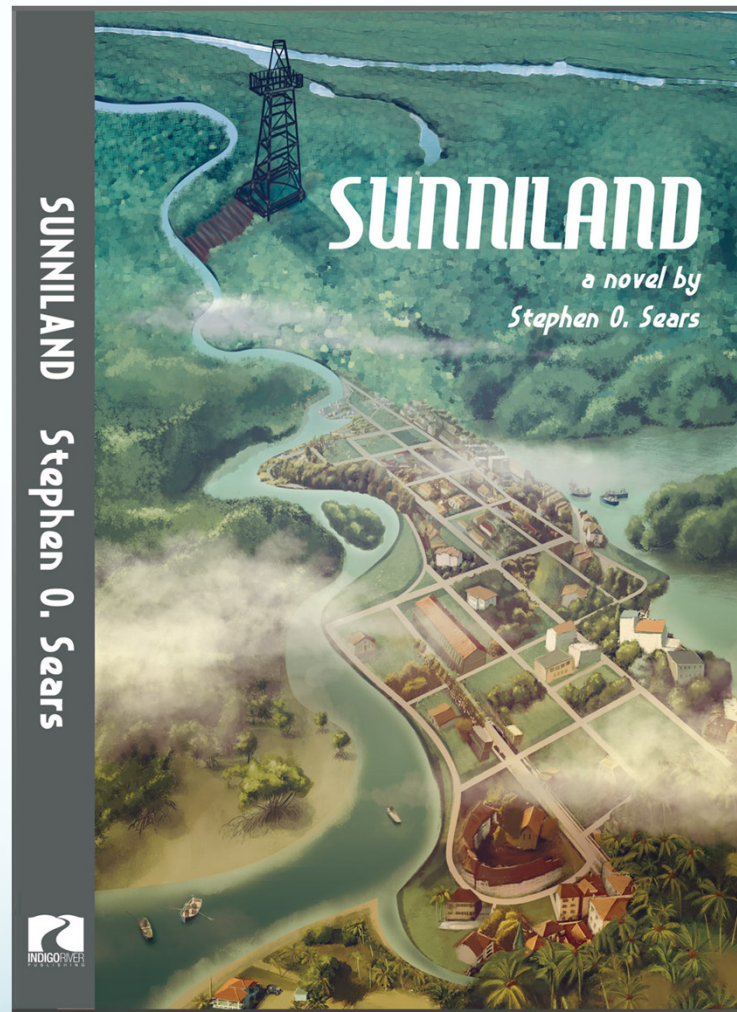


The setting for my novel, Sunniland, is Everglades City, Florida, in 1943.
A small town in the deep south.

