown (2.5 y 4/4) c-m.gr. shelly sand
298 GR	29°17'51.7"	153°29'16.2"	2	45	-	Grey-brown (2.5 y 3/2) f.gr. sand
299 GR	29°17'51.2"	153°30'27.5"	2	51	-	Dk olive grey (5 y 3/2) v.f.gr. shelly sand
300 GR	29°17'50.9"	153°31'38.3"	2	53	-	Olive grey (5 y 3/2) f.gr. muddy & shelly sand
301 GR	29°17'51.5"	153°32'49.3"	2	56	-	Olive grey brown (2.5 y 3/2) f.gr. muddy sand
302 GR	29°17'50.5"	153°33'59.0"	2	57	-	Olive brown (2.5 y 4/2) f.gr. sand
303 GR	29°16'51.6"	153°34'43.6"	2	59	-	Olive brown (2.5 y 4/6) f.gr. sand
304 GR	29°15'50.9"	153°35'01.2"	2	60	-	Olive brown (2.5 y 4/2) f.gr. sand
305 GR	29°15'46.3"	153°33'44.6"	2	57	-	Olive brown (2.5 y 3/2) f.gr. sltly shelly sand
306 GR	29°15'44.7"	153°32'40.6"	2	54	-	Olive brown (2.5 y 4/4) f.gr. sltly shelly sand
307 GR	29°15'42.1"	153°31'33.5"	2	53	-	Dk. olive brown (2.5 y 3/2) f.gr. shelly sand
308 GS	29°12'45.1"	153°35'36.1"	2	57	700	0-300: Lt olive brown (2.5 y 5/4) shelly sand 300-600: Grey (2.5 y 5/0) sltly shelly f-m.gr. sand c minor b'rock frags; 600-700: Lt olive brown (2.5 y 5/4) v. sltly shelly f-m.gr. sand c "b'rock" frags; 700: Hard layer - clay or "b'rock"
309 GS	29°12'45.3"	153°34'47.4"	2	57	560	0-350: Lt olive brown (2.5 y 5/4) shelly f-m.gr. sand c pebbles; 350- : Grey organic-rich sands grading into peat/clay.

STATION NUMBER/ EQUIPMENT*	POSITION S	POSITION E	AREA	CORRECTED WATER DEPTH (m)	RECOVERY (CORES) (cm)	SEDIMENT DESCRIPTION
310 GK	29°12'40.0"	153°34'37.3"	2	57	1080	0-430: Brown f-m.gr. shelly sands, pebble at 310; 430-445: Yel.-brown-red clay; 445-470: Red-brown muddy m-c.gr. sand; 470-530: Olive brown v. shelly sandy mud; 530-985: Grey-brown f-m.gr. sltly shelly sand; 985-1070: Med. olive brown (2.5 y 5/6) f-m.gr. v. sltly shelly sands partly cemented, horiz. iron oxide stain. below 1030.
311 GK	29°12'36.5"	153°34'12.1"	2	54	877	0-252: Pale yellow (2.5 y 7/4) c. & m.gr.v. shelly sands c pebbles near base; 252-381: Dk grey (2.5 y 4/0) - light grey (2.5 y 5.5/0) v. sltly shelly f-m.gr. qtz sands; 381-480: Dk grey f.gr. qtz sands & muddy sands; 480-601: Dk. grey partly shelly sltly sandy mud & muddy sand; 601-705: Stiff black clay; 705-840: Dk grey slightly shelly muddy sand; 840-877: Dk. grey f-m.gr. qtz sands.
312 GK	29°12'33.4"	153°34'01.5"	2	54	0	No recovery
313 GR	29°15'31.4"	153°29'20.8"	2	45	-	Dk. olive grey (5 y 3/2) sltly shelly f.gr. sand
314 GR	29°15'29.9"	153°28'11.8"	2	42	-	Dk. greyish brown (2.5 y 4/2) m.gr. sltly shelly sand
315 GR	29°15'24.5"	153°26'31.6"	2	39	-	V. dk. grey-brown (2.5 y 3/2) sltly shelly f.gr. sand
316 GR	29°15'23.3"	153°25'55.6"	2	36	-	Brown (2.5 y 5/4) c.gr. shelly sand
317 GR	29°14'45.0"	153°26'14.6"	2	36	-	Dk greyish brown f.gr. sltly shelly sand
318 GR	29°14'00.9"	153°27'01.8"	2	32	-	No recovery
319 GR	29°13'19.6"	153°27'49.3"	2	39	-	Dk. greyish brown (2.5 y 4/2) m.gr. shelly sand
320 GR	29°12'40.1"	153°28'37.6"	2	41	-	V. dk olive grey (5 y 3/1) slightly sandy mud
321 GR	29°11'57.9"	153°29'25.7"	2		-	No recovery
322 KH	29°19'46.1"	153°23'34.7"	2	27	40	Grey shelly sand
323 GR	29°12'36.9"	153°37'40.9"	2	68	-	Olive brown (2.5 y 4/4) f-m.gr. sand
324 GR	29°11'37.4"	153°37'58.8"	2	68	-	Olive brown (2.5 y 4/4) f-m.gr. sand
325 GR	29°10'40.4"	153°38'10.1"	2	68	-	Olive brown (2.5 y 4/2) f-m.gr. sand
326 GR	29°10'28.5"	153°37'02.5"	2	62	-	Olive brown (2.5 y 4/2) f-m.gr. sand
327 GR	29°10'23.7"	153°35'53.6"	2	58	-	Olive brown (2.5 y 4/2) f-m.gr. sand

STATION NUMBER/ EQUIPMENT*	POSITION S	POSITION E	AREA	CORRECTED WATER DEPTH (m)	RECOVERY (CORES) (cm)	SEDIMENT DESCRIPTION
328 GR	29°10'20.5"	153°34'43.6"	2	57	-	Olive brown (2.5 y 4/2) f-m.gr. sand
329 GR	29°10'15.5"	153°33'33.1"	2	54	-	Olive brown (2.5 y 3/2) m-.c.gr. shelly sand
330 GR	29°10'12.5"	153°32'31.4"	2	53	-	Olive brown (2.5 y 4/2) m.gr. shelly sand
331 GR	29°10'08.2"	153°31'17.8"	2	47	-	Dk olive grey (5 y 3/2) muddy f.gr. sand
332 GR	29°10'04.6"	153°30'11.3"	2	43	-	Dk olive grey (5 y 3/2) sltly muddy shelly sand
333 GR	29°09'08.2"	153°30'19.6"	2	35	-	Olive brown (2.5 y 4/4) c.gr.v. shelly sand
334 GR	29°08'05.5"	153°30'07.6"	2	38	-	Brown (7.5 y 4/4) v.c.gr.v. shelly sand
335 GR	29°08'07.7"	153°31'17.6"	2	43	-	Olive brown (2.5 y 4/2) f-m.gr. sand
336 GR	29°08'07.6"	153°32'23.2"	2	48	-	Dk. olive grey (2.5 y 3/2) f.gr. sltly shelly sand
337 GR	29°08'10.3"	153°33'31.9"	2	53	-	Dk. olive grey (2.5 y 3/2) f.gr. sltly shelly & muddy sand
338 GR	29°08'05.7"	153°34'44.3"	2	52	-	Olive brown (2.5 y 4/4) f.gr. shelly sand
339 GR	29°08'07.3"	153°35'50.3"	2	54	-	Olive brown (2.5 y 4/2) f.gr. sltly shelly sand
340 GR	29°08'05.3"	153°36'54.5"	2	59	-	Olive brown (2.5 y 4/4) f.gr. sand
341 GR	29°08'08.7"	153°38'07.3"	2	61	-	Olive brown (2.5 y 3/2) f.gr. sand
342 KH	29°10'20.9"	153°53'05.2"	2	58	170	Greyish brown (2.5 y 5/2) to olive grey (5 y 4/2) shelly sands.
343 KH	29°10'27.7"	153°35'24.4"	2	59	270	0-180: Grey (2.5 y 4/4 - 2.5 y 3/2) m.gr. shelly sands; 180-210: V. dk. grey muddy sands (2.5 y 3/0); 210-270: Grey (2.5 y 3/2) f.gr. sands c some small shell frags.
344 KH	29°10'27.7"	153°35'45.2"	2	57	300	0-70: Brown (2.5 y 4/4) f-m.gr. sand c sparse shell frags.; 70-260: Olive brown (2.5 y 3/2) f-m.gr. sand c sparse shell frags. passing down into 260-300: Brown (2.5 y 5/4) f-m.gr. sltly shelly sand. Few small pebbles & c shells at base.
345 KH	29°10'28.7"	153°36'02.8"	2	59	320	Grey brown & olive brown f-m.gr. shelly sands throughout.
346 KH	29°10'27.8"	153°36'22.6"	2	59	240	0-143: Greyish brown (2.5 y 5/2) f-m.gr. shelly sands; 143-240: Dk grey (5 y 4/1) f.gr. sands c variable shell content - very shelly 210-240.

STATION NUMBER/ EQUIPMENT*	POSITION S	POSITION E	AREA	CORRECTED WATER DEPTH (m)	RECOVERY (CORES) (cm)	SEDIMENT DESCRIPTION
347 KH	29°10'33.5"	153°36'45.2"	2	61	172	0-122: Greyish brown (2.5 y 5.5/2) f-m.gr. shelly sands; 122-172: Dk. grey (5 y 4/1) f.gr. shelly sands.
348 KH	29°10'48.7"	153°30'10.4"	2	41	260	0-120: V. dk. grey (5 y 3/1) sltly muddy shelly f-m.gr. sands; 120-150: Coarse shell hash; 150-203: Dk grey & v.dk. grey (2.5 y 4/0 & 2.5 yr 3/0) sltly muddy shelly sands c rounded pebbles & large shell frags. towards base; 203-260: Dk. grey (2.5 y 4/0) f.gr. sand.
349 KH	29°10'52.7"	153°32'12.8"	2	52	310	0-270: V. dk. grey (5 y 3/1) sltly muddy shelly f.gr. sand; 270-310 Dk. grey (5 y 4/1) f-v.f.gr. sand
350 GK	29°06'05.0"	153°38'02.9"	2	59	1040	0-560: Lt yellowish brown (2.5 y 6/4) m.gr. shelly qtz sands; 560-700: Shelly gravel with "b'rock" bands, leached shells & basement pebbles; 700-970: Yellowish olive (2.5 y 6/4) f-m.gr. sand c some "b'rock" concretions; 970-1040: Muddy grey brown, (10 yr 6/4) sltly mottled sand c shelly gravel inc. basement pebbles.
351 KH	29°08'31.1"	153°36'23.5"	2	55	100	Brown shelly m.gr. sand
352 GK	29°08'30.7"	153°37'00.6"	2	60	950	0-535: lost off core barrel; 535-950: Yellowish olive to olive grey (5 y 5/3 - 5 y 5/2.5) f-m.gr. sand c minor bleached shell matl. & some "b'rock" concretions.
353 GK	29°08'25.1"	153°38'49.5"	2	66	0	
353 GR	29°08'25.1"	153°38'49.5"	2	66	-	Brown (2.5 y 4/4) shelly sand
354 GR	29°09'32.0"	153°38'34.4"	2	67	-	Brown (2.5 y 4/2) m-gr. clean shelly sand
355 GK	29°06'01.6"	153°36'12.4"	2	52	1150	0-408: Lt yell. brown-brn grey (2.5 y 6/4 - 6/2) f.-m.gr. shelly sand; 408-540: Lt olive grey (5 y 5/2) f-m.gr. sltly shelly sand; 540-612: Olive grey-dk grey m. & c.gr. sltly shelly sands c minor gravel & pebbles; 612-630: Dk grey (2.5 y 4/0) f-m.gr. sltly shelly sand, c. shell layer at base; 630-642:

STATION NUMBER/ EQUIPMENT*	POSITION S	POSITION E	AREA	CORRECTED WATER DEPTH (m)	RECOVERY (CORES) (cm)	SEDIMENT DESCRIPTION
						Intermixed lenses of v. dk grey-black clay & f.gr. sand; 642-655: Black organic-rich clay c wood frags; 655-740: Dk. grey f.-gr.v. sltly shelly qtz sand, abun. wood; 740-800: v. dk. grey (2.5 y 3/0) organic-rich f.gr. sands; 800-1050: Grey (2.5 y 6/0) f.gr. sltly mottled qtz sand; 1050-1150: Interbedded black clays & dk. grey sands, wood frags, common.
356 KH	29°06'01.8"	153°37'16.7"	2	56	120	Greyish brown (2.5 y 5/2) shelly sands
357 KH	29°06'01.9"	153°35'34.8"	2	55	105	0-90: Lt olive brown (2.5 y 5/4) to lt yell. brown (2.5 y 6/4) c.gr.v. shelly sands; 90-105: c. shell hash cont. small round. pebbles & "b'rock" frags.
358 KH	29°06'01.6"	153°35'08.9"	2	50	140	0-20 & 22-140: Olive grey (5 y 4/2) - dk. olive grey (5 y 3/2) shelly f.-m.gr. sands; shell hash 20-22.
359 TVS						
360 GK	29°04'38.8"	153°33'31.9"	2	45	0	Bit lost.
360 KH	29°04'38.8"	153°33'31.9"	2	45	20	Olive grey (5 y 4/2) shelly f.gr. sand
361 KH	29°04'38.5"	153°33'30.1"	2	45	135	0-30: Lt olive brown (2.5 y 5/4) m-c.gr. shelly sands; 30-40: m.-gr.; 40-60: c.-gr.; 60-110: f.gr. dk grey (2.5 y 4/0) shelly sands; 110-135: f.gr. dk grey (2.5 y 4/0) shelly sands, - abund. frag. shell matl.
362 KH	29°04'34.6"	153°33'51.2"	2	46	200	Dk olive grey (5 y 3/2) m.gr. shelly sands
363 GK	29°04'35.4"	153°35'03.7"	2	54	580	0-265: Dk olive grey (5 y 3/3) f-m.gr. shelly sand; 265-285: Pebbly & shelly c. sand & gravel; 285-350: v. dk. olive grey (5 y 3/1) m.gr. sand; 350-550: Dk. grey-black sandy mud: 550-580: Dk grey-black (5 y 2.5/1) muddy sand
364 GK	29°06'20.9"	153°38'33.8"	2	62	360	0-50: Lt brown (2.5 y 5/4) shelly m.gr. sand; 50-80: c. shelly layer; 80-150: Greyish brown (2.5 y 5/2) f-m.gr. shelly sand; 150-165: Lt brown (2.5 y 5/4) c. shelly sand; 165-260: Greyish brown f.gr.

