The BlueAdapt

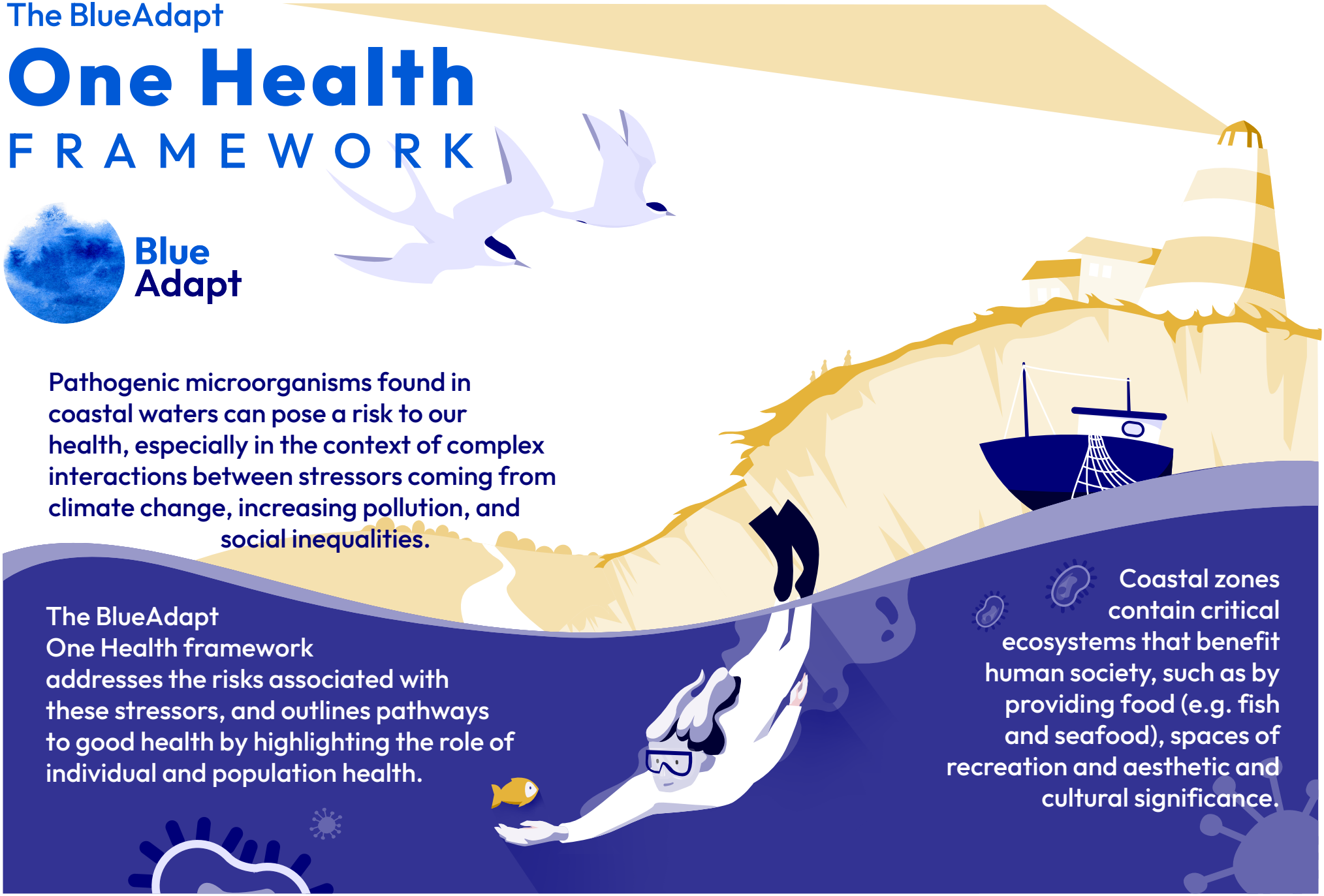
# One Health

## FRAMEWORK

Blue Adapt

Pathogenic microorganisms found in coastal waters can pose a risk to our health, especially in the context of complex interactions between stressors coming from climate change, increasing pollution, and social inequalities.

The BlueAdapt One Health framework addresses the risks associated with these stressors, and outlines pathways to good health by highlighting the role of individual and population health.

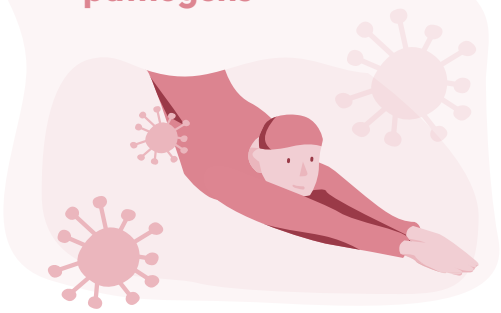


Coastal zones contain critical ecosystems that benefit human society, such as by providing food (e.g. fish and seafood), spaces of recreation and aesthetic and cultural significance.

