The waters and shores of Foveaux Strait make up one of the coldest, windiest environments in New Zealand and, lying well outside the tropical horticulture zone, could not have been less like the environment of the Polynesian homelands. Yet they contain an extensive archaeological record which includes a low density but wide distribution of sites, as well as some rich artefact assemblages held in private and public collections. The record is not well dated but the few radiocarbon dates and the material culture and economy suggest that occupation commenced as early there as in any other part of the country. In considering why people moved so far south so early, Lockerbie (1959) rejected push factors such as demographic or resource pressures and argued that there must have been some serious attractors (pull factors) in play. Working today with a much shorter chronology, push motives seem even less likely but it is difficult to imagine what the pull factors might have been. Foveaux Strait settlement coincides with the expansion of moa hunting in southern New Zealand but there were never many moa (Dinornithiformes) along the south coast and moa bone is rare in south coast middens. There are resident populations of sea mammals including New Zealand fur seal (Arctocephalus forsterii) and sea lion (Phocarctos hookeri) but these were not restricted to Foveaux Strait (Smith 1989: 208), nor do the sites show high levels of sea mammal predation. Today, one of the most important seasonal resources is the sooty shearwater (mutton bird or titi) (Puffinus griseus) but again, there are no strong archaeological indicators of an early emphasis on mutton birding (Anderson 1995, 2001; Sutton and Marshall 1980). Foveaux Strait contains relatively rich fishing grounds but the exposure of the coast to prevailing southwest winds combined with the frequent unsettled weather would have made fishing a risky enterprise (see Anderson 1986). The only other resource of the south coast that could be a significant attractor is argillite, outcrops of which occur in a number of localities including Bluff Harbour, the New River estuary, Jacobs River estuary and the shores west of Riverton.

The region defined as Foveaux Strait for the purposes of this review is bounded on the north side of the Strait by the stretch of coastline from about Waikawa Harbour in the east to Hakupureirei or Sand Hill Point in the west and includes the islands of the Strait and Stewart Island (Fig. 1). This zone
lies between the well-described record of the Catlins Coast and South Otago (Hamel 1982) and the less thoroughly explored region of South Westland and Fiordland (Coutts 1982). In the historical period the area was integrated into wider systems of settlement, economic and social interaction that included Stewart Island, the Foveaux Strait islands, inland Southland and the eastern coast of Otago (Beattie and Anderson 1994). Following this model and given the nature of climate and resources, we suggest that similar patterns prevailed at earlier periods of settlement. We review the existing archaeological record and, after evaluating some alternative interpretations, we propose a resource network model for Foveaux Strait prehistory. According to this model, Foveaux Strait only attracted sustained periods of settlement or exploitation at two periods. During both these periods it was linked into wider resource networks with centres located outside the region. The first of these networks collapsed shortly after the decline of moa hunting in Otago. The second developed with the growth of European trade networks. Between these times the shores of Foveaux Strait appear to have been very sparsely populated.

THE SETTING

The water conditions and currents around Foveaux Strait are heavily influenced by the sub-tropical convergence zone (STCZ), the southern boundary of which runs east from Tasmania at about 46°S, sweeps around the south of Stewart Island, then deviates sharply up the South Island’s East Coast before tracking east over the Chatham Rise (Butler et al. 1992: 138). The STCZ creates the Southland Current (SC), a branch of the Tasman Current which is made up largely of subtropical waters mixed with some Australasian sub-antarctic waters (Chiswell 1996:1). The SC originates on the shelf west of Stewart Island, runs eastward through Foveaux Strait and then follows the STCZ over the Chatham Rise. As a result of the influence of the STCZ relatively warm waters run east through Foveaux Strait and the mean seawater temperatures of the south coast tend to be warmer than those of the East Otago Coast for much of the year, particularly during winter.

The climate of the south coast is severe by New Zealand standards. Mean daily temperatures in summer are around 14°C, dropping to 5.3°C in winter. Rainfall averages more than 1100mm annually and there are around 100 windy days per year. Foveaux Strait is second only to Cook Strait for frequency of gale force winds.

Along the southern coastal strip the vegetation is dominated by swamp forest, terrestrial productivity is low compared with the marine zone, and pre-European Māori subsistence focused on inshore maritime resources including the rich tidal estuaries and lagoons. The reason for the higher relative
Figure 1. Foveaux Strait region of New Zealand showing locations of places mentioned in text.
marine productivity is the influence of the colder waters of the sub-Antarctic zone which are abundant in marine life. This attracts marine birds, many of which seasonally visit or permanently occupy areas of Foveaux Strait in vast numbers including ground nesting species that are particularly easy prey. Marine bird species of known importance in southern New Zealand include petrel, shag, penguin and shearwater. Sea mammals would also have been available all along the shores of the Strait—fur seals along the rocky shorelines and sea lions on the sandy coasts. Whales are not generally considered to have been a target species for Polynesian hunters, but they are prolific in southern waters and there is growing evidence (see below) that whale strandings were an important resource in Southern New Zealand, if not solely for food, then certainly as a source of industrial bone. The rivers, estuaries and lagoons would have been a source of water fowl, wading birds and eel (*Anguilla* sp.), and the coastal forests would have supported populations of terrestrial birds such as weka (*Gallirallus australis*). Moa were present on the south coast but not in great numbers. As Anderson (1989) pointed out, the frequency of moa-hunting sites declines west of the Catlins as a consequence of the prevalence of swamp forest which is generally unsuitable for moa.

Fishing in the inshore pelagic zone and rocky-shore kelp beds was productive; targeted species included barracouta, ling, red cod, blue cod, groper and wrasse. Soft-shore shellfish species such as *pipi* (*Paphies australis*) and cockle (*Chione stutchburyi*) were available in estuaries, and hard-shore species such as *paua* (*Haliotis* spp.), catseye (*Turbo smaragdus*), sea urchin (*Evechinus chloroticus*) and mussel (*Mytilidae*) were abundant in the rocky-shore zones (Anderson 2001).

The main plant food available to early settlers would have been the rhizomes of the bracken fern or aruhe (*Pteridium esculentum*) available along much of the coast, although the quality or abundance of the bracken rhizomes in southern New Zealand is not thought to have been particularly high (Anderson 1998: 46). Oven pits (*umu tï*) for the cooking of *tï* (*Cordyline australis*) are a characteristic feature of the archaeological landscape of Murihiku but these are an inland phenomenon and so far none have been recorded along the Foveaux Strait coast—in any case the numbers recorded in Southland suggest that it is unlikely that *tï* was a mainstay of south coast subsistence.

In summary, the shores of Foveaux Strait were colder, wetter and windier than almost any other inhabited part of coastal New Zealand. The area had few terrestrial resources and lay well outside the tropical Polynesian horticulture zone. In contrast, the marine zone was rich as a result of the influence of the sub-antarctic zone and could support communities involved in inshore fishing, shellfish gathering and marine-mammal and seabird hunting. The
subsistence productivity of the Southland coastal marine zone was unlikely, however, to be significantly greater than many other milder parts of the country, and whether it served to attract early settlers remains uncertain. Again, the role of the argillite sources needs to be evaluated.