STATION NUMBER/ EQUIPMENT*	POSITION S	POSITION E	AREA	CORRECTED WATER DEPTH (m)	RECOVERY (CORES) (cm)	SEDIMENT DESCRIPTION
						sltly shelly sand; 260-280: c-v.c. shelly sand c large shell frags., gravel and couple round. pebbles; 280-360: Grey-dk grey (5 y 5/1 - 4/1) sltly shelly f.gr. sands.
365 GR	29°07'17.0"	153°40'44.9"	2	80	-	Brown (2.5 y 4/4) c.gr. carbonate sand
366 GR	29°06'56.2"	153°40'50.0"	2	79	-	Dk greyish brown (2.5 y 4/3) c. carbonate sand
367 GR	29°06'45.2"	153°40'49.6"	2	79	-	" " " " "
368 GR	29°06'29.3"	153°40'45.8"	2	75	-	" " " " "
369 GR	29°06'20.0"	153°40'53.2"	2	76	-	Traces only. Brown carb. sand
370 GR	29°06'12.5"	153°40'47.9"	2	76	-	Brown c. carb. sand
371 GR	29°05'58.1"	153°40'51.2"	2	75	-	Brown (2.5 y 4/2) c.-v.c. carb. sand
372 GR	29°05'43.0"	153°40'51.2"	2	76	-	Brown (2.5 y 4/2) c.gr. carb. sand
373 GR	29°05'36.7"	153°40'50.1"	2	78	-	Brown (2.5 y 4/2) c.-v.c. carb. sand
374 GR	29°05'23.5"	153°40'48.8"	2	78	-	Brown (2.5 y 4/2) c. carb. sand
375 GK	28°48'24.7"	153°40'08.9"	2	60	280	0-182: Lt. yellowish brown-brown. yell. (2.5 y 6/4 - 10 yr 6/6) shelly sands, coarser towards base; 182- 280: Dk grey c.gr. shelly sands - shell hash; 280: Hard silicified calcarenite layer.
376 GK	28°48'15.8"	153°41'46.4"	2	60	800	0- 200: Brown (10 yr 5/8) m.-c.gr. shelly sand; 200-410: Olive m.gr. sltly shelly sand; 410-480: Conglomerate c pebbly sand & muddy sand. Cobbles to 10 cm diam. - qtzte, "b'rock", silicified lst etc.; 480-530: Grey (10 yr 5/1) m.gr. shelly sand; 530-800: Grey (10 yr 5/1) c.gr. shelly sand c couple of "b'rock" layers.
377 GK	28°48'23.5"	153°40'53.5"	2	58	0	Core lost
378 GK	28°46'11.3"	153°38'40.9"	2	50	0	Core lost
379 KD			2	78	5 kg	Hard partly ferrug. "b'rock" calcarenite. ? silicified. Couple of round. qtzite pebbles.
380 KD			2	80	4 kg	" "
381 KD			2	80	10 kg	" "
382 GR	28°49'11.8"	153°37'26.2"	2	31	-	Olive brown (2.5 y 3/2) f-m.gr. sand
383 GR	28°48'12.4"	153°37'44.4"	2	33	-	Olive brown (2.5 y 3/2) f-m.gr. sand

STATION NUMBER/ EQUIPMENT*	POSITION S	POSITION E	AREA	CORRECTED WATER DEPTH (m)	RECOVERY (CORES) (cm)	SEDIMENT DESCRIPTION
384 GR	28°47'10.9"	153°37'54.1"	2	35	-	Olive brown (2.5 y 3/2) f.gr. sand
385 GR	28°46'14.0"	153°38'07.0"	2	38	-	Olive brown (2.5 y 3/2) f.gr. sltly shelly sand
386 GR	28°45'14.0"	153°38'21.3"	2	39	-	Olive brown (2.5 y 3/2) f.gr. sltly shelly sand
387 GR	28°44'14.5"	153°38'31.8"	2	39	-	Olive brown (2.5 y 3/2) f.gr. sltly shelly sand
388 GR	28°43'15.8"	153°38'45.1"	2	38	-	Olive brown (2.5 y 3/2) f.gr. sltly shelly sand
389 GR	28°42'16.6"	153°38'56.9"	2	35	-	Olive brown (2.5 y 3/2) f.gr. sltly shelly sand
390 GR	28°41'16.8"	153°39'11.8"	2	34	-	Olive brown (2.5 y 3/2) f.gr. sltly shelly sand
391 GR	28°40'15.5"	153°39'22.6"	2	34	-	Yellow brown (2.5 y 5/4) f.gr. sand
392 GR	28°39'21.4"	153°39'37.4"	2	32	-	Yellow brown (2.5 y 5/4) f.gr. sand
393 GR	28°39'05.5"	153°38'58.7"	2	25	-	Yellow brown (2.5 y 5/4) f.gr. sand
394 GR	28°40'06.7"	153°38'46.1"	2	24	-	Yellow brown (2.5 y 5/4) f.gr. sand
395 GR	28°41'20.0"	153°38'21.1"	2	27	-	Yellow brown (2.5 y 4/2) f.gr. sand
396 GR	28°42'09.0"	153°38'20.5"	2	28	-	Yellow brown (2.5 y 4/2) f.gr. sand
397 GR	28°43'00.7"	153°38'09.1"	2	30	-	Yellow brown (2.5 y 4/2) f.gr. sand
398 GR	28°44'01.3"	153°37'56.7"	2	32	-	Olive brown (2.5 y 3/2) f.gr. sand
399 GR	28°45'00.4"	153°37'44.3"	2	33	-	Olive brown (2.5 y 3/2) f.gr. sand
400 GR	28°46'00.1"	153°37'29.7"	2	33	-	Olive brown (2.5 y 3/2) f.gr. sand
401 KH	28°46'06.5"	153°38'02.0"	2	38	100	Olive grey (5 y 4/2) sltly shelly sands f.gr.
402 KH	28°44'19.4"	153°38'11.3"	2	34	0	No recovery
402 GR	28°44'19.4"	153°38'11.3"	2	34	-	Olive grey (5 y 4/2) f.gr. sand sltly shelly
403 GR	28°44'19.1"	153°38'10.6"	2	18	-	Olive brown (5 y 4/3) f.gr. sand
404 GR	28°47'30.6"	153°36'21.4"	2	22	-	Olive brown (5 y 4/3) f.gr. sand
405 GR	28°46'43.6"	153°36'46.3"	2	25	-	Olive brown (5 y 4/2) f.gr. sand
406 GR	28°45'48.4"	153°36'56.5"	2	25	-	Olive brown (5 y 4/2) f.gr. sand
407 GR	28°44'49.1"	153°37'14.5"	2	23	-	Olive brown (5 y 4/2) f.gr. sand
408 GR	28°43'53.3"	153°37'25.9"	2	21	-	Olive brown (5 y 4/2) f.gr. sand
409 GR	28°42'00.6"	153°38'02.5"	2	20	-	Olive brown (5 y 4/2) f.gr. sand
410 GR	28°40'53.7"	153°38'05.9"	2	20	-	Olive brown (5 y 4/2) f.gr. sand
411 KH	28°01'27.1"	153°35'09.7"	3	53	195	0-100: Or. grey (5 y 6/2) - lt yell. brown (2.5 y 6/4) f.gr. sltly shelly qtz sand; 100-135: f-m.gr. sand c c. shell matl., granules, rounded "b'rock" & other pebbles. 135-195: Lt. yellowish brown (2.5 y 6/4) f-m. grading into f-u.f. qtz sands, traces f. frag. shell matl.

STATION NUMBER/ EQUIPMENT*	POSITION S	POSITION E	AREA	CORRECTED WATER DEPTH (m)	RECOVERY (CORES) (cm)	SEDIMENT DESCRIPTION
412 GK	28°01'25.4"	153°35'11.3"	3	53	535	0-90: Olive grey (5 y 5/2) f-v.f.gr. sltly shelly sands; 90-158: Olive grey (5 y 5/2) - lt yell. brown (2.5 y 6/4) f-m.gr. shelly sand; 158-270: Lt yell. brown - light grey (5 y 5.5/2) f.gr. sand; 270-290 light olive grey (5 y 5.5/2) f-m.gr. sand; 290-312: m. & c.gr. shelly sand; 312-335: Black f.gr. organic-rich sand; 335-400: Olive grey & brown mottled sandy mud; 400-412: Grey muddy sand; 412-478: Grey - light yell. brown f. sand; 478-513: Yellowish brown m-c.gr. sand c large cemented pebbles; 513-535: Greyish brown sltly shelly f.gr. sand.
413 GK	28°01'26.2"	153°34'45.0"	3	51	643	0-150: lost off top of core barrel; 150-174: Lt yellowish grey - grey f.-m.gr. sltly shelly sand; 172-174: shelly layer; 174-178: Grey sandy mud; 178-184: Black organic-rich mud; 184-266: Grey clay with brown concretions; 266-284: v.dk. grey clayey sand; 284-470: Grey m.-g.gr. sands; 470-515: V.dk. grey f.gr. muddy sands; 515-548: D. grey muddy m.-c.gr. shelly sands; 548-616: Dk. grey f.gr. shelly muddy sands; 616-643: v. shelly muddy dk grey sand.
414 GR	29°20'35.5"	153°22'38.4"	2	23	-	Yellowish brown (7.5 yr) m-c.gr. sltly shelly qtz sand
415 GR	29°20'01.0"	153°22'44.6"	2	25	-	Rhyolite covered in algae, barn. & crinoids
416 GR	29°19'34.7"	153°22'50.0"	2	24	-	Olive f.gr. sand
417 GR	29°19'06.8"	153°22'56.6"	2	24	-	Lt. olive brown (2.5 y) f.gr. sand
418 GR	29°18'39.1"	153°23'02.8"	2	25	-	Dk. greyish brown (2.5 y) f.gr. sand. Minor wood
419 GR	29°18'09.8"	153°23'07.5"	2	26	-	Dk. greyish brown (2.5 y) f.gr. sand
420 GR	29°17'40.3"	153°23'15.2"	2	27	-	Dk. greyish brown (2.5 y) f.gr. sand
421 GR	29°17'13.0"	153°23'20.3"	2	27	-	Dk. greyish brown (2.5 y) f.gr. sand
422 GR	29°16'37.9"	153°23'27.2"	2	28	-	Dk. greyish brown (2.5 y) m.gr. sand
423 GR	29°15'49.4"	153°23'37.0"	2	27	-	Olive brown (2.5 y) m.gr. sand

STATION NUMBER/ EQUIPMENT*	POSITION S	POSITION E	AREA	CORRECTED WATER DEPTH (m)	RECOVERY (CORES) (cm)	SEDIMENT DESCRIPTION
424 GR	29°15'04.2"	153°23'46.4"	2	27	-	Olive brown (2.5 y) m.gr. sand
425 GR	28°50'30.4"	153°37'02.0"	2	21	-	Greyish brown (2.5 y 5/2) f.gr. sand
426 GR	28°50'08.1"	153°37'05.3"	2	22	-	Greyish brown (2.5 y 5/2) f.gr. sand
427 GR	28°49'39.7"	153°37'06.6"	2	23	-	Greyish brown (2.5 y 5/2) f.gr. sand
428 GR	28°49'12.2"	153°37'04.4"	2	24	-	Lt. greyish brown (2.5 y 6/2) f.gr. sand
429 GR	28°48'38.5"	153°37'02.0"	2	24	-	Lt. greyish brown (2.5 y 6/2) f.gr. sand
430 GR	28°48'10.0"	153°36'58.8"	2	24	-	V.C. shell hash containing pebbles
431 GR	28°47'42.5"	153°36'57.8"	2	23	-	Lt. greyish brown (2.5 y 6/2) f.gr. sand
432 GR	28°48'38.1"	153°37'34.7"	2	34	-	c. shell hash
433 GR	28°49'03.5"	153°37'34.2"	2	33	-	Dk. greyish brown (2.5 y 4/2) f.gr. sand
434 GR	28°49'30.8"	153°37'29.9"	2	32	-	Dk. greyish brown (2.5 y 4/2) f.gr. sand
435 GR	28°50'04.3"	153°37'27.3"	2	32	-	Lt. brownish grey (2.5 y 6/2) v.c. shelly sand
436 GR	28°50'33.4"	153°37'27.1"	2	34	-	Lt. brownish grey (2.5 y 6/2) v.c. shelly sand
437 KH	28°48'22.7"	153°38'12.2"	2	44	215	0-120: Greyish brown f.gr. sands c some shell matl.; 120-160: Olive yellow v.c.gr. shelly sand & gravel; 160-215: Dk. grey f.gr. sand
438 KH	28°49'12.0"	153°37'22.0"	2	30	245	0-75: Olive grey f-m.v. slightly shelly sand; 75-130: Dk. grey - olive grey f.-m.gr. sand; 130-135: Dk. grey mud; 135-165: Dk. grey f.gr. mud c lenses of small gast. & pebbles; 165-185: Dk grey f. sand c scatt. gast.; 185-190: Dk grey v. shelly sand; 190-245: Dk. grey shelly f.gr. sand
439 GR	28°49'12.2"	153°37'21.2"	2	30	-	Olive f.gr. sand
440 GR	28°48'55.9"	153°37'45.3"	2	37	-	Olive grey (5 y 4/2) f.gr. sand
441 KH	28°48'56.3"	153°37'44.6"	2	37	250	0-185: Dk. grey (2.5 y 4/0) v. sltly silty & shelly f.gr. sand c traces of wood; 185-250: Dk. grey (2.5 yr 4/0) f.-v.f. sand. Traces of biog. carb.
442 GR	28°41'27.2"	153°37'57.8"	2	21	-	Greyish brown f.gr. sand.
443 KH	28°41'27.4"	153°37'58.1"	2	21	200	0-140: Grey (2.5 y 5/0) f.gr.v. sltly shelly sand, shell hash at 90 and 95; 140-175: c.gr. shell hash, rounded pebbles; 175-200: Grey (2.5 y 5/0) f.gr.v. sltly shelly sand.

