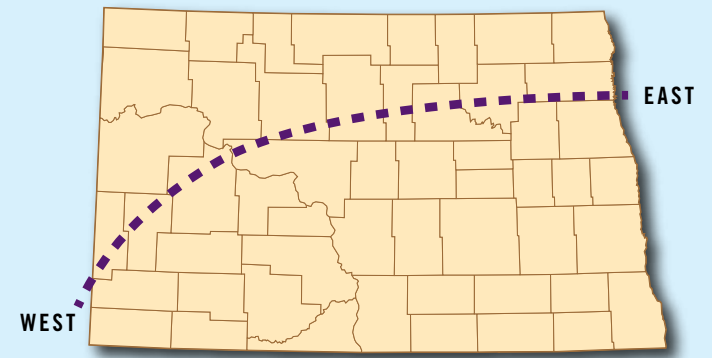


CROSS SECTION OF WILLISTON BASIN

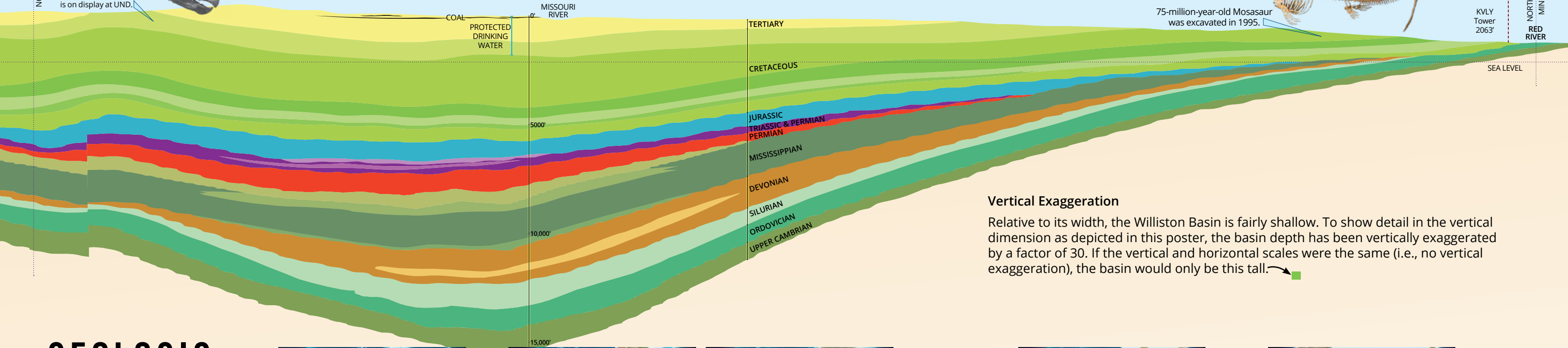
The Williston Basin is a large geologic feature of North America that covers more than 300,000 square miles. Subsidence of the basin for the past 550+ million years has allowed for the accumulation of nearly 16,000 feet of sedimentary rock near the basin center in western North Dakota. The wealth of natural resources in the Williston Basin is the product of the geologic history of the region. For example, organic material deposited in the shallow seas that repeatedly covered the area has been transformed into oil and gas. In more recent geologic time, large swamps bordering rivers accumulated thick layers of vegetation that were later buried by sediments and slowly converted to lignite coal.

Each activity at the EERC that focuses on the subsurface is developed with a combination of local, state, and federal investment to ensure North Dakota's resources are used in a wise, safe, and sustainable manner.



MONTANA
NORTH DAKOTA

67-million-year-old Triceratops skull was excavated in 1964 and is on display at UND.



75-million-year-old Mosasaur was excavated in 1995.