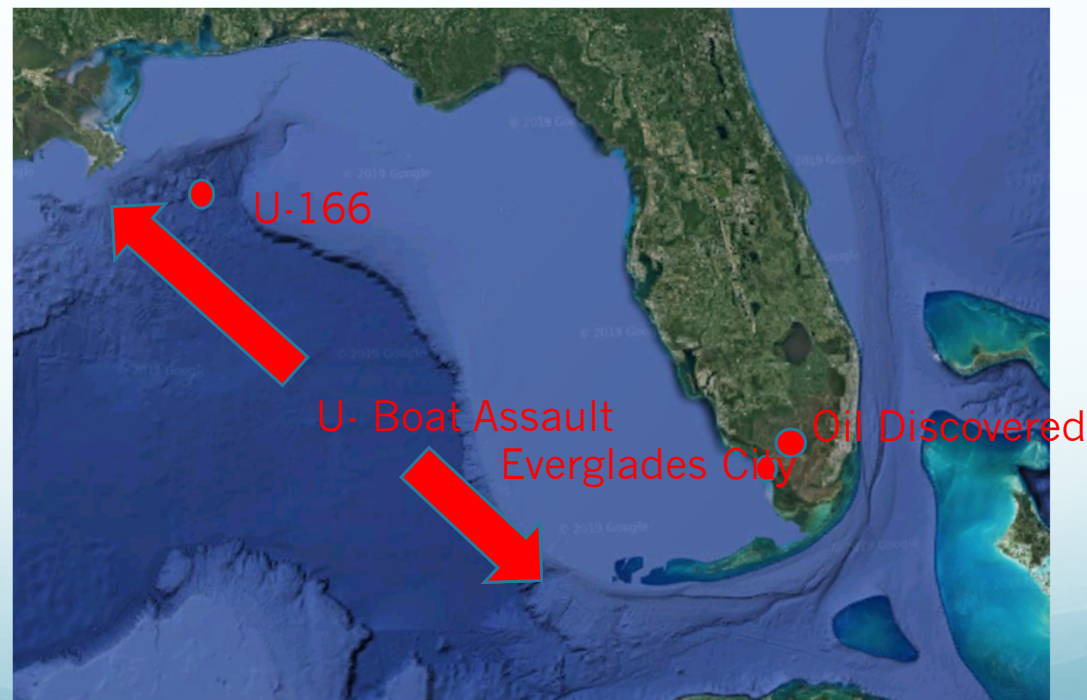


This talk is about the historical and geological setting of the book
For more background, see articles on StephenOSears.com

Deep Discoveries of 1943 Florida

German U-Boats and Sunniland Reefs

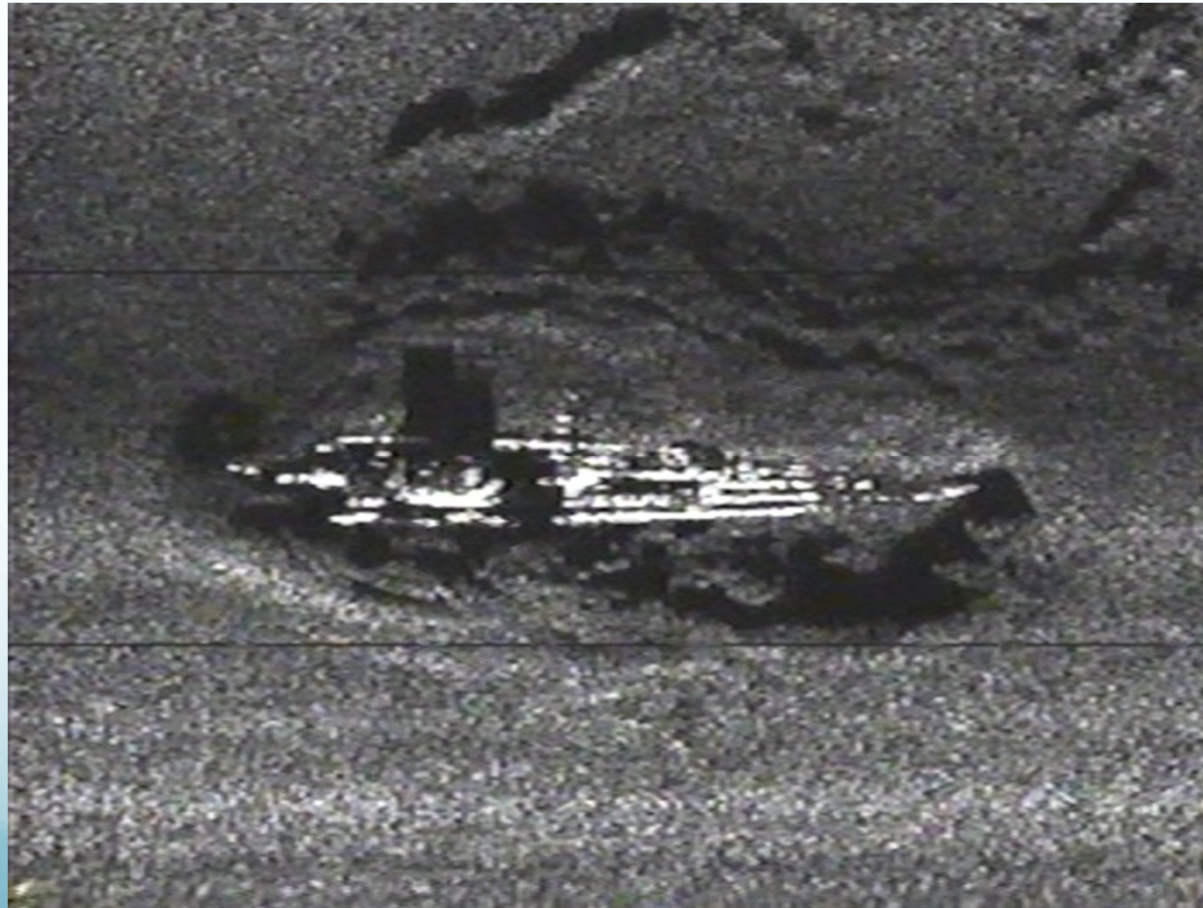
- Back in time
 - 2001 – the discovery of the U-166 in the Gulf of Mexico
 - 1942-43 – German U-Boats torpedo the WWII oil supply
 - 1943 - Oil is discovered in the Florida Everglades
 - 100 Million Years ago – Florida was under water. Reefs grew to form the Sunniland Formation