STATION NUMBER/ EQUIPMENT*	POSITION S	POSITION E	AREA	CORRECTED WATER DEPTH (m)	RECOVERY (CORES) (cm)	SEDIMENT DESCRIPTION
444 GR	28°40'28.1"	153°38'14.5"	2	22	-	Greyish brown (2.5 y 5/2) f.gr.v. sltly shelly sand
445 KH	28°40'30.6"	153°38'14.3"	2	22	225	0-135: Grey (2.5 y 5/0) f.gr. sltly shelly sands; 135-180: As above but c lenses of shell matl.; 180-225: Grey (2.5 y 5/0) f.gr. sltly shelly sands.
446 GR	28°40'46.9"	153°37'40.9"	2	17	-	Greyish brown (2.5 y 4/2) f.gr.v. sltly shelly sand
447 KH	28°40'48.2"	153°37'41.8"	2	17	126	0-75: Dk greyish brown (2.5 y) sltly shelly f.gr. sand; 75-100: Shell hash & gravel, pebbles; 100-126: Dk. grey f.gr. sand c a no. of large shell frags. & pebbles.
448 GR	28°40'51.2"	153°38'34.9"	2	17	-	Dk. greyish brown f.gr. sand
449 KH	28°40'51.4"	153°38'35.9"	2	24	175	0-5: Lt olive brown f-m.gr. qtz sand; 5-55: Dk. brownish grey f.gr. sand; 55-120: Dk. brownish grey f.gr. sand; 120-125: Shell bed; 125-175: Dk. grey f.gr. sands.
450 GR	28°42'06.2"	153°37'41.5"	2	17	-	Dk greyish brown (2.5 y 4/2) f.gr. sand
451 GR	28°41'35.6"	153°37'32.9"	2	15	-	" " " "
452 GR	28°41'03.2"	153°37'42.8"	2	18	-	" " " "
453 GR	28°46'37.7"	153°37'50.4"	2	18	-	" " " "
454 GR	28°40'07.4"	153°37'58.9"	2	18	-	" " " "
455 GR	28°39'39.1"	153°38'07.9"	2	17	-	" " " " . Couple of pebbles
456 GR	28°39'12.4"	153°38'17.2"	2	17	-	Dk. greyish brown (2.5 y 4/2) f.gr. sand
457 GR	28°39'36.0"	153°38'28.7"	2	20	-	" " " " "
458 GR	28°40'04.7"	153°38'37.7"	2	23	-	Greyish brown (2.5 y 5/2) f.gr. sand
459 GR	28°40'32.8"	153°38'50.3"	2	27	-	" " " "
460 GR	28°41'07.0"	153°38'59.9"	2	30	-	" " " "
461 GR	28°41'56.0"	153°39'25.6"	2	45	-	" " " "
462 KH	28°41'56.4"	153°39'24.9"	2	45	50	Greyish brown f.qtz sand below 10 cm of lt olive brown f. qtz sand
463 GR	28°46'26.7"	153°39'57.5"	2	52	-	Yellow sltly shelly m.gr. qtz sand
464 KH	28°40'27.4"	153°39'58.8"	2	51	125	0-70: Olive yellow m.gr. qtz sand; 70-95: m-c.gr. shelly sand; 95-125: m-c.gr. shelly - v. shelly sands. Rounded pebble at base.

STATION NUMBER/ EQUIPMENT*	POSITION S	POSITION E	AREA	CORRECTED WATER DEPTH (m)	RECOVERY (CORES) (cm)	SEDIMENT DESCRIPTION
465 GR	28°39'43.5"	153°38'12.3"	2	18	-	Greyish brown v. sltly shelly f.gr. sand
466 KH	28°39'46.7"	153°38'15.9"	2	19	0	No recovery
466 GK	28°39'46.7"	153°38'15.9"	2	19	735	0-2: Dk grey mud; 2-150: Dk greyish brown f.gr. qtz sand, light brownish grey downwards; 150-180: Greyish brown f.gr. sand; 180-220: Shell deposit; 220-440: Greyish brown lt brownish grey f. sands, couple of pebbles 220-245; 445-735: Olive grey fine sands.
467 GR	28°39'55.6"	153°38'01.7"	2	18	-	Dk. greyish brown (2.5 y 4/2) f.gr. sand
468 GR	28°39'27.7"	153°38'19.1"	2	18	-	Dk. greyish brown (2.5 y 4/2) f.gr. sand
469 GR	28°38'59.9"	153°38'31.3"	2	19	-	Dk. greyish brown (2.5 y 4/2) f.gr. sand
470 GR	28°38'25.3"	153°38'49.8"	2	23	-	Greyish brown f.-m.gr. sand. Sltly shelly
471 GR	28°38'15.4"	153°38'53.6"	2	32	-	Lt brownish grey (2.5 y 6/2) f.-m.gr. qtz sand
472 GR	28°38'07.7"	153°38'54.4"	2	38	-	Lt brownish grey (2.5 y 6/2) f.-m.gr. qtz sand
473 GR	28°38'06.1"	153°38'57.4"	2	41	-	Lt brownish grey (2.5 y 6/2) f.-m.gr. sltly shelly sand
474 GR	28°37'49.0"	153°39'02.2"	2	46	-	Greyish brown (2.5 y 5/2) f.-m.gr. shelly sand
475 GR	28°38'08.7"	153°39'13.7"	2	43	-	Greyish brown (2.5 y 5/2) f.-m.gr. shelly sand
476 GR	28°38'18.7"	153°39'10.7"	2	39	-	Greyish brown f-m.gr. shelly sand
477 GR	28°38'27.6"	153°39'09.4"	2	33	-	Lt. brownish grey (2.5 y 6/2) f.-m.gr. sltly shelly sand
478 GR	28°38'31.6"	153°39'04.0"	2	29	-	Lt. brownish grey (2.5 y 6/2) f-m.gr. sltly shelly sand
479 GR	28°38'38.9"	153°38'59.2"	2	24	-	Lt. brownish grey (2.5 y 6/2) f-m.gr. sltly shelly sand
480 GR	28°36'15.1"	153°35'57.7"	2	23	-	Dk greyish brown (2.5 y 4/2) sltly shelly f.gr. sand
481 GR	28°35'22.0"	153°35'31.6"	2	25	-	Dk greyish brown (2.5 y 4/2) sltly shelly f.gr. sand
482 GR	28°34'26.0"	153°35'06.0"	2	26	-	Greyish brown (2.5 y 5/2) f-m.gr. sltly shelly sand
483 GR	28°33'32.9"	153°34'38.8"	2	25	-	Greyish brown (2.5 y 5/2) f.gr. sand
484 GR	28°32'08.2"	153°35'14.4"	2	34	-	Olive yellow f-m.gr. sltly shelly sand

STATION NUMBER/ EQUIPMENT*	POSITION S	POSITION E	AREA	CORRECTED WATER DEPTH (m)	RECOVERY (CORES) (cm)	SEDIMENT DESCRIPTION
485 GR	28°33'10.2"	153°35'40.6"	2	33	-	Greyish brown v. sltly shelly sand
486 GR	28°34'03.4"	153°36'08.9"	2	33	-	Greyish brown f.gr. sand
487 GR	28°35'00.0"	153°36'37.9"	2	33	-	Greyish brown f.gr. sand
488 GR	28°38'59.1"	153°38'33.4"	2	19	-	Greyish brown f.gr. sand
489 KH	28°38'57.2"	153°38'35.4"	2	19	160	0-10: Lt. olive brown f.gr. qtz sand; 10-120: Dk. greyish brown f.gr. sand; 120-150: Dusky red shell-rich sand, some pebbles; 150-160: Dk grey brown f.gr. shelly sand
490 GR	28°39'28.5"	153°38'12.4"	2	17	-	Lt brownish grey (2.5 y 6/2) f.gr. qtz sand
491 KH	28°39'29.2"	153°38'11.6"	2	17	80	0-70: Grey (2.5 y 5/0) f.gr. sltly shelly sands; 70-80: V. c. shelly sands, pebbles
492 GR	28°33'02.8"	153°40'50.8"	2	55	-	Brown (10 yr 5/6) m.gr. shelly sand
493 KH	28°33'02.8"	153°40'50.5"	2	55	125	0-120: Brown (10 yr 5/6 - 10 yr 6/6) m-c.gr. shelly sand; 120-125: c. shell layer.
494 GR	28°33'05.8"	153°39'22.0"	2	48	-	Pale brown (10 yr 6/3) m.gr. sltly shelly sand
495 KH	28°33'05.0"	153°39'24.5"	2	48	100	0-20: Yellowish brown (10 yr 5/6) m.gr. sltly shelly sand; 45-100: Yellowish brown m.gr. shelly sand, local cementation.
496 KH	28°33'08.3"	153°37'48.1"	2	42	200	0-10: Lt. olive brown f.gr. sltly shelly sand; 10-120: Brownish yellow (10 yr 6/6) shelly m.gr. sand, partly cenemted 115-120; 120-190: brownish yellow m-c.gr. sand; 190-200 as above but with large shells, & pebbles.
497 KH	28°33'08.3"	153°35'31.9"	2	32	100	0-25: Olive grey sltly shelly f-m.gr. qtz sand; 25-60: m.gr. very shelly sand; 60-95: olive grey m-f.gr. shelly sand; 95-100: shell bed.
498 GR	28°38'00.5"	153°39'27.8"	2	53	-	Yellowish brown (10 yr 5/4) c.gr. shelly sand
499 GR	28°38'06.7"	153°40'33.8"	2	58	-	Yellowish brown (10 yr 5/4) c.gr. shelly sand
500 GR	28°38'01.7"	153°41'43.8"	2	63	-	Yellowish brown (10 yr 5/4) m-c.gr. shelly sand
501 GR	28°38'03.1"	153°42'49.0"	2	65	-	Yellowish brown (10 yr 5/4) v.c.gr. shelly sand
502 GR	28°38'03.1"	153°43'58.8"	2	73	-	Yellowish brown (10 yr 6/6) c. carb. sand
503 GR	28°39'05.7"	153°44'00.2"	2	72	-	Yellowish brown (10 yr 6/6) c. shelly carb. sand
504 GR	28°38'58.5"	153°42'55.4"	2	65	-	Yellowish brown (10 yr 6/6) c.gr. shelly sands

STATION NUMBER/ EQUIPMENT*	POSITION S	POSITION E	AREA	CORRECTED WATER DEPTH (m)	RECOVERY (CORES) (cm)	SEDIMENT DESCRIPTION
505 GR	28°39'01.8"	153°41'43.4"	2	62	-	Yellowish brown (10 yr 5/4) m-c.gr. shelly sand
506 GR	28°39'05.6"	153°40'36.5"	2	59	-	Yellowish brown (10 yr 5/4) c.gr. carb. sand, minor gravel
507 GR	28°39'02.1"	153°39'25.4"	2	33	-	Lt yellowish grey (2.5 y 7/2) m.gr. qtz sand
508 GR	28°40'12.5"	153°38'14.2"	2	21	-	Dk. brownish grey (2.5 y 4/2) f.gr. sand
509 GS	28°40'12.4"	153°38'13.5"	2	20	950	Grey (5 y 5/1) v. sltly shelly f.gr. sand
510 GR	28°40'02.3"	153°38'23.0"	2	21	-	Dk brownish grey (2.5 yr 4/2) f.gr. sand
511 GS	28°40'02.6"	153°38'25.3"	2	21	270	Grey (5 y 5/1) v. sltly shelly f.gr. sand
512 GR	28°39'30.0"	153°38'32.0"	2	20	-	Olive grey (5 y 5/2) f.gr. sand
513 GR	28°38'47.9"	153°38'50.3"	2	22	-	Greyish brown (2.5 y 5/2) f.gr. sand
514 GR	28°39'14.0"	153°38'39.1"	2	20	-	Greyish brown (2.5 y 5/2) f.gr. sand
515 GR	28°39'43.7"	153°38'35.0"	2	21	-	Greyish brown (2.5 y 5/2) f.gr. sand
516 GR	28°40'17.9"	153°38'28.7"	2	22	-	Greyish brown (2.5 y 5/2) f.gr. sand
517 GR	28°40'43.4"	153°38'18.2"	2	22	-	Greyish brown (2.5 y 5/2) f.gr. sand
518 GR	28°41'12.5"	153°38'12.0"	2	23	-	Greyish brown (2.5 y 5/2) f.gr. sand
519 GR	28°38'47.6"	153°38'58.9"	2	23	-	Lt brownish grey f.gr. sand (2.5 y 6/2)
520 GR	28°39'17.5"	153°38'53.2"	2	23	-	Greyish brown (2.5 y 5/2) f.gr. sand
521 GR	28°39'46.5"	153°38'44.7"	2	21	-	Greyish brown (2.5 y 5/2) f.gr. sand
522 GR	28°40'16.3"	153°38'38.6"	2	22	-	Greyish brown (2.5 y 5/2) f.gr. sand
523 GR	28°40'48.2"	153°38'31.2"	2	23	-	Greyish brown (2.5 y 5/2) f.gr. sand
524 GR	28°41'17.0"	153°38'26.8"	2	24	-	Greyish brown (2.5 y 5/2) f.gr. sand
525 GR	28°01'28.6"	153°36'43.5"	3	57	-	Yellowish brown (10 yr 5/4) shelly f-m.gr. sands
526 GR	28°01'29.5"	153°35'33.5"	3	54	-	Yellowish brown (10 yr 5/4) shelly m-gr. sand
527 GR	28°01'29.5"	153°34'26.7"	3	52	-	Olive brown f.gr. sand
528 GR	28°01'29.2"	153°33'20.9"	3	50	-	Lt. olive brown f-m.gr. sltly shelly sand
529 GR	28°01'29.0"	153°32'12.4"	3	49	-	Lt. olive brown (2.5 y 5/4) f-m.gr. sltly shelly sand
530 GR	28°01'31.4"	153°31'04.6"	3	47	-	Coralline algal & bryozoa encrusted "beach rock" & gravel
531 GR	28°01'31.7"	153°29'56.3"	3	41	-	Dk greyish brown (2.5 y 4/2) sltly shelly f.gr. sand
532 GR	28°01'29.7"	153°28'49.0"	3	35	-	Greyish brown (2.5 y 4/2) sltly shelly f.gr. sand
533 GR	28°01'30.2"	153°27'41.5"	3	29	-	Olive brown (2.5 y 5/4) f.gr. sand

