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BONVALLOT, J.

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Modern Evolution of Lagoon Shorelines of the Society Islands, French Polynesia

The population of the Society Islands, in French Polynesia, is in constant progression. From 99,000 in 1971 it increased to 142,000 in 1983, and will aproximately reach 200,000 inhabitants by the year 2000. The scarsity of livable surface areas along the narrow coastal fringe of these volcanic islands inexorably leads

towards a densification of the population which is poorly supported by the natural environment.

In Tahiti, the urban agglomeration of Papecte with the associated townships extends for more than 40 kilometers. Densities are often in excess of 2,000 inhabitants per square kilometre. In Moorea and the Leeward Islands, small agglomerations are under development, and the coastal plain is covered with family homes.

Such concentrations of population inevitably cause deep changes of the lagoonary coastal ecosystems for which it has become difficult to find still untouched references, except for some areas of the Taiarapu Peninsula.

These modifications which vary in space are of several orders. They influence the physical and chemical balance of the lagoons, especially on the island of Tahiti, and cause bacteriological and chemical pollution, as well as deep disruptions in the configuration of the coastline.

A census of human actions allows to reveal important modifications of the shoreline due to the effect of earthfilling works, constructions of quays, landing stages and road-dams, modifications all of which are not always made well advised. In some lagoons, a modification of the lagoon topography occurs under the effect of coral material extraction for civil engineering work.

The touristic potential of the Society Islands is therefore gradually being diminished; urgent measures must be taken to protect this coastline that has the reputation of being one of the most attractive ones in the world.

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Late Glacial and Holocene Denudation within Kettle-Holes Formed during the Last Glaciation

Investigations aiming a a quantitative determination of the size, speed and structure of denudation processes were based on the sedimentological, geochemical and geochronological analysis of deposits which fill mid-upland sedimentation basins that are characterized by an evapotranspirational hydrological regime. Based on the analysis, curves of changes in the intensity of total, mechanical and chemical denudation were constructed for the Late Glacial and Holocene. The curves relate to four closed basins, used for farming purposes, located in the northwestern part of Poland.

It follows from the curves that the greatest intensity of total denudation, ranging from X-XO mm/100 years is characteristic for the Late Glacial and Sub-Atlantic periods, beginning in the Roman period. The lowest total denudation is connected with the Atlantic period - 0.00X-0.000X mm/100 years. During the Holocene, with the exception of the last 2,000 years, chemical denudation was decisively dominant, constituting on the average from 50 to 80% of the total denudation. It caused an increased accumulation of such elements as Ca and Cu in the sedimentation basins.

The greatest intensity of the mechanical denudation is characteristic for the Late Glacial and Sub-Atlantic periods. At that time, due to chemical denudation, only from 10 to 30 % of the total amount of material deposited in scdimentation basins could be extracted. Among the main elements extracted then during lixiviation were Ca (during the Late Glacial) and Mn as well as some heavy metals - Zn, Ni, Pb (during the contemporary period).

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BOUCHARD, M.

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