2001 – The Discovery of the U-166

Side by Side with its Victim – the Robert E Lee

- Shell Oil was setting the Nakika platform in 5000 of water
- A pipeline to carry the oil onshore required a bottom survey with sidescan
- The survey detected a shipwreck that looked like a submarine



The vessel Gary Chouest at Fourchon, Louisiana May 31, 2001





An Remote Operated Vehicle (ROV) was onboard
Capable of operating in over mile deep water



The U-166 Conning tower comes into view
Last viewed by anyone alive in 1942



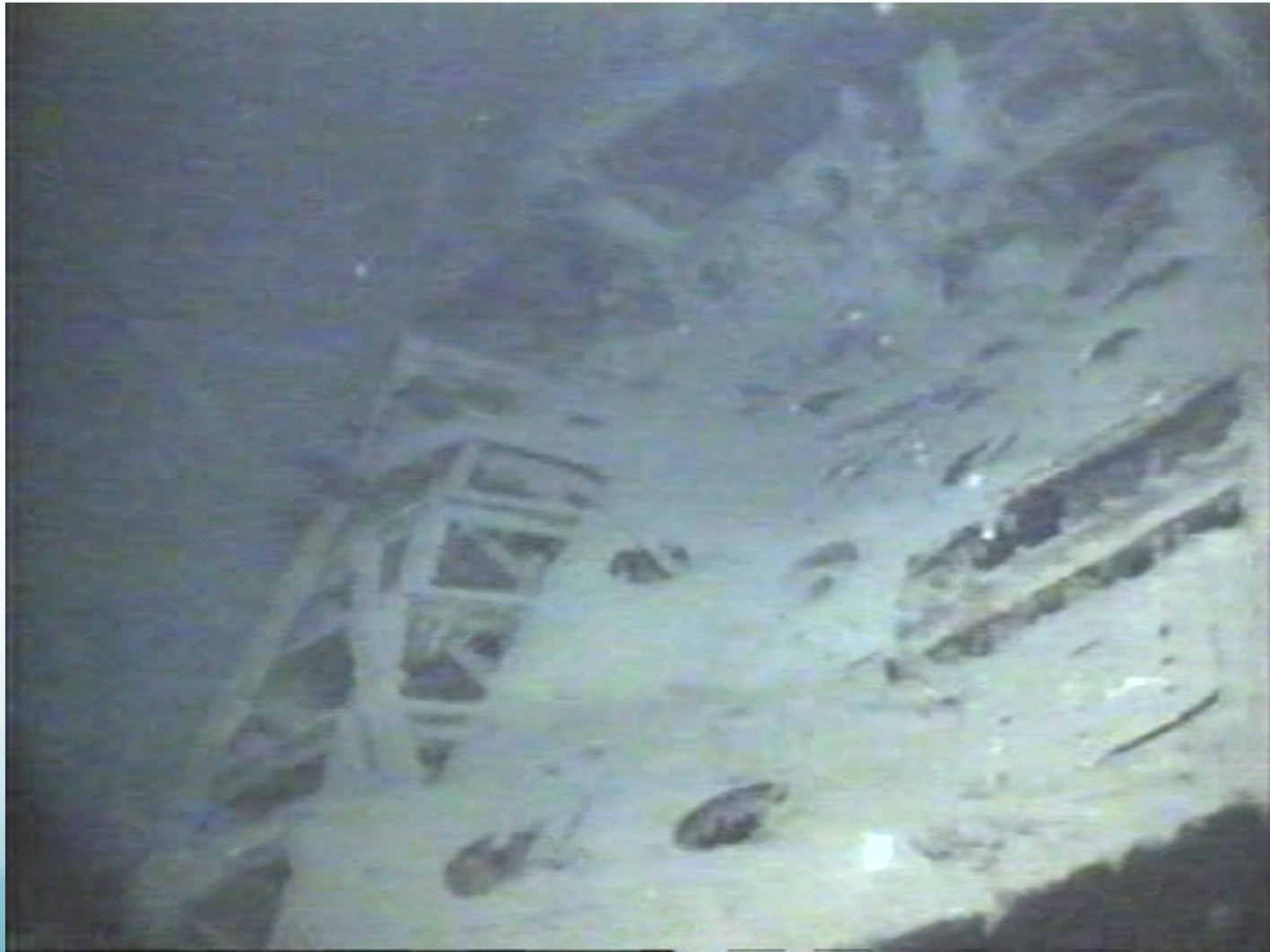
US Navy Capturing the U-505 in 1944



The cannon on the deck of the submarine
Silt covered, but not encrusted with marine growth