STATION NUMBER/ EQUIPMENT*	POSITION S	POSITION E	AREA	CORRECTED WATER DEPTH (m)	RECOVERY (CORES) (cm)	SEDIMENT DESCRIPTION
534 GR	28°01'29.5"	153°34'04.1"	3	53	-	Olive brown (2.5 y 5/4) f-m.gr. shelly sand
535 GK	28°01'28.1"	153°34'08.5"	3	52	830	0-105: Lt. yellowish brown (2.5 y 6/4) f.gr. sand; 105-125: Shell gravel; 125-170 Very dk to dk olive grey v.f. sand c large shells, "b'rock" pebbles etc; 170-228 Dk grey (2.5 y 4/0) f.gr. sand; 228-280: Dk grey (2.5 y 4/0) m.-f.gr. sand; 280-320: Dk. greyish brown (2.5 y 4/2) m-gr. sand, sltly shelly; 320-528: Grey (2.5 y 4/1) f.gr. sand; 528-674: Grey (2.5 y 4/0) f.gr. sltly shelly sand, large shells between 570 and 590; 674-676: Dk grey (2.5 y 3/0) sandy mud overlying dk. grey muddy f.gr. sands to 690: 690-820: Mottled grey & yell. br. sandy clay & clayey sand, stiff in places.
536 GR	28°01'29.6"	153°35'04.0"	3	52	-	Lt. olive brown (2.5 y 5/4) shelly f-m.gr. sand
537 GK	28°01'26.9"	153°35'04.3"	3	52	665	0-275: Reddish yellow (7.5 yr 6/6) m-gr.v. sltly shelly sand; 275-318: Brownish yellow (10 yr 6/6) m-f.gr.v. sltly shelly sand; 318-405: Greyish brown (2.5 y 5/2) - darker downwards, m.gr. sand; 405-435: As above but c Anadura; 435-485: Dk grey (2.5 y 4/0) f.gr. sand; 480-505: V.dk. greyish brown sandy clay; 505-570: strongly mottled (brown/dk grey) sandy clay; 570-595: Olive grey (5 y 5/2) v.f. sand & clay; 595-605: clay; 605-614: Grey (5 y 5/1) v.f. sandy clay, shell layer at base; 614-665: Olive (5 y 5/4) f. sand c "b'rock" pebble at 640.
538 GR	28°01'28.4"	153°31'43.8"	3	47	-	Yellowish brown m.gr. shelly sand
539 GK	28°01'26.8"	153°31'44.1"	3	47	820	0-120: lost; 120-145: Lt yellowish brown (10 yr 6/4) partly cemented sand; 145-160: as above but pale brown (10 yr 6/3); 160-188: Fawn (10 yr 7/3) f.-m.gr. shelly sand; 188-190: C. carb. sand; 190-295: Dk grey (5 y 4/1) shelly sand; 295-390: Dk grey (5 yr 4/1) f.-m.gr. shelly sand; 390-520: Dk. grey shelly sands; 520-545: Grey (2.5 y 5/0) v.c. shelly

STATION NUMBER/ EQUIPMENT*	POSITION S	POSITION E	AREA	CORRECTED WATER DEPTH (m)	RECOVERY (CORES) (cm)	SEDIMENT DESCRIPTION
						sand - shell hash, couple of pebbles; 545-603: Grey (5 y 5/1) v.c. shell sand; 603-640: Grey (5 y 5/1) shelly f.gr. sand c large rounded "b'rock" pebbles; 640-665: Grey (2.5 y 5/0) v.c.gr. shell hash c rounded "b'rock" & other pebbles; 665-735: Dk grey (2.5 y 4/0) f-v.f.gr. partly shelly sands; 735-820: Grey pebbly v.c. shell sand.
540 GR	27°45'53.6"	153°29'58.3"	3	46	-	Olive grey (5 y 4/2) f.gr. sand
541 GK	27°45'52.7"	153°29'59.1"	3	46	902	0-240: Dk olive grey (5 y 3/2) shelly sands; 240-305: Dk olive grey (5 y 3/2) c.-m.gr. shelly sand; 305-330: Dk. greyish brown (2.5 y 4/2) m.gr. sltly shelly sand; 330-420: Dk. grey (2.5 y 4/0) sltly shelly sand; 420-575: Greyish brown (5 y 3/2) m.gr. humic sand; 575-718: Light grey (2.5 y 7/1) f.gr. sands; 718-795: Dk. greyish brown (2.5 y 4/2) f.gr. sands; 795-902 Dk. greyish brown (2.5 y 4/2) fining upward sequence - sands.
542 GR	27°45'51.0"	153°29'36.8"	3	36	-	Greyish brown (2.5 y 5/2) f.gr. sand
543 GK	27°45'51.0"	153°29'37.4"	3	36	920	0-740: Olive grey (5 y 5/2) f.gr.v. sltly shelly qtz sand; 740-900: As above, sltly darker; 900-910: v.c. sand; 910-920: Olive grey (5 y 5/2) m.gr. sand.
544 GR	27°46'00.07"	153°28'59.5"	3	26	-	Lt brownish grey (2.5 y 6/2) f.gr. sand
545 GK	27°46'00.2"	153°28'59.0"	3	26	777	0-410: Lt brownish grey (2.5 y 6/2) - grey (5 y 5/2) f.gr. sand; 410-420: As above but f-m.gr; 420-777: Grey (5 y 5/2) f.gr. sand.
546 GR	27°43'15.8"	153°28'47.6"	3	22	-	Greyish brown (2.5 y 5/2) f.gr. sand
547 GR	27°44'15.1"	153°28'45.5"	3	23	-	Greyish brown (2.5 y 5/2) f.gr. sand
548 GR	27°45'14.9"	153°29'00.5"	3	24	-	Lt. olive brown (2.5 y 5/4) f.gr. sand
549 GR	27°46'27.0"	153°28'43.7"	3	25	-	Lt. olive brown (2.5 y 5/4) f.gr. sand
550 GR	27°47'26.9"	153°28'17.9"	3	25	-	Lt. olive brown (2.5 y 5/4) f.gr. sand
551 GR	27°48'18.0"	153°27'55.4"	3	25	-	Lt. olive brown (2.5 y 5/4) f.gr. sand
552 GR	27°49'20.1"	153°27'39.3"	3	24	-	Lt. olive brown (2.5 y 5/4) f.gr. sand

STATION NUMBER/ EQUIPMENT*	POSITION S	POSITION E	AREA	CORRECTED WATER DEPTH (m)	RECOVERY (CORES) (cm)	SEDIMENT DESCRIPTION
553 GR	27°50'13.3"	153°27'12.4"	3	24	-	Lt. brownish grey (2.5 y 6/2) f.gr. sand
554 GR	27°51'09.7"	153°26'50.9"	3	22	-	Greyish brown (2.5 y 5/2) f.gr. sand
555 GR	27°51'57.2"	153°26'32.5"	3	21	-	Lt. brownish grey (2.5 y 6/2) f.gr. sand
556 GR	27°51'29.3"	153°27'39.2"	3	28	-	Lt. brownish grey f.gr. sand
557 GR	27°50'28.9"	153°27'52.7"	3	29	-	Lt. brownish grey f.gr. sand
558 GR	27°49'31.3"	153°28'05.3"	3	27	-	Lt. greyish brown f.gr. sand
559 GR	27°48'31.9"	153°28'19.5"	3	26	-	Lt. brownish grey (2.5 y 6/2) f.gr. sand
560 GR	27°47'33.3"	153°28'30.5"	3	25	-	Lt. brownish grey (2.5 y 6/2) f.gr. sand
561 GR	27°46'53.8"	153°28'16.4"	3	23	-	Lt. brownish grey (2.5 y 6/2) f.gr. sand
562 GS	27°46'58.5"	153°28'17.8"	3	23	740	Dk. greyish brown (2.5 y 4/2) f.gr. sand
563 GR	27°46'00.7"	153°28'45.0"	3	24	-	Lt. olive brown (2.5 y 5/4) f.gr. sand
564 GS	27°46'00.8"	153°28'47.4"	3	24	960	0-400: Grey (2.5 y 5/0) f.-m.gr. sand; 400-960: Grey (2.5 y 5/0) f.gr. sand
565 GR	27°46'01.6"	153°35'59.6"	3	64	-	Olive grey (5 y 4/2) f.gr. sand
566 GK	27°46'03.5"	153°36'02.6"	3	64	515	0-170: Olive grey (5 y 5/2) sltly shelly f.-gr. sands; 170-245: Olive grey (5 y 5/2) m-c.gr. shelly sand; 245-260: Olive grey (5 y 5/2) f-m.gr. sltly shelly sands; 260-267: Olive grey (5 y 5/2) c-v.c. shelly sands; 267-325: Olive grey shelly sands; 325-350: Grey (5 y 5/1) v. sltly shelly sands; 350-373: Partly cemented grey m-c.gr. shelly sands c small round. pebbles inc. "b'rock"; 373-515: stiff black (2.5 y 2.5/0) clay.
567 GR	27°46'06.6:	153°34'32.9"	3	59	-	Lt. olive brown (2.5 y 5/4) shelly m.c sand
568 GK	27°46'06.7"	153°34'36.1"	3	59	640	Sands; shelly & gravelly in places
569 GR	27°46'02.8"	153°33'07.3"	3	54	-	Brown (7.5 yr 5/8) m-c.gr. sand
570 GK	27°46'03.1"	153°33'07.9"	3	54	440	0-210: Shelly brown m.gr. sand; 210-305: Yellowish brown shelly sands; 305-330: Shelly & sltly pebbly v.c. sands; 330-375: Olive (5 y 5/4) f.gr. sands; 375-440: Lt. olive brown (2.5 y 5/6) v.f.gr. sands
571 GR	27°46'01.9"	153°31'38.1"	3	52	-	Brown (7.5 yr 5/6) shelly m.gr. sands

STATION NUMBER/ EQUIPMENT*	POSITION S	POSITION E	AREA	CORRECTED WATER DEPTH (m)	RECOVERY (CORES) (cm)	SEDIMENT DESCRIPTION
572 GK	27°46'01.9"	153°31'38.6"	3	52	665	0-120: Lt. olive brown (2.5 y 5/4) m-c.gr. sand; 120-238: Lt. yellowish brown (2.5 y 6/4) c.gr. shelly sand; 238-467: Olive grey (5 y 5/2) f-m.gr. sltly shelly sand; 467-665: Mottled f-v.f.gr. qtz sands
	27°46'56.2"	153°37'56.7"				
573 KD	27°47'30.5"	153°37'24.6"	3	74	0.5 kg	"B'rock" pebbles & biota.
	27°47'37.2"	153°37'24.6"				
574 KD	27°47'06.5"	153°37'51.2"	3	60-70	5 kg	Iron stained v.c.gr. pebbly "b'rock" & biota
575 GR	27°30'03.2"	153°31'56.4"	3	32	-	Olive (5 y 4/3) f.gr. sands
576 GR	27°30'06.2"	153°33'02.8"	3	33	-	Grey brown (10 yr 6/4) f.gr. sand
577 GR	27°30'09.9"	153°34'09.1"	3	27	-	Brownish yellow (10 yr 6/6) m-c.gr. sand
578 GR	27°30'10.3"	153°35'16.9"	3	35	-	Brownish yellow (10 yr 6/6) m-v.c.gr. sand
579 GR	27°30'12.8"	153°36'25.7"	3	55	-	Brownish yellow (10 yr 6/1) m. shelly sand
580 GR	27°28'59.3"	153°36'32.2"	3	60	-	Brownish yellow (10 yr 6/6) m.gr. shelly sand
581 GR	27°29'02.5"	153°35'55.0"	3	48	-	Yellowish brown (10 yr 5/6) shelly m.gr. sand
582 GR	27°29'01.8"	153°35'20.4"	3	39	-	Brownish yellow (10 yr 6/6) c-v.c. shelly sand
583 GR	27°29'01.2"	153°34'44.2"	3	35	-	Brownish yellow (10 yr 6/6) m-c.gr. shelly sand
584 GR	27°28'59.9"	153°34'14.8"	3	30	-	Brownish yellow (10 yr 6/6) m-c.gr. shelly sand
585 GR	27°28'59.3"	153°33'08.9"	3	27	-	Lt. yellowish brown (10 yr 6/4) f.gr. sand
586 GK	27°29'03.3"	153°33'05.6"	3	27	515	Grey (2.5 y 5.5/0) clean qtz sands c traces of carb.
587 GR	27°29'03.8"	153°33'56.8"	3	27	-	Lt. yellowish brown (2.5 y 6/4) c-v.c. sltly shelly sand
588 GS	27°29'04.3"	153°33'58.6"	3	27	950	0-45: Lt. yellowish grey (2.5 y 7/2) m.-c.gr. sltly shelly sand; 45-85: Grey c.gr. shelly sand; 85-950: Grey (2.5 y 5.5/0) f-m.gr.v. sltly shelly sand.
589 GR	27°28'50.2"	153°31'53.5"	3	23	-	Greyish brown (2.5 y 5/2) f.gr. sand
590 GR	27°28'39.5"	153°32'32.5"	3	25	-	Greyish brown (2.5 y 5/2) f.gr. sand
591 GR	27°28'22.6"	153°32'56.8"	3	25	-	Lt. brownish grey (2.5 y 6/2) f.gr. sand
592 GR	27°28°10.8"	153°33'23.5"	3	22	-	Lt. brownish grey (2.5 y 6/2) f.gr. sand
593 GR	27°28'00.3"	153°33'57.3"	3	27	-	Pale yellow (2.5 y 7/4) c.-v.c. shelly sand
594 GR	27°27'46.0"	153°34'27.8"	3	38	-	Lt. brownish grey (2.5 y 6/2) v. shelly c.gr. sand