**5** interacting factors are key in influencing

**3 mechanisms** that shape the risk of infectious diseases

exposure to pathogens



host susceptibility to infections



recovery from infections



## Pollution

Pollution in coastal environments, from antibiotics and household cleansers to nutrient runoff, microplastics, and other chemicals, promote antimicrobial resistance and pathogen proliferation. For example, misuse of antibiotics can promote antimicrobial resistance, making it harder to treat people infected by resistant pathogens.

Pollution is also a risk factor for the immune system's responses to pathogens.

## Climate Change

Climate change results in rising temperatures, extreme weather and warming oceans, creating conditions that allow pathogens to thrive. Ocean warming has been linked to a rise in the proliferation and spread of bacteria in coastal areas.

## Coastal Pathogens

There are a variety of harmful microorganisms that inhabit or are transported into coastal environments. The multiple pressures on coastal ecosystems influence the proliferation, spread, resistance, and virulence of these pathogens, increasing the likelihood of exposure and infection.

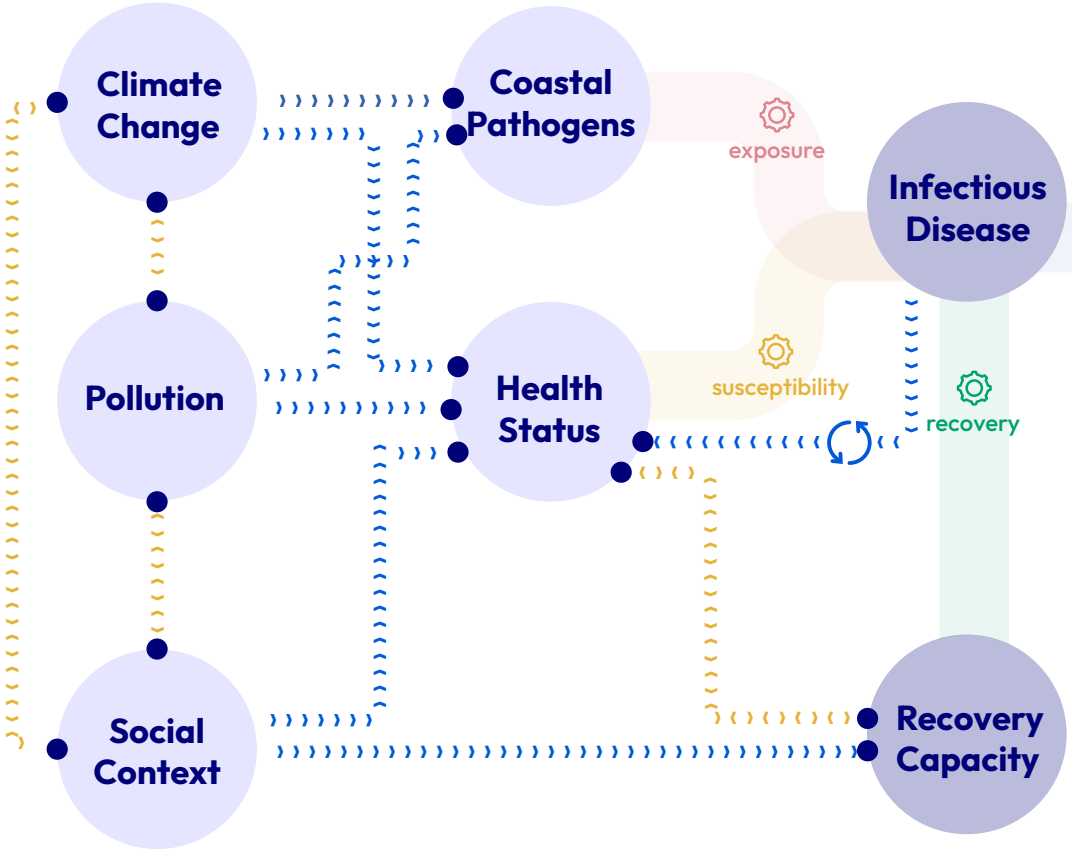
## Health Status

The health of individuals and populations is a critical factor in determining the susceptibility to infectious diseases. Different factors such as a weakened immune system, the presence of chronic illnesses, mental health issues, and imbalances in the microbiome can all increase the risk of infections.

## Social Context

Behaviour and lifestyle factors, societal inequalities, and cultural norms are key in shaping pathogenic risks. Populations facing structural disadvantages are often more vulnerable, experiencing greater exposure to pathogens, higher susceptibility to infections and lower capacity of recovering from infections.

# The BlueAdapt One Health Framework




Mechanisms

Connection paths



**This framework aims to simplify the complex interactions occurring between environmental, social, and biological processes which increase the risk of infectious diseases caused by coastal pathogens.**

**The framework helps identify points of intervention, exploring a wide set of strategies to mitigate risks and improve health outcomes. Learn more about the project's policy implications by consulting the policy brief.**

Feedback loops highlight the nonlinear dynamics, showing that infectious diseases also have reciprocal effects, for example further weakening or improving the host's health status and impacting various social aspects such as income and work productivity

The bidirectional relationships between these factors indicate that these elements actively reinforce each other.

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