

Coastlines, Structures and Breakwaters 2005

Harmonising scale and detail

Larnaca Vs Zygi Harbour Breakwaters

Harmonising Natural Processes with Man-made Environment

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Questions

1. How are the results of the Environmental Impact Assessment Studies used by the Decision Makers ?
2. How does people perception change with time ?

Presentation

Content

- Larnaca Port and Marina
- Zygi Harbour
- Approval Procedures
- People Perception with Time

Larnaca 1969, Zygi 2005

Two Examples Close to each Other

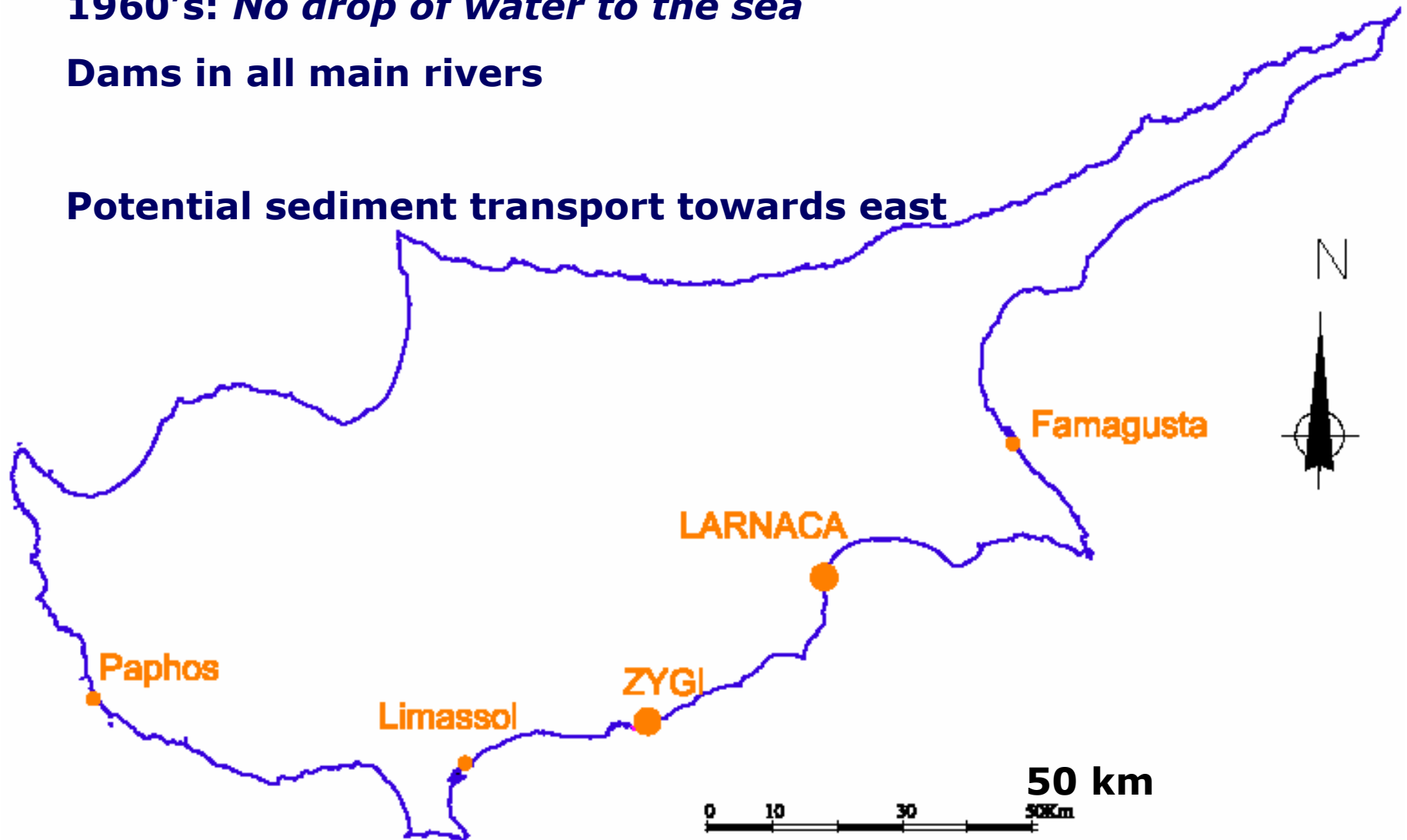
- Larnaca Port and Marina (1969)
- Zygi Harbour (2005)

