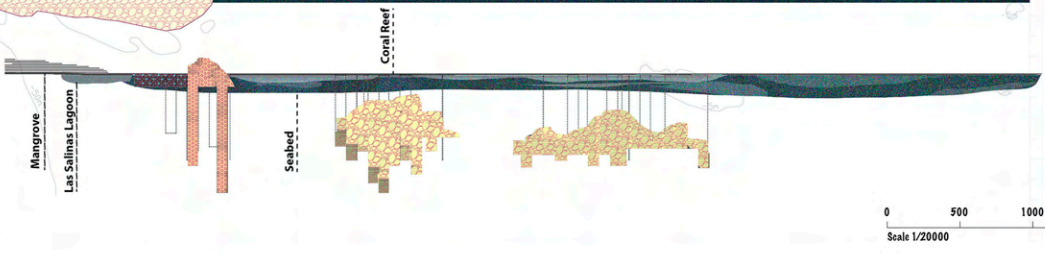


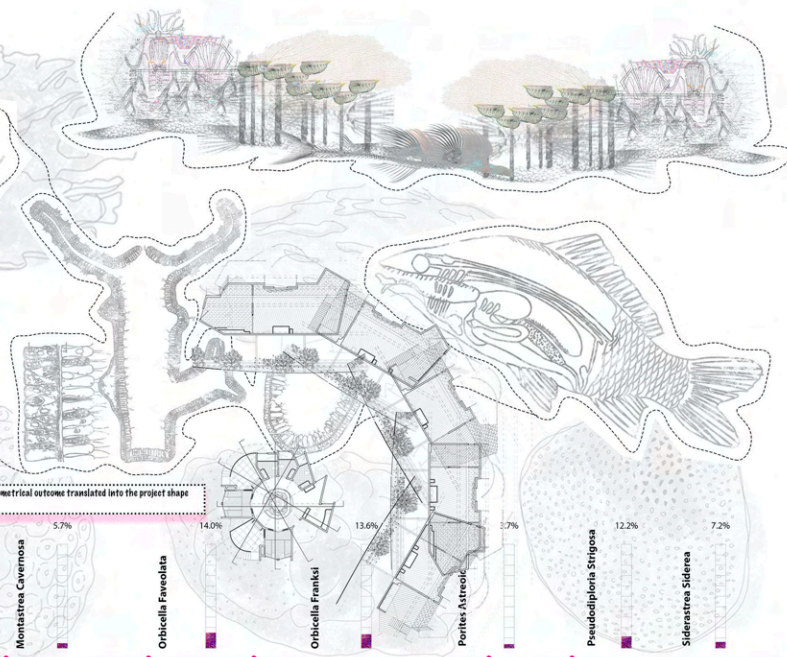
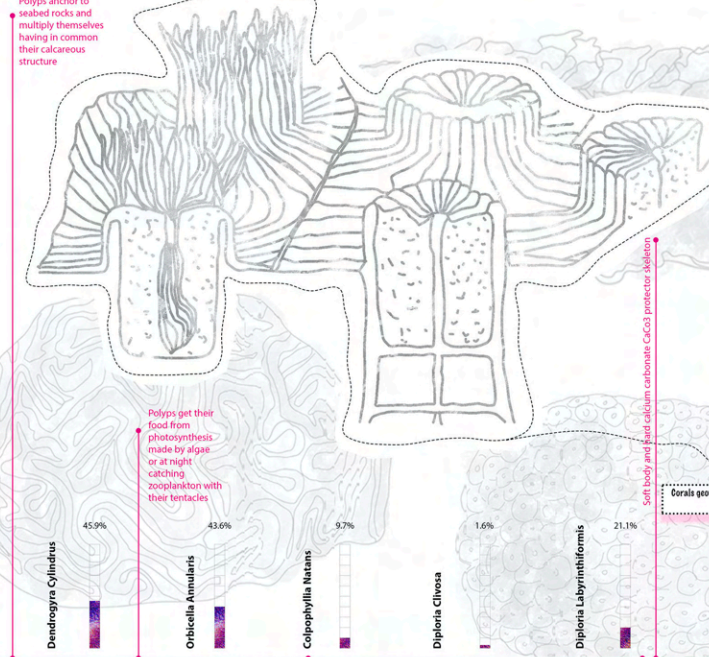
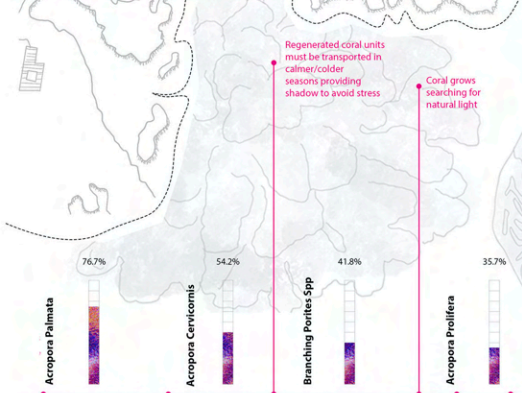
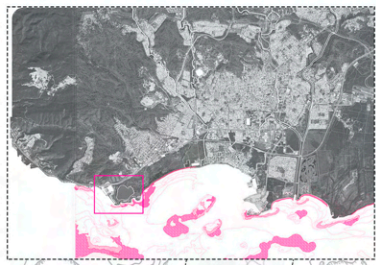


Coral reefs are among the most diverse ecosystems on Earth and are an essential part of Puerto Rico's marine ecosystem, reducing along with mangroves the erosion of the coast and generating a high economic and food resource. CORALLIIDAE emerges as a tourist facility that will introduce the pedagogy of respect between humans and environmental species.

