

# BETWEEN WATERS

## 1. TERRITORIAL SCALE

### NALÓN ESTUARY, BETWEEN AN INDUSTRIAL PAST AND ECOLOGIC VALUES

The actual Nalón river and estuary occupies a narrow area between the river slopes along its course called Bajo Nalón, and harbours, marshlands at the mouth of the river. The aim of this project is to find a strategies that expand the river edge to beyond its actual limit, including multiple habitats and social values that will compose a complex and rich ecotone to respond to the climate emergency at the same time that engages with the existing ecological values and promotes them, without losing the industrial identity of the site and multiplying the economical values by opening up a wide range of possibilities.

The strategy of this project acts at different scales, all of them having in common two main concepts:

1. the expansion of the water edge from a thin line to a wide area from the low tide to the riparian zone
2. the blending between three elements that composes the ecotone:
  - range of green for freshwater related habitats
  - range of blue for brackish water related habitats
  - range of orange for edge solutions related to social values

### Climate Emergency strategy

The expanded area of the new water edge is defined by the impact of the river flood (q500) and sea level rise (0,65m 100 years), which takes approximately the area of the floodplain of the river, now occupied by multiple uses, amongst them agriculture and pastures; and expands along the tributaries of the Nalón river. This is the area most affected by the climate emergency that needs to be addressed.

The ecological value of this area is on the existing mixture between seawater and freshwater, that in different gradients support an ecological succession of habitats composing the ecotone, a very delicate ecosystem with a great power to respond to the climate emergency. The existing habitats of the Ecotone are our allies in order to manage fooding by the coast and by the river.

### Building a resilient coast against sea level rise

This particular but at the same time typological landscape, is shaped on the lower part of the river by the dynamics of the tide, which is a window to the future effect of sea level rise because of the climate emergency. This project proposes strategies to give back the natural dynamics of the coast on specific areas by making breaches on the land slope that doesn't allow the tide to take over. The success of this action, needs to go along with the study of the microtopography of the estuary, the levels of the tide, and the existence of mudflats. This is a common practice in other parts of Europe, like Scotland, with similar situations and it is called *coastal realignment*.

On the same direction of recovering the saltmarshes and mudflats that had been lost by the industrial past of the river and act as natural protectors of the coast, we propose the implementation of Brushwood fascines, which act as sediment retention on areas where there are already saltmarshes, but it's not possible to gain space inland, because of social values.

### Connecting the floodplain with the river to minimize the impact of floods

In order to deal with the natural periods of flood of rivers, we need make *room for the river*. We propose a series of strategies to manage the river floods by the expansion of the existing habitats which can be part of the economic values of the area, as a way of green tourism for birdwatching, saltmarsh or wet grassland pastures.

Some of the strategies are: widen the river banks promoting *alluvial forest*; *creek renaturation travessing the floodplain*; opening a dry-pass for flood diversion; Reactivation of meanders by

opening back waters channels where there used to be; wetlands and lagoons on the floodplain and artificial lumps as topographic refuges; Recover habitats on the ecotone of the river (alnus forests/ saltmarshes/ wetlands) providing greater resilience against floods; last but not least, the implementation of *water meadows*, which was a common practice in Europe a few centuries ago, flooding pastures next to the river by gravity increased the fertility of the soil, and at the same time is a way to manage flooding.

## 2. REFLECTION SITE

The current landscape of the Nalón estuary corresponds to the decline of an old coal port, oversized and rigid, which does not invite socialisation or renaturalization.

Our proposal is based on giving a second life to this hard infrastructure, adapting it to the new current needs of the area and to the impacts of climate change, while contributing to the social and economic promotion of the estuary by linking the activity to new sectors of the green and blue economy and at the same time enhancing, expanding and conserving the biodiversity strongholds that exist in the area.

The legacy of the industrial coal mining past of the Nalón estuary, oversized on a human scale and based on barriers, makes the social use of the mouth impossible and prevents the relationship between the brakish water habitats (blue) and the freshwater habitats that flow down the slope towards the river (green).

Designing the deconstruction of this port infrastructure, reducing it to a minimum so that it is capable of guaranteeing security against flooding and making it permeable. In this sense, the aim is to promote the encounter between the two waters, which allows the reactivation and enhancement of a civic matrix along the estuary (orange), creating a large loop of activity directly related to the ecosystem services provided by the green and the blue.

To materialise our strategy, we present a catalogue solutions, based on the different aspects that we wanted to enhance in each place and the level of the terrain at which they are carried out. So, strategies are grouped into green (for freshwater-related habitats) or blue (for brakishwater-related habitats) and solutions in between are the orange or edge solutions (which promote the socialisation of the site):

- Green solutions (+0.65/+4 masl):
  - o Leave space for the forest to expand and give continuity to the hillside allowing forest continuity (g1), biodiversity hotspots (g2), and built greentrusion (g3).
  - o Allow to make these spaces known through hillside walk (g4).
- Blue solutions (-0,8/+0,65 masl) look to let the blue in.
  - o Leave the industrial infrastructure spine and empty the fills when possible in order to let a Blue intrusion (b1) and multiply the natural pools (b2).
  - o Where protective infrastructure remains we may play with water mirrors to achieve a walk-on-water perception (b7).
  - o Whenever is possible to deconstruct the limit we look to make Room for the river (b3).
  - o As long as building or harmful uses should relocate emptied fills under them can help for these habitats restoration (b6).
  - o Far from the XL infrastructures, we enhance the marshes growth by different technics for Intertidal restoration through brushwood fascines (b4).
  - o There may be spots to visit and enhance the Intertidal meet-ups: tables where shellfish find home and humans stay and can appreciate (b9) or Jetties to get closer to water activities (b10).
  - o Scattered few Artistic elements (b8) serve for birds to rest and instagramers to influence.
  - o To prevent erosion from the effect of waves on beaches and marshes, actions such as oyster reef (b5) helps to fix sediments.