REVIEW OF THE ARCHAEOLOGY

Sites around the Catlins, Southland and Foveaux Strait shores were subject to fossicking and curio-hunting during the late 19th century (Renata 1892a, 1892b, 1892c) but the first actual excavations were carried out in the early to mid-20th century by David Teviotdale at Wakapatu and at sites near Greenhills (e.g., see Teviotdale 1932). Unfortunately the results of these remain unpublished (Leach 1990: 382). Systematic excavation for the purpose of research began with Les Groube’s excavation of the Tihaka argillite quarry near Riverton in 1964. The site was dated (Leach and Higham 1971) and later written up by Leach and Leach (1980). The 1980 report documented the 1964 excavation and the analysis of faunal remains, but focused on the lithic assemblage. Based on earlier work at the Oturehua blade workshop (Leach 1969, 1984), Helen Leach (1990) reconstructed the core reduction sequence at Tihaka and developed a classification for adze preforms. The site itself was interpreted as a specialist camp, occupied for brief periods of time from the 14th century for the sole purpose of extracting and preparing raw materials for finishing elsewhere.

The Tiwai Point site, excavated by Park in 1968, was similar to the Tihaka Quarry in that it displayed evidence for adze manufacture although on a much smaller scale. Adzes were made at the site using argillite local to the Tiwai Peninsula and from throughout the greater Bluff area. However, unlike the Tihaka site, a range of other stone types was also present. Notably, moa bone found in the site included vertebrae and foot bones indicative of local procurement and of consumption rather than industrial use (Park 1969). Hamel (1969) produced an ecological assessment of the wider zone around the site to complement Park’s preliminary report, and the lithic and faunal materials from the excavation were analysed by Huffadine (1978) as a student project. Sutton and Marshall (1980) used the Tiwai Point faunal assemblage to investigate hunting adaptation in the area and compared these practices with other places of similar latitude. They noted the wide range of species present and argued that Tiwai Point was occupied over a number of seasons, even though it was neither seasonally occupied nor a specialist exploitation site.

Colyers Island, one of the major Southland stone sources and one which contributed much of the lithic material at Tiwai Point, was surveyed by Bristow, Gillies and Gumbley as part of an investigation of raw material
Review of the Archaeology of Foveaux Strait

extraction (Bristow et al. 1985). A follow-up visit during survey work conducted as part of the Southland Coastal Heritage Inventory Project (SCHIP, see below) confirmed that almost the entire island was covered with flaking floors and reduction sites and concluded that the area should be considered a single site complex.

Charles Higham (1968) undertook research in the western Southland area where he excavated sites at Colac Bay and Wakapatu. At Colac Bay he identified ovens associated with moa bones, and large numbers of argillite flakes. Wakapatu contained a production area for adzes, some of which were found close to completion before they were rejected. These were exclusively made of argillite from the Tihaka quarry, which is situated in the next bay east of Wakapatu.

Peter Coutts was active in Southland and Fiordland in the late 1960s and early 1970s and carried out site surveys around Fiordland and Te Anau (Coutts 1969a, 1969b, 1970a, 1970b, 1971, 1972, 1977) as well as at Ruapuke Island in Foveaux Strait (Coutts and Jurisich 1972), Port Craig and Hakapureirei (Sand Hill Point) near the western limit of the South Coast study area (Coutts 1970b). Hakapureirei is an eroding dune system with an archaeological site complex that extends over an area of about seven hectares. The archaeological exposures are varied, discontinuous and generally “deflated” and include discrete surface exposures of oven stones and midden, isolated artefact find spots and activity areas. Coutts interpreted the archaeological deposit at Hakapureirei as representing the remains of a series of fishing camps occupied briefly by transient populations during the warmer months of the year. During brief visits local raw materials including whale bone and Cookie shell were worked and dogs were killed occasionally for both meat and raw materials (Coutts 1972: 231-32).

In 2005 Walter and Jacomb (2005) carried out a more extensive and intensive mapping and survey project at Hakapureirei with results that generally confirm Coutts’s view that Hakapureirei is composed of a series of short-term camps rather than being a single extended site. Middens were mainly small and tended to be overwhelmingly dominated by a single shell species, although many also contained small quantities of bone. The predominant shellfish species were rocky shore varieties especially paua (Haliotis sp.) and catseye (Lunella smaragda). Kina (Echinoderm sp.) was also common, especially in conjunction with paua-dominant deposits. Sea mammal bone (fur seal, sea lion and some small whale) was found across the site, both in middens and in isolated scatters. Nearly all whale-bone fragments appeared to be worked and a probable whale-bone working floor was identified which included rough stone tools for breaking up larger pieces. The bird bone was similar to that reported by Coutts (1972) and included
pigeon (*Hemiphaga novaeseelandiae*), kaka (*Nestor meridionalis*), parakeet (sp. indet.), bellbird (*Anthornis melanura*), little blue penguin (*Eudyptula minor*), fairy prion (*Pachyptila turtur*), wandering albatross (*Diomedea exulans*), Antarctic prion (*Pachyptila decolata*), blue petrel (*Halobaena caerulea*), pied shag (*Phalocrocorax varius*) and oystercatcher (*Haematopus unicolor*). The middens ranged in size from small, deflated surface exposures measuring a metre or two in diameter to discontinuous bands up to 30m in length exposed along the eroding beach scarp.

Artefacts from Hakapureirei included barracouta-lure points, points of composite hooks and a small number of one-piece hooks in moa bone. A number of broken and reworked adzes were recovered by Coutts (1972) and by Walter and Jacomb (2005), and more are held in the Southland Museum. In hand specimen examination determined that the majority appear to be made of Southland argillites. A characteristic tool type from Hakapureirei is the bone *ripi* ‘cutting tool’ or *paua* lever made of whale bone and thought to be used for processing *paua*. Most known examples of *ripi* are from surface collecting at Hakapureirei although some are also recorded from Raratoka (Centre I.) (Harsant 1986). Five radiocarbon dates were submitted for dating from the 2005 Hakapureirei survey and these returned age estimates that indicate that the site was occupied between the early 15th and late 16th centuries AD (see Table 1 and Figure 2).

In summary, the radiocarbon dates and artefact record locate Hakapureirei early in the prehistoric sequence but probably after the end of the moa-hunting phase. Moa bone is only found rarely here, as an industrial source for the manufacture of fish hooks. The site was visited occasionally but repeatedly for very short periods; probably for not much more than a few days or weeks at a time. During these visits a restricted range of activities was carried out, each focused on the exploitation of one or a very small number of resources. Hakapureirei may also have functioned occasionally as a stopping-off place on the way to or from Fiordland and the West Coast, as it provided one of the few safe landings along the Fiordland coastline.

Coutts and Jurisich (1972) surveyed a number of sites on Ruapuke Island. Documentary sources showed that the island was occupied in the early post-contact period and the authors identified semi-permanent settlements on the island that ranged from early prehistoric to historic in age. Excavations at a small site yielded three artefacts normally associated with the Archaic phase as defined by Golson (1959): a one-piece bone fish hook, a one-piece bone fish hook tab and a large quartzite blade. The only other artefacts found during this work were likely barracouta lure points at two other sites on the island. Neither of the latter sites showed any clear indication of chronology except that they did not contain any artefacts assigned by Golson to the Archaic.
The island is known to have been very important in the early historic period; for example, Boultbee recorded a large old village of 60 houses there in 1827-1828 (Anderson 1998: 68).

The pattern of temporal distribution noted by Harsant (1986) in her examination of the artefacts from Rarotoka was more definite. She concluded that the island was occupied in the Archaic phase, but that settlement there was principally in the late pre-European and early post-contact period.