Crushed in deck from the depth charge
The bodies of over 50 German sailors remain inside



The stern of the submarine

Resting upright on the sea floor



The Passenger Freighter Robert E Lee

Diverted from Tampa to New Orleans

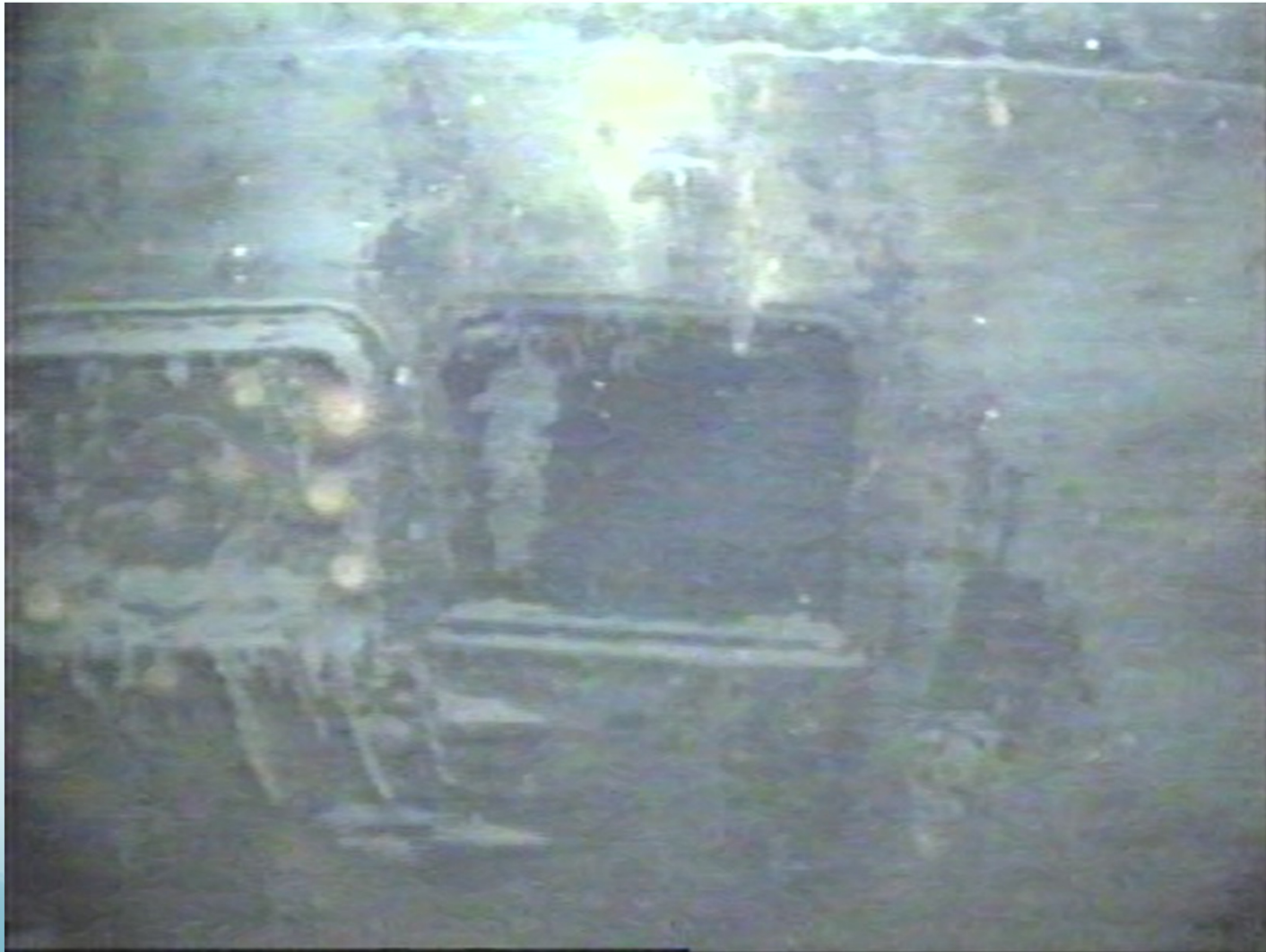


Railings and Portholes on the Robert E Lee

A more “human” scale



An open hatchway



An unused lifeboat on the sea floor



End of the Survey – an unusual object

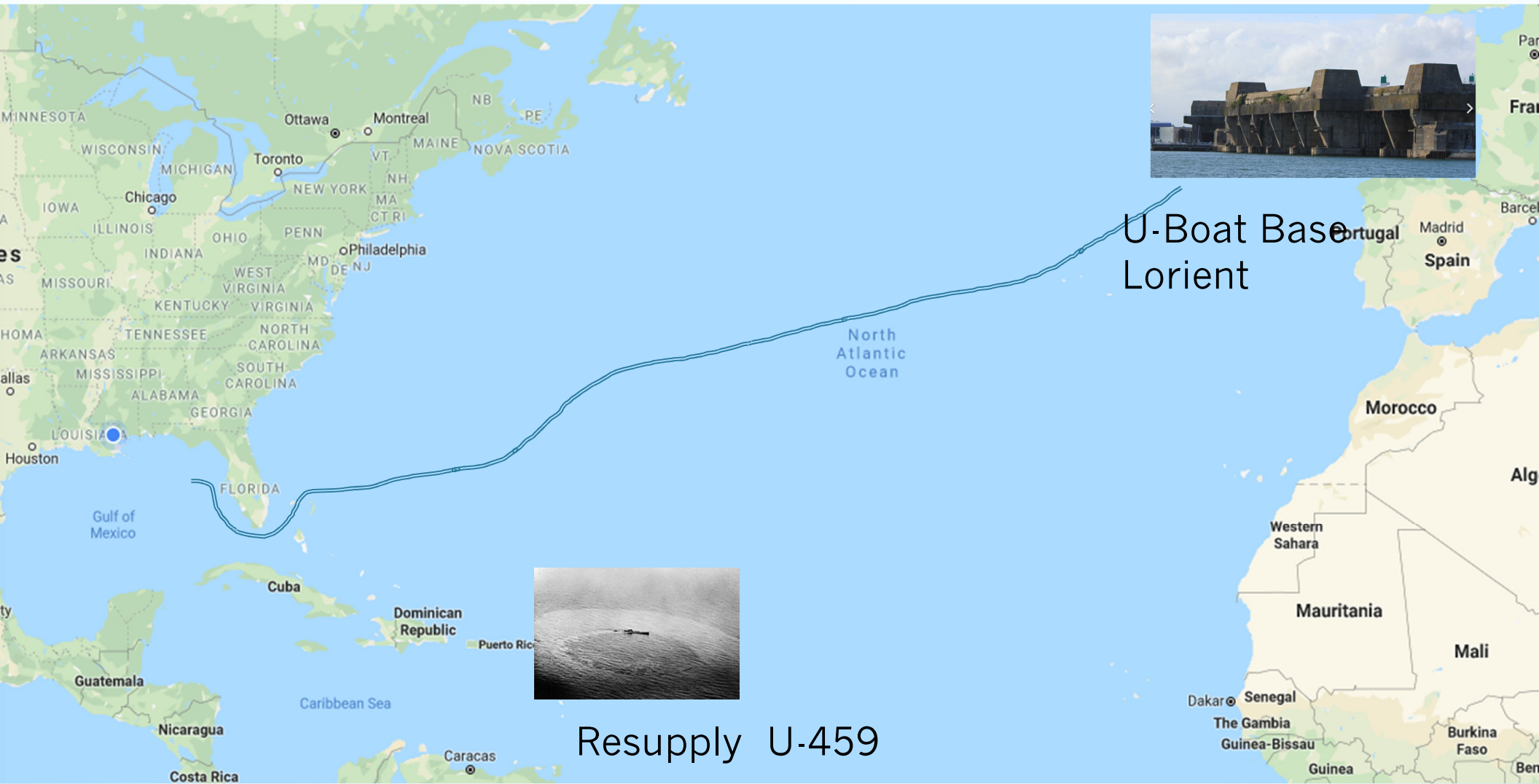


The Ship's Engine Room Telegraph

STOP



The U-Boat Route to the Gulf of Mexico



The U-Boat Assault on the Allied Oil Supply

A Floating Pipeline crossing the Gulf

- Oil was produced from the fields in Texas and Louisiana
- The large refineries were located in the Northeast, near Philadelphia
- Tankers transported the crude oil from the oilfields to the refineries
- U-Boats targeted the tankers, sinking over 100 in the Gulf and Caribbean



