

Establishing Drinking Water Protection Areas under the Water Policy Framework Regulations, 2004

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**ESTABLISHING
DRINKING WATER PROTECTED AREAS
UNDER THE
WATER FRAMEWORK POLICY REGULATIONS, 2004**

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1 Register of Protected Areas

The Water Policy Framework Regulations (L.N. 194 of 2004) under Regulation 6 requires the establishment of a register of all areas lying within each Water Catchment District which have been designated as requiring special protection under specific legislation for the protection of their surface water and groundwater or for the conservation of habitats and species directly depending on water.

The Regulations under Annex IV specify that this register should include the following types of protected areas:

- (i) areas designated for the abstraction of water intended for human consumption under regulation 7;
- (ii) areas designated for the protection of economically significant aquatic species;
- (iii) bodies of water designated as recreational waters, including areas designated as bathing waters under any regulations concerning the quality of bathing water;
- (iv) nutrient-sensitive areas, including areas designated as vulnerable zones under the Protection of Water against Pollution caused by Nitrates from Agricultural Sources Regulations, 2001 (L.N. 343 of 2001) and areas designated as sensitive areas under the Urban Waste Water Treatment Regulations, 2001 (L.N. 340 of 2001); and
- (v) areas designated for the protection of habitats or species where the maintenance or improvement of the status of water is an important factor in their protection, including relevant areas protected through the Flora, Fauna and Natural Habitats Protection Regulations, 2003 (L.N. 257 of 2003) and the Protection of Birds and Wild Rabbits Regulations, 1993 (L.N. 146 of 1993) as amended.

Under the Memorandum of Understanding currently being agreed between the Malta Environment and Planning Authority and the Malta Resources Authority for the co-ordinated implementation of the Water Policy Framework Regulations, 2004; the Malta Resources Authority is responsible to determine the areas to be protected for reasons related to the abstraction of groundwater intended for human consumption.

2 Drinking Water Protected Areas

The Regulations require certain sources of drinking water to be designated as protected areas. Under regulation 7 these areas are:

- all bodies of water used for the abstraction of water intended for human consumption providing more than 10m³ a day as an average or serving more than 50 persons, and
- those bodies of water which have been identified during the water catchment planning process as being intended to support such levels of drinking water abstraction in the future.

The Malta Resources Authority has identified the following bodies of groundwater within the Maltese Water Catchment District as satisfying these criteria and thus qualifying as "*waters used for the abstraction of drinking water*" under regulation 7.

Groundwater Body Code	Groundwater Body Name
MT001	Malta Main Mean Sea Level
MT002	Rabat-Dingli Perched
MT003	Mgarr-Wardija Perched
MT006	Mizieb Mean Sea Level
MT008	Mellieha Perched
MT013	Gozo Mean Sea Level
MT014	Ghansielem Perched

Table 1: Groundwater Bodies used for the abstraction of drinking water or intended for future such use.

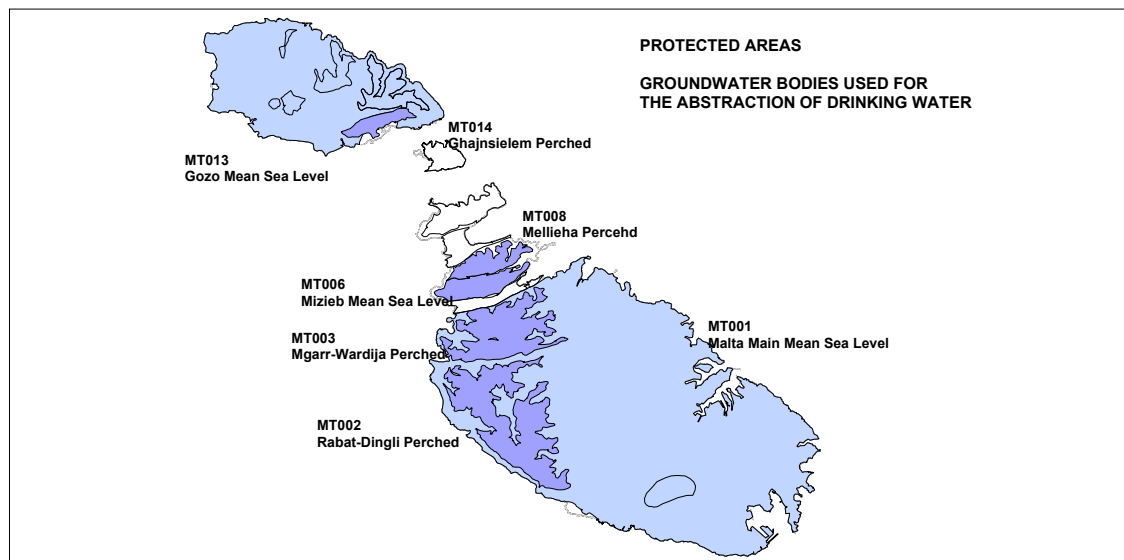


Figure 1: Groundwater Bodies used for the abstraction of drinking water within the Maltese Water Catchment District