During their Southern Margins Project, Anderson and O’Regan (2000) undertook a series of investigations around Stewart Island, the Snares and the Auckland Islands with a view to investigating prehistoric settlement in the sub-antarctic zone. Material culture and radiocarbon dates indicate that the islands in question were first occupied in the earliest phase of the Polynesian settlement of New Zealand (Anderson and O’Regan 2000: 450). These occupations appear to be very brief, however, with most places visited showing little evidence for later use until about or shortly after the period of European settlement in New Zealand.

Smith and Anderson (2008) investigated a group of sites at Sealers Bay on Codfish Island. Two occupation phases were identified, the first between about the late 13th and late 15th centuries and the second in the early years of European contact. Although no evidence was found of mutton birding, penguins were very heavily exploited during the earlier of the two occupations. In fact, there is evidence for change within the early phase at Codfish Island, where the authors note an early focus on birds which declines to a “more typical coastal pattern of abundant fish, marine mammals and shellfish…” and a parallel change in material culture from one in the early part of the site that contained a quadrangular adze, a one-piece fish hook and several large blades to one with “fish hook pieces of types more common in later prehistory…” (Smith and Anderson 2008: 14, 17-18).

An important question in Foveaux Strait archaeology relates to seasonality. The notion that the southern South Island was only visited on a seasonal basis was first proposed by Teviotdale in 1932. Charles Higham took up this issue in his early 1960s investigations. Noting that annual growth bands in shell species from Wakapatu indicated that the molluscs died during winter months he argued that this phenomenon, coupled with the presence of mutton birds, suggested seasonal occupation (Higham 1968, 1976). Further work resulted in the development of an argument that Foveaux Strait was only seasonally occupied (Coutts and Higham 1971; Higham 1968, 1976). This view was challenged by Sutton and Marshall (1980) who demonstrated year-round occupation at Tiwai Point. By extension this cast doubts on the wider claims of seasonality for Foveaux Strait as a whole.
The most extensive assessment of the sites of the south coast was undertaken as part of the Southland Coastal Heritage Inventory Project (SCHIP), which was an archaeological survey of the coastal strip between Waiparau Head and Rowallan Burn (Fig. 1) directed by Jacomb and Walter (see Brooks, Walter and Jacomb 2008). Its purpose was to obtain accurate, up-to-date information on site distribution for management purposes by building on the existing records of the New Zealand Archaeological Association Site Recording Scheme (SRS). The project is the largest continuous coastal survey ever carried out in New Zealand and, as such, is likely to accurately represent the range of site types on the coast and their relative abundance.

A total of 431 archaeological sites have been recorded along the study area over the last 50 years and entered into the SRS. During the SCHIP survey 154 previously recorded sites could not be relocated but 109 new sites were added to the inventory. The figure of 431 includes the “lost” sites since information is still known about them from the SRS. The site inventory is made up of 350 (81%) prehistoric sites and 81 (19%) historic sites. Drawing on the site descriptions in the SRS and SCHIP files, the prehistoric sites can be divided into seven broad site classes (Table 1).

Several key facts can be extracted from the current record, as follows:

- The Foveaux Strait coastline was explored as early as any other part of the country.
- Moa hunting was practiced, but was not a major part of the economy.
- The sites appear to follow a bimodal chronological distribution that clusters at the early (Archaic) and early historical points in the sequence.
- Evidence for seasonality is equivocal.
- The presence of good-quality adze-making stone was probably a major attractor.
- The evidence for an Archaic phase as expressed through material culture suggests that it was very brief.

Although there has been no major synthesis of Foveaux Strait prehistory, models of cultural change have been proposed for other areas of southern New Zealand. From the Catlins Coast, Lockerbie (1959) argued that first settlement occurred around 1000 BP when populations moved south to exploit the moa and, to a lesser extent, sea mammal populations. This resulted in the establishment of the important Catlins moa-hunting sites of Pounawaea, Papatowai and Cannibal Bay. Following a decline in moa and seal hunting, plus a deteriorating climate, new economic strategies were developed that
Table 1. Site classes developed from descriptions in the SRS and SCHIP databases.

<table>
<thead>
<tr>
<th>Site Category</th>
<th>Description</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midden</td>
<td>Most of the sites listed in the SCHIP and SRS databases are described as containing midden. The sites designated as midden here are those for which the dumping of food remains appears to be the sole activity represented in the ground. These sites are not reported to contain additional features (such as ovens or extensive scatters of oven stones), working floors or any additional activity that might indicate that the midden is part of a more complex habitation site or specialist activity zone.</td>
<td>111</td>
</tr>
<tr>
<td>Stone working area</td>
<td>These include any site for which the primary activity represented in the archaeological record relates to the working of stone. This includes a small number of quarries as well as flaking floors around isolated argillite outcrops. It also includes some very small sites listed by the field recorders as “flaking floor”, “midden/flaking floor” or “oven/flaking floor” which contain one or two small features in addition to the scatter of stone flakes.</td>
<td>72</td>
</tr>
<tr>
<td>Occupation zone</td>
<td>The vast majority of these sites were listed in the SRS either as middens, or with the term “midden” included somewhere in the site descriptor. But in addition to midden remains these sites also contain other features such as ovens, activity areas and scatters of oven stones indicating that the discard of food remains is only one of a set of domestic activities represented in the ground. These sites range from very small, measuring a few metres or so in extent, up to exposures of 80m or more.</td>
<td>63</td>
</tr>
<tr>
<td>Oven</td>
<td>A single feature site, but often accompanied by a scatter of midden.</td>
<td>62</td>
</tr>
<tr>
<td>Findspot</td>
<td>Any artefact find isolated from other archaeological material.</td>
<td>29</td>
</tr>
<tr>
<td>Burial</td>
<td>Any place where human bone has been reported from a context that implies formal interment but without evidence of a larger (habitation) site. This includes small collections of human bone eroded onto farm tracks or beaches.</td>
<td>8</td>
</tr>
<tr>
<td>Other</td>
<td>These sites are listed by the field recorders as “spring”, “terrace”, “mound”. No other information is available.</td>
<td>5</td>
</tr>
</tbody>
</table>
concentrated on fishing, shell-fish gathering and the hunting of small birds. Declining resources and coastal conditions led to the abandonment of the major southern sites towards the end of the 17th century. Writing 20 years later, Hamel (1982) proposed a similar trajectory of change. She believed that the Catlins were only inhabited owing to the easily exploited moa species and following AD 1500, after widespread deforestation around Otago and the extinction of moa, the region was abandoned. This pushed the occupants of the area north where food resources such as eels, fern and cabbage tree, plus stone sources from Central Otago were more readily accessible.

Anderson (1983) described a more general trajectory of change for southern New Zealand. The first settlement of the Otago and Southland region was by groups who took up an economy based on moa hunting, sealing and fishing. The material culture included flaked stone tools of silcrete and porcellanite from inland Otago sources, and adzes made of Otago Peninsula basalts and Foveaux Strait argillites. A middle period was defined by moa recession, with moa hunting and sealing ceasing along the southern New Zealand coast and the eastern interior by the 16th century. At this time offshore fishing and small-bird hunting along with tī and fern root gathering became the dominant subsistence activities. The decline in moa meant there was less incentive to obtain inland stone materials and this resulted in a shift to local coastal materials. Drawing also on traditional history Anderson suggested that the “late period” saw the arrival in the south of new groups, including Ngāti Mamoe, who introduced the Classic material culture from the north. Ngāti Mamoe in turn were joined and to some extent supplanted by Ngāi Tahu who migrated south during the late 18th century.