STATION NUMBER/ EQUIPMENT*	POSITION S	POSITION E	AREA	CORRECTED WATER DEPTH (m)	RECOVERY (CORES) (cm)	SEDIMENT DESCRIPTION
595 GR	27°27'26.2"	153°34'49.4"	3	49	-	Yellowish brown (10 yr 5/6) shelly m-c.gr. sand
596 GR	27°27'10.7"	153°35'20.4"	3	53	-	Yellowish brown (10 yr 5/6) shelly m-c.gr. sand
597 GR	27°26'54.1"	153°35'49.6"	3	61	-	Yellowish brown (10 yr 5/6) sltly shelly sand
598 GR	27°26'55.3"	153°35'56.6"	3	61	-	Yellowish brown (10 yr 5/6) sltly shelly m-c.gr. sand
599 GR	27°26'52.9"	153°35'15.9"	3	54	-	Yellowish brown (10 yr 5/6) shelly m.gr. sand
600 GR	27°26'54.4"	153°34'45.8"	3	54	-	Yellowish brown (10 yr 5/6) shelly m.gr. sand
601 GR	27°26'50.2"	153°34'03.4"	3	32	-	Brownish yellow (10 yr 6/6) f-c.gr. shelly sand
602 GR	27°26'54.4"	153°33'34.7"	3	22	-	Yellowish brown (10 yr 5/6) m-c.gr. qtz sand
603 GR	27°26'51.9"	153°33'02.8"	3	20	-	Brownish yellow (10 yr 6/6) f.gr. sand
604 GR	27°27'56.5"	153°32'23.2"	3	26	-	Brown (2.5 y 5/3) f.gr. sand
605 GR	27°27'58.4"	153°32'58.7"	3	21	-	Brown (2.5 y 5/3) f.gr. sand
606 GR	27°27'59.0"	153°33'28.5"	3	21	-	Lt. yellowish brown (10 yr 6/4) f-m.gr. sand
607 GR	27°28'00.1"	153°34'04.6"	3	29	-	Brownish yellow (10 yr 6/6) shelly m.-c.gr. sand
608 GR	27°28'02.3"	153°34'36.5"	3	39	-	Brownish yellow (10 yr 6/6) shelly m-c.gr. sand
609 GR	27°28'00.5"	153°35'10.2"	3	46	-	Brownish yellow (10 yr 6/6) sltly shelly m.gr. sand
610 GR	27°28'00.9"	153°35'45.4"	3	49	-	Brownish yellow (10 yr 6/6) m-v.c.gr. sand
611 GR	27°28'04.4"	153°36'21.2"	3	59	-	Brownish yellow (10 yr 6/6) m-v.c. shelly sand
612 GR	27°31'03.3"	153°36'09.4"	3	43	-	Brownish yellow (10 yr 6/6) m.gr. sand
613 GR	27°31'01.5"	153°35'35.6"	3	39	-	Brownish yellow (10 yr 6/6) c.gr. sand
614 GR	27°30'59.9"	153°34'55.6"	3	30	-	Brownish yellow (10 yr 6/6) f-m.gr. sand
615 GR	27°31'00.7"	153°34'24.3"	3	28	-	Brownish yellow (10 yr 6/6) m.gr. sand
616 GR	27°30'59.6"	153°33'54.4"	3	29	-	Brownish yellow (10 yr 6/6) f.gr. sand
617 GR	27°30'54.5"	153°33'20.6"	3	35	-	Yellowish brown (10 yr 5/4) f.gr. sand
618 GR	27°31'02.1"	153°32'47.4"	3	38	-	Olive grey (5 y 4/2) f.gr. sand
619 GR	27°30'57.4"	153°32'10.7"	3	36	-	Olive grey (5 y 4/2) f.gr. sand
620 GR	27°30'59.2"	153°31'37.1"	3	31	-	Lt olive brown (2.5 y 5/4) f.gr. sand
621 UW	25°20'40.1"	153°28'03.1"	4	54	-	Lt olive brown (2.5 y 5/4) f.gr. sand
622 UW	25°14'43.4"	153°29'57.5"	4	53	-	Brown (10 yr 6/4) c-v.c. carb. sand
623 UW	25°10'40.2"	153°31'21.2"	4	52	-	Brown (10 yr 7/6) v.c. carb. shelly sand
624 UW	25°08'01.6"	153°32'16.1"	4	56	-	Brown (10 yr 7/6) v.c. carb. sand
625 UW	25°05'08.9"	153°33'15.5"	4	48	-	Shell gravel coralline algal frags.
626 UW	25°09'52.3"	153°29'11.5"	4	53	-	Shell gravel & c. sand with red algal frags.

STATION NUMBER/ EQUIPMENT*	POSITION S	POSITION E	AREA	CORRECTED WATER DEPTH (m)	RECOVERY (CORES) (cm)	SEDIMENT DESCRIPTION
627 UW	24°59'21.8"	153°35'13.1"	4	87	-	C. carb. sand, algal nodules, some "b'rock"
628 UW	24°57'21.7"	153°36'03.7"	4	157	-	Olive (5 y 5/3) sltly muddy m.gr. carb. sand
629 UW	24°57'22.2"	153°33'41.2"	4	62	-	Coralline algae
630 UW	24°57'19.0"	153°31'48.0"	4	54	-	Coralline algae
631 UW	24°57'17.8"	153°29'37.9"	4	29	-	C. carb. sand & coralline algae gravel
632 UW	24°57'20.3"	153°27'17.8"	4	39	-	C. carb. sand & coralline algae gravel
633 UW	24°57'12.6"	153°24'51.8"	4	37	-	Coralline algal encrusted "b'rock"
634 UW	24°57'13.9"	153°22'26.2"	4	35	-	Lt. yellowish brown sltly shelly & pebbly v.f.gr. sand
635 GR	25°42'29.7"	153°16'21.5"	4	48	-	Olive brown (2.5 y 4/4) shelly m.-c.gr. sand
636 GK	25°42'31.7"	153°16'16.4"	4	49	400	0-30: Olive grey (5 y 5/2) f-m.gr. shelly sand, shell hash at base; 30-105: Olive grey (5 y 5/2) sltly muddy & shelly m.gr. sand; 105-185: Dk. grey (5 y 4/1) muddy shelly sands; 185-284: Very dk grey (2.5 y 3/0) muddy organic-rich sands; 284-355: Stiffly mottled sltly sandy clays; 355-368: Grey (2.5 y 5/0) f.gr. sltly muddy sand; 368-395: Partly cemented olive grey (5 y 5/2) f-m.gr. sand; 395-400: cemented "b'rock" layer
637 GR	25°42'27.6"	153°14'39.0"	4	48	-	Dk. olive grey (5 y 3/2) f.gr. sand
638 GR	25°42'29.3"	153°13'02.0"	4	48	-	Dk. olive grey (5 y 3/2) f.-v.f.gr. sand
639 GK	25°42'29.2"	153°13'02.2"	4	48	145	0-68: Grey (5 y 4/1) m-c.gr. incr. shelly sand; 68-110: Grey (5 y 4/1) v. shelly sand; 110-123: V. dk grey (2.5 y 3/0) sltly sandy mud, peat & clay; 125-145: Wood.
640 GR	25°42'27.1"	153°11'53.9"	4	46	-	Olive grey (5 y 5/2) sltly shelly f.gr. sand
641 GR	25°42'32.4"	153°10'49.9"	4	45	-	V. dk grey (5 y 3/1) sltly muddy f.gr. sand
642 GR	25°42'27.5"	153°09'44.6"	4	44	-	Olive grey (5 y 5/2) shelly f.gr. sand
643 GR	25°42'30.9"	153°08'37.7"	4	40	-	Olive grey (5 y 4/2) v. sltly muddy f.gr. sand
644 GR	25°42'30.8"	153°07'30.2"	4	33	-	Olive (5 y 5/3) sltly shelly f-m.gr. sand
645 GR	25°42'27.7"	153°06'26.1"	4	26	-	Greyish brown (2.5 y 5/2) f.gr. sand
646 GR	25°42'24.9"	153°05'42.8"	4	18	-	Greyish brown (2.5 y 5/2) f.gr. sand
647 GR	25°41'22.3"	153°05'43.8"	4	21	-	Greyish brown (2.5 y 5/2) f.gr. sand

STATION NUMBER/ EQUIPMENT*	POSITION S	POSITION E	AREA	CORRECTED WATER DEPTH (m)	RECOVERY (CORES) (cm)	SEDIMENT DESCRIPTION
648 GR	25°40'01.4"	153°05'35.3"	4	19	-	Dk greyish brown (2.5 y 4/2) f.gr. sand
649 GR	25°39'59.6"	153°06'41.4"	4	25	-	Olive brown (2.5 y 4/4) f.gr. sand
650 GR	25°40'00.8"	153°07'49.4"	4	32	-	Barnacle covered calc. sandst.
651 GR	25°40'00.5"	153°08'54.3"	4	40	-	V. dk. greyish brown (2.5 y 3/2) muddy v.f.gr. sand
652 GR	25°40'00.4"	153°10'03.1"	4	42	-	Dk. greyish brown (2.5 y 4/2) muddy f.gr. sand
653 GR	25°40'01.0"	153°11'09.5"	4	43	-	Lt olive brown (2.5 y 5/4) f.gr. sand
654 GR	25°40'00.1"	153°12'15.4"	4	45	-	Olive brown (2.5 y 4/4) f.gr. sand
655 GR	25°40'00.0"	153°13'24.2"	4	45	-	Greyish brown (2.5 y 5/2) f.gr. sand
656 GR	25°38'48.3"	153°13'47.2"	4	45	-	Lt. olive brown (2.5 y 5/4) f.gr. sand
657 GR	25°37'31.7"	153°14'10.5"	4	45	-	Lt. olive brown (2.5 y 5/4) f.gr. sand
658 GR	25°37'30.4"	153°13'02.2"	4	45	-	Olive grey (5 y 4/2) f.gr. sand
659 GR	25°37'27.6"	153°11'58.2"	4	44	-	Olive grey (5 y 4/2) f.gr. sand
660 GR	25°37'30.1"	153°10'51.1"	4	41	-	Olive brown (2.5 y 4/4) f.gr. sand
661 GR	25°37'30.1"	153°09'46.0"	4	40	-	Lt olive brown (2.5 y 5/4) f.gr. sand
662 GR	25°37'29.8"	153°08'39.1"	4	32	-	Lt brown (2.5 y 5/4) f-m.gr. sltly shelly sand
663 GR	25°37'29.3"	153°07'32.7"	4	26	-	Lt brown (2.5 y 5/6) f.gr. sand
664 GR	25°37'31.5"	153°06'12.4"	4	21	-	Lt. olive brown (2.5 y 5/4) f.gr. sand
665 GR	25°37'15.8"	153°06'42.0"	4	21	-	Lt. olive brown (2.5 y 5/4) f.gr. sand
666 GR	25°42'29.2"	153°09'45.5"	4	42	-	Greyish brown (2.5 y 5/2) f.gr. sand
667 GK	25°42'30.1"	153°09'46.0"	4	42	725	0-10: Greyish brown (2.5 y 5/2) f-m.gr. sand; 10-60: Dk. grey (5 y 4/1) to olive grey (5 y 4/2) v. sltly muddy shelly f-m.gr. sand; 60-135: Dk grey (5 y 4/1) sltly muddy f.gr. shelly sand; 135-183: Dk grey-dk. olive grey muddy f.gr. shelly sand; 183-185: Peat; 185-335: Lt grey clear f.gr. sands; 335-370: As above but mottled; 370-725: Uniform grey f-m.gr. qtz sands.
668 GR	25°42'33.2"	153°06'55.6"	4	29	-	Olive grey (5 y 4/2) sltly shelly sand
669 GS	25°42'30.8"	153°06'53.7"	4	29	950	0-180: Greyish brown (2.5 y 5/2) sltly shelly f-m.gr. sand; 180-200: Black charcoal & wood layer; 200-950: Lt. grey (2.5 y 7/0) f-m.gr. clear qtz sands
670 GR	25°42'28.0"	153°05'54.0"	4	21	-	Dk. greyish brown (2.5 y 4/2) f-v.f.gr. sand