- Edge solutions (+0,65/+2 masl) fins ways to inhabit the deconstructed infrastructure
  - o When possible, outdated concrete docks may de-paved to achieve a Renature of the limits (e2), together with other actions to decarbonize the edge (e3).
  - o Waiting for their final location, to plant trees may build meanwhile comfortable green up spaces (e1)
  - o Socializations points (e5), rest areas (e6) and activity items (e4) look to replace concrete for human-scale and transform materialites and shapes

Thus, different solutions can be adopted for each situation, choosing the best solution for each project area.

Together, the different project areas form a loop of activity that concentrates social activity at the hard limits of the river mouth while protecting the natural areas of the space. This social activity varies according to the project area; the area of Puerto Chico sits on the largest infrastructure area in the north and therefore offers the greatest number of activities; the shipyard of La Xunquera and the dock of l'Arena, areas of local activity in San Juan de l'Arena and San Esteban de Pravia, are located on old industrial infrastructures that have been reinvented as areas for nautical activities and La Llama beach and La Xunquera marshlands remain as nature reserve areas, where the activity is restricted.

### 3. PROJECT SITE

#### A. The dyke and the esplanade of Puerto Chico (The Sea Venue of Puerto Chico)

The esplanade of Puerto Chico used to be a small harbour before it was filled with infill to welcome social uses. Nowadays it's an empty space, with parking lots, a football field, a seawater swimming pool, and a restaurant. The proposal aims to open up a wide range of possibilities to reconsider this infrastructure making it more porous and able to adapt to climate emergency effects, while at the same time welcomes a multiply variety of social uses.

- Removing some of the infill and opening controlled breaches to the existing dyke, create a porous and flexible infrastructure that helps to reduce the energy of the sea allowing water to enter the esplanade recovering the old Puerto Chico
- Create a retention area for water allowing the vegetation coming from the hillside to enter the esplanade
  - Reduce the percentage of paved surface.
  - Improve soft connectivity between San Esteban and Puerto Chico through safe and wide promenades and a bicycles lane path.
  - Creation of new natural basins by taking advantage of the tides, encouraging the naturalisation and social use of the space
  - Promote sustainable mobility through a pedestrian and bicycle promenade connecting San Esteban de Pravia with this area of Puerto Chico up to Barra de San Esteban and connecting the esplanade with El Garrucho and La Guardada beach and the Senda de los Miradores.

#### B. La Xunquera and La Llama beach

The proposed intervention in this site is minimal as it takes into account the sensitivity of the habitats and ecosystems that make it up and its importance as a resting and nesting area for birds. The different actions included in this project area correspond to:

- Gradually free the banks of the river from canalisation to adapt them to the rise in sea level in those areas where it has been channelled.

- Prohibit road access to the area and rearrange access on foot around the perimeter, avoiding access to ecologically valuable areas but guaranteeing access to the jetties and the sunken ship as historical landmarks of the site.
- To raise awareness of the natural value of the area through ornithological routes.
- Gaining marshland space by relocating uses that are incompatible with the flooding of the land and that can pollute the water (clean point and scrapyards) and by removing landfills.
- Maintain the sports facilities at La Llama beach, making the possible flooding of the land compatible with the sporting activity.

### C. The shipyard of La Xunquera and the dock of L'Arena

#### C.1. La Xunquera marine

The proposed intervention aims to give a second life to this former coal shipyard, reactivating and diversifying the economic activity, which will allow the social activation of this space, through the redevelopment of the shipyard, guaranteeing access to the sheet of water of the San Esteban dock and making the different uses compatible with the area of high environmental quality of the Xunquera area. The different actions included in this project area correspond to:

- Relocate activities that we consider to be compatible, taking into account the risk of flooding on this land, especially the scrapyards and the clean point, which can cause pollution of the marshes.
- Gaining marshland space by reducing built-up space and reducing the volume of infilling through topographical modifications to the land that allow for the renaturation of the marshland.
- Preserve and publicize the marshy marshland that has developed on the former railway beach, creating small paths through the forest.
- Renovation of the existing fabric, enabling new activities focused on the recreational use of water and blue tourism, in front of the beach and installing accesses and marshes for the different activities.
- Create a promenade connecting the Red Lighthouse with the various industrial infrastructures as an open-air museum.

#### C.2. Puerta del Mar de l'Arena

The proposal is based on socially activating the port of l'Arena, improving the relationship between the port and its urban façade.

- Recovering an urban beach for the inhabitants of the town, emptying the landfill and creating a large public space that allows for different uses and festive activities for the municipality.
- Pedestrianizing a series of urban axes that improve the urban façade and its connection with the port of l'Arena, improving the space for the fish market, the "Puerta del Mar" interpretation centre and sports groups, freeing the seafront from road traffic and transversal connections that lead to "El Charcu".
- Renaturalization of Calle de la Galerna and Calle Bajamar