Larnaca - Zygi

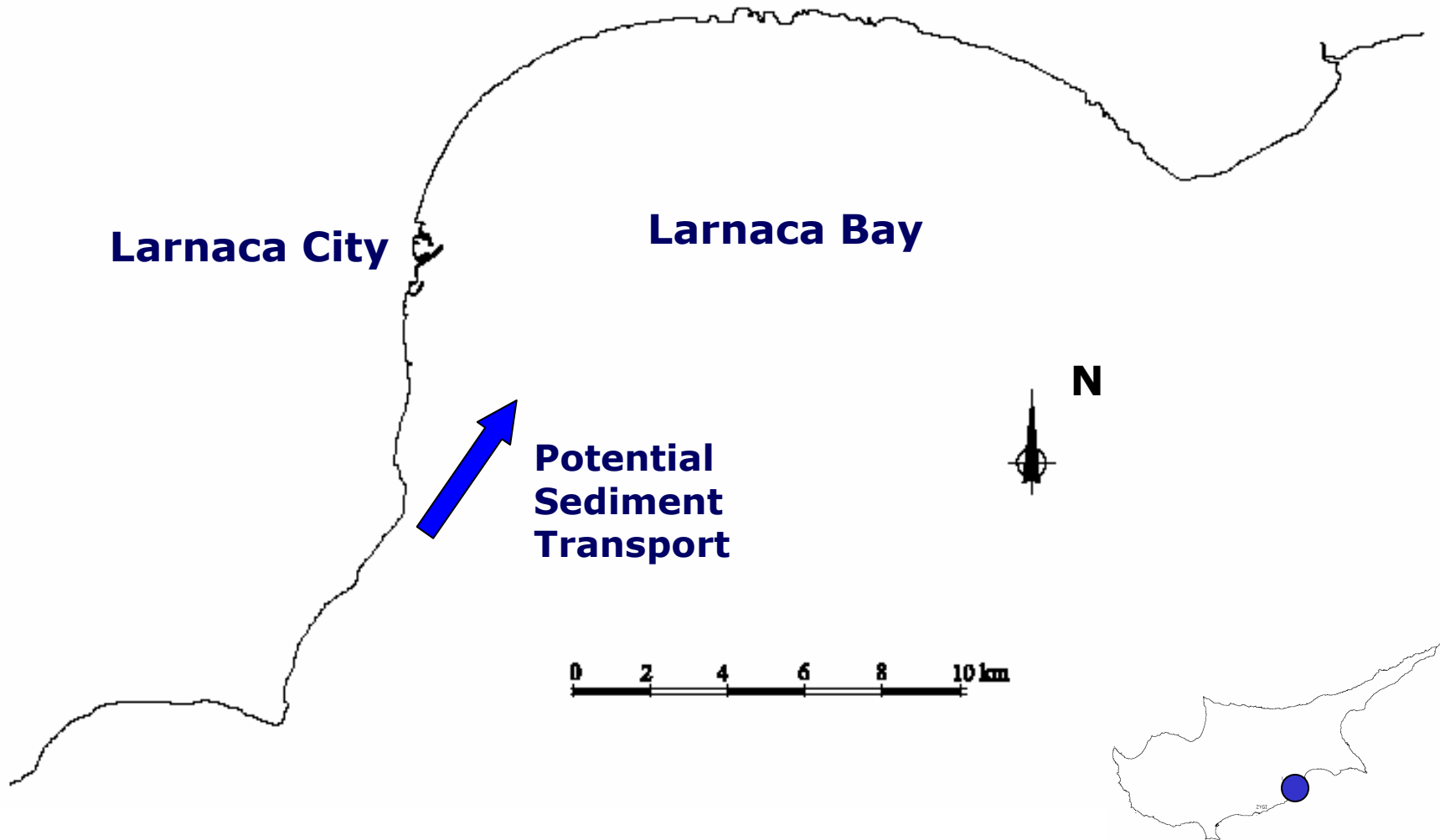
1960's: *No drop of water to the sea*

Dams in all main rivers

Potential sediment transport towards east

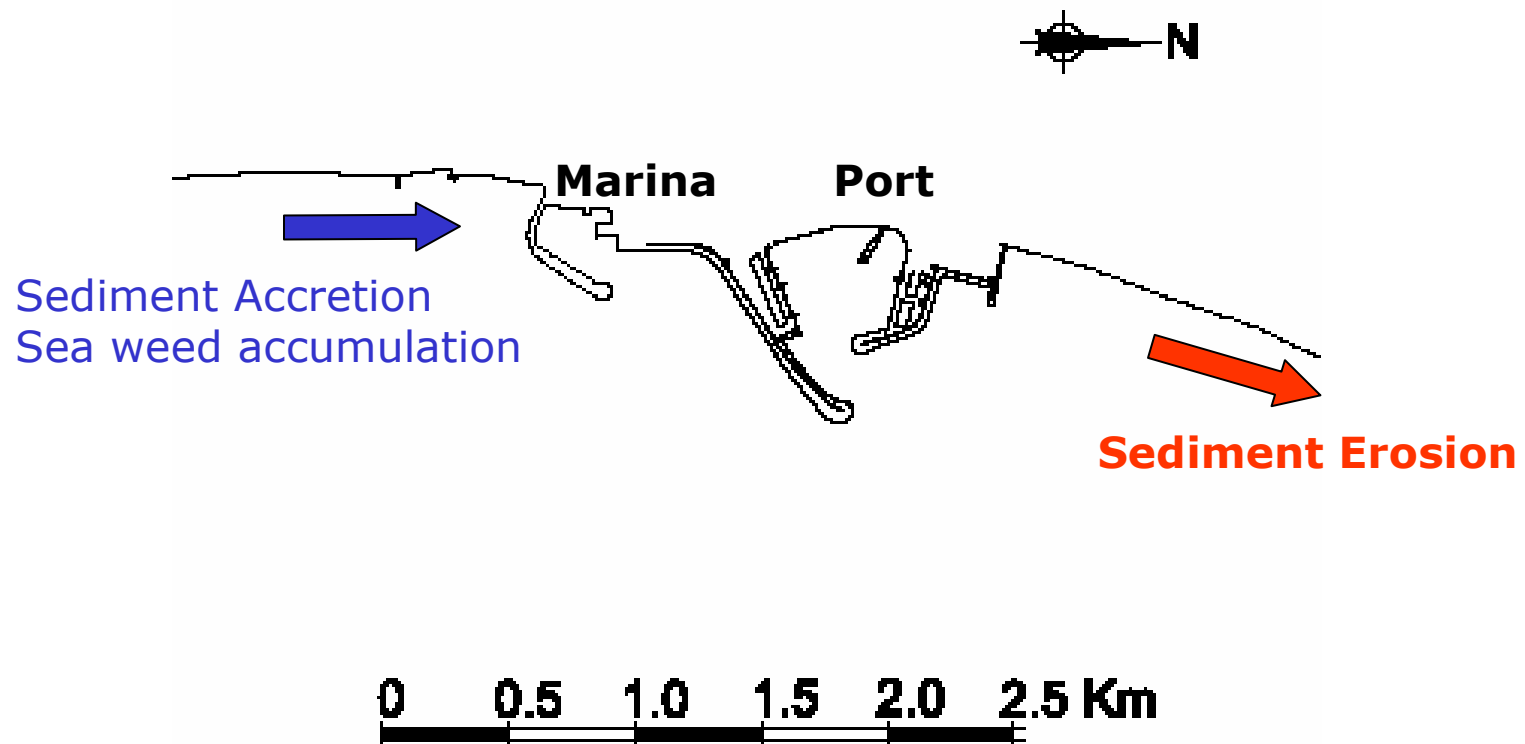


LARNACA BAY



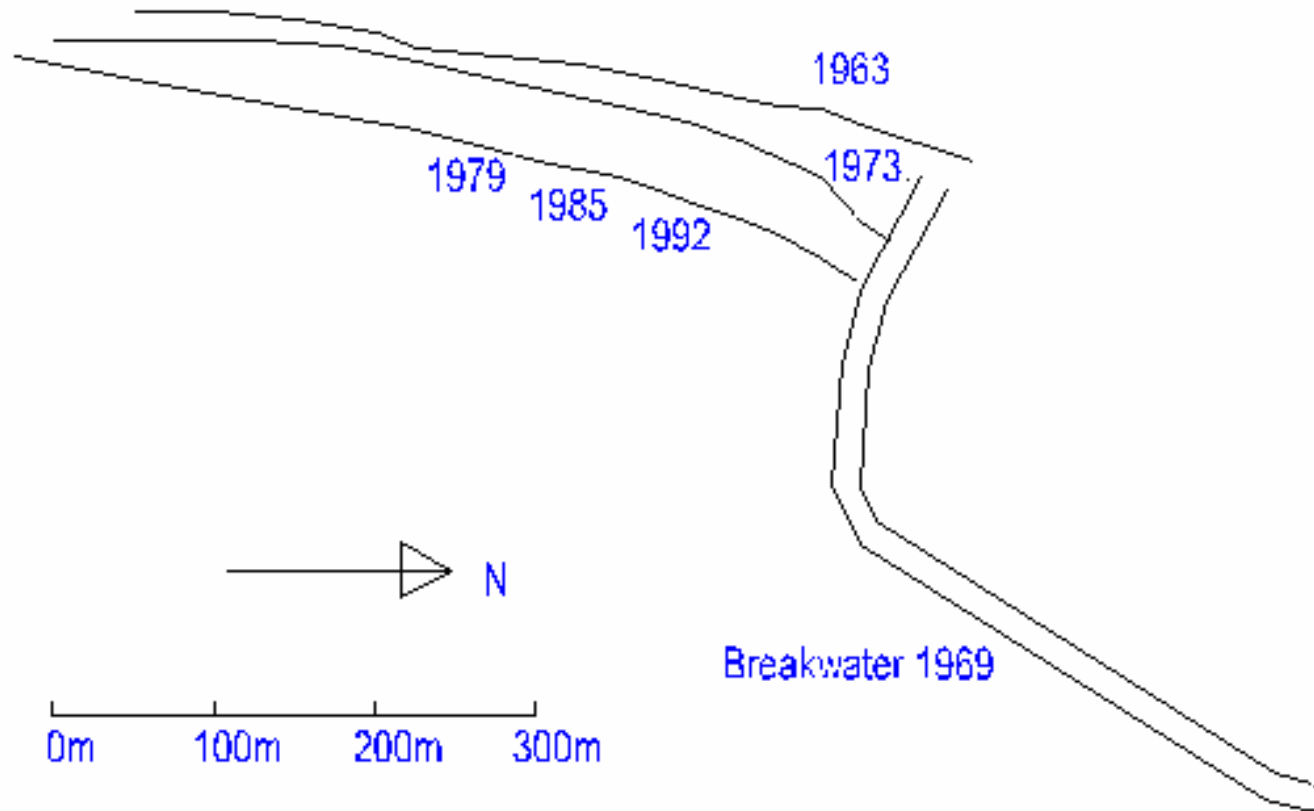
LARNACA MARINA

Larnaca City



LARNACA MARINA

Coastline Evolution (aerial photographs)



LARNACA MARINA

Sediment Accretion



LARNACA MARINA

Larnaca Sea Front



LARNACA MARINA

ADVANTAGES

Sediment Accretion

- **New Beach**
- **Promenade**
- **Infrastructure works**

LARNACA MARINA

DISADVANTAGES

- **Increased sediment erosion downdrift**
Erosion arrest works (groynes, offshore detached breakwaters, sea walls)
- **Sea weed accumulation updrift**
- **Siltation of marina entrance channel**