The image is a composite of a historical photograph and three documents. The photograph at the bottom shows a large steamship at sea, with a massive fire erupting from the deck, sending a large plume of smoke and water into the air. The ship's funnel and masts are visible against a dark sky.

Overlaid on the top left is a document titled "MUTATIONS" (Mutations) from the "Nederlandsche Telegraf Maatschappij". It is a form for recording crew changes, with columns for "Naam" (Name), "Rang" (Rank), "Dienst" (Service), "Toestand" (Condition), and "Bemerkingen" (Remarks). The form is partially filled out with handwritten entries.

Overlaid on the top right is a document titled "RADIO-NAVIGATIEBERICHT" (Radio Navigation Report) from the "Nederlandsche Telegraf Maatschappij". It contains handwritten details about the ship's position, course, and speed, including the date "23-11-1914" and the time "23:15:00".

Overlaid on the middle right is another document titled "RADIO-NAVIGATIEBERICHT" (Radio Navigation Report) from the "Nederlandsche Telegraf Maatschappij". It contains handwritten details about the ship's position, course, and speed, including the date "23-11-1914" and the time "23:15:00".

From A History of Royal Dutch Shell

Even in wartime,
Bureaucracy goes
On

A Shell checklist

[64]

PARTICULARS OF CASUALTY.

1. Name of Vessel. *MARISA*
2. Date of Loss. *16/5/41*
3. Reason of loss. *Torpedoed - (15/5/41 off Freetown for Curacao)*
4. Casualties: *C.M. Kandel*
1 Chinese
Freeman 4/6 { 80pts Landman 10pts ch/2
in Freetown 2/5 { 20 - 50pts + 16 ch/2
3/6 30pts PH 12 Chinese
4/6 6 Vietge
5. Date of Survivors' arrival ~~in London~~ *in Freetown 20/5/41* *{ 4/6 R.J. Dalling 9*
8.7.41 { 2/5 J. 20. AA7
3/5 L. 5. P.E.T. Chinese
5/5 T.A. DAVINCK
arriving UK 20.8.41
6. Red Cross advised (in case of relatives in Holland).
7. Families or friends in U.K. advised. *none in UK as far as known*
8. Minister of Interior advised. *8/7/41.*
9. Radio Holland advised (in case of Radio Officer). *advised safe 27/5/41 -*
10. Disbursements Dept. advised (*in Enso do - ✓*). *promised 30/5*
11. Steamers A/cs. Dept. advised. *✓*
12. Curacao advised (if C.S.M.). *wire 20/6 letter 27/6 re. Terrence Kandel*
as Kandel 8.7.41 Chas. Curacao
letter 17/7/41
13. Insurance Dept. advised.
14. Compensation for loss of effects. *✓ Advances to all*
15. Estate of Deceased/s credited with Compensation for loss *advised*
of Effects. *Stars of*
17/7/41
16. Staff advised of wages arrangements. *verbally 8/7/41*
17. Shell Magazine advised. *(death of Kandel.)*
11.7.41.
18. Aliens' and Immigration Officer visited. *✓*
19. Passbooks and Monster books sent to Consulate. *not available*
20. Mr. Rowbottom's Secretary advised Captain and Chief Engineer. *7/7/41*
available for interview.
21. Captain and/or Chief Engineer interviewed by Mr. Rowbottom. *Mr. Rowbottom*
17/7/41.
22. Master visited office. *7/7/41*

The impact of sinking 100 tankers

- The gross tonnage of the 100 tankers was 742,272 gross tons
- If filled with oil, that would be over 13 million barrels
- Or 546 million gallons
- Or the total production from a medium sized oil field
- Four days US production in 1940
- One days US production in 2019
- Macondo Spill- 4.9 million barrels
- The main exporter to the US, Venezuela, was shut off
- Three effects
 - The loss of oil from the sinkings
 - The loss of the Venezuelan production
 - The interruption of the supply line to the northeastern refineries