The extent to which these later arrivals settled permanently in southern New Zealand is uncertain. Later analysis by Anderson of oral traditions suggested that (a) the focus of Ngāi Tahu settlement was more in the north, between Banks Peninsula and Cook Strait, until the Ngāti Toa raids of around 1830 and (b) that the whole of Ngāi Tahu traditional history in the South Island did not extend beyond two generations (Anderson 1998).

**EVALUATION OF THE RECORD**

The poor survey coverage of the study area combined with the small number of reliable radiocarbon dates limits the degree to which the available record can be synthesised. Until recently there had been little systematic survey coverage of the Foveaux Strait region and that situation still applies on Stewart Island and many of the smaller islands. The newly available SCHIP data complements the earlier records and supports a more comprehensive understanding of the variation in site form and function, as well as the distribution of this variation across space and time.
Site types
The sites fall into seven classes (Table 1) but they are generally small and display a low level of diversity. The most common class is middens and these fall into two broad categories based on size and complexity. The most common middens are small, discrete exposures ranging from a few metres to about 20 metres in diameter. These have a low density of material in what appears to be a natural soil matrix and they generally have very low species diversity. A typical description of such sites from the SRS is that for site D46/139: “Exposure 1.9m long. A single-layer cockle midden with some amphibola and charcoal. Some blue mussel. 10cm depth of midden, 70cm below grass surface.” These sites probably represent a single foraging event or several events over a period of days. Hakapureirei, with its many discrete midden exposures, provides an excellent example of the range of variation in the small midden category.

The second type of midden is the larger, multi-species exposure that frequently contains oven stones. These can run for tens of metres but are usually intermittent over that distance. These sites have not been classed as “occupation areas” because they do not contain evidence of other features although they may represent a number of foraging and discard events or even a short period of residence.

The larger issue of how the sites reflect land use and exploitation revolves, in the first instance, around two questions. First, to what extent do these sites represent occupation by sedentary, residential populations as opposed to short-term visits by transient groups? Second, do these sites display evidence of any specialist activities, any “attractors” that might have drawn populations into the region. To address these questions we have sorted the sites into four groups which vary in terms of the way they reflect transience versus sedentism and specialisation versus generalised activity. The four site groups are discussed below and Table 2 shows the breakdown of sites by the different sorting methods. Because of the nature of the site records not all the sites could be assessed.

Single event sites. These small to very small sites include most of the middens, ovens, find-spots and some of the stone working areas that appear to represent a single flaking event—perhaps reworking an adze. While it is possible that many of these sites are part of larger site complexes, the surface evidence suggests, instead, that they represent single events that collectively mark larger areas of particular attention for transient groups. The emphasis is on the tidal estuaries and harbours.

Stone tool manufacturing sites. Medium to large sites related in some way to stone extraction or tool manufacture, these sites are taken to represent multiple events as inferred from either the extent of the flake distribution or
the presence of other features, such as ovens. These sites are clustered around
the main source areas, such as Bluff Harbour, but a number are found some
distance from the large argillite outcrops.

Camp sites. These are relatively small sites that appear to represent a short
phase of residence. This is inferred by the presence of multi-species middens,
one or more ovens and usually some evidence of flaking. The sites are too
small to imply prolonged residence and it is possible that most represent
several days’ to a few weeks’ occupation.

Settlement site. These rarest of sites are ones that contain large, rich and
diverse midden exposures representing the exploitation of a range of resources
including fish, marine and terrestrial birds, shellfish and sea mammals. In all
these sites bone and stone tools have been recorded and examples include the
Archaic site (G47/8) at the entrance to Waikawa Harbour, Tiwai Point, Pahia,
Kahukura and, perhaps, Codfish Island. The sites are too small to warrant
“village” status but they probably represent between a few months and several
years of occupation, although this could well have been intermittent.

In summary, the majority of prehistoric sites in the study area are small
and of short duration providing little evidence of permanent or repeated
occupation. These include all the single event sites plus the camp sites which
collectively make up 80 percent of the sample in Table 2. Although many
of the sites are single-species middens, none appear to be specialist sites
such as hunting, butchery or processing sites. None of the sites approach

Table 2. Distribution of prehistoric site categories based on SRS and SCHIP records.
Note that the classes “burial” and “other” have been excluded from this analysis.

<table>
<thead>
<tr>
<th>Site Group</th>
<th>Findspot</th>
<th>Midden</th>
<th>Occupation zone</th>
<th>Oven</th>
<th>Stone working area</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single event</td>
<td>29</td>
<td>64</td>
<td>47</td>
<td>13</td>
<td>153</td>
<td></td>
</tr>
<tr>
<td>Manufacturing site</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>49</td>
<td>49</td>
</tr>
<tr>
<td>Camp</td>
<td>14</td>
<td>47</td>
<td>4</td>
<td>8</td>
<td>73</td>
<td></td>
</tr>
<tr>
<td>Settlement</td>
<td>6</td>
<td></td>
<td></td>
<td>1</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Unknown</td>
<td>30</td>
<td>13</td>
<td>12</td>
<td></td>
<td>55</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>29</td>
<td>108</td>
<td>66</td>
<td>63</td>
<td>337</td>
<td></td>
</tr>
</tbody>
</table>
the well-known east coast sites of Papatowai, Shag River Mouth, Waitaki River Mouth or Rakaia River Mouth in size.

The common feature of the Foveaux Strait sites is the presence of argillite from Southland coastal sources. In total 71 (or 21 percent) of the sites were observed in the field to contain argillite flakes, cores or roughout adzes and this is likely to be an under-representation. The significance of argillite in the local settlement patterns is also reflected in the number of sites designated as manufacturing sites (49 sites or 17 percent of the sample). Some of the manufacturing sites, such as those on Colyers Island in Bluff Harbour, are very extensive suggesting relatively long-term and intensive use. Excavations have revealed evidence of structures, cooking and midden discard close to the Riverton quarry (Leach and Leach 1980), but there is little to suggest large-scale or permanent habitation associated with any of the Southland manufacturing zones. The Colyers Island and Riverton sites seem to have been intensively exploited but this may have been over a relatively short period by small groups who visited the sources from bases elsewhere.

Chronology
There is a strong impression, both from an examination of published works and from our personal experience, of a bimodal settlement chronology with the majority of sites either very early or centred on the period of European contact. Few reliable radiocarbon dates for Foveaux Strait or Stewart Island existed before this study; all but two previous dates (NZ4191 and NZ 4192 from Native Island) were on samples of unidentified charcoal which could therefore not be assessed for the possible effects of inbuilt age. In order to develop a chronology of the study area a dating exercise was carried out in which the main objective was to obtain age estimates for some of the smaller midden sites which are under-represented in the existing dating record. This was intended as a test of the possibility that later occupation of the south coast only involved small groups who, by extension, left small sites. However, larger sites were also targeted, particularly where there was no associational evidence of age such as presence of industrial moa bone or Archaic artefact types. During the SCHIP survey datable material was collected from many of the sites visited and a selection of samples was submitted to the Waikato Radiocarbon Laboratory for analysis. Several additional dates were obtained on samples collected during a brief survey of Port Pegasus in southern Stewart Island. Table 3 shows the results of all reliable determinations from Foveaux Strait and Stewart Island archaeological sites. Existing dates are included but, to take account of the problems of unknown inbuilt age associated with dating unidentified charcoal, the only dates used in this sample are those on either charcoal from identified, short-lived species or on marine shell.
Table 3. Radiocarbon dates for Foveaux Strait and Stewart Island archaeological sites.