LARNACA MARINA

PROCEDURE

No approval required

- **Government Works did not require (1969) any licence**

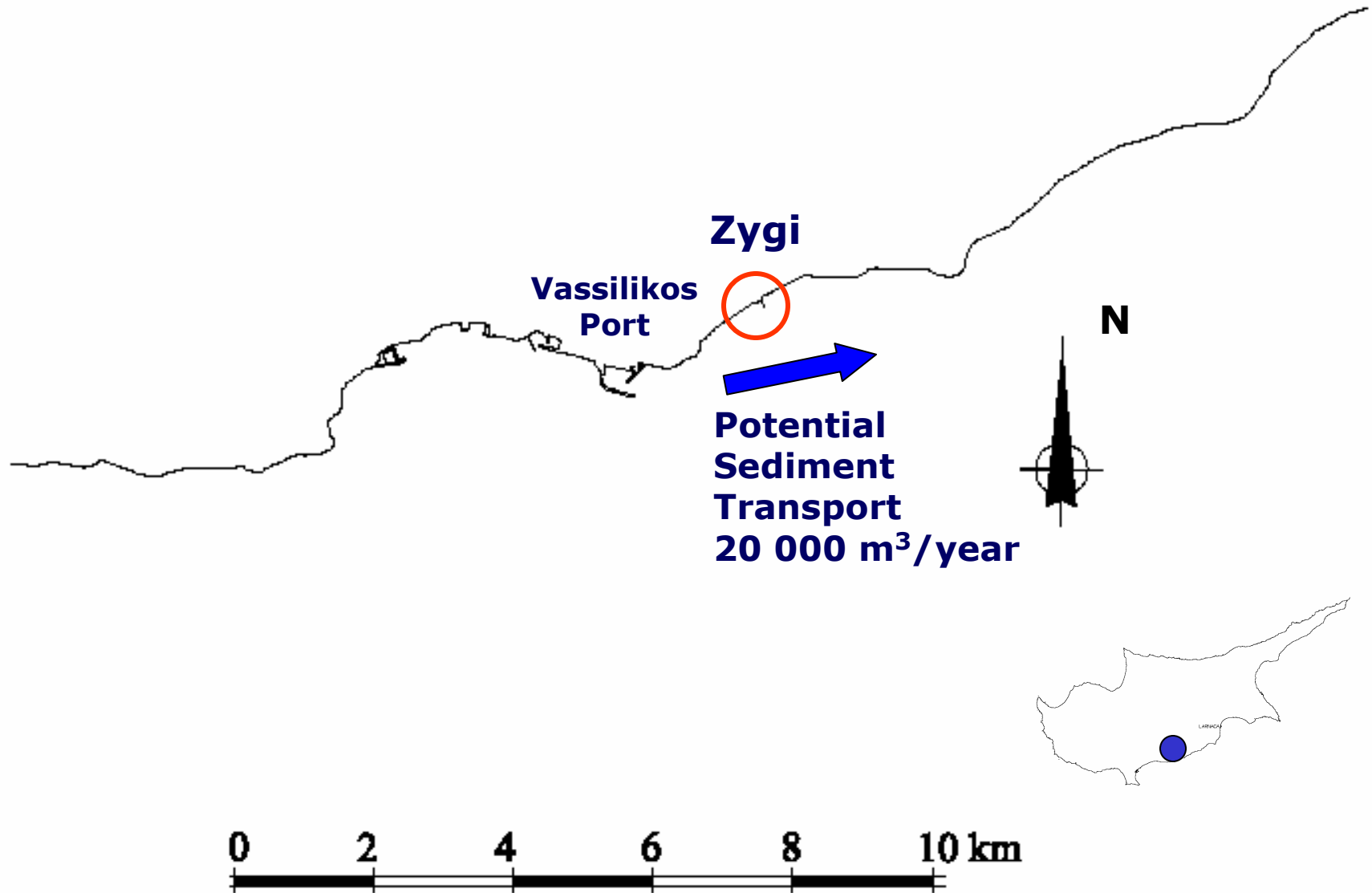
LARNACA MARINA

EVALUATION

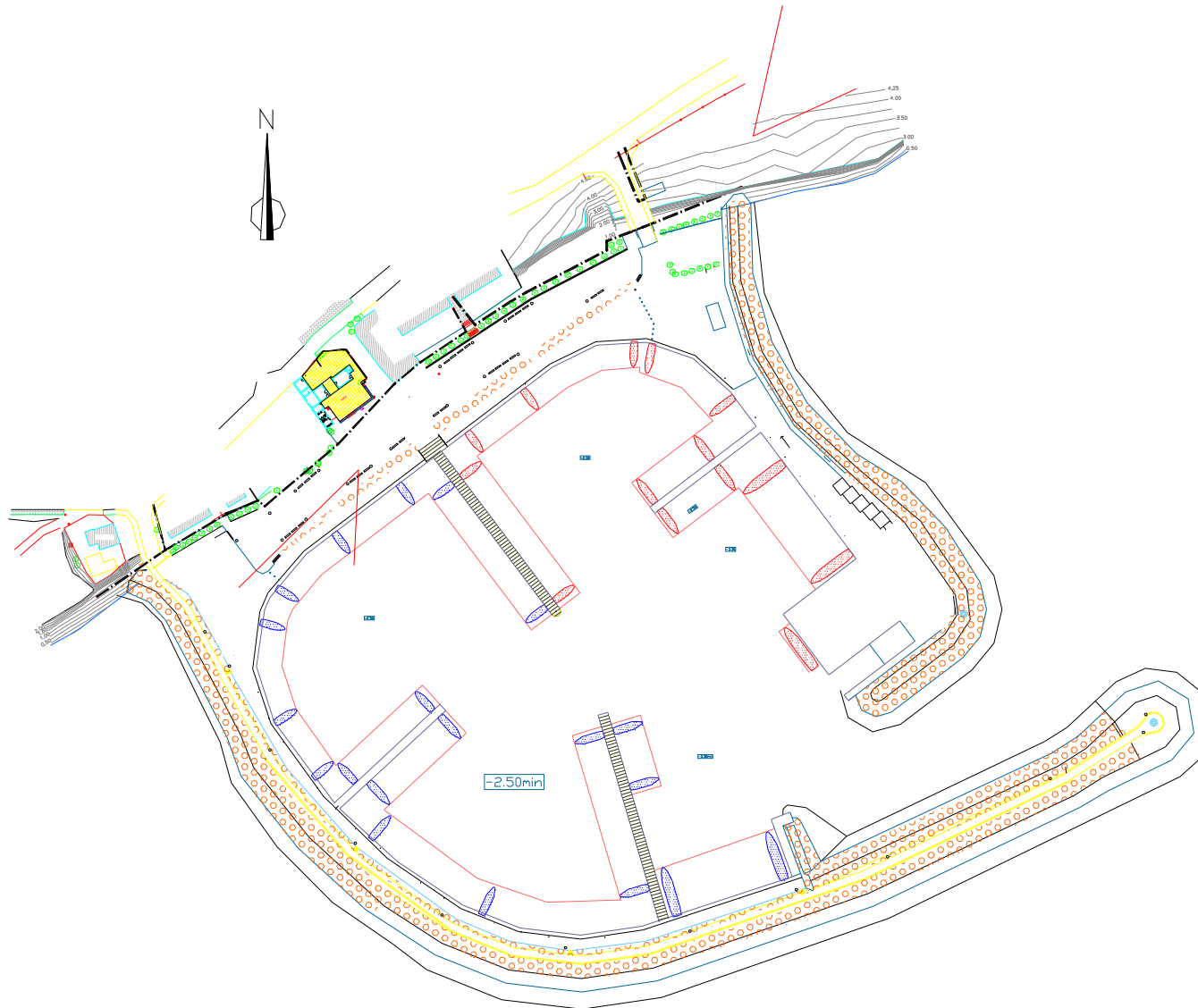
Today: *A success story*

Sea Front: Jewel of the City

ZYGI AREA



ZYGI HARBOUR



ZYGI HARBOUR ENVIRONMENTAL IMPACT

Coastal Engineering Impact

Sediment Accretion Updrift

Increased sediment erosion downdrift

Seaweed accumulation updrift

**ZYGI HARBOUR
ENVIRONMENTAL IMPACT**

**Modifications to Erosion
Protection Works**

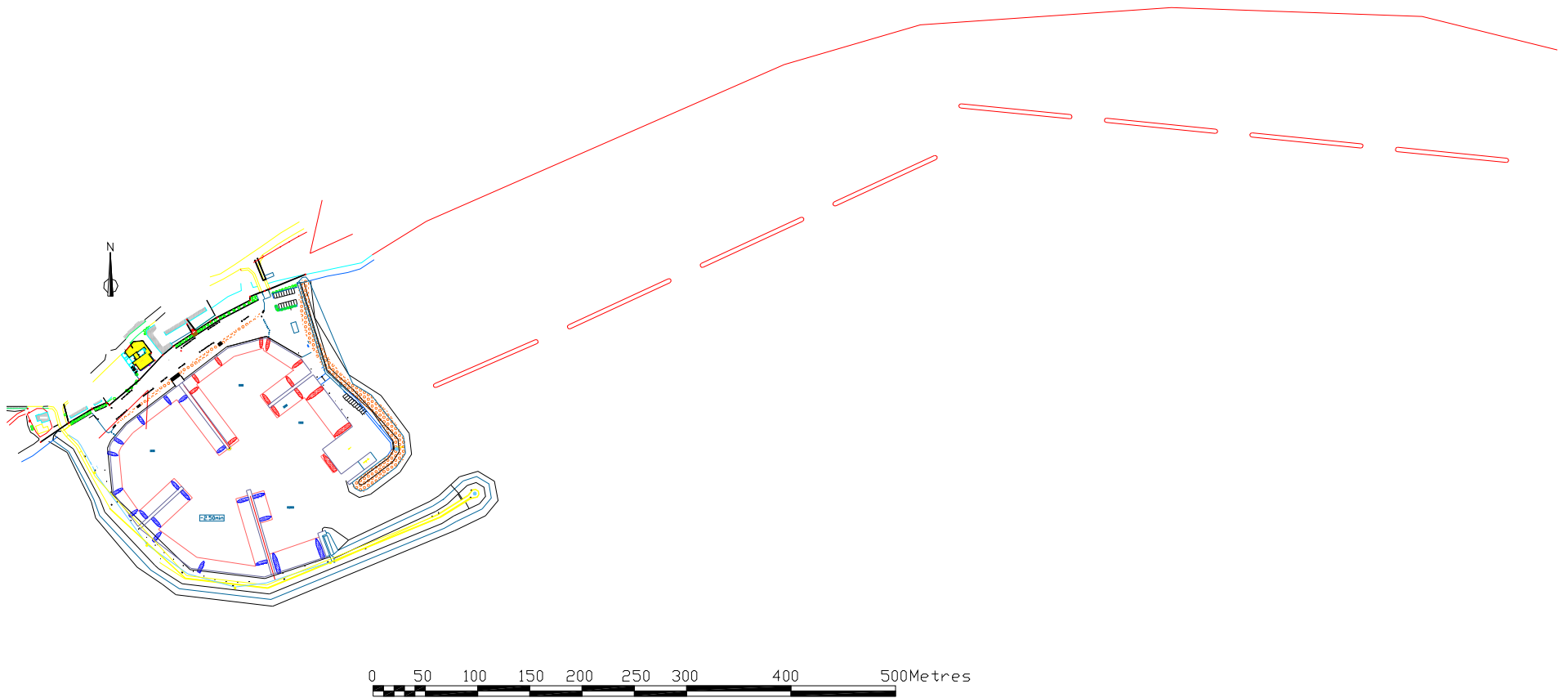
