



United Nations
Educational, Scientific and
Cultural Organization



UNESCO
Global
Geoparks

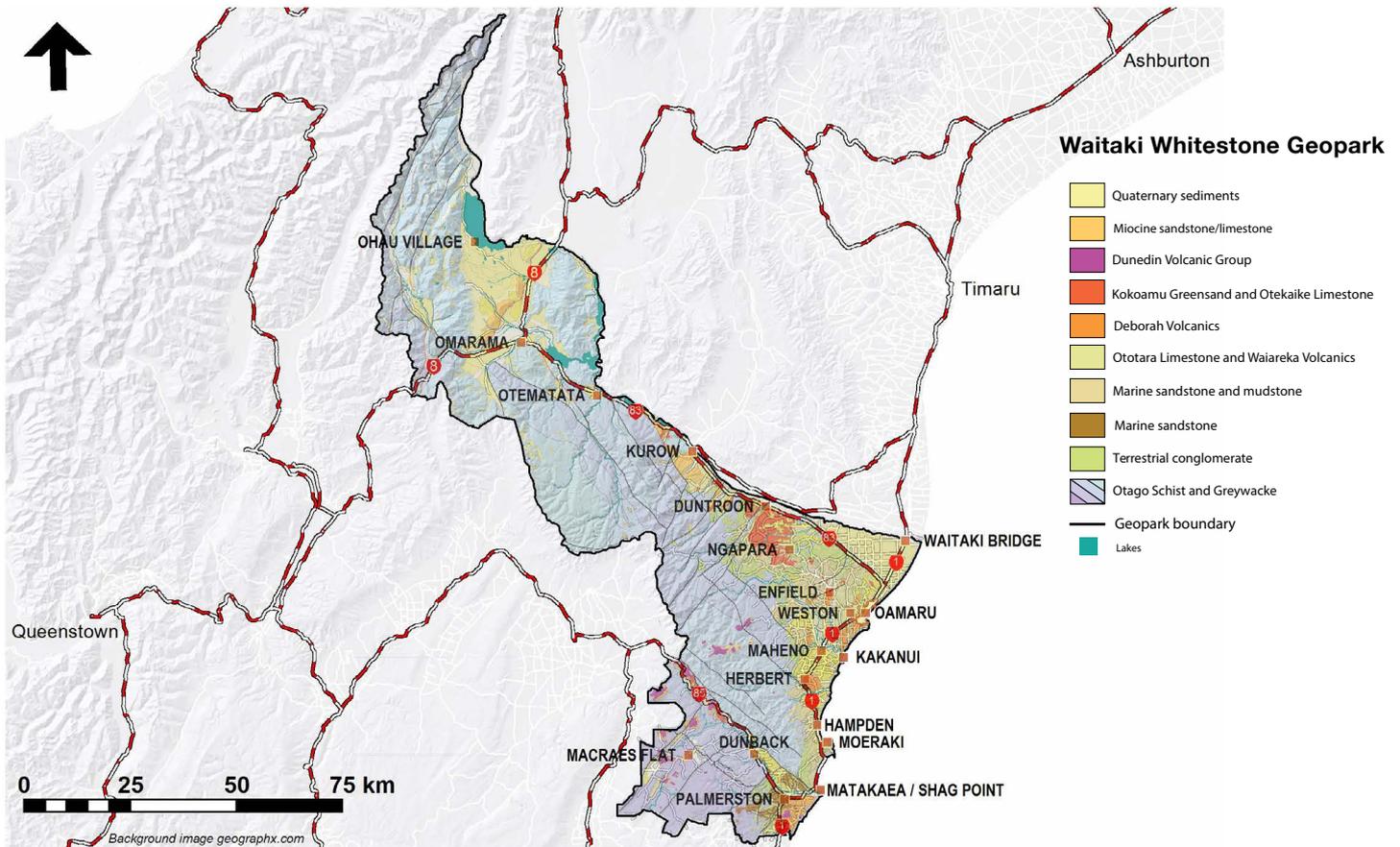
Applicant UNESCO Global Geopark

Waitaki Whitestone Geopark, New Zealand

geographical and geological summary



● Aspiring UNESCO Global Geopark



1. Physical and human geography

Waitaki Whitestone Geopark is located on the central east coast of Te Waipounamu (South Island), Aotearoa (New Zealand). With an area of 7214 km², the Geopark boundaries are aligned with the administrative boundaries of the Waitaki District, and form part of the northern Otago and southern Canterbury regions.

The Geopark is characterised by diverse landscapes ranging from alpine areas in the west to rolling downlands, braided river plains and sea cliffs to the east. Flat-topped mesas, karst topography and prominent volcanic peaks are distributed throughout inland regions, while less resistant mudstones and siltstones create a more subdued topography. The braided Waitaki River forms the northern boundary of the Geopark; the Horse, Kakanui and Hawkdun ranges and Southern Alps, the western boundary. The southern boundary is defined by peaks of the Dunedin Volcanic field. Approximately 80 km of coastline form the eastern boundary. The highest point is Mount Huxley at 2505 meters above sea level. These diverse landscapes support many unique species that occupy alpine, braided river, lake, lowland and coastal habitats.

The population of the Geopark is 22,200. Oamaru is the largest town with a population of 13,950, and there are 15 other towns and villages in the area. The Geopark offers a home for local wine and food producers, which is reflected in the emerging range of geo-gastronomy offerings available. Although the dominant business sector in the Waitaki area is agriculture, tourism is a significant and growing contributor to the local economy.

Geographic coordinates of the Waitaki Whitestone Geopark:

Max Longitude: 171° 10' 46.01"

Min Longitude: 169° 27' 43.09"

Max Latitude: -45° 35' 07.32"

Min Latitude: -43° 46' 40.08"

2. Geological features and geology of international significance

Waitaki's diverse geology preserves all of the key components of Zealandia's geologic history. Jurassic metasediments record the birth of Zealandia at the margin of the Gondwana supercontinent about 170 million years ago. The overlying sedimentary sequences document the submergence of much of Zealandia below sea level. This interval of time, the Paleogene Period, marks a turning point in Earth history, when tectonic shifts, changes in ocean circulation patterns, and a cooling climate resulted in the diversification of marine life, including the evolution of whales and dolphins. These global changes, and the fossilised remnants of the marine life that thrived during this time are preserved in the sedimentary sequence that accumulated during Zealandia's submergence below sea level. The mountains, glacial valleys, active faults and the braided Waitaki River are evidence of the recent and ongoing tectonic deformation along the nearby Australian-Pacific plate boundary, which has uplifted the crust and transformed the ancient seafloor into dry land.

Ongoing geological research within the Waitaki region has been critical to our understanding of the evolution of modern whales and dolphins, the eruption dynamics of submarine Surtseyan-style volcanoes, and the nature of Zealandia's lithospheric mantle. The diversity of geologic features within the Geopark attracts geologists and tourists alike, and the presence of exceptionally preserved fossil remnants of an ancient marine world brings our geologic heritage to life.