Sources: Southern Hemisphere Atmospheric data from McCormac et al. 2004; Marine data from Hughen et al. 2004; DeltaR -7±45 (Waikato Radiocarbon Laboratory unpublished data); OxCal v3.10 (Bronk Ramsey 2005). All dates SCHIP project except Hakapureirei (Walter and Jacomb 2005), Native Island (Rafter et al. 1972), Cooks Arm (Anderson and O’Regan 2000), Codfish Island (Smith and Anderson 2008).

<table>
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<tr>
<th>Provenance</th>
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<th>Conventional Age</th>
<th>Calibrated Age</th>
<th>δ¹³C</th>
<th>Lab. No.</th>
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Table 3 – continued
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Table 3 – continued
Figure 2. Radiocarbon dates from Foveaux Strait and Stewart Island archaeological sites.
Although the sample size is relatively small, with only 30 radiocarbon dates, from 14 different locations, there is enough data to be indicative of a general trend. The distribution of the radiocarbon dates indicates a markedly bimodal settlement chronology. A “normal” settlement sequence should display an increasing or at least steady number of village-sized sites throughout its sequence. It should also have a steady or increasing number of dates through time, as the population either stays stable or increases. The plot of dates shown here has neither. Instead there is a marked drop in dates after about the mid-16th century and no sites with median ages that post-date about 1600 except for the historic layer on Codfish Island and a site at Port Pegasus which may also be from the historic period. (This site, in Albion Cove, is in one of the few areas of flat land available in Port Pegasus for village-type settlement and is in a sheltered location with good access to fresh water. Port Pegasus was the scene of much European activity during the early years of the 19th century [Howard 1940] and, although no historical artefacts were seen during the survey, there is no reason why this site could not date from that period.) Although only a small corpus of dates is available, the distribution of the radiocarbon age ranges indicates a marked drop in population from about the 16th century that does not recover until near the end of the prehistoric sequence. The modest sample size and, in Foveaux Strait and Stewart Island, relatively poor survey coverage, are to a large extent countered by the strong inter-area consistency in the chronological patterning; the same bimodal pattern is seen in the dates from the South Coast, Codfish Island and Port Pegasus.

In addition to the radiocarbon dates, the content of sites provides an indirect dating tool. Polynesian hunting caused a rapid decline in moa species within a century of arrival, with moa extinction following by the mid-15th century at the latest (Holdaway and Jacomb 2000). The presence of moa bone in archaeological middens is therefore a good proxy indicator of age. Anderson (1989: 139-40) has summarised the data for presence of moa bone in middens of Foveaux Strait. He noted a decline in the frequency of moa-hunting sites west of the Catlins and, apart from three or four small sites (Haldane, Waipapa, Port Craig and perhaps Tokanui), notes records for larger sites in the vicinity of Bluff (Bluff, Tiwai Point and Greenhills) and Pahia (Pahia and Tihaka). On the islands of Foveaux Strait moa eggshell has been found on both Raratoka (Centre Island) and Lee Island (part of Ruapuke), and at various sites on Stewart Island of which the only site of any size was at The Neck. Sites with economic (midden) moa bone can be assumed to date from the late 13th to the early 15th century, while those that only contain industrial (artefact-making) moa bone could be up to a century or so later.
Eleven sites are reported in the SRS as containing moa bone or in some way associated with moa, but the descriptions are vague—in some cases a site is simply reported as a “moa hunter oven” with no further explanation. Moa bone was observed in five sites during the SCHIP survey but in all cases this was reported as industrial bone and there was no indication of the use of moa as a food source. At Hakapureirei moa-bone fish hook tabs and finished artefacts were found in some parts of the dune complex but, again, moa was not present in the form of food remains. The only places where moa bone has been reported (in the SRS) in midden context indicating that it was hunted and used as food was Tiwai Point (E47/13). However, moa eggshell was found eroding out of the Waikawa Site (G47/8) during the SCHIP survey, which suggests that moa were still breeding locally at the time the site was being occupied. The indication from other parts of the country, especially the east coast of the South Island, is that moa bone was gathered and used as an industrial material for a century or so following extinction, although the chronology of moa bone use has still not been adequately established. Based on the presence and nature of the moa remains found in the sites, human activity in the Foveaux Strait area commenced before the demise of moa but the majority of sites were probably occupied for a further century or so after the extinction phase, when bone was still readily available to use for artefact manufacture.

Another useful insight into the chronological distribution of the archaeological sites in the study area is through material culture. In this respect both typology and raw material are relevant.

Typological distinctions in Māori material culture between earliest settlement and the European contact period have been recognised since the earliest years of archaeology in New Zealand. The distinctions, and commonalities, present in the earliest settlement phase compared with those present when European records were first made, were first detailed by Golson (1959) who labelled the material culture of the early phase “Archaic” and that of the later phase “Classic Māori”. The Archaic phase is marked by the presence of a range of tanged quadrangular adzes and unbarbed one-piece fish hooks (present in sites of this phase in both the North and South Islands), with some regional variation. For example, although barracouta lure points are rare at Wairau Bar and sites further north, they are found in southern New Zealand Archaic sites like Shag River Mouth; and although barbed composite bait hook points are effectively absent from northeast South Island Archaic sites (Jacomb 1995), they too have been found at Shag River Mouth. Another distinctive feature of Archaic sites of southern New Zealand is the large prismatic blade, usually made of silcrete and with a very strong association with the processing of seal and moa carcasses (see Smith, Campbell and Bristow 1996). Southern New Zealand sites with typical Archaic assemblages
include Shag River Mouth, Pounawea, Papatowai and Pleasant River.

At Golson’s Classic Māori end of the sequence the silcrete blades, tanged quadrangular adze types and stone or bone minnow lures are absent and one-piece fish hooks are extremely rare—and are usually small and with internal barbs. Early European records include barbed points of composite bait hooks, extensive use of nephrite for tools and ornaments, and fighting weapons. Southern New Zealand sites with typical Classic Māori assemblages include Murdering Beach, Taiaroa Head, Mapoutahi Pā and Rarotoka.

