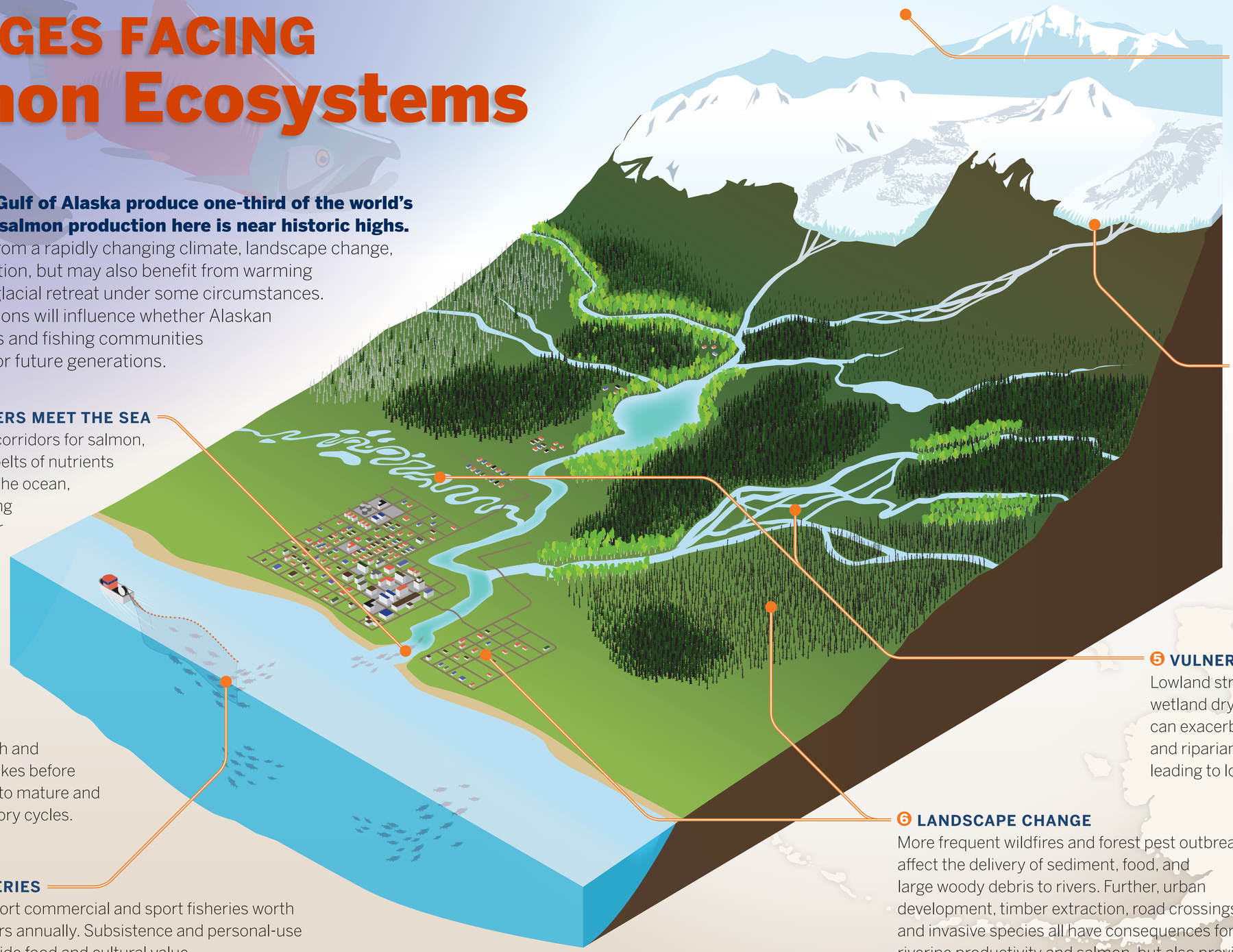
CHANGES FACING
Salmon Ecosystems

Rivers along the Gulf of Alaska produce one-third of the world's wild salmon, and salmon production here is near historic highs. Salmon face risks from a rapidly changing climate, landscape change, and ocean acidification, but may also benefit from warming temperatures and glacial retreat under some circumstances. Management decisions will influence whether Alaskan salmon ecosystems and fishing communities continue to thrive for future generations.



❶ WHERE THE RIVERS MEET THE SEA
Rivers are migration corridors for salmon, serving as conveyor belts of nutrients and energy between the ocean, rivers, and surrounding forests. Each summer millions of adult salmon migrate from the ocean to rivers to spawn, and their eggs overwinter in the streambed. During spring, juvenile Chinook, Coho, and Sockeye salmon hatch and rear in streams and lakes before swimming out to sea to mature and continue their migratory cycles.

❷ VALUABLE FISHERIES
Alaskan salmon support commercial and sport fisheries worth over a billion US dollars annually. Subsistence and personal-use salmon fisheries provide food and cultural value.

❸ CHANGING CLIMATE, CHANGING STREAMFLOWS
Warmer and drier summers cause wetland drying, reducing streamflows for spawning salmon. Warmer and wetter autumns and winters are expected to increase flood frequency, which can be deadly to incubating salmon eggs. Glacial meltwater and lakes buffer some salmon populations from these risks.

❹ MELTING GLACIERS
Moderate inputs of water, nutrients, and sediments from melting glaciers enhance aquatic productivity and benefit young salmon, while too much or too little input may reduce productivity. In some cases, glacial retreat may also uncover new stream reaches, which could increase salmon numbers.

❺ VULNERABLE LOWLAND STREAMS
Lowland streams are especially sensitive to wetland drying and loss. Human activities can exacerbate these effects on streams and riparian areas that are not protected, leading to loss of salmon habitat.

❻ LANDSCAPE CHANGE
More frequent wildfires and forest pest outbreaks affect the delivery of sediment, food, and large woody debris to rivers. Further, urban development, timber extraction, road crossings, and invasive species all have consequences for riverine productivity and salmon, but also provide opportunities for enhancing riverine ecosystems through local management.

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