The US Response

With the loss of the far east oilfields to the Japanese, the US supplied both British and American forces during the war

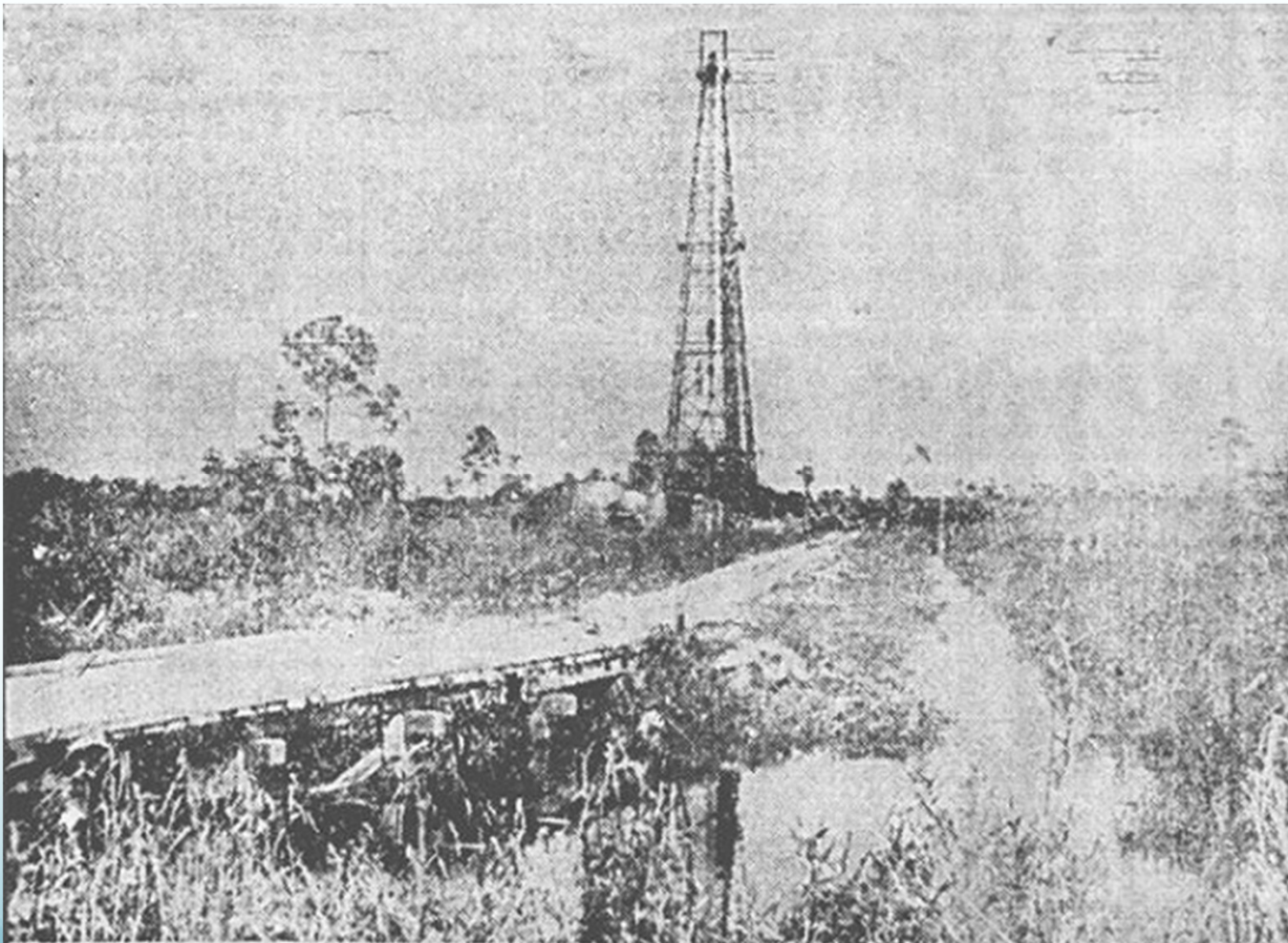


Harold Ickes, Secretary of the Interior,
Appointed “Oil Czar” by
President Roosevelt

- A pipeline was constructed from Texas to the northeast refineries
- US oil production increased from 3.7 to 4.7 million barrels a day
 - New Fields discovered in Texas, Louisiana, and Michigan
 - The Sunniland Field was discovered in the Florida Everglades in 1943
 - Not only new production, but did not have to cross the Gulf

The Sunniland No. 1 Well, 1943

Drilled to a total depth of 11,626 feet



Why was oil discovered in the Everglades?