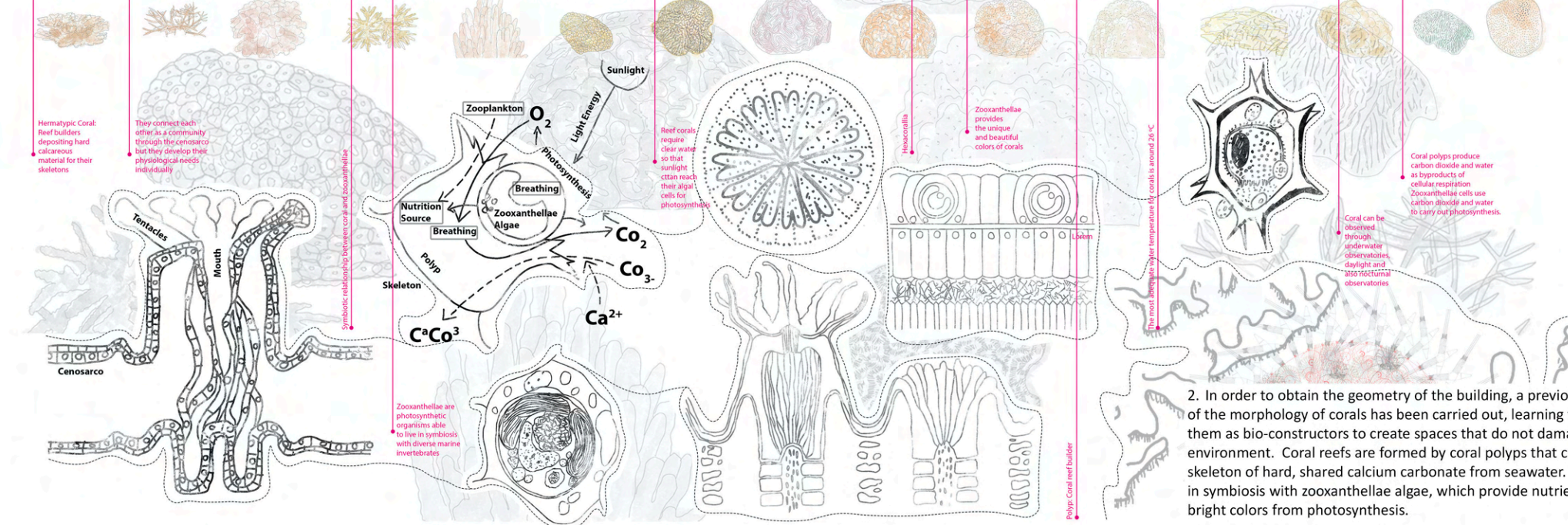
1. Current Status: Ecosystems In El Tuque

The place where the project is going to be carried out will be in the surroundings of a decaying tourist complex and the natural reserve of El Tuque, in the Punta Cucharas sector of Ponce, Puerto Rico. The area is bounded by the PR-2 highway, the coastal border and a saltwater lagoon. It consists of an estuarine and marshy terrain, with a flood limit of up to 3 meters. The preceding ecosystem is dominated mainly by mangrove, birds, insects and coral reefs, which are in serious danger of extinction.