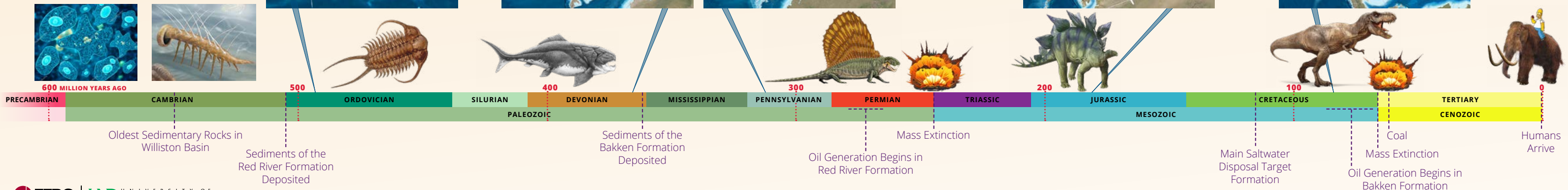
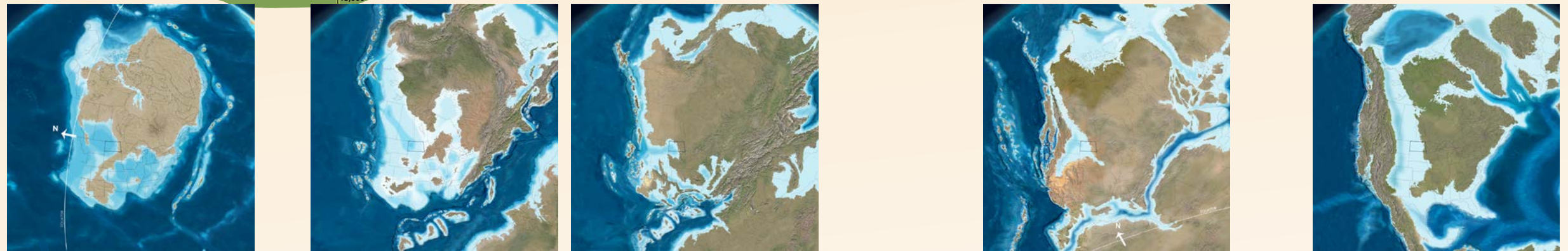


NORTH DAKOTA
MINNESOTA
RED RIVER
SEA LEVEL

Vertical Exaggeration

Relative to its width, the Williston Basin is fairly shallow. To show detail in the vertical dimension as depicted in this poster, the basin depth has been vertically exaggerated by a factor of 30. If the vertical and horizontal scales were the same (i.e., no vertical exaggeration), the basin would only be this tall.

GEOLOGIC TIME LINE





EOR IN UNCONVENTIONAL RESERVOIRS

The need to improve the productivity of a world-class oil resource and a desire to manage CO₂ emissions has led to interest in the use of CO₂ for enhanced oil recovery (EOR) and associated storage in the Bakken Formation. The EERC is using advanced laboratory characterization methods to better understand and quantify the geologic factors that control CO₂ and oil mobility and determine the CO₂ permeation and oil extraction rates in the organic-rich shales of the Bakken.