The artefacts found in Foveaux Strait sites can be used to help build up a chronology and strongly reflect the chronological pattern evident from the radiocarbon dates, with either very early or very late material culture represented. Harsant (1986) described surface-collected artefacts from Rarotoka which included Archaic artefact types such as tanged quadrangular adzes and others including a nephrite hei tiki ‘neck ornament’ that she ascribed to the late prehistoric to early European periods. Higham (1968) found artefacts at Wakapatu that were from a single period of occupation and which were restricted to Archaic adze and fish hook types as well as some indeterminate aged fish hook types. He also excavated at the site of the historically documented village of Pahia where he found evidence of prehistoric occupation of indeterminate age along with historic artefacts. Artefacts found during excavations by Coutts and Jurisich (1972) at Ruapuke Island were restricted to Archaic types including Archaic type adzes, a large prismatic blade and one-piece fish hooks at one site (LI/1) and barracouta lure hook points of indeterminate age at two other small sites. At Hakapureirei (Sand Hill Point) Coutts recovered a number of artefacts of generally early type including a moa-bone harpoon point, one-piece fish hooks (part of Golson’s Archaic assemblage) and barracouta lure points of the type (Hjarno A1) normally made in moa bone. Later investigations by Walter and Jacomb (2005) yielded fewer diagnostic artefacts but again these included one-piece fish hooks in moa bone and barracouta points similar to those found by Coutts. Excavations at Codfish Island (Smith and Anderson 2008, Spinks 2007) encountered an early occupation that was dated to between about AD 1300 and 1500 and which also had a later, historic layer. The early occupation is significant in that it had two components: the earliest (Area 1), dated to the late 13th to 14th centuries, contained several large struck blades, adzes of Archaic types and a one-piece fish hook of moa bone; the upper prehistoric deposits yielded composite fish hook points generally associated with the Classic phase, including one complete example with barb. The fact that the radiocarbon dates for the prehistoric occupation of the site do not extend beyond about the end of the 15th century indicates that these fish hook types (a clear departure from the Archaic assemblage that arrived with the first
Polynesians) in fact appeared very early in the prehistoric sequence. Although this seems early for such a marked change in fishing gear to have appeared, it is consistent with other evidence for the rapidity of culture change in New Zealand. Similar patterns of rapid change have been observed at other South Island sites like Moncks Cave (Jacomb 2008) where both the material culture and economy show major changes by the early 15th century, and Karamea (Jacomb, Walter and Brooks 2010) where an effectively monospecies shellfish economy was in operation from early in the 15th century, whereas Archaic middens typically contain a broad spectrum of marine and terrestrial taxa.

The raw material from which artefacts are made can also be correlated to some extent with either the early or late phases of prehistory. An obvious example of this is moa bone, which was used to make fish hooks, harpoons and ornaments during the Archaic phase but which drops out within a few decades of the time moa became extinct. In addition there are two stone types that have a clear temporal dimension. The first is obsidian which, in the South Island, only occurs in any significant proportion in sites of the earliest phases of settlement (Walter, Jacomb and Bowron-Muth, in press). The second is nephrite which, although present in small quantities in some Archaic sites, achieved its greatest importance in the latter centuries of New Zealand prehistory and during the historic period. Obsidian decreases in frequency with increasing distance from its North Island sources—at Shag River Mouth it formed less than 2.5 percent of flake material—and is not common in any Foveaux Strait sites, although it is present in small quantities at some early sites including Codfish Island (Spinks 2007) and Kahukua (but only Layer 6, the lowest cultural layer). Nephrite is almost ubiquitous in late prehistoric sites of the northeast South Island (Jacomb 1995, 2000), where it is believed to be closely associated with the Ngāi Tahu migrations of the 17th to 18th centuries. It is rare to absent in Foveaux Strait sites and this has been suggested to be indicative of a very late arrival of Ngāi Tahu in Southland (Anderson 1998). A third material, Southland argillite, is a less certain temporal marker although adzes from which it is made are almost exclusively Archaic in type. Southland argillites are the most common lithic component in Foveaux Strait sites and this association of the stone with Archaic artefact types therefore suggests that most of the sites that contain the stone are early (see below). Recent work on the archaeology of the region provides additional relevant data.

During the SCHIP survey the Kahukura site (G47/128) was identified as one of a handful of sites requiring “...urgent salvage excavation to recover information...” (Brooks et al. 2008: 28) and an excavation was carried out under the direction of Walter and Jacomb in February 2009 (Brooks, Jacomb and Walter n.d.). The site is visible as a large eroding midden about 80m long
exposed in a beach terrace. During excavation the midden deposits were shown to be localised components of a habitation complex extending 15-20m in from the beach and covering at least 1200m². The first signs of human occupation at Kahukura (Layer 6) are ephemeral and are represented by flakes of Mayor Island obsidian, a one-piece fish hook and flakes of Nelson argillite lying in a thin cultural band over the natural dune sands. This activity reflects a brief visit rather than the establishment of a camp or larger settlement, by people with a close association with areas well to the north. But some time later, before there was a substantial build-up of sands or the development of new topsoil, a more extensive settlement was established on the site (Layer 4). The primary subsistence activity during this phase of occupation, which occurred at some time during the 15th-16th centuries, was probably fishing, with emphasis on red cod, barracouta and ling—a preference which is also reflected in the artefacts which include a large fishhook assemblage dominated by barracouta lure points and the points of barbed composite bait hooks. The other economic activities represented in the midden are shellfish gathering, fowling and some hunting of sea mammals. Domestic dogs were present but we note the absence of moa bone from the site except in very small quantities of material suited to industrial use. Activities represented at the site included adze maintenance and whalebone working, the latter represented by a large working floor with worked and shattered bone, several anvil stones and a bifacially flaked cobble “hammer”. A burial excavated in 2008 (Walter, Brooks and Buckley 2008) was also derived from the main occupation layer and it is possible that up to two other burials recorded in the SRS had also eroded from the same level in the 1960s and 1970s. The stone tools from Layer 4 include 12 adzes or adze fragments which appear in hand specimen examination to be made of Bluff Harbour argillites (one of which was a Duff Type 1D, an “Archaic” type adze the first of its type to be recovered from an archaeological context). A large number of adze flakes were also recovered and these too appear to be in argillite from Southland sources although the main flake tool material was a light purple/grey porcellanite—probably from an Otago source—with a small quantity of chert, silcrete and quartz. Radiocarbon dates from Kahukura indicate that Layer 4 was occupied between the early 15th and late 16th centuries AD (Fig. 2).

In the second study, Jennings (2009) carried out an analysis of the Southland argillite sources that focused on the chronology of exploitation and the extent of movement of the material from the source zones. Adzes housed in major New Zealand museums were identified to a Southland source using hand specimen methods, and provenance information from the museum records was used to provide a model for the distribution of the stone through prehistoric communication or exchange networks. The distribution
of south coast argillites in archaeological sites and in museum collections shows a dense concentration around Foveaux Strait and coastal Otago, with the majority of adzes outside of Southland being from sites around the Otago Peninsula. This dense distribution drops off north of Moeraki although the material is still present in lesser quantities as far north as North Canterbury on the east coast and Haast on the west. Although there is little direct dating evidence a rough assessment of chronology was determined on the basis of adze morphology. All the Southland argillite adzes recorded by Jennings are of Archaic types, such as the Duff (1950) Types 1A and 4A. This study suggests that the stone was used early and that its use and distribution declined before the development of the Classic Māori adze kits that were dominated by the untanged Duff (1950) Type 2 adzes.

This reflects the pattern seen elsewhere in New Zealand for obsidians from the northern North Island and argillites from the Nelson region where early but short-lived “pulses” in the distribution of these materials are interpreted as indicating a coloniser mode of long-range mobility (Walter et al. in press).

In sum, the dates, artefact types and raw materials, and to some extent the economy, all indicate a clustering of prehistoric settlement in Foveaux Strait in the first three centuries of the prehistoric sequence, with little evidence for any significant later use of the area until about the time of the arrival of Europeans in New Zealand. There is considerable documentary evidence for Māori occupation here from the earliest decades of the 19th century. In the 1830s there were Māori settlements at Fortrose, Bluff, Omaui, Riverton and Pahia, as well as at Ruapuke Island, and Port William and The Neck on Stewart Island (Coutts 1969c). The question of the age of these settlements is clearly of some importance. Anderson (1998: 206) suggests that it was “…the attraction of European trade in general which brought an influx of Ngai Tahu to Ruapuke and other parts of eastern Foveaux Strait”.