These groundwater bodies are currently being used for the abstraction of drinking water by the Water Services Corporation with the exception of the Rabat-Dingli perched and the Mellieha Perched groundwater bodies. Groundwater abstraction for potable purposes from these two groundwater bodies has been discontinued during the last few years due to their extremely high nitrate concentration. It is however envisaged that with the adoption of the measures outlined in L.N. 343 of 2001 on Nitrates from Agricultural Sources, the Nitrate content in these groundwater bodies will progressively decrease making these groundwater sources utilizable for the public distribution network.

3 Drinking Water Safeguard Zones

3.1 Introduction

The Regulations, under sub-regulation 7.3, require that such groundwater bodies be protected with the aim of avoiding deterioration in their quality in order to reduce the level of purification treatment required in the production of drinking water. In practice, this will require measures to be taken to ensure the level of purification treatment required to produce water suitable for drinking is not increased as a result of deterioration in the quality of the bodies. The Regulations also indicates that the relevant Competent Authority may establish safeguard zones for these bodies of groundwater.

3.2 Groundwater Protected Zone

In the Maltese Water Catchment District such a "safe-guard" zone is already established and is currently known as the "Groundwater Protected Zone". This zone was established on the basis of the location of the public groundwater abstraction sources. Abstraction of groundwater creates a zone of influence centered around the abstraction source throughout which, groundwater flow is diverted to the source. Thus any pollutant reaching the groundwater within this zone of influence will be diverted towards the central region of the zone and subsequently abstracted. Values for the radii of influence for abstraction sources in the Lower Coralline Limestone Aquifers were calculated using the Dagan-Bear approximation for a fresh-water lens situation and assuming a homogenous isotropic aquifer with an initial horizontal interface. These results indicated that under normal pumping conditions this zone of influence would extend to around 300m from each abstraction source. Thus, the Groundwater Protection Zone was determined by constructing a 300m buffer zone around each pubic abstraction source and subsequently joining these buffer zones together.

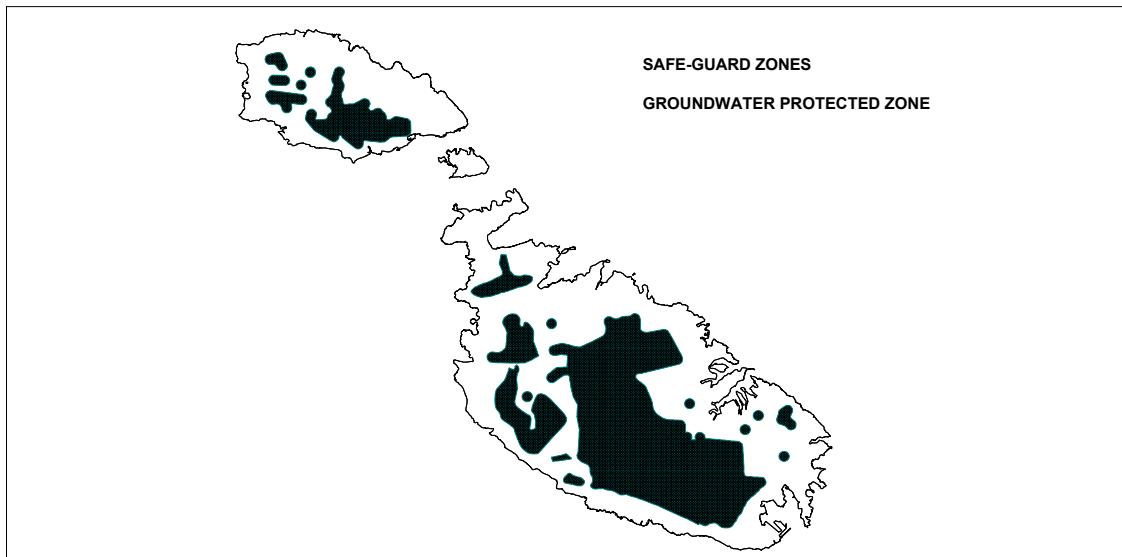


Figure 2: The extent of the Groundwater Protected Zone in the Maltese Water Catchment District.