Without Harbour:

Series of short Groynes

With Harbour:

Series of offshore detached breakwaters

ZYGI HARBOUR AND EROSION PROTECTION WORKS



ZYGI HARBOUR

Environmental Service Opinion

Rejection of Proposed Works (2004)

- **Re-evaluation of harbour location**
- **Re-evaluation of harbour size**
- **No reference to Larnaca marina case**

PEOPLE PERCEPTION

What is natural ?

- **Erosion**
- **Sea-weed accumulation**
- **Accretion**

MAIN CAUSES

Erosion

- **River dams**
- **Sand mining**
- **Sediment arrest updrift**

Accretion &

Sea Weed Accumulation

- **Obstructions on the Coastline**

PEOPLE PERCEPTION

Erosion

- **Natural process due to storms**

Accretion

- **Existing environment**

Sea Weed Accumulation

- **Natural phenomenon**

PEOPLE PERCEPTION

TIME

TIME Changes Perceptions.

**All processes look natural after a
number of years**

SUMMARY

SIMILAR PROJESTS VASTLY DIFFERENT PERCEPTIONS

- **Ongoing erosion – perceived as natural phenomenon Vs unacceptable impact**
- **Artificially created beach – landmark of the city Vs negligible impact**
- **Seaweeds – natural phenomenon Vs negative impact of new works**



Thank You