The earliest records, unfortunately, do not appear until several years after the advent of sealing in the Foveaux Strait region. The first recorded sealing was in Dusky Sound where a gang of sealers was dropped off in 1792 (Anderson 1998: 64). In 1809 at least four sealing gangs were dropped off at Stewart Island where the sealers lived amongst Māori (Anderson 1998, Howard 1940: 35-36). In 1813 there were two Māori villages reported in Foveaux Strait where potatoes, in gardens of up to 100 acres, were grown and traded with the sealers for iron tools (Anderson 1998).

There is a strong historical association of Ngāi Tahu with mutton bird exploitation but, again, the antiquity of this activity is uncertain. Small amounts of mutton bird bones have been found at a few early sites, particularly Tiwai Point (Sutton and Marshall 1980), but never in quantities that would be expected if the birds had been taken to the degree that they were in the
historical period. There is little mention of mutton birding in European accounts until 1823, although it had become a significant part of the seasonal round by the 1830s. The mutton bird was a major item of trade for southern Ngāi Tahu in the 1830s and 1840s when it was exchanged for flour, sugar, kumara, barracouta, karaka berries and other goods with Māori as far away as Napier in the North Island (Coultts 1969c:509). Anderson (1998:208) suggests that the mutton-birding industry developed strongly under Ngāi Tahu stimulus partly because of the settlements established on Ruapuke Island (about 1818-1819 according to Boultbee, in Anderson 1998: 190) and partly because of the improved access to both the mutton bird islands and subsequent markets provided by European whaleboats and larger ships.

In short, there is clear evidence for a growing Māori population around Foveaux Strait in the early half of the 19th century and this population increase may be attributed almost entirely to factors that accompanied European arrival in New Zealand. Conversely, there is little in the historical or traditional record to imply a significant pre-1800 population here. Nevertheless, it should not be assumed that Ngāi Tahu arrived into an empty landscape. In fact the traditional evidence says that they were strongly resisted by the resident population who lived in several villages (Anderson 1998). In other words, there is some tension here between the archaeological record, which does not indicate settlement in the late prehistoric period, and the oral traditions which do. This will need to be resolved before any firm inferences can be drawn about the meaning of the “gap” in archaeological evidence from about the beginning of the 17th century until the arrival of Ngāi Tahu late in the 18th century.

INTERPRETATION

Based on the archaeological information summarised above we can propose three alternative models for Foveaux Strait prehistory, as follows:

*Model 1 – Economic Change Model*

The main characteristic of this model is that the south coast sequence can be understood in terms of internal processes of ecological change and socio-economic response. Occupation of the south coast was permanent, but as the nature of resource availability changed, communities responded by adopting new subsistence practices and patterns of mobility. This brought about changes in population levels and in the size of social groups.

The occupation of the study area occurred soon after first New Zealand landfall as a number of groups adopted a hunting and gathering way of life in response to the large meat packages available in both the terrestrial and marine ecosystems of southern New Zealand, although the particular nutritional attractors of the area would likely have been sea mammal and colonial
ground nesting bird species rather than moa. The rich waters of Foveaux Strait also provided an abundance of fish and shellfish. Populations were concentrated in a few larger settlements of which Waikawa and Greenhills are good remaining examples. The argillite sources were discovered early and became an important resource used locally and transferred (e.g., through exchange) to other centres in Southland and Otago.

By the 15th century a decline in easily won resources led to a break-up of the larger population centres as people adopted a more mobile and seasonal settlement pattern. From this period fishing became the main coastal activity with fowling, fishing and shell-fish gathering taking place in the tidal estuaries and shallow harbours. There would have been a general drop in the population of the region, as there was in coastal South Otago, and the emphasis moved from larger, semi-permanent settlements to settlements that involved single families or extended family groups for relatively brief periods. Economic strategies shifted towards resource scheduling with movement between a variety of resource areas. Marine birds, including mutton bird, might have provided a reliable, seasonal resource (although there is only sparse evidence for prehistoric mutton birding), while other resources would have included shell-fishing, fishing and fowling in the lagoons and estuaries and the exploitation of bracken and perhaps ti. This low density, mobile population structure continued until the late 18th century when sealers arrived in the region from Australia and Europe. The new economic environment that trade with Europeans brought encouraged migration into the Foveaux Strait area and populations increased. The mobile, seasonal settlement patterns declined as agriculture increased in importance and populations became concentrated in small village settlements such as Pahia and Ruapuke. Several large historic Māori settlements are recorded in the SRS and in the historical record and these are the first sizable Māori settlement sites along the coast in at least 300 years.

Model 2 – Meat and Potatoes Model
The difference between Models 1 and 2 is that in the latter the region is seen as only being economically viable for permanent occupation at two periods of time: at the beginning and at the end of the sequence. In this model the region was only very sparsely inhabited during the intervening period.

As in Model 1, occupation of the region occurred early in New Zealand prehistory as groups moved to exploit the meat resources that were available in quantity, particularly seal, sea lion, penguin, shearwaters and petrels, as well as some fish. The extreme conditions could be tolerated as long as the economic returns from hunting and fishing were sufficiently high, but as soon as they started to drop the region became relatively unimportant.
Reoccupation occurred in the late 18th or early 19th century as the economic returns again rendered permanent occupation viable and this was primarily driven by the opportunities for commerce and sustenance offered by the sealing and flax trade and production of the white potato and other crops (e.g., see Simmons 1967).

Model 3 – Resource Network Model

The main point of departure for this model is that it sees the prehistory of the area as having been driven by processes and events occurring outside the region—the settlement and use of the area were economically and demographically linked to wider resource networks. The earliest of these networks was centred on the Otago coast and the later one was global.

The movement of early populations taking up a hunting lifestyle met its effective southern limit on the Catlins Coast where moa hunting was viable and coastal conditions relatively benign. Large sites like Shag Mouth and perhaps sites further north were permanent or semi-permanent base settlements supporting sizeable populations. They were sedentary sites although there was still a relatively high level of overall mobility around the New Zealand coastlines. The low density of moa coupled with the severe conditions of Southland prevented permanent occupation there. Nonetheless, the coast was explored early and the populations living in Otago were aware of its limits and potential. The area was visited intermittently and for short periods by groups from Otago who were mainly drawn by the adze grade argillites of Bluff Harbour and Riverton. Travellers to the area also made use of subsistence resources of the harbours and estuaries of Waikawa, Fortrose, Bluff and Riverton as well as other locations such as Hakapureirei and the islands of Foveaux Strait and Stewart Island. But these were irregular visits and those places were not integrated into any regular seasonal round of economic activities.

When moa declined in the early 15th century the large Catlins Coast sites were abandoned (Hamel 1977), as was the best candidate for a sedentary village in Otago generally: Shag River Mouth (Anderson, Allingham and Smith 1996). With those populations gone, further activity in the study area was very limited and it remained largely uninhabited until the arrival of sealers, flax traders and whalers in the early historic period. Populations increased again and for the first time this included the establishment of permanent settlements. Again, however, it was processes outside Southland that initiated these changes—in this case it was the expansion of European industry and commerce, coupled with tribal politics in the north. The archaeological record is not currently able to confirm the extent to which this occurred during or before the arrival of Europeans in New Zealand, although oral tradition suggests it was before.
Evaluating the models

The three models are differentiated by variations in the relationship between population structure, subsistence practices and settlement pattern. Each model finds some support in the archaeological record but we consider Model 3, the Resource Network Model, to have the best fit with the Foveaux Strait data.