STATION NUMBER/ EQUIPMENT*	POSITION S	POSITION E	AREA	CORRECTED WATER DEPTH (m)	RECOVERY (CORES) (cm)	SEDIMENT DESCRIPTION
671 GS	25°42'30.4"	153°05'55.0"	4	21	170	0-170: Grey f-v.f.gr. shelly qtz sand
672 GK	25°42'27.2"	153°05'57.1"	4	20	515	0-255: Dk grey (5 y 4/1) f.gr. sand; 255: Lst pebble; 255-515: Dk brown sand rock.
673 GR	25°37'27.6"	153°06'06.2"	4	21	-	Dk greyish brown (2.5 y 4/2) f.gr. sand
674 GS	25°37'29.1"	153°06'07.4"	4	21	850	0-50: Brownish grey-grey f.gr. sltly shelly sands; 50-260: Sand rock; 260-680: Pale grey leached qtz sands; 680-850: Medium grey qtz sand.
675 KH	25°37'29.6"	153°78'12.4"	4	30	30	0-15: Lt. yellowish brown (2.5 y 6/4) clean m.gr. qtz sand; 15-30: Greyish brown (2.5 y 5/2) v. shelly pebbly m.-c.gr. sand
676 KH	25°37'30.2"	153°09'01.7"	4	36	125	0-20: Lt. yellowish brown (2.5 y 6/4) m.gr. sand; 20-60: Grey (5 y 5/1) m.gr.v. sltly muddy shelly sand; 60-70: C. shell hash c pebbles; 70-125: Grey (5 y 5/1) sltly shelly f-m.gr. sand; 125: frags. of beach rock.
677 GR	25°34'58.9"	153°07'10.7"	4	23	-	Lt. yellowish brown (2.5 y 6/4) f-m.gr. sand
678 GR	25°35'00.1"	153°08'18.4"	4	27	-	Lt. yellowish brown (2.5 y 6/4) f-m.gr. sand
679 GR	25°35'01.2"	153°09'24.4"	4	32	-	Greyish brown (2.5 y 5/2) f.gr. sand
680 GR	25°35'02.2"	153°10'32.1"	4	40	-	Greyish brown (2.5 y 5/2) f.gr. sand
681 GR	25°35'01.7"	153°11'36.2"	4	44	-	Dk. greyish brown (2.5 y 4/2) f.gr. sand
682 GR	25°35'01.3"	153°12'43.0"	4	44	-	Olive brown (2.5 y 4/4) f.gr. sand
683 GR	25°35'04.0"	153°13'52.1"	4	46	-	Olive brown (2.5 y 4/4) f.gr. sand
684 GR	25°34'57.8"	153°15'06.4"	4	43	-	Olive brown (2.5 y 4/4) f.gr. sand
685 GR	25°33'45.5"	153°15'32.8"	4	47	-	Olive brown (2.5 y 4/4) f.gr. sand
686 GR	25°32'29.4"	153°16'00.5"	4	47	-	Olive brown (2.5 y 4/4) f.gr. sand
687 GR	25°32'30.1"	153°14'48.7"	4	46	-	Olive brown (2.5 y 4/4) f.gr. sand
688 GR	25°32'30.8"	153°13'45.7"	4	46	-	Olive brown (2.5 y 4/4) f.gr. sand
689 GR	25°32'31.0"	153°12'40.1"	4	45	-	Dk. greyish brown (2.5 y 4/2) f.gr. sand
690 GR	25°32'31.7"	153°11'35.2"	4	42	-	Olive grey (5 y 4/2) olive grey sand
691 GR	25°32'29.8"	153°10'27.8"	4	33	-	Lt. olive brown (2.5 y 5/4) f.gr. sand
692 GR	25°32'29.2"	153°09'22.6"	4	26	-	Lt. olive brown (2.5 y 5/4) f.gr. sand
693 GR	25°32'30.1"	153°08'01.8"	4	23	-	Lt. olive brown (2.5 y 5/4) f.gr. sand
694 GR	25°31'34.1"	153°08'21.7"	4	22	-	Olive yellow (2.5 y 6/6) f.gr. sand

STATION NUMBER/ EQUIPMENT*	POSITION S	POSITION E	AREA	CORRECTED WATER DEPTH (m)	RECOVERY (CORES) (cm)	SEDIMENT DESCRIPTION
695 GR	25°30'37.1"	153°08'43.7"	4	22	-	Lt. yellowish brown (2.5 y 6/4) f.gr. sand
696 GR	25°29'38.9"	153°09'05.6"	4	22	-	Lt. olive brown (2.5 y 6/4) f.gr. sand
697 GR	25°28'42.0"	153°09'26.3"	4	22	-	Lt. olive brown (2.5 y 6/4) f.gr. sand
698 GR	25°27'30.5"	153°09'54.2"	4	22	-	Lt. olive brown (2.5 y 5/4) f.gr. sand
699 GR	25°37'31.6"	153°10'43.7"	4	42	-	Lt. olive brown (2.5 y 5/4) f.gr. sand
700 KH	25°37'31.4"	153°10'43.1"	4	42	175	0-90: Lt. yellowish brown (2.5 y 6/4) m.gr. shelly sand; 90-175: Lt. yellowish brown v. shelly m.gr. sand & shell hash
701 KH	25°37'34.6"	153°13'32.5"	4	46	10	Olive grey (5 y 4/2) sltly muddy f-v.f.gr. sand
702 GR	25°37'34.6"	153°13'32.7"	4	46	-	Olive grey (5 y 4/2) f. sltly muddy f.gr. sand
703 KH	25°37'31.6"	153°16'13.3"	4	47	210	0-95: Lt. brownish grey (2.5 y 6/2) f-m.gr. shelly sand; 95-160: As above but 50% c. shell hash; 160-210: Lt. olive grey (5 y 6/2) sltly shelly f.gr. sand
704 GR	25°32'32.4"	153°09'50.8"	4	30	-	Lt olive brown (2.5 y 5/4) qtz sand
705 KH	25°32'33.9"	153°11'13.3"	4	30	0	Zero recovery
705 GR	25°32'33.9"	153°11'13.3"	4	30	-	Olive grey f.gr. sand
706 KH	25°32'34.8"	153°11'14.2"	4	40	230	0-150: Olive grey (5 y 5/2) f-m.gr. sand; 150-230: Dk. grey (5 yr 4/1) f.gr. sands; 200-215: Dark grey (5 y 4/1) shelly sand
707 GR	25°32'33.2"	153°12'40.3"	4	45	-	Greyish brown (2.5 y 5/2-4) f.gr. sand
708 KH	25°32'32.5"	153°12'39.6"	4	45	210	0-76: Lt olive brown (2.5 y 5/4) shelly f-m.gr. sand 76-110: As above but c c. shell hash; 110-158: Dk grey (2.5 y 4/0) f.gr. sltly muddy shelly sand; 158-165: Grey (5 y 5/1) f-v.f.gr. sltly muddy sand; 165-210: As above except slight mottling. Couple of "b'rock" pebbles between 150 and 158 and at 180.
709 GS	25°32'31.7"	153°12'38.9"	4	45	540	0-200: Greyish brown (2.5 y 5/2) shelly f-m.gr. sand; 200-400: Grey shell hash then lt. yellowish brown (2.5 y 6/4) sltly shelly sand c some mud & one "b'rock" pebble; 400-540: Greyish brown (2.5 y 5/2) f-v.f. sltly muddy sand c some shell matl.

STATION NUMBER/ EQUIPMENT*	POSITION S	POSITION E	AREA	CORRECTED WATER DEPTH (m)	RECOVERY (CORES) (cm)	SEDIMENT DESCRIPTION
710 GR	25°29'56.2"	153°22'00.1"	4	50	-	Olive grey (5 y 4/2) f.gr. sand
711 GR	25°30'00.0"	153°20'51.1"	4	51	-	Olive grey (5 y 4/2) f.gr. sand
712 GR	25°29'56.1"	153°19'45.8"	4	50	-	Olive grey (5 y 4/2) f.gr. sand
713 GR	25°29'59.8"	153°18'39.1"	4	49	-	Olive grey (5 y 4/2) f.gr. sand
714 GR	25°30'00.2"	153°17'31.6"	4	48	-	Olive grey sltly muddy v.f.gr. sand
715 GR	25°29'59.7"	153°16'26.0"	4	47	-	Olive grey (5 y 4/3) v.f.gr. sand
716 GR	25°29'59.8"	153°15'20.5"	4	47	-	Olive brown (2.5 y 4/4) f.gr. sand
717 GR	25°30'00.0"	153°14'14.3"	4	45	-	Olive (5 y 4/3) f.gr. sand
718 GR	25°32'30.5"	153°10'04.4"	4	30	-	Greyish brown (2.5 y 5/2) m.gr. sand
719 GS	25°32'31.9"	153°10'00.8"	4	30	930	0-40: Lt. yellowish brown (2.5 y 5/2) shelly m-gr. sand; 40-180: Medium grey (2.5 y 6/0) f-m.gr. sand; sand rock; Lts yellowish grey (2.5 y 6/2) f-m.gr. qtz sand; Lt. grey & lt. yellowish brown f. & m.gr. qtz sands; lt yellowish brown (2.5 y 6/4) m. & c-v.c.gr. sands; "b'rock" at base.
720 GR	25°32'25.9"	153°08'28.9"	4	24	-	Lt. greyish brown (2.5 y 6/4) f-m.gr. sltly shelly sand
721 GS	25°32'26.1"	153°08'28.1"	4	24	560	0-100: Lt. brownish grey (2.5 y 6/4) f.-m.gr. sltly shelly sand; 100-560: Brown muddy humate-rich f-v.f. qtz sand - sand rock
722 GR	25°27'30.6"	153°11'30.1"	4	27	-	Lt. yellowish brown (2.5 y 6/4) sltly shelly f-m.gr. sand
723 GS	25°27'30.7"	153°11'29.4"	4	28	950	0-400: Olive brown (2.5 y 5/4-4/4) f.gr. sand; sltly shelly 0-200; 400-950: Olive yellow f.gr. sands
724 GR	25°24'57.7"	153°12'45.7"	4	30	-	Lt. yellowish brown (2.5 y 6/4) f.gr. sand
725 GS	25°24'57.8"	153°12'45.5"	4	29	950	0-730: Series of grey & buff f.gr. sands; 730-750: m-c.gr. brown sand; 780: "b'rock" pebbles; 780-940: Medium brown sand c c-v.c. shell math.
726 GR	25°27'30.5"	153°17'16.0"	4	47	-	Lt. olive brown (2.5 y 5/4) f.gr. sand
727 GS	25°27'29.3"	153°17'14.3"	4	48	560	Grey or buff sands, shelly in places c "b'rock" pebbles at base.
728 GR	25°27'31.8"	153°14'01.3"	4	49	-	V. dk grey (5 y 3/2) v.f.-f.gr. sltly muddy sand

STATION NUMBER/ EQUIPMENT*	POSITION S	POSITION E	AREA	CORRECTED WATER DEPTH (m)	RECOVERY (CORES) (cm)	SEDIMENT DESCRIPTION
729 GK	25°27'31.7"	153°14'00.2"	4	49	520	0-315: V. dk grey (2.5 y 3/0) to v.dk. olive grey (5 yr 3/2) v. sltly muddy shelly f.d.v.f.gr. sand; 315-335: Lt. yellowish brown (2.5 y 6/4) shelly f.-m.gr. sand; 335-355: Mid grey (2.5 y 5/0) sltly shelly sand; 355-375: "B'rock" pebbles; 375-475: Grey (2.5 y 4/0) v. sltly muddy f.gr. shelly sands; 475-480: Shell hash layer; 480-520: Grey v. sltly muddy f.gr. shelly sands
730 GR	25°24'57.5"	153°16'59.5"	4	50	-	V. dk grey shelly sand
731 GK	25°24'58.6"	153°16'58.4"	4	50	705	0-240: Grey sands; 240-270: Sandy & shelly mud; 270-450: f-m.gr. sands 450-480: Pebbly sands; 480-500: Fine dk grey sand; 500-520: Dk grey pebbly & shelly sand; 520-640: Black muds & muddy sands; 640-705: Dk grey f-gr. muddy sand.
732 GR	25°24'59.1"	153°11'08.4"	4	22	-	Lt olive brown (2.5 y 5/6) f.gr. sand
733 GR	25°24'03.4"	153°11'37.3"	4	23	-	Lt. olive brown (2.5 y 5/6) f.gr. sand
734 GR	25°23'08.9"	153°12'02.3"	4	23	-	Lt. yellowish brown (2.5 y 6/4) f.gr. sand
735 GR	25°22'14.8"	153°12'32.4"	4	23	-	Lt. yellowish brown (2.5 y 6/4) f.gr. sand
736 GR	25°21'20.7"	153°12'58.7"	4	23	-	Lt. olive brown (2.5 y 5/4) f.gr. sand
737 GR	25°20'22.4"	153°13'19.1"	4	24	-	Lt. olive brown (2.5 y 5/4) f.gr. sand
738 GR	25°19'27.5"	153°13'45.3"	4	23	-	Lt. olive brown (2.5 y 5/4) f.gr. sand
739 GR	25°18'31.7"	153°14'11.5"	4	23	-	Lt. yellowish brown (2.5 y 6/4) f.gr. sand
740 GR	25°17'36.0"	153'14'36.6"	4	24	-	Lt. olive brown (2.5 y 5/4) sltly shelly sand
741 GR	25°16'39.8"	153°15'03.5"	4	23	-	Lt. yellowish brown (2.5 y 6/4) f.gr. sand
742 GR	25°15'44.4"	153°15'29.6"	4	25	-	Lt. brownish grey (2.5 y 6/2) f.gr. sand
743 GR	25°13'55.0"	153°16'20.8"	4	25	-	Dk greyish brown (2.5 y 4/2) f.gr. sand
744 GR	25°13'55.0"	153°16'20.8"	4	22	-	Lt. brownish grey (2.5 y 6/2) f.gr. sand
745 GR	25°12'59.3"	153°16'46.8"	4	23	-	V. dk grey (2.5 y 3/3) v.c. qtz sand
746 GR	25°12'03.8"	153°17'12.8"	4	22	-	Lt yellowish brown (2.5 y 6/4) f.gr. sand
747 GR	25°11'09.1"	153°17'39.2"	4	22	-	Greyish brown (2.5 y 5/2) f.gr. sand
748 GR	25°10'58.9"	153°18'54.8"	4	26	-	Greyish brown (2.5 y 5/2) f.gr. sand
749 GR	25°11'56.9"	153°18'30.8"	4	27	-	Lt yellowish brown (2.5 y 6/4) v.c. pebbly sand
750 GR	25°12'52.0"	153°18'02.2"	4	26	-	Lt. brownish grey (2.5 y 6/2) f.gr. sand

