The legend, the project

The project acronym remembers the ancient Greek legend of Theseus and the Minotaur, a monster half bull, half man, living in the labyrinth of Cnosso (Crete) and requiring daily human sacrifices. Theseus, son of Aegeus, was sent to the labyrinth, but defeated the Minotaur and walked out of the labyrinth safely thanks to the help of Ariadne and her ball of string.

In this project the Minotaur symbolizes the storms, erosion and flooding risk. The changing climate, environment, economy and society form a dynamic labyrinth in which the ‘Minotaur’ is moving. Ariadne’s ball of string represents the different mitigation technologies. To defeat the Minotaur and leave the labyrinth safely, the THESEUS project will therefore integrate the technologies into appropriate defence strategies.

Who we are

The project consortium consists of 31 partners, of which 25 from 12 EU Member States and others from China, Mexico, USA, Ukraine, Russia, Taiwan.

The partners involved have different expertises and backgrounds:
- coastal and civil engineering,
- ecology,
- social sciences and economics,
- meteorology and climate change,
- computer science and GIS.

For more information visit www.theseusproject.eu

The Coordinator of this four year project is Barbara Zanuttigh, Alma Mater Studiorum Università di Bologna (barbara.zanuttigh@unibo.it).

THESEUS team

- Alma Mater Studiorum - Università di Bologna, IT
- Universidad de Cantabria, ES
- University of Plymouth, UK
- Aalborg Universitet, DK
- INFRAM International BV, NL
- GKSS - Forschungszentrum Geesthacht GmbH, DE
- University of Southampton, UK
- Université de Versailles St-Quentin-en-Yvelines, FR
- Centre d’Etudes Techniques Maritimes et Fluviales, FR
- Middlesex University Higher Education Corporation, UK
- Instytut Meteorologii i Gospodarki Wodnej, PL
- Institute of Oceanology - Bulgarian Academy of Sciences, BG
- Athens University of Economics and Business, GR
- Koninklijke Nederlandse Akademie van Wetenschappen, NL
- Consorzio per la Gestione del Centro di Coordinamento delle Attivita di Ricerca Inerenti il Sistema Lagunare di Venezia, IT
- Instytut Budownictwa Wodnego Polskiej Akademii Nauk, PL
- Bangor University, UK
- Bureau de Recherches Géologiques et Minières, FR
- Hamburg Port Authority, DE
- EID- Mediterranée, FR
- Latvijas Universitāte, LV
- Istituto Superiore per la Ricerca e la Protezione Ambientale, IT
- Vlaams Instituut voor de Zee, BE
- Aristotelio Panepistimio Thessalonikis, GR
- Katholieke Universiteit Leuven, BE
- Marine Hydrophysical Institute , UA
- P.P. Shirshov Institute of Oceanology of Russian Academy of Sciences, RU
- University of Delaware, USA
- Universidad Nacional Autonoma De Mexico, MX
- East China Normal University, CN
- National Cheng Kung University, TW
Why?
Coastal areas are vital economic hubs but many are threatened by environmental problems including erosion, flood risk and long term habitat deterioration. As economies continue to develop, the asset base at risk will grow. At the same time, the accelerating climate change will increase the likelihood of damaging extreme events, as well as habitat decline. Coastal management and defence approaches need to be well tuned to face these challenges.

Aim
THESEUS will develop a systematic approach to reduce the risks to our coasts and maintain their benefits for human use together with healthy coastal habitats.

Technologies

Coastal Engineering
- Barriers for wave energy conversion
- Innovative submerged structures
- Overtopping resistant dikes
- Islands and floating structures
- Upgrade of existing defences
- Coastline and beach stabilisation

Ecology
- Natural habitats for coastal protection
- Management and restoration of natural habitats
- Ecologically friendly design of coastal defence structures
- Ecological consequences of coastal defence options
- Effects of multiple ecological stressors

Society and economy
- Insurance programs
- Risk communication
- Impact on urbanization and spatial planning
- Damage to businesses and rapidity of recovery
- Evacuation plans and post-crisis response

In practice
Risk assessment, policy management and planning strategies will be worked out in cooperation with stakeholders and local authorities through applications in eight study sites, with specific attention to the most vulnerable environments such as estuaries, wetlands and deltas.

Products
- GIS software for planning mitigation strategies in coastal areas, in present and future scenarios (up to 2100)
- Guidelines describing best practices and innovative solutions for coastal defence
- Risk communication to the general public and support for implementation of the EC Floods directive