All three models see the first activities in the area occurring shortly after first Polynesian colonisation of New Zealand around the end of the 13th century (Higham and Jones 2004). The first century saw a high level of coastal movement during a phase of exploration and discovery, reflected archaeologically in the transfer or exchange of raw materials, such as Mayor Island obsidian (Walter and Jacomb 2007). The study area was accessed during this exploratory phase and low level activities commenced almost immediately. Tiwai Point and Codfish Island both contain several small fragments of obsidian from the North Island and the earliest levels at Kahukura produced both Mayor Island obsidian and Nelson region argillite—the latter material also being associated with the earliest phases of New Zealand settlement (Walter et al. in press). In Models 1 and 2 this early activity included the establishment of permanent populations who took up a hunting and gathering lifestyle. Model 3 sees human activity instead restricted to intermittent visits by groups from northern communities.

The archaeological record of early settlement patterns and subsistence supports Model 3. A number of sites on the south coast contain evidence of low level exploitation of moa and seal but none provide evidence for sustained hunting or settlement during the moa-hunting phase. There are three possible exceptions: Codfish Island and Tiwai Point, both of which are relatively small but intensively occupied sites; and Greenhills which, although reportedly a large site, is poorly documented. The Codfish Island site contained a very large quantity of penguin bones suggestive of sustained predation over one or more seasons. Tiwai Point is primarily a sealing and stone working camp. The two strongest candidates as permanent prehistoric settlements or villages based on size and faunal range are Waikawa and Kahukura. However, lying as they do on the southern fringes of the Catlins Coast, these sites are best interpreted as fishing and birding camps associated with centres further north.

The remaining sites known to date to this early period are small, single activity sites or camps that represent irregular visitation. These are concentrated in key zones that have some attractor status. Bluff Harbour is one such area. It contains a number of argillite outcrops, such as on Colyers Island, as well as sheltered zones for the procurement of estuarine resources. Another concentration is in the vicinity of the Riverton argillite sources between Colac Bay and Riverton. The best example is Hakapureirei (Sand Hill Point) where the archaeological record is exposed and relatively undisturbed.
Most of the archaeological exposures here represent a single procurement or processing event, although the one large midden, dominated by *paua*, might represent several weeks’ camping and processing.

There is also good evidence in the distribution of industrial stone that the early settlement patterns of Foveaux Strait were strongly linked to resource networks centred in east Otago. Sites like Shag River Mouth, Pounawea and Papatowai were located at the centre of an early southern stone distribution network involving the movement of three types of material. The Southland argillites spread from the procurement centres on the south coast up the east coast of the South Island with the volume of material declining north of about the Waitaki River. A second stone type is a purple/grey porcellanite that probably originates in central Otago and which shares a similar archaeological distribution through the south coast and east Otago. It is the most abundant flake-tool material at both Kahukura and Tiwai Point as well as at Shag River Mouth, and it has a high relative abundance in all the Catlins sites. A third stone type is silcrete which originates in a number of Central Otago sources and is strongly associated with Otago moa hunting sites. It is not found in quantity in Foveaux Strait sites but this may be owing to the rarity of moa processing sites. In addition to the distribution patterns the study area shares a common manufacturing technology with this larger zone—the technique of prepared core and blade production. This method was employed to manufacture silcrete blades and Leach and Leach (1980) argue that a similar method was used at the Tihaka quarry site for the production of adze roughouts.

Models 2 and 3 argue for a lengthy period of abandonment from about the 16th century until around the end of the prehistoric period, while Model 1 suggests that a decline in meat resources led to different modes of production and mobility. There is little in the archaeological record to support Model 1. So far archaeologists have identified early sites and artefact finds, plus sites dating to the historic period. But sites or surface artefact finds that fall into an intervening period (i.e., one with the characteristics of Golson’s Classic Māori phase) are rare to absent. While it could be argued that sites associated with a Model 2 phase of small-scale mobile procurement strategies might have a low visibility, the coast is now well surveyed and the vast majority of sites are small and ephemeral, yet do not appear to fit the Model 1 requirements.

Models 2 and 3 differ in how they interpret the lack of 17th or 18th century sites. In Model 2, the coast was abandoned due to a local resource crisis. In Model 3 the coast simply fell out of the resource networks that were centred on the Catlins and east Otago. The notion of a local resource crisis is not supported—first because, as we argue above, the region probably never supported resident hunting communities. But it is also important to note that
the region is one of the only parts of the country in which the sea mammal populations were not significantly impacted upon by early predation activities. While hunting on the south coast did result in moa extirpation, sea mammal populations remained viable into the 19th century. Nor is there any evidence that prehistoric mutton birding impacted significantly on local populations. Mutton birds were an abundant seasonal resource available to Māori and European hunters when people moved back to the south coast from about the turn of the 19th century even though they had been taken by some of the earliest visitors to the region (Anderson 2001).

In contrast, there is strong archaeological evidence to link the abandonment of the south coast with a network collapse further north. According to Hamel (1982) the entire Catlins coast was deserted following the loss of moa and a decline in local sea mammal resources, with a similar population decline occurring around the coasts of Dunedin to the north. At the same time as the Catlins sites were abandoned the southern argillite sources seem to disappear from the record elsewhere, suggesting that the early distribution networks had collapsed. As Jennings (2009) argues, south coast argillites are not found in any contexts or typological forms that suggest their continued use into the “Classic” period.

We conclude that Model 3, the resource network model, best explains the available archaeological and historical evidence for south coast and Foveaux Strait prehistory. In fact, there may be other parts of New Zealand where such a model has potential, including the South Island’s West Coast and parts of the interior of both the North and South Islands. These are all places where there is a clear signal of occupation—possibly very brief—during the Archaic but where there is little further archaeological evidence until much later. Questions of mobility, resource depletion and chronology will be central to the development of models of change in these marginal parts of the New Zealand environment. Material culture studies are likely to prove useful in teasing out the finer details of change that require greater resolution than is available from radiometric methods alone.

The reasons for the bimodal pattern of settlement identified in this paper will become clearer with further study. Model 3 fits reasonably well with the available evidence but, as acknowledged above, the sample is relatively small and there are few excavated data sets upon which to base conclusions. One subject that would benefit from additional research is the oral traditions of Ngāti Mamoe as they pertain to the Foveaux Strait region. This would provide a traditional context for understanding the time depth of settlement in the area before the arrival of Ngāi Tahu. There is also a need for archaeological excavation targeted at middle to late period prehistoric sites for the same reason.
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ABSTRACT

A recent archaeological survey of the south coast of the South Island of New Zealand highlighted some unusual features of the occupation of this part of the country. Although there was clear evidence for widespread settlement early in the prehistoric sequence and again early in the period of sustained European contact, there was a marked absence of evidence for settlement during much of the intervening period. Furthermore, there was a bias towards relatively small sites except where stone procurement or working were the major focus of activity. To investigate these features a radiocarbon dating programme was carried out alongside a study of specific aspects of material culture and site distribution. The results confirmed the initial impression of an all but invisible archaeological presence in the Foveaux Strait area for a period of up to two centuries until about the contact period. Three models to explain this pattern of settlement are evaluated and the one that is selected as the best fit is a resource network model in which Foveaux Strait may never have been permanently settled in prehistory but was always peripheral to wider economic imperatives.

Keywords: Māori, prehistory, Southland, culture change, archaeology.