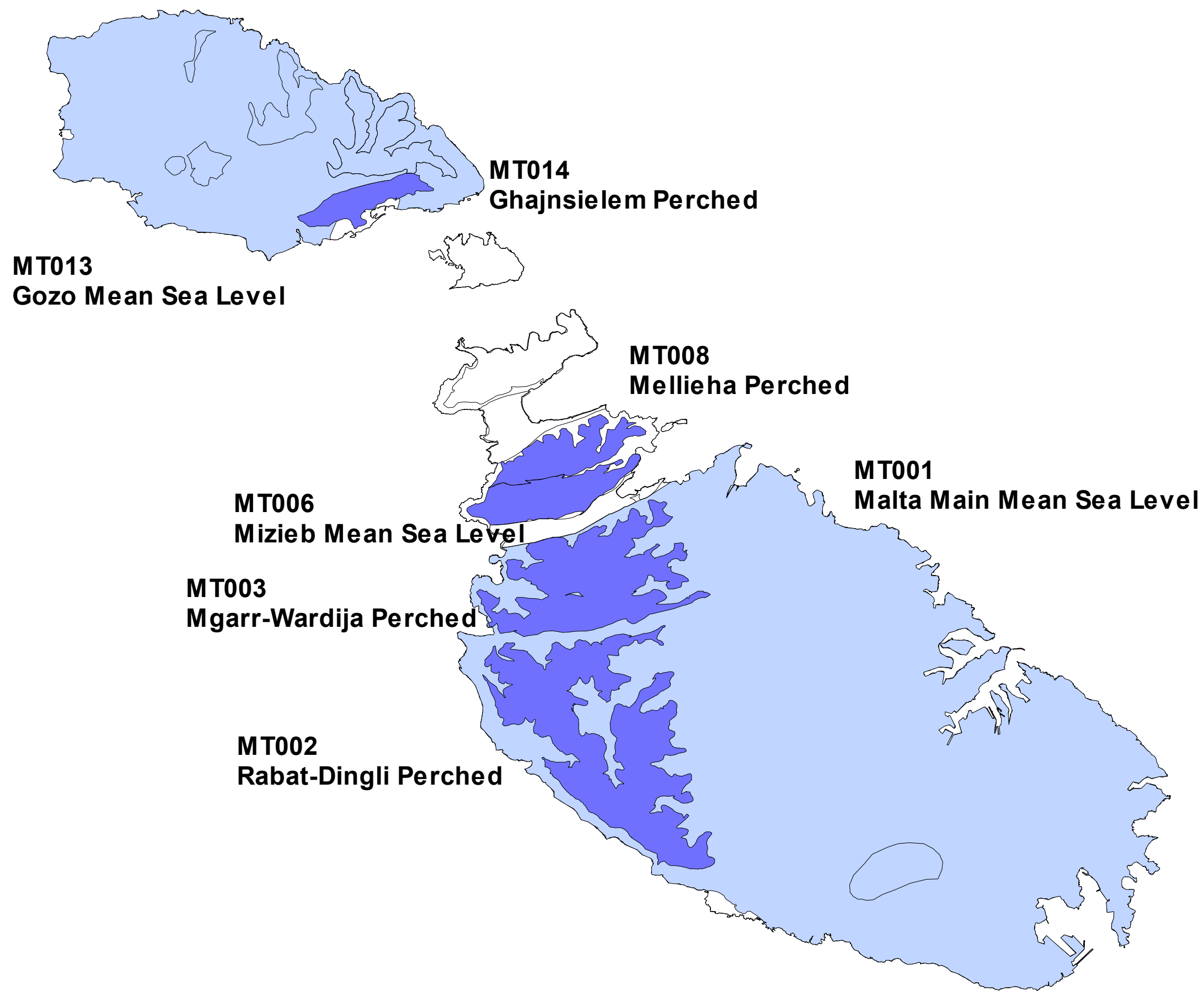
3.3 Preventive Measures

The Malta Resources Authority is a statutory consultee of the Malta Environmental and Planning Authority on the hydro-geological and related matters. The Authority does not recommend any new development lying within the Groundwater Protection Zone which could potentially have a pronounced impact on the qualitative and quantitative status of groundwater resources. It is important to note that:

- (i) an Immediate Protection Area, defined by the 25m radius around each public abstraction source, has been established within which no development applications are recommended by the Authority;
- (ii) the Authority recommends stringent conditions on development applications which do not lie within the Groundwater Protected Zone in order to reduce the potential impact of these developments on the underlying groundwater resources.



