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# WHANGAMATA OBSIDIAN COROMANDEL PENINSULA

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During excavations at the Whangamata wharf site T12/2 (N49/2) in 1969, Allo (1972: 67) noted the presence of "waterworn obsidian pebbles and boulders on the rocky shore opposite the site", on the eastern side of Whangamata Harbour. The material was grey in colour, contained spherulites, and was partly of flake quality, and Allo considered that at least some of the obsidian flakes in the site could have been derived from this previously unrecorded "source".

The existence of this natural obsidian deposit was subsequently confirmed by John Coster and Gabrielle Johnston, who recorded "lumps" of obsidian at two localities on the eastern shore of the Whangamata Harbour (Coster & Johnston 1975). They also found obsidian further north at Onemana, as well as flakes of 'grey' obsidian at several other sites in the area.

This paper is largely based on observations made in December 1983 (with John Coster), and the recent examination of collections held at Auckland Museum. The obsidian deposits at Onemana were previously described by Moore (1983).

## **Location and Nature of Deposits**

All of the main deposits are located near the mouths of streams draining the western side of the Whangamata Peninsula (Figure 1). These are essentially alluvial in nature, although in most places material has been redistributed along the shoreline to form littoral deposits. Isolated pieces found north of WM-5 may be colluvial, and some of the nodules collected south of Waihirere Stream appear to be almost in situ (in breccia). Other obsidian occurrences in the area (e.g. Pohokura Rd., north of Onemana) may not have been exposed in pre-European times, or been considered of suitable quality. The deposits are described in more detail in Table 1.

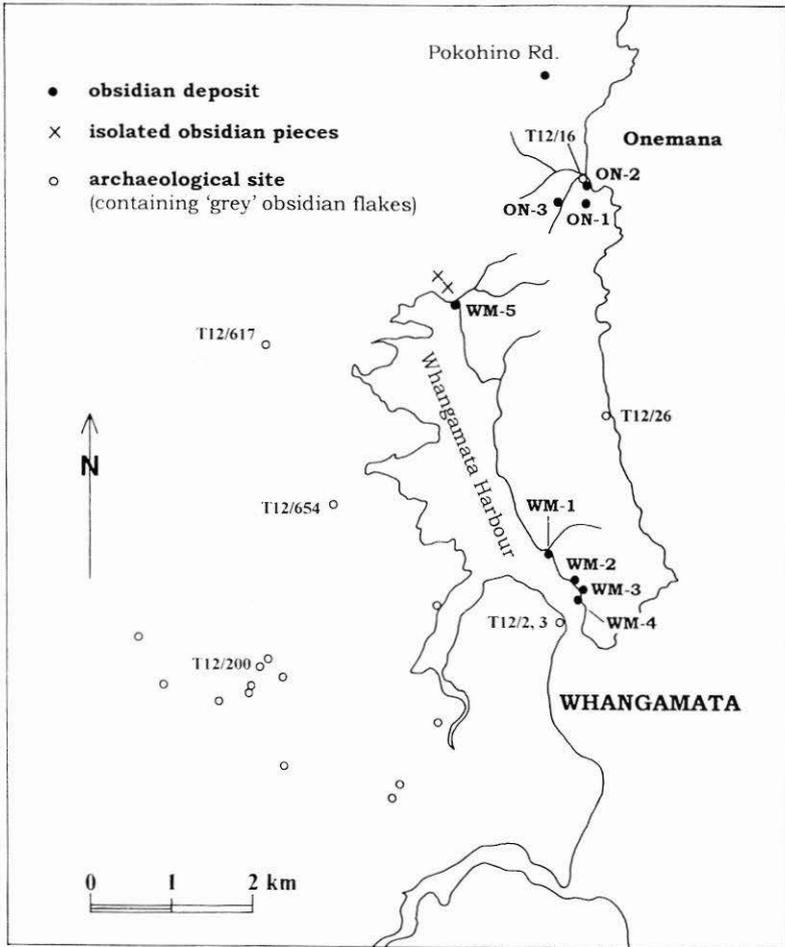


Figure 1. Map of the Whangamata area, showing the location of obsidian deposits and relevant archaeological sites.

### Physical Characteristics

Much of the obsidian in the Whangamata area has a pitted or striated outer surface, typical of colluvial or alluvial material transported only a very short distance. Freshly broken samples are generally black in reflected light (small quantities are dark grey), grey in transmitted light, very vitreous, and have a perfect conchoidal fracture. Some obsidian from WM-5 is dark yellowish brown

in transmitted light. Translucency ranges from poor to very good overall (Moore 1988), though material from WM-4 is invariably less translucent than that in other deposits. Most samples are only weakly flow banded, but stronger flow banding is evident in a few pieces.

In general, the obsidian contains only rare crystal inclusions (usually 0.5-1mm) and few or no spherulites, although some pieces have abundant spherulites. These are light grey and vary considerably in size from <0.5mm to 5mm diameter; larger ones (>1mm) are uncommon. In some samples the spherulites are elongated or "streaked-out".