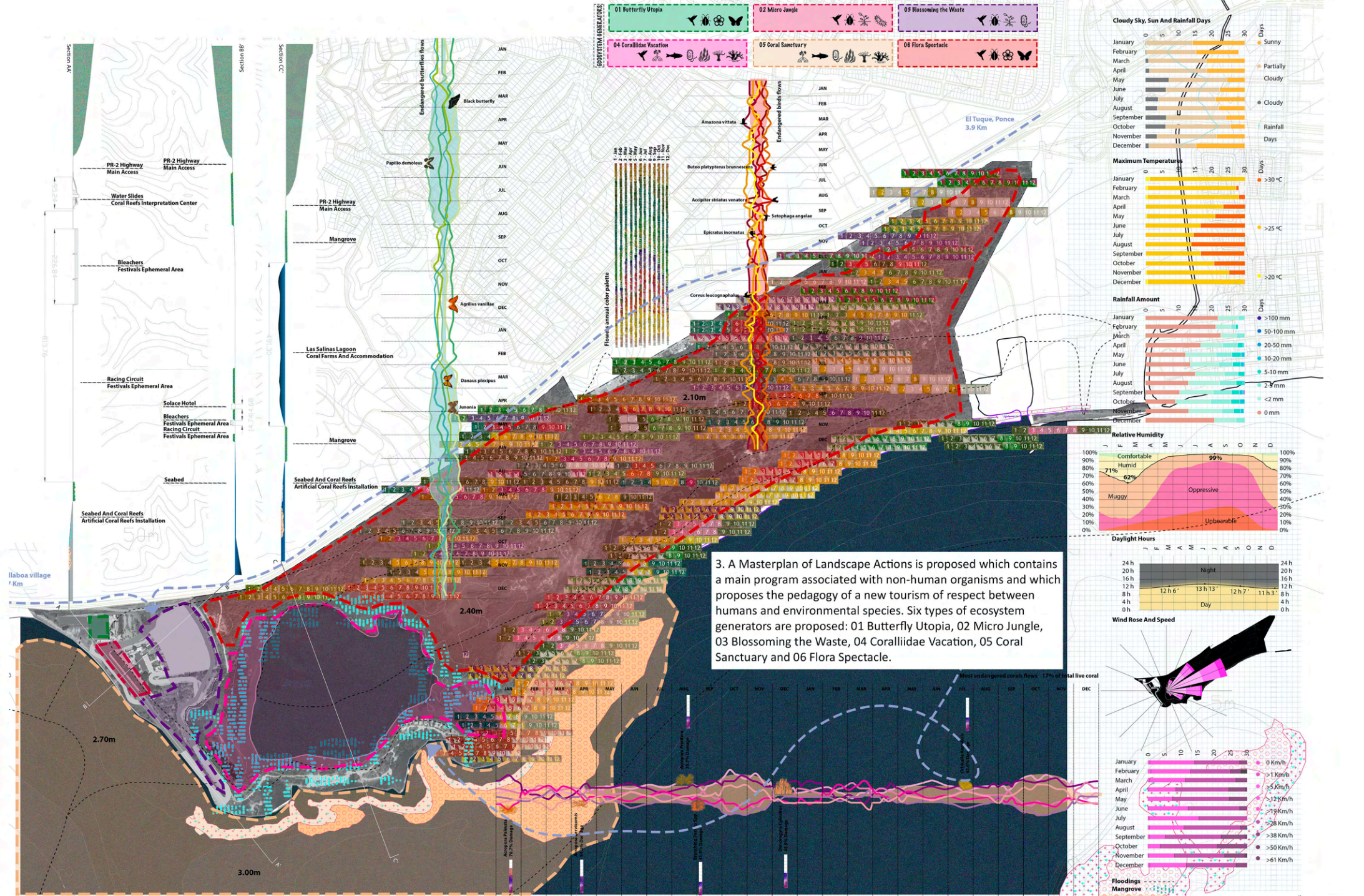


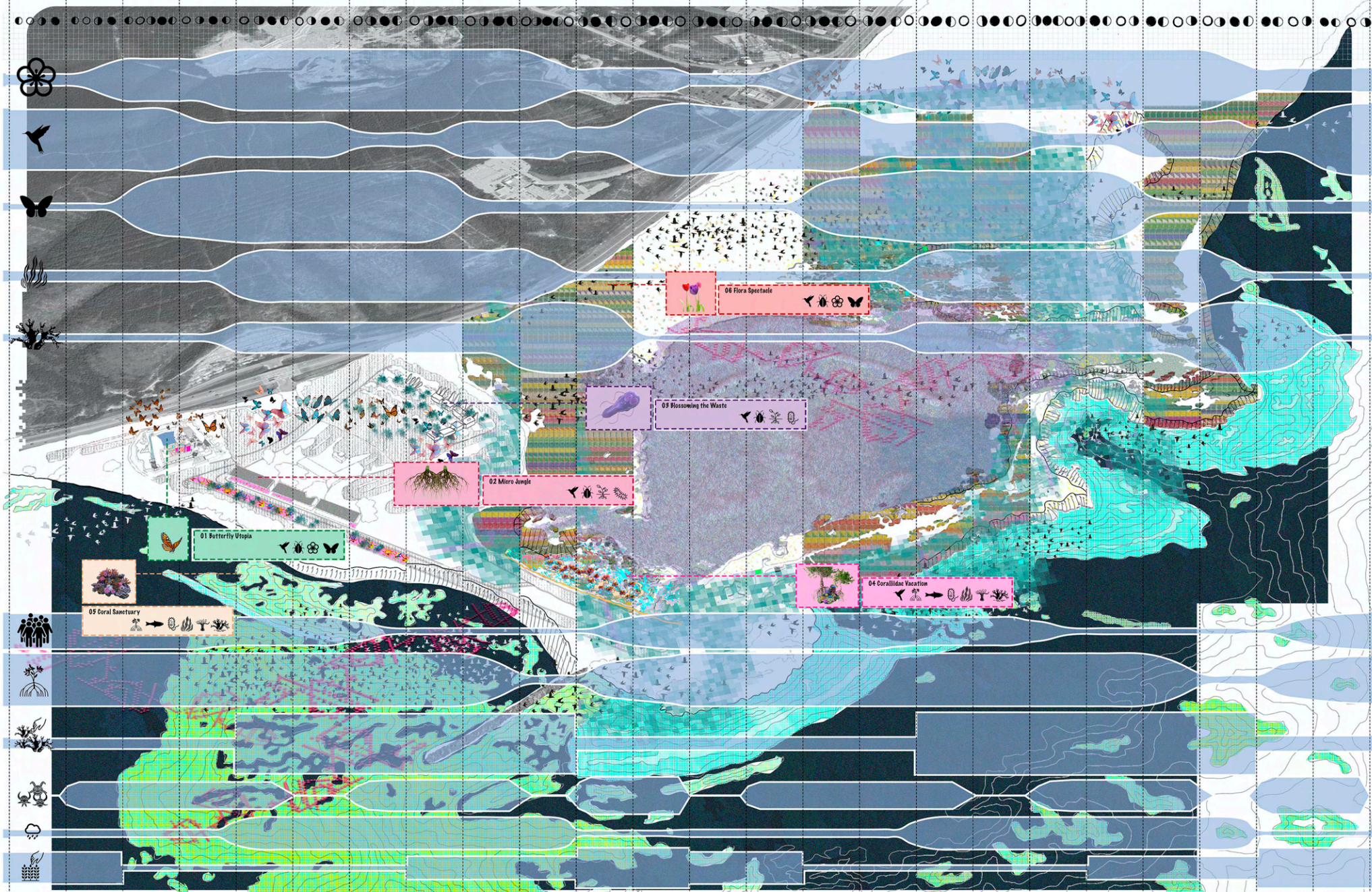


PERCENTAGE OF DAMAGE IN CORAL SPECIES OF PUERTO RICO

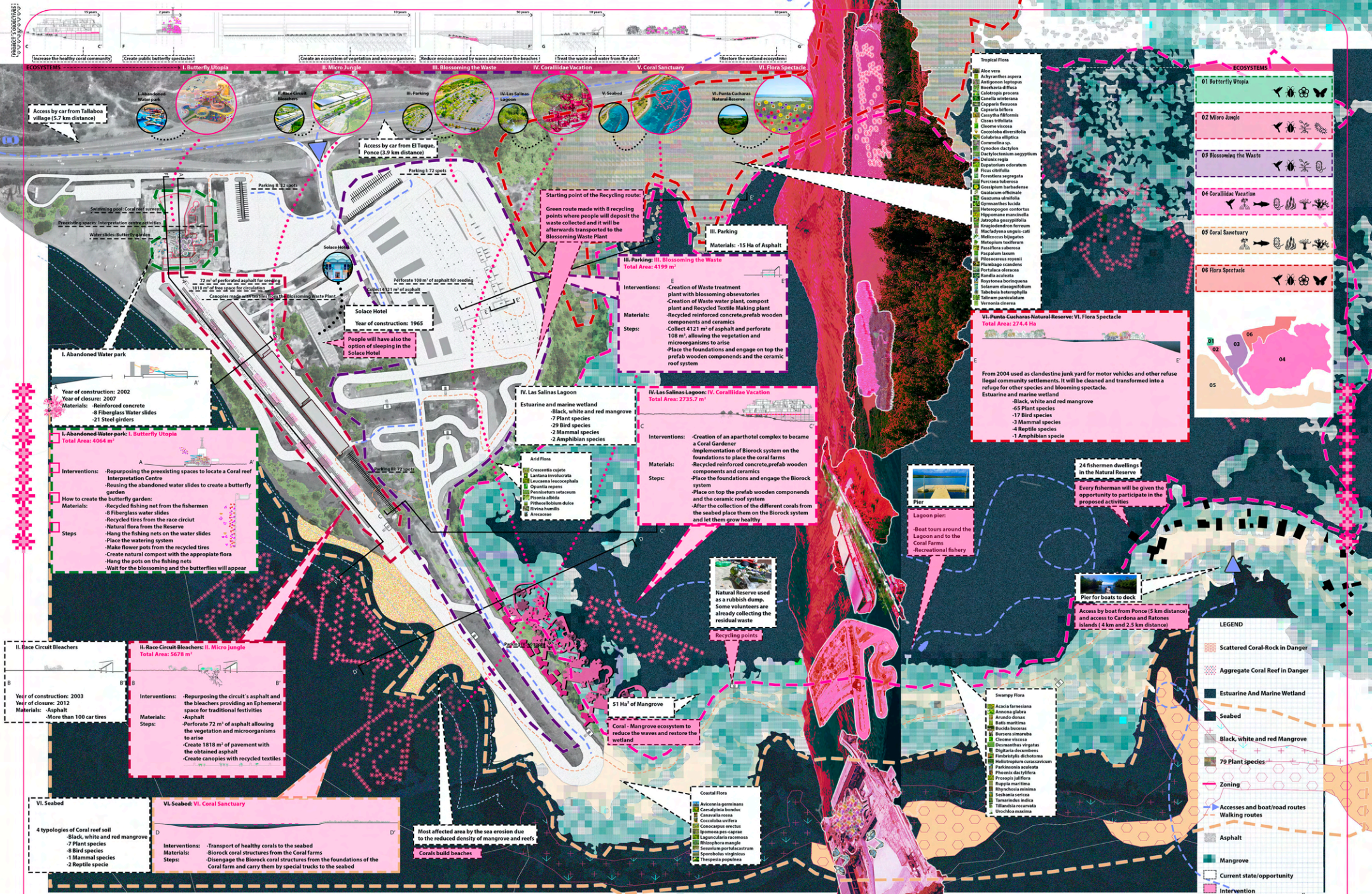


2. In order to obtain the geometry of the building, a previous study of the morphology of corals has been carried out, learning from them as bio-constructors to create spaces that do not damage the environment. Coral reefs are formed by coral polyps that create a skeleton of hard, shared calcium carbonate from seawater. They live in symbiosis with zooxanthellae algae, which provide nutrients and bright colors from photosynthesis.