STATION NUMBER/ EQUIPMENT*	POSITION S	POSITION E	AREA	CORRECTED WATER DEPTH (m)	RECOVERY (CORES) (cm)	SEDIMENT DESCRIPTION
751 GR	25°13'47.6"	153°17'37.2"	4	26	-	Lt. yellowish brown (2.5 y 6/4) c-v.c. sand
752 GR	25°14'42.6"	153°17'10.8"	4	27	-	Lt. yellowish brown (2.5 y 6/4) f.gr. sand
753 GR	25°15'38.8"	153°16'44.6"	4	26	-	Lt. brownish grey (2.5 y 6/2) f.gr. sand
754 GR	25°19'54.3"	153°17'46.3"	4	45	-	Olive grey (5 y 5/2) shelly f.gr. sand
755 GK	25°19'53.9"	153°17'43.6"	4	45	695	0-130: M. dk. grey (5 y 4/1) m.-c.gr. shelly sand; 130-245: Grey (5 y 5/1) f.gr. shelly qtz sands; 245-295: V. dk. grey f.gr. sltly muddy sands; 295-340: Black organic-rich clay, wood; 340-380: Lt. olive grey (2.5 y 5/0) sltly mottled f-v.f.gr. clayey sand; 380-510: Grey clayey f-v.f.gr. sand; 510-695: Dk. grey sltly muddy f.gr. sltly shelly sands. Large shells & pebbles & piece of coral at 600-635.
756 GR	25°17'30.3"	153°17'29.3"	4	32	-	Lt. yellowish grey sltly shelly m.gr. sand
757 GK	25°17'30.5"	153°17'29.5"	4	32	215	0-60: Grey-dk. grey (10 yr 4/1) shelly m.-gr sand; 60-140: Dk. grey f.gr. shelly sand; 140-215: Black - v.dk. grey humically cemented v.f. qtz sand - sand rock.
758 GR	25°17'27.6"	153°22'25.8"	4	45	-	Olive grey (5 y 4/1) f.gr. sand
759 GK	25°17'26.9"	153°22'24.2"	4	45	720	0-410: Dk. olive grey (5 y 4/2) f.gr. shelly sand; 410-433: As above c c. shell frags.; 433-563: Lt. olive grey (5 y 6/1) v. sltly shelly v.f.gr. sand; 563-575: v.c. shelly sand; 575-680: Grey (5 y 5/1) v.f.gr.v. sltly shelly qtz sand; 680-700: Grey (5 y 5/1) shelly f.gr. sand; 700-720: Black-v.dk. brown humically cemented f.gr. qtz sand.
760 GR	25°12'52.9"	153°22'11.6"	4	38	-	Olive grey (5 y 5/2) f.gr. sand
761 GR	25°11'57.9"	153°22'12.7"	4	33	-	Olive grey (5 y 4/2) f.gr. sand
762 GR	25°10'56.5"	153°22'11.6"	4	33	-	Grey f.gr. sand
763 GR	25°09'57.0"	153°22'12.5"	4	31	-	Grey f.gr. sand
764 GR	25°08'57.0"	153°22'13.5"	4	30	-	Lt. brownish grey (2.5 y 6/2) f.gr. sand
765 GR	25°07'57.4"	153°22'12.8"	4	29	-	Lt. brownish grey (2.5 y 6/2) f.gr. sand
766 GR	25°06'55.6"	153°22'13.3"	4	26	-	Fawn (2.5 y 7/2) m.gr. sand

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767 GR	25°05'58.7"	153°22'13.2"	4	24	-	Fawn (2.5 y 7/2) c.gr. sltly shelly sand
768 GR	25°07'26.3"	153°21'35.8"	4	27	-	Brownish grey f-m.gr. shelly sand
769 GS	25°07'26.8"	153°21'34.9"	4	27	950	Sands
770 GR	25°07'31.3"	153°24'04.6"	4	25	-	Lt olive brown (2.5 y 5/2) m.gr. sand
771 GS	25°07'33.1"	153°24'03.5"	4	25	950	Grey sands
772 GR	25°07'37.2"	153°25'37.6"	4	42	-	Lt brownish grey (2.5 y 6/2) c.gr. shelly sand
773 GR	25°05'00.3"	153°22'09.8"	4	23	-	Lt. yellowish brown (2.5 y 6/4) f. & v.c. shelly sand
774 GR	25°03'59.0"	153°22'09.8"	4	23	-	Lt. yellowish brown (2.5 y 6/4) f. & v.c. shelly sand
775 GR	25°02'57.5"	153°22'10.2"	4	22	-	Lt. yellowish brown (2.5 y 6/4) f. & v.c. shelly sand
776 GR	25°01'57.4"	153°22'10.2"	4	22	-	Lt. yellowish brown (2.5 y 6/4) f. & v.c. sand
777 GR	25°00'59.2"	153°22'09.7"	4	24	-	Dk. grey (2.5 y 4/0) shelly f.gr. sand
778 GR	24°59'59.3"	153°22'10.0"	4	28	-	Olive yellow (2.5 y 6/6) f.gr. sand
779 GR	24°59'00.8"	153°22'15.2"	4	31	-	Calc. ssts. only
780 GR	24°58'01.8"	153°22'15.6"	4	39	-	Olive grey (5 y 4/2) f.gr. sand & shell grit
781 KL	25°17'22.8"	154°12'23.4"	-	3997	840	Pale pink/grey clay/ooze
782 KL	25°17'22.6"	153°58'33.5"	-	1837	730	Fawn/grey ooze/clay
783 KL	24°57'57.3"	153°58'02.0"	-	3687	770	Pale pink/grey ooze/clay
784 GR	25°07'52.0"	153°20'40.8"	4	25	-	Lt. brownish grey (2.5 y 6/2) f.gr. sand
785 GR	25°08'39.8"	153°20'06.8"	4	25	-	Olive grey (5 y 5/2) f.gr. sand
786 GR	25°09'30.0"	153°19'31.6"	4	25	-	Olive grey (5 y 5/2) f.gr. sand
787 GR	25°10'17.9"	153°18'55.4"	4	25	-	Pale brown (2.5 y 7/2) v.c.gr. sand
788 GR	25°11'06.7"	153°18'21.2"	4	25	-	Lt. brownish grey (2.5 y 6/2) f.gr. sand
789 GR	25°11'30.1"	153°19'22.0"	4	28	-	Olive grey (5 y 5/2) f.gr. sand
790 GR	25°10'39.1"	153°19'59.5"	4	26	-	Lt. olive grey (5 y 6/2) f.gr. sand
791 GR	25°09'49.4"	153°20'35.8"	4	27	-	Olive grey (5 y 5/2) f.gr. sand
792 GR	25°08'58.3"	153°21'16.9"	4	27	-	Lt. olive grey (5 y 6/2) f.gr. sand
793 GR	25°08'06.7"	153°21'48.8"	4	27	-	Lt. olive grey (5 y 6/2) f.gr. sand
794 GR	25°07'30.2"	153°25'34.8"	4	40	-	Lt. greyish brown (2.5 y 6/2) m.-c.gr. sand

STATION NUMBER/ EQUIPMENT*	POSITION S	POSITION E	AREA	CORRECTED WATER DEPTH (m)	RECOVERY (CORES) (cm)	SEDIMENT DESCRIPTION
795 GK	25°07'30.0"	153°25'35.0"	4	40	740	0-105: Pale brown (10 yr 6/3) m.gr. shelly sand; 105-140: Grey (2.5 y 5/0) v.c. shelly sand; 140-182: Olive grey (5 y 5/2) shelly f.gr. sand; 182-187: Olive grey (5 y 5/2) shelly sand c "b'rock" pebbles; 187-400: Olive (5 y 5/3) sltly mottled v.f.gr. qtz sands; 400-740: Lt grey (5 y 7/1) f-m.gr. sands cemented in places. Hard layer at base
796 GR	25°07'29.7"	153°26'29.2"	4	38	-	Lt. brown v.c.gr. sand
797 GK	25°07'30.1"	153°26'27.3"	4	38	455	0-255: Brownish yellow (10 yr 6/6) shelly v.c. sand - gravel; 255-455: Fining downwards m-c sand
798 GR	25°02'29.5"	153°28'19.1"	4	44	-	V. coarse qtz & carb. sand & gravel
799 GK	25°02'32.2"	153°28'19.4"	4	44	620	Pebbly sand then olive grey sands overlying partly cemented sands
800 GR	25°02'32.3"	153°26'34.3"	4	43	-	Lt. brownish grey (10 yr 6/2) m.gr. sand c coralline algae.
801 GK	25°02'32.7"	153°26'33.8"	4	43	342	Sands, cemented & pebbly in places
802 GR	25°02'29.5"	153°23'27.2"	4	32	-	V.c. sandy gravel
803 GS	25°02'29.8"	153°23'26.4"	4	32	-	Sands
804 GR	25°02'35.8"	153°25'15.8"	4	36	-	Lt. yellowish grey c. shell hash c col.al.nod.
805 GS	25°02'35.8"	153°25'16.9"	4	35	950	0-20: Lt. yellowish brown (2.5 y 6/4) c. shell hash c corall. algal. frags & "b'rock" pebbles; 20-25: "b'rock"; 25-950: Olive grey (5 y 5/2) f.gr. sand c cemented layers.
806 GR	25°05'02.6"	153°23'34.0"	4	24	-	Lt. yellowish grey m.gr. sand
807 GS	25°05'03.2"	153°23'36.2"	4	24	950	0-100: Lt. brownish grey (2.5 y 6/2) c & m.gr. shelly sands; 100-130: Grey (5 y 6/1) v.c.gr. shelly sands; 130-400: Lt. grey (5 y 6/1) v.f.gr. qtz sand; 400-950: Humically-cemented qtz sands - Sand rock. Brown-dark chocolate brown
808 GR	25°12'27.2"	153°18'58.1"	4	31	-	Dk greyish brown (2.5 y 4/2) v.c. sand

STATION NUMBER/ EQUIPMENT*	POSITION S	POSITION E	AREA	CORRECTED WATER DEPTH (m)	RECOVERY (CORES) (cm)	SEDIMENT DESCRIPTION
809 GK	25°12'29.5"	153°18'58.6"	4	31	960	0-172: Grey & dk grey f.gr. shelly sands; 172-180: gravel; 180-253: Light brownish grey v. shelly sands; 253-263: Lt. grey (5 y 6/1) f.gr. sand; 263-840: Dk grey (5 y 4/1) f-v.f. sand; 840-907: Lt. brownish grey (2.5 y 6/2) v.c.gr. shelly sand; 907-960: slightly brownish grey shelly sands with some cemented frags.
810 GR	25°12'30.8"	153°21'00.9"	4	34	-	Dk grey (2.5 y 4/0) f.gr. sand
811 GK	25°12'31.9"	153°21'00.7"	4	34	480	0-312: Grey (2.5 y 5/0) shelly sands; 312-313: Dk. grey (5 y 4/1) mud; 313-325: Grey c-v.c. shelly sands; 325-420: Dk greyish brown (2.5 y 4/2) f-m.gr. sand - "sandrock"?. 420-480: V. dk greyish brown (2.5 y 3/2).
812 GR	25°12'31.8"	153°23'29.9"	4	37	-	Lt brownish grey (2.5 y 6/2) f.gr. sand
813 GK	25°12'32.3"	153°23'29.8"	4	37	220	Grey f.gr. sand sltly muddy towards base.
814 GR	25°12'35.8"	153°25'31.3"	4	35	-	Olive (5 y 5/3) f.gr. sand
815 GK	25°12'35.2"	153°25'32.3"	4	35	167	Olive grey (5 y 5/2) f-m.gr. sands

*EQUIPMENT:

GR : VAN VEEN GRAB
GK : GEODOFF VIBROCORER
GS : GEDDOFF COUNTER-FLUSH CORER
KH : KIEL VIBROCORER
KD : CHAIN-SACK DREDGE
UW : SHIPEK GRAB
KL : PISTON CORER
TVS: T.V. SLEDGE