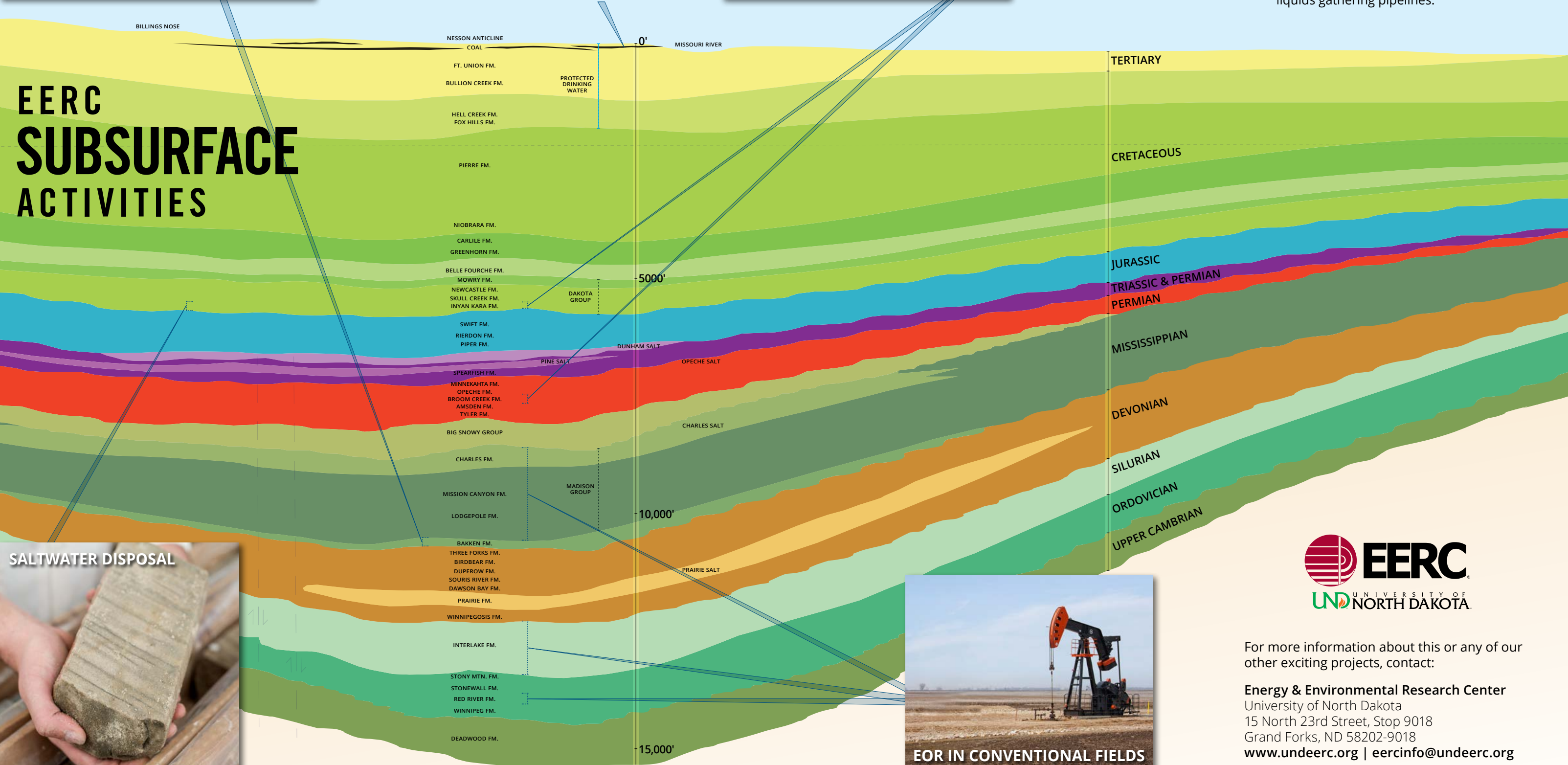
CO₂ STORAGE

The EERC is working with partners to assess the feasibility of commercial-scale geologic storage of CO₂ emissions captured from coal-based energy facilities. The research is part of an ongoing effort to ensure clean, affordable energy and the wise use of North Dakota's resources.

PIPELINE SAFETY

To assess and, ultimately, reduce pipeline spills, the North Dakota Legislature asked the EERC to provide guidance to state authorities on best practices in liquids gathering pipeline installation and operations. The EERC now manages a consortium of pipeline operators that focuses on and funds new technology development targeting small-diameter, highly networked liquids gathering pipelines.

**EERC
SUBSURFACE
ACTIVITIES**



For more information about this or any of our other exciting projects, contact:

Energy & Environmental Research Center
University of North Dakota
15 North 23rd Street, Stop 9018
Grand Forks, ND 58202-9018
www.undeerc.org | eercinfo@undeerc.org