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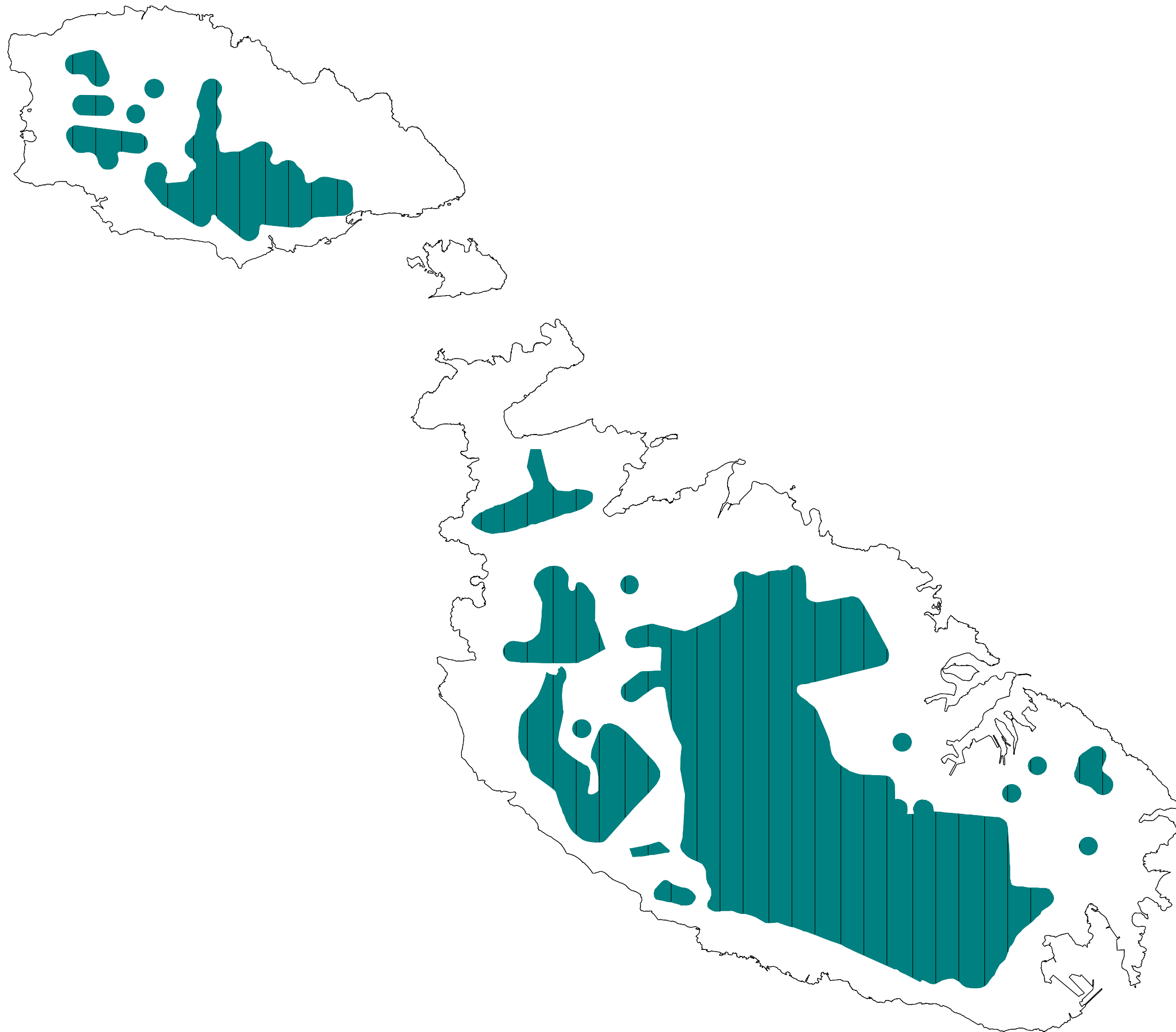


PROTECTED AREAS

GROUNDWATER BODIES USED FOR THE ABSTRACTION OF DRINKING WATER



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SAFEGUARD ZONES

GROUNDWATER PROTECTED ZONE