It may prove difficult - but not impossible - to distinguish Whangamata obsidian from that of other Coromandel deposits on the basis of physical characteristics alone. The only unusual feature is the brown colouration (in transmitted light) of some pieces. This can be distinguished from Waihi 'brown' obsidian by the fact that the latter is almost opaque (Moore 1988). The proportion of 'brown' obsidian at Whangamata appears to be quite small, and thus the possibility of finding such material in archaeological sites is fairly remote.

### **Chemical Composition**

Chemical analyses of obsidian from Whangamata Harbour localities (WM-1, 4, 5; unpublished data) are very similar to those previously obtained for Onemana deposits (Moore 1983), and indicate that the latter constitute part of the Whangamata source area. They also show that Whangamata obsidian (including Onemana) can be distinguished from Hahei, Cooks Beach and Tairua material mainly on the basis of low Ca and very low Sr concentrations (see also Neve et al. 1994).

### **Evidence of Exploitation**

From its name, the area was obviously regarded as an important source of obsidian in pre-European times. This is also indicated by archaeological evidence from a number of sites in the region.

At the Whangamata wharf site T12/2, obsidian flakes were found mainly in the oldest occupation layer (Midden B) which, although not dated, was considered by Allo (1972) to be Archaic from artefactual and faunal evidence. Most of the obsidian was apparently from Mayor Island, but Midden B also contained a cache of 49 flakes and 3 cores of "clear grey" obsidian "with darker grey flecks". These may have come from a local source.

Large quantities of obsidian were recovered during early excavations and surface collections at the Archaic coastal midden T12/16 at Onemana (Furey 1990). The majority – perhaps 80% - consisted of flakes that were grey in transmitted light. A high proportion of these had remnants of cortex present on one or more surfaces, indicating they were derived from small cobbles. Subsequent excavations at this site yielded a further 92 pieces of obsidian of which 89% were provisionally sourced to Whangamata/Onemana deposits (Furey 1991). 90% of them had cortex present.

Collections from another “early” site (T12/26) further south also include a high proportion of ‘grey’ flakes (estimated to be in the order of 90%), some of them of very poor quality material, with abundant spherulites and common crystal inclusions. In contrast, inland sites within the Tairua Forest have generally yielded very little obsidian. However, examination of small collections made by Coster and Johnston in 1974-5 from 25 sites shows that about 70% of them contained ‘grey’ flakes and pieces (and in some cases, cores), although Mayor Island obsidian was the dominant type overall. One site, T12/200, also contained a few pieces of ‘brown’ material.

Two of these inland sites (T12/617 and T12/654) – both interpreted as open settlements - have been excavated (Furey 1987, Short 1988). The former yielded 4 pieces of ‘grey’ obsidian, similar to that in local deposits, while only 3 pieces were recovered from T12/654. Radiocarbon dates for these sites indicate that they were occupied in the 16<sup>th</sup>-17<sup>th</sup> centuries.

Although it is by no means certain that all of the ‘grey’ obsidian in Whangamata sites was obtained from local deposits, the similarity in physical characteristics, very high proportion of cortex in some assemblages, and presence of ‘brown’ material, indicates that the bulk of it probably came from the Whangamata source area.

Whangamata obsidian was transported much further afield as well. Of 76 flakes and pieces from the Opita site near Paeroa, analysed by PIXE, 10 were confidently sourced to Whangamata/Onemana (Neve et al. 1994). Most of these were present in the earlier (Phase I) occupation layers of T13/789, probably dating to before 1800. At least some of the ‘grey’ flakes recovered from excavations at the nearby Raupa and Waiwhau sites may also have originated from Whangamata (Phillips 1988: 66, Prickett 1992: 94).

These records point to the use of Whangamata obsidian in southern Coromandel Peninsula over a period of at least 300 years, from the 14<sup>th</sup>-15<sup>th</sup> century (Onemana site) to the late 18<sup>th</sup> century, or later (Opita site).

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Table 1: Location and description of Whangamata obsidian deposits.

Deposit	Grid ref.	Location	Description	Nature
WM-1	T12/656413	Mouth of Waiariki Stream	Common pieces along shoreline 50m north and south of stream mouth. Few nodules in lower part of stream	Alluvial/littoral
WM-2	T12/659409	Mouth of small gully north of Waihirere Stream	Common small (<5cm) nodules at beach level; few larger pieces and flakes. Also common along shoreline to south	Alluvial/littoral
WM-3	T12/660409	Mouth of Waihirere Stream	Small nodules at beach level (high tide)	Alluvial/littoral
WM-4	T12/660408	Coast south of Waihirere Stream	Very common (locally abundant) nodules at high tide level 100-200m south of Waihirere Stream. Possible in situ nodules in breccia	Littoral
WM-5	T12/645444	Mouth of Waikoura Stream	Very common (locally abundant) large pieces in stony areas among mangroves. Common small pieces in tidal part of stream	Alluvial/littoral