4. The proposal focuses on the ecosystem generator number 04 entitled Corallidae Vacation. This is a new idea for an aparthotel school in the salt lagoon area, with a program aimed at inter-species education, with the main objective of regenerating the damaged coral reefs and living with them in community, thus creating a new ecosystem of coral, mangrove and living organisms. It will work as a coral farm, being the corals given back to their original reefs once restored. It is proposed that in a total of 50 years the wetland ecosystem will be completely restored.



2023 JACQUES ROUGERIE FOUNDATION AWARDS

Award's category : Climate & Rising Water

Project's Name

CORALLIADA

Description

Opportunities and interventions Masterplan





04 Coralliidae Vacation



4. Geometry of the Building, Location and Access: The space is located in the narrowest area of the salt lagoon of the El Tuque nature reserve, acting as a generator of an ecosystem that will adapt to the environment without damaging it. This location has been chosen because of its proximity to the sea edge when returning the regenerated coral to its natural ecosystem and because of the richness of organisms to create the new ecosystem.

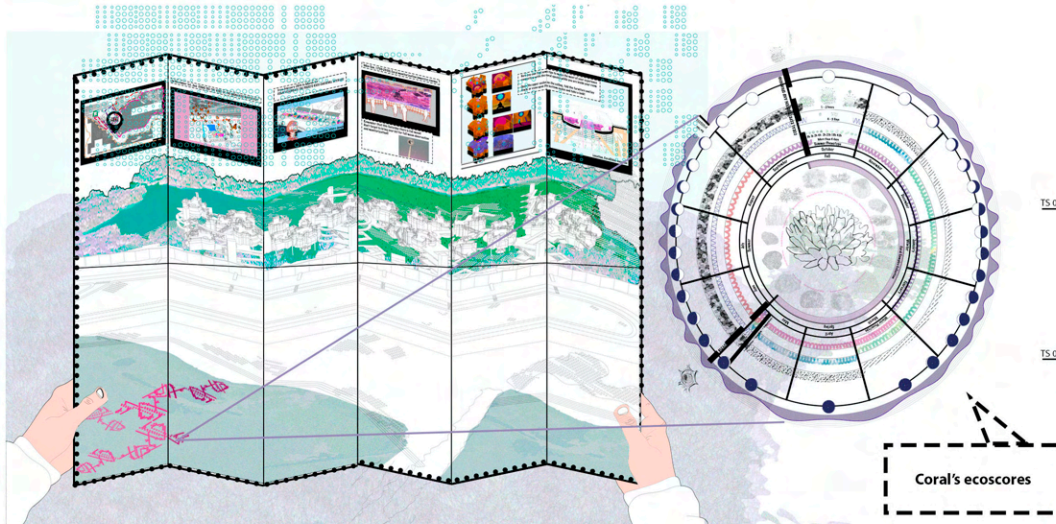
Seven types of rooms are configured in the form of polyp-shaped blooming, independent and self-sufficient. They have geometry and management of energy and nutrients from their central axis, just like coral polyps.