- Florida was part of a sea that divided the North American Continent during the Cretaceous period, 100 million years ago
- The water was clear and warm, like the Keys and Bahamas today



From D. W. Moore, USGS

Reefs grow at the edge of Deep water

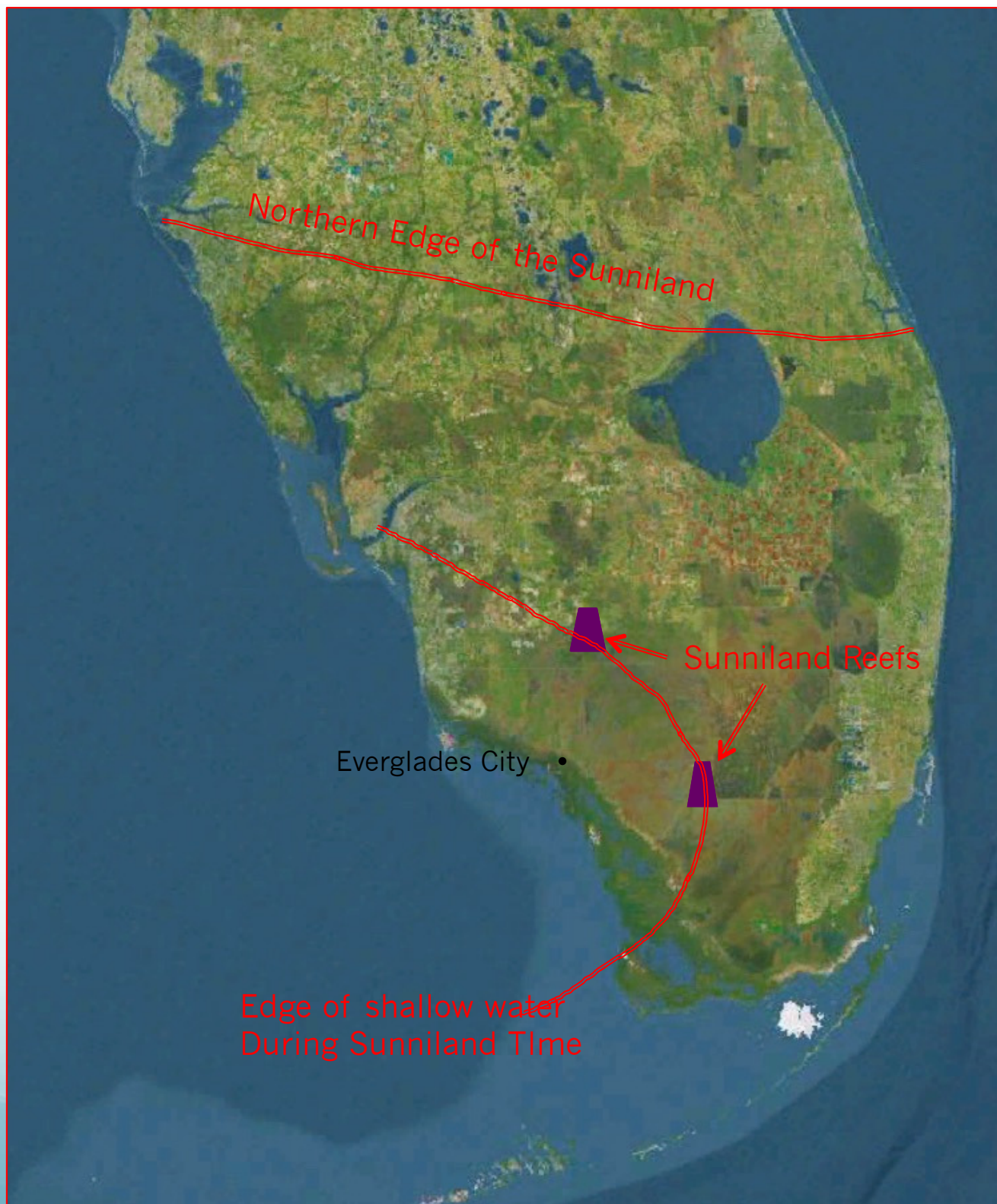
The Florida Keys today



Cretaceous Reefs were built by Rudist Clams