O STANDARD MUNSELL COLOURS

APPENDIX 2: HEAVY-MINERAL ABUNDANCES AND ASSEMBLAGES

STATION NO.	AREA	CORRECTED WATER DEPTH (m)	DEPTH IN CORE (cm)	% HEAVY MIN. (TOTAL SED.)	HEAVY-MINERAL ASSEMBLAGE (OPTICAL ESTIMATE) OPAQUES*	TOURMALINE	ZIRCON	TRANSLUCENT RUTILE	HORNBLENDE	EPIDOTE	GARNET	ANDALUSITE	PYROXENE	'OTHERS'	MATURITY OF SUITE
1 GR	1	28	-	0.19	30	5	25	20	tr	tr	tr	-	-	20	m
2 GR	1	37	-	0.38	35	5	35	25	tr	-	-	-	-	-	m
15 GR	1	50	-	0.06	55	25	4	tr	8	8	-	tr	-	-	im
16 GR	1	41	-	0.11	30	15	25	20	5	5	tr	tr	-	-	mm
18 GR	1	32	-	0.21	60	5	20	10	tr	3	1	tr	-	-	(m)m
20 GR	1	39	-	0.07	a-p	c	tr-c	tr	tr	-	tr	tr	tr	-	m
21 GR	1	60	-	0.07	c-a	c	c	tr-c	c	tr-c	tr-c	tr	tr	tr	im
22 GR	1	59	-	0.57	c-a	c	tr-c	tr	c	c	tr	tr	-	-	im
32 GR	1	43	-	0.11	65	5	13	10	5	2	tr	-	-	-	mm
41 GR	1	39	-	0.09	40	20	25	15	1-2	2-3	tr	tr	-	-	mm
45 GR	1	28	-	0.31	40	5	30	20	tr	tr	-	tr	-	5	m
52 GR	1	55	-	0.07	40	23	8	1-2	15	10	tr	1-2	tr	-	im
54 GR	1	70	-	0.08	35	15	5	tr	25	15	tr	tr	1-2	2-3	v.im
65 GR	1	45	-	0.15	50	35	5	tr	tr	10	-	tr	-	-	im
69 KH	1	40	0-80	0.10	35	10	30	20	tr	tr	tr	tr	-	-	m
69 KH	1	40	80-125	0.01	50	1-2	28	15	tr	5	tr	tr	-	-	m
123 GR	1	44	-	0.12	40	10	20	20	tr	-	2-3	tr	tr	tr	m
124 GR	1	43	-	0.09	60	10	15	10	tr	tr	1-2	tr	1-2	-	m
137 GR	1	57	-	0.09	50	20	8	5	2-3	5	1-2	tr	?5	tr	im
154 GR	1	63	-	0.23	35	10	40	10	tr	tr	5	1-2	tr	-	m
159 GR	1	70	-	0.63	50	10	15	1-2	15	5	tr	tr	?	-	im
146 KH	1	35	0-65	0.12	35	15	20	20	5	tr	2-3	1	tr	-	m
174 GK	1	36	0-150	0.29	50	10	15	20	3	2	tr	tr	-	-	(m)m
174 GK	1	36	150-330	0.03	50	10	5	10	20	5	-	1-2	-	-	im
174 GK	1	36	330-590	0.05	50	15	1-2	1-2	20	5	-	tr	2-3	-	im
175 GS	1	30	0-200	0.20	50	10	30	5	1-2	1-2	tr	tr	-	-	m
175 GS	1	30	200-400	0.28	50	5	35	5	tr	tr	tr	tr	-	-	m
175 GS	1	30	400-550	0.22	55	10	25	5	-	1-2	tr	-	2-3	-	m
176 KH	1	31	0-60	0.32	55	15	20	5	1-2	1-2	1-2	-	-	-	(m)m
176 KH	1	31	60-95	0.15	65	15	10	1-2	1	1	2	tr	1	-	(m)m
187 GR	1	40	-	1.36	55	10	25	5	2-3	tr	-	tr	-	-	m
188 GR	1	42	-	0.60	60	15	15	1-2	2-3	5	tr	tr	-	-	mm
199 GR	1	49	-	0.26	35	5	40	15	tr	tr	tr	-	tr	-	m
200 GR	1	51	-	0.30	40	20	10	20	2	2	1-2	tr	1	1	mm
212 GR	1	33	-	0.71	60	15	20	2-3	tr	1-2	tr	tr	-	-	m
214 GR	1	45	-	0.31	50	30	2-3	1-2	1-2	5	2-3	5	-	-	mm
238 GR	2	30	-	0.40	60	7	20	1	8	2	tr	-	-	2	mm
240 GR	2	45	-	0.13	65	3	15	tr	8	5	2	-	-	2	im
242 GR	2	51	-	0.08	55	3	8	tr	22	5	5	-	-	2	im
244 GR	2	54	-	0.19	40	5	25	15	2	3	2	-	-	8	mm
248 GR	2	71	-	0.13	60	5	1-2	1-2	20	5	5	-	-	-	im
250 GR	2	58	-	0.16	50	5	7	3	25	5	5	-	-	-	v.im
253 GR	2	52	-	0.08	55	6	15	tr	20	tr	2	-	-	2	v.im
255 GR	2	47	-	0.17	40	5	2-3	1-2	28	5	12	-	-	5	v.im
260 GR	2	27	-	0.21	60	3	15	tr	15	2	3	-	-	2	im
263 GR	2	45	-	0.18	50	5	14	1	15	5	5	-	-	5	im

STATION NO.	AREA	CORRECTED WATER DEPTH (m)	DEPTH IN CORE (cm)	% HEAVY MIN. (TOTAL SED.)	HEAVY-MINERAL ASSEMBLAGE (OPTICAL ESTIMATE) OPAQUES*	TOURMALINE	ZIRCON	TRANSLUCENT RUTILE	HORNBLENDE	EPIDOTE	GARNET	ANDALUSITE	PYROXENE	'OTHERS'	MATURITY OF SUITE
272 GR	2	72	-	0.03	20	5	1-2	tr	35	10	20	5(st.)	-	3	v.im
273 GS	2	39	0-200	0.93	55	5	25	1-2	5	5	1	tr	-	2-3	mm
273 GS	2	39	340-520	0.82	50	10	15	tr	15	5	tr	tr	2-3	1-2	im
273 GS	2	39	520-780	0.46	50	12	15	tr	12	5	1	-	5	-	im
273 GS	2	39	780-950	0.17	50	2-3	20	tr	15	2-3	5	-	-	1-2	im
281 GS	2	31	0-200	0.16	40	20	8	1-2	15	5	2-3	1	1	5	im
281 GS	2	31	200-340	1.66	60	5	20	tr	10	1-2	tr	tr	-	2-3	im
281 GS	2	31	340-400	0.62	40	10	20	1	20	5	1-2	tr	2	1	v.im
281 GS	2	31	400-710	0.32	20	15	1-2	-	50	2	8	-	5	-	v.im
281 GS	2	31	710-800	0.17	35	10	5	tr	30	5	5	tr	5	5	v.im
290 GR	2	31	-	0.81	53	20	10	tr	8	5	tr	tr	1-2	2	im
291 GR	2	27	-	0.81	40	15	25	1	10	5	tr	tr	1-2	1-2	im
292 GR	2	28	-	1.75	50	20	12	tr	8	3	1	tr	3	3	im
294 GR	2	34	-	0.63	40	10	5	tr	25	8	7	1	1-2	3	v.im
382 GR	2	31	-	3.97	50	10	20	1-2	2	2-3	2	5	1	5	mm
383 GR	2	33	-	2.53	50	10	20	1-2	3	2-3	2-3	1-2	1-2	5	mm
394 GR	2	24	-	0.90	40	20	15	tr	15	5	2	1	-	2	im
395 GR	2	27	-	1.25	60	10	15	tr	5	2	2	tr	tr	5	mm
407 GR	2	23	-	1.14	55	15	10	tr	10	5	2	1	1-2	-	im
408 GR	2	21	-	1.37	45	10	25	1-2	10	5	1-2	1-2	tr	-	im
409 GR	2	20	-	1.85	50	10	15	1-2	10	5	5	2-3	1-2	-	im
410 GR	2	20	-	2.39	50	15	20	1-2	5	5	1-2	1-2	-	2-3	mm
416 GR	2	24	-	0.7	35	15	10	tr	15	5	15	1-2	tr	5	im
418 GR	2	25	-	2.1	40	15	10	1	10	5	10	-	2-3	5	im
421 GR	2	27	-	0.9	35	10	5	tr	25	5	15	tr	tr	2	v.im
425 GR	2	21	-	1.4	45	10	30	5	5	2	1-2	-	-	-	mm
426 GR	2	22	-	1.3	50	13	10	5	10	8	2	1	-	1	mm-im
429 GR	2	24	-	0.6	50	15	15	2-3	8	2	5	tr	-	2	mm-im
433 GR	2	33	-	3.7	40	8	35	5	7	1-2	1-2	1	-	-	mm
434 GR	2	32	-	3.1	40	10	30	3	10	2	1	1	-	2-3	mm
437 KH	2	44	0-120	0.3	50	5	10	2-3	25	5	1-2	-	1-2	-	v.im
439 GR	2	30	-	6.4	40	2-3	50	2-3	2-3	tr	1	-	-	-	(mm)-m
444 GR	2	22	-	2.8	45	5	35	2-3	8	1-2	tr	-	-	2	mm
442 GR	2	21	-	1.3	55	10	30	1-2	2	1	-	-	-	-	mm-m
445 KH	2	22	0-140	1.04	55	5	30	2	2	-	3	tr	2	-	m
452 GR	2	18	-	1.7	55	10	15	tr	10	5	2	1	-	2	mm-im
453 GR	2	18	-	3.03	55	15	10	3	15	-	2	tr	-	-	im
454 GR	2	18	-	1.8	50	10	20	2	10	5	3	-	-	-	mm-im
455 GR	2	17	-	4.0	50	2-3	40	5	1-2	-	-	-	-	-	(mm)-m
456 GR	2	17	-	3.6	50	10	25	2-3	5	1-2	1-2	-	?tr	1-2	mm
457 GR	2	20	-	2.5	45	10	30	2	5	1	1	tr	-	5	mm
458 GR	2	23	-	0.8	55	5	30	1-2	5	tr	tr	-	-	1-2	(mm)-m
467 GR	2	18	-	4.5	60	10	25	1	2	1	1	1	-	tr	(mm)-m
469 GR	2	19	-	3.7	50	10	25	5	5	1	2	tr	-	2	(mm)-m
480 GR	2	23	-	1.6	45	25	20	1-2	2-3	1	2	tr	-	2	mm-m
483 GR	2	25	-	0.8	50	15	10	tr	10	3	8	1	2	2	im
489 KH	2	19	0-90	1.8	45	10	30	tr	5	5	2	-	-	1	mm

STATION NO.	AREA	CORRECTED WATER DEPTH (m)	DEPTH IN CORE (cm)	% HEAVY MIN. (TOTAL SED.)	HEAVY-MINERAL ASSEMBLAGE (OPTICAL ESTIMATE) OPAQUES*	TOURMALINE	ZIRCON	TRANSLUCENT RUTILE	HORNBLENDE	EPIDOTE	GARNET	ANDALUSITE	PYROXENE	'OTHERS'	MATURITY OF SUITE
508 GR	2	21	-	3.2	50	8	25	2	8	2	3	1	-	-	im
509 GS	2	20	0-200	1.6	55	10	20	1	10	2	2	tr	-	-	im
512 GR	2	20	-	2.2	45	15	20	2	10	2	5	-	-	1	im
516 GR	2	22	-	2.1	50	8	30	2	5	3	2	-	-	-	mm-im
522 GR	2	22	-	1.2	40	20	15	tr	15	5	2	1	-	-	im
542 GR	3	36	-	1.2	40	25	15	tr	8	2	5	2	-	-	mm-im
555 GR	3	21	-	1.4	45	20	10	2	15	5	2	1	-	-	im
556 GR	3	28	-	1.0	55	10	15	1	15	2	2	-	-	tr	im
561 GR	3	23	-	0.7	45	25	5	1	2	8	5	2	5	2	mm-im
575 GR	3	32	-	1.0	60	10	5	2	10	5	2	1	5	-	im
586 GK	3	27	0-200	0.4	45	25	10	2	5	3	5	2	3	-	mm-im
586 GK	3	27	200-400	0.4	40	20	8	2	10	5	3	4	3	5	im
589 GR	3	23	-	1.7	60	12	12	5	5	2	1	1	tr	2	im-(mm)
590 GR	3	25	-	1.8	60	15	5	2	12	1	2	1	1	1	im
604 GR	3	26	-	3.3	50	20	12	5	8	1	5	tr	tr	-	im
620 GR	3	31	-	2.1	45	15	5	2	5	3	20	2	2	-	im
645 GR	4	26	-	1.3	40	15	8	2	15	2	10	2	2	2	im
647 GR	4	21	-	1.4	45	20	5	2	15	3	5	3	2	-	im
648 GR	4	19	-	1.5	48	13	8	5	12	2	8	2	1	1	im
665 GR	4	21	-	1.0	50	10	10	8	10	7	3	2	-	-	im
668 GR	4	29	-	1.2	40	10	10	2	20	3	8	2	5	tr	v.im
669 GS	4	29	0-180	1.4	40	10	12	2	20	5	5	tr	3	3	v.im
670 GR	4	21	-	3.4	45	12	10	2	20	2	2	tr	2	5	v.im
671 GS	4	21	0-70	1.9	40	10	10	3	20	6	3	1	5	2	v.im
ABUNDANCES ONLY															
44 KH	1	47	0-120	0.09											
48 GR	1	35	-	0.14											
63 GR	1	50	-	0.08											
92 KH	1	22	0-25	0.29											
126 GR	1	42	-	0.09											
127 GR	1	41	-	0.08											
129 GR	1	44	-	0.12											
192 GR	1	40	-	0.13											
193 GR	1	38	-	0.07											
194 GR	1	44	-	0.46											
195 GR	1	47	-	0.11											
196 GR	1	48	-	0.11											
197 GR	1	47	-	0.22											
198 GR	1	49	-	0.19											
205 KH	1	36	0-42	0.09											
205 KH	1	36	42-120	0.19											
208 KH	1	54	0-120	0.23											
208 KH	1	54	120-160	0.36											
206 GR	1	58	-	0.20											
210 GS	1	36	0-200	0.64											

STATION NO.	AREA	CORRECTED WATER DEPTH (m)	DEPTH IN CORE (cm)	% HEAVY MIN. (TOTAL SED.)
210 GS	1	36	200-400	0.26
210 GS	1	36	400-600	0.33
210 GS	1	36	600-750	0.19
211 GR	1	27	-	1.13
213 GR	1	39	-	0.52
229 GS	1	39	0-200	0.17
229 GS	1	39	200-400	0.12
229 GS	1	39	400-600	0.17
229 GS	1	39	600-750	0.09
231 GS	1	62	0-200	0.33
231 GS	1	62	200-260	0.15
564 GS	3	24	400-600	0.6
564 GS	3	24	600-800	0.7
738 GR	4	23	-	0.4
742 GR	4	25	-	0.8
748 GR	4	26	-	1.6
761 GR	4	33	-	1.0

*Opaques include: ilmenite, magnetite, opaque rutile, leucoxene & brown iron oxides

P : predominant
a : abundant
c : common
tr : trace
m : mature
mm : moderately mature
im : immature
v.im: very immature