The space is composed of a spine of services at ground level, located along a pre-existing wall and containing the program associated with the hotel and subsequently, the volumes of rooms and the program associated with the coral located in the lagoon, elevated to different heights and communicated by a common platform core.

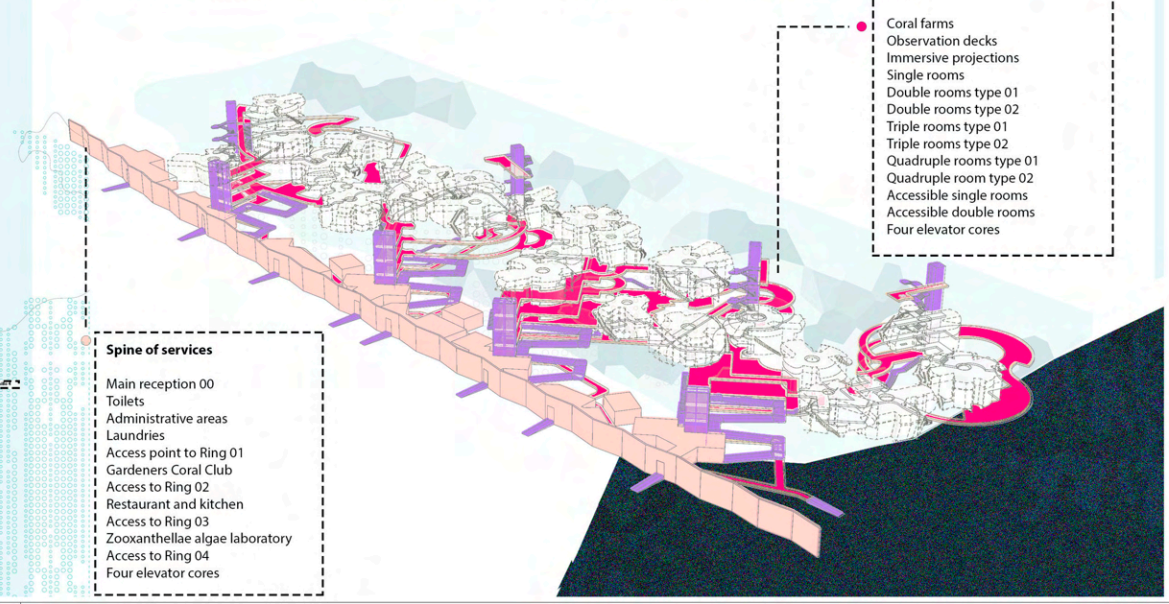
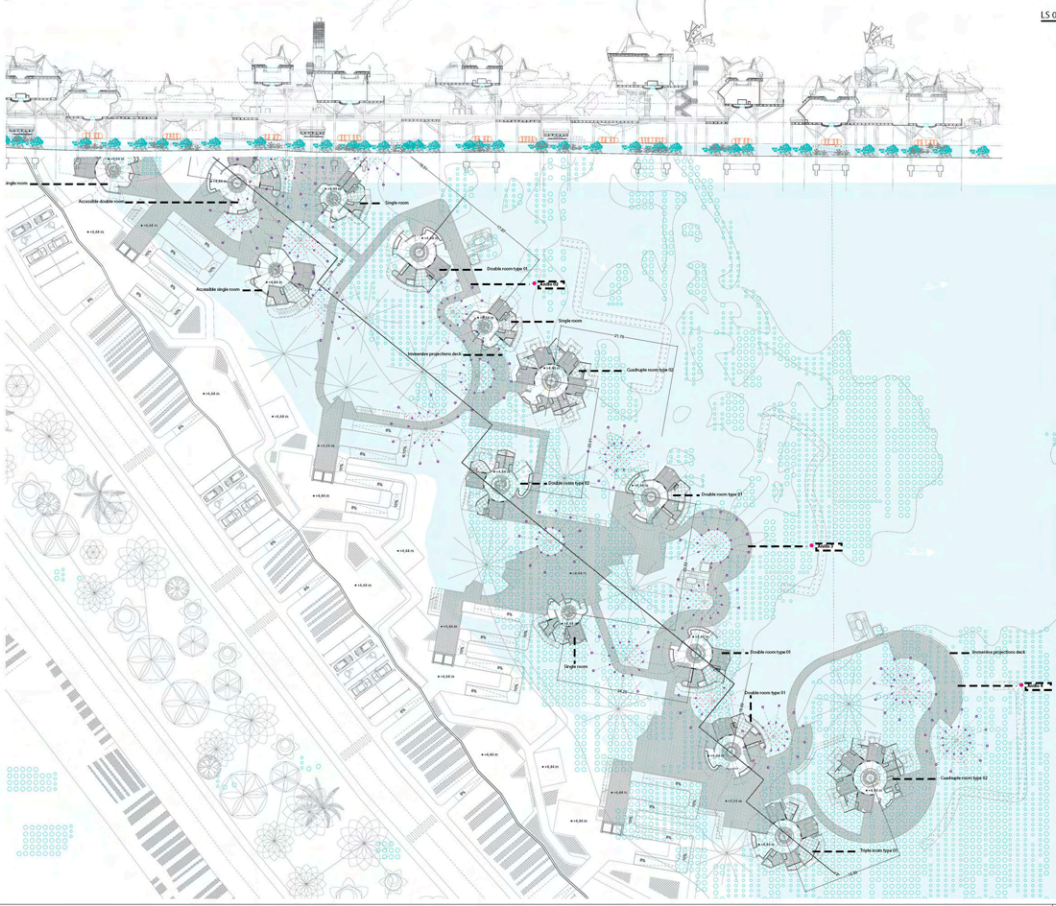
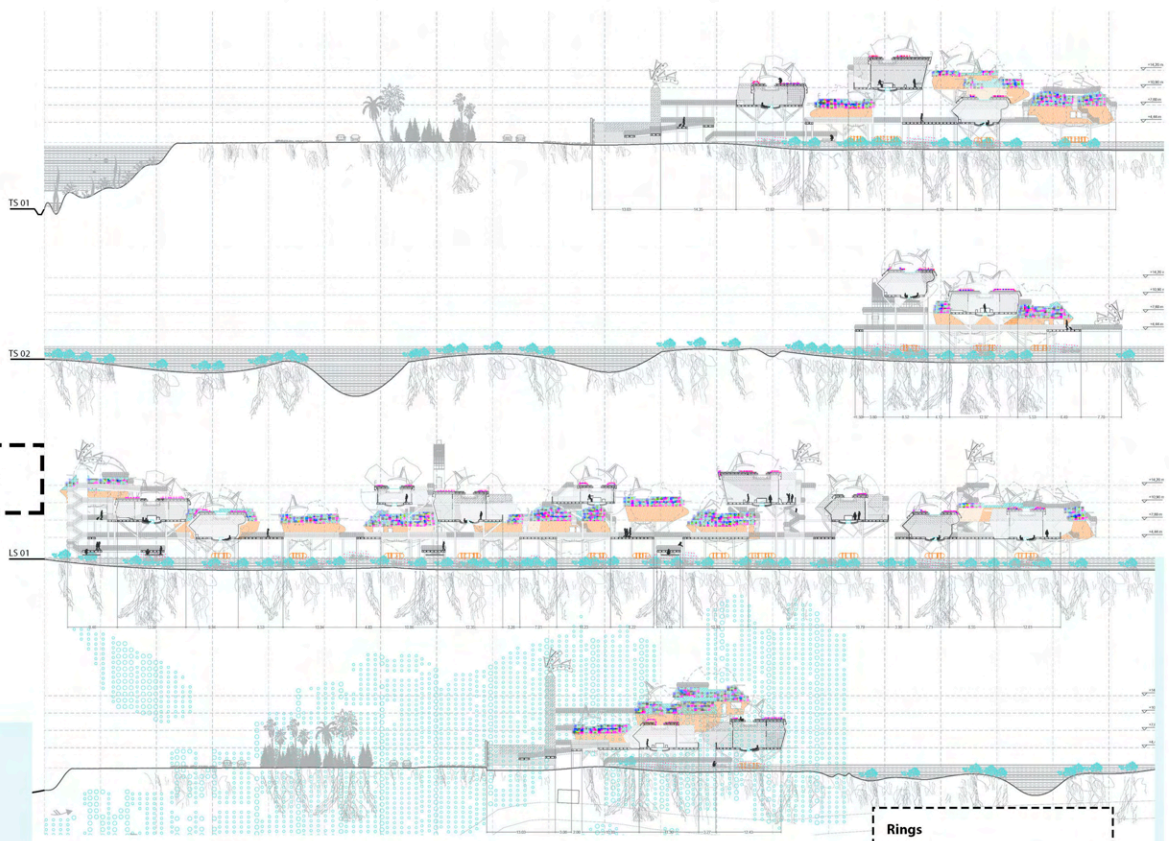
The main space has a road access through the PR-2 road and a secondary maritime access, which will also be connected to two nearby islands. A system of access to the hotel is established consisting of a main reception and four entry points to each ring of rooms, each with its own parking space and pedestrian access. Access to the rooms will be by stairs, ramps or elevators.

Thanks to the help of a marine biologist from Cyprus University, I could make sure the coral species would survive in a saline lagoon with these characteristics, and also learned how to build a coral farm.



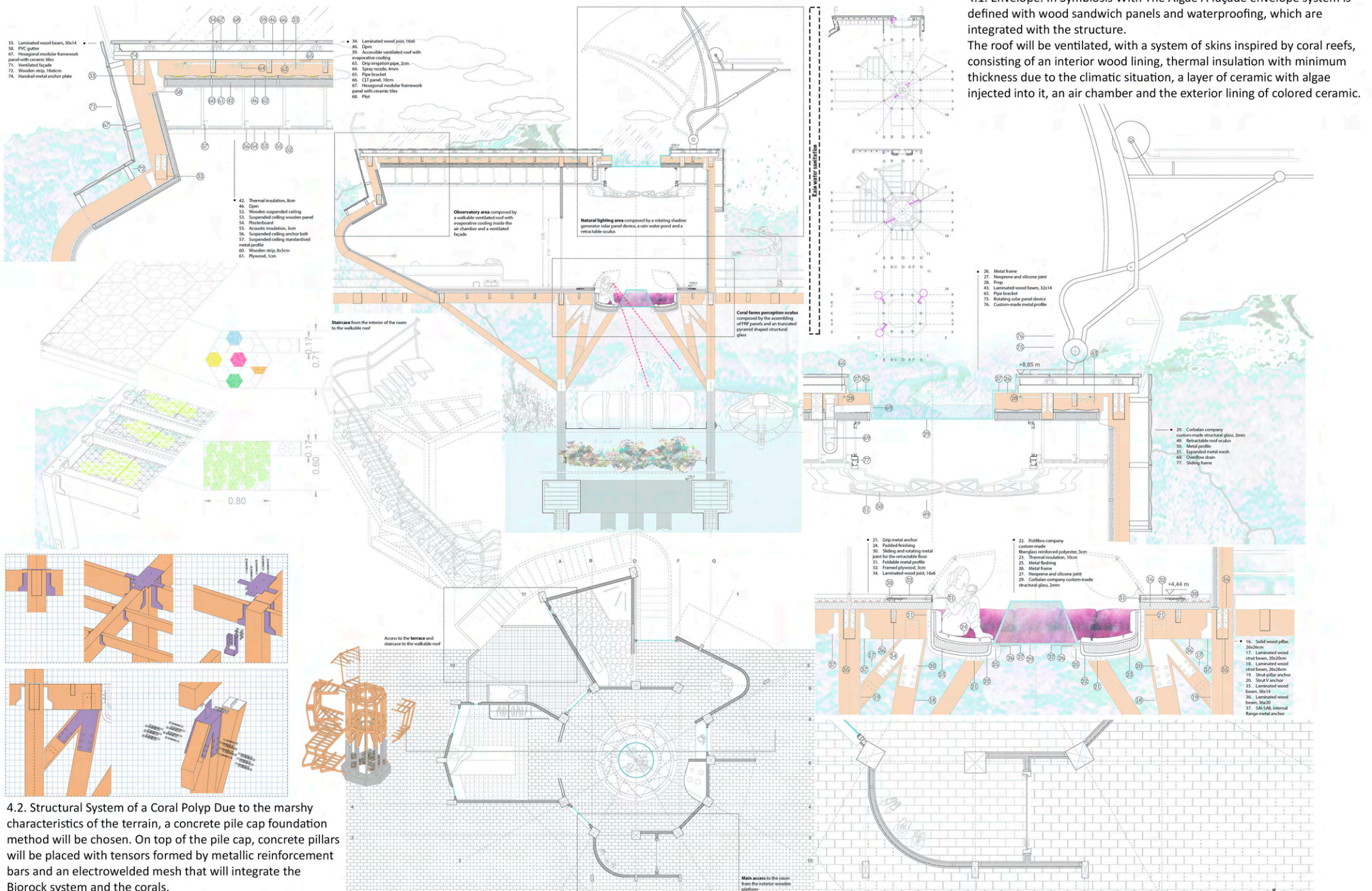


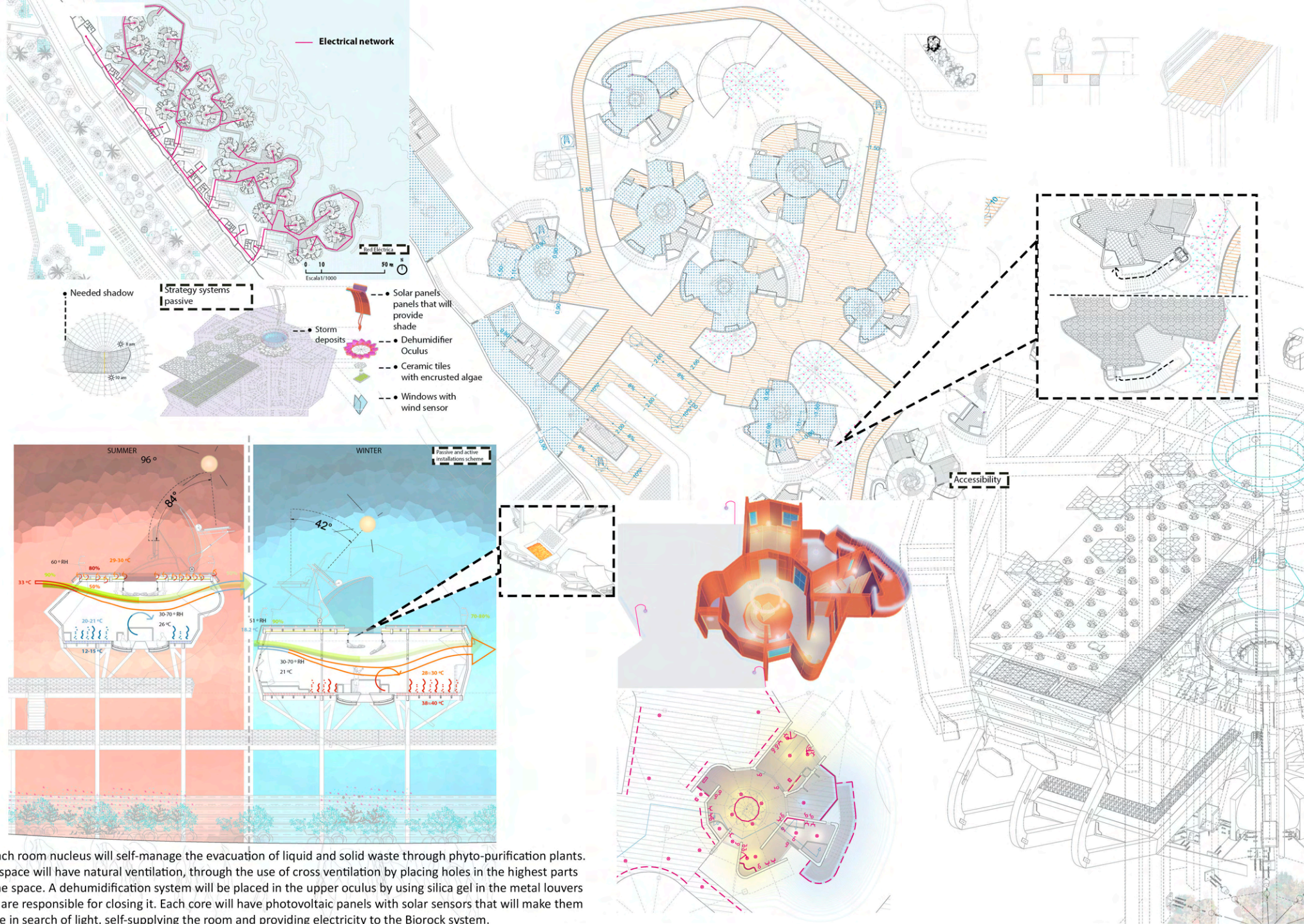
Coral's ecoscores



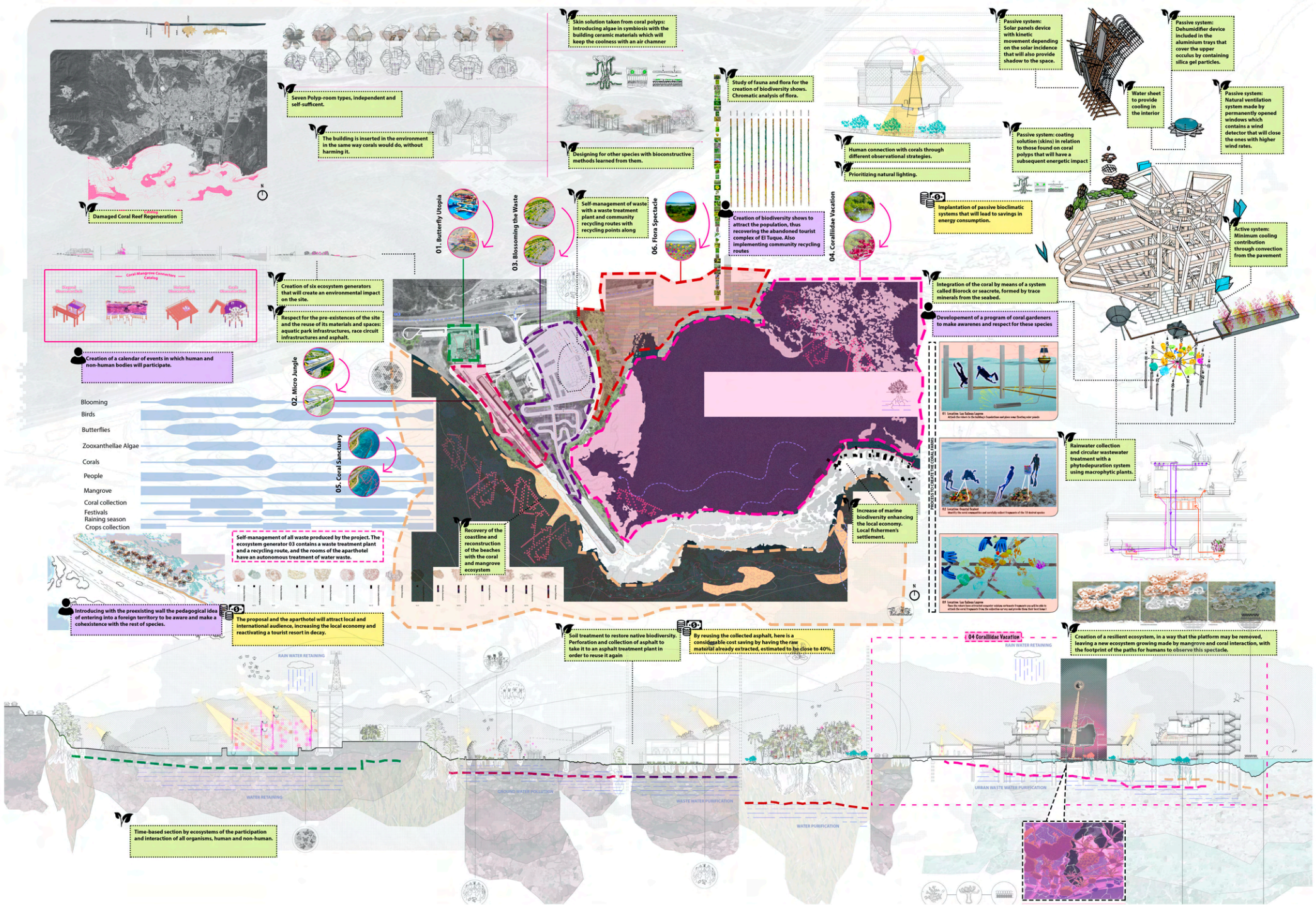
- Spine of services**
- Main reception 00
 - Toilets
 - Administrative areas
 - Laundries
 - Access point to Ring 01
 - Gardeners Coral Club
 - Access to Ring 02
 - Restaurant and kitchen
 - Access to Ring 03
 - Zooxanthellae algae laboratory
 - Access to Ring 04
 - Four elevator cores

- Rings**
- Coral farms
 - Observation decks
 - Immersive projections
 - Single rooms
 - Double rooms type 01
 - Double rooms type 02
 - Triple rooms type 01
 - Triple rooms type 02
 - Quadruple rooms type 01
 - Quadruple room type 02
 - Accessible single rooms
 - Accessible double rooms
 - Four elevator cores





5. Each room nucleus will self-manage the evacuation of liquid and solid waste through phyto-purification plants. The space will have natural ventilation, through the use of cross ventilation by placing holes in the highest parts of the space. A dehumidification system will be placed in the upper oculus by using silica gel in the metal louvers that are responsible for closing it. Each core will have photovoltaic panels with solar sensors that will make them move in search of light, self-supplying the room and providing electricity to the Biorock system.



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<http://www.exploration-architecture.com/projects/biorock-pavilion>
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<https://www.fws.gov/coastal/>
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<https://www.drna.pr.gov/wp-content/uploads/2018/06/Coral-Assessment-Report.pdf>
<https://ellenmacarthurfoundation.org/>
<https://www.360cities.net/image/reserva-natural-punta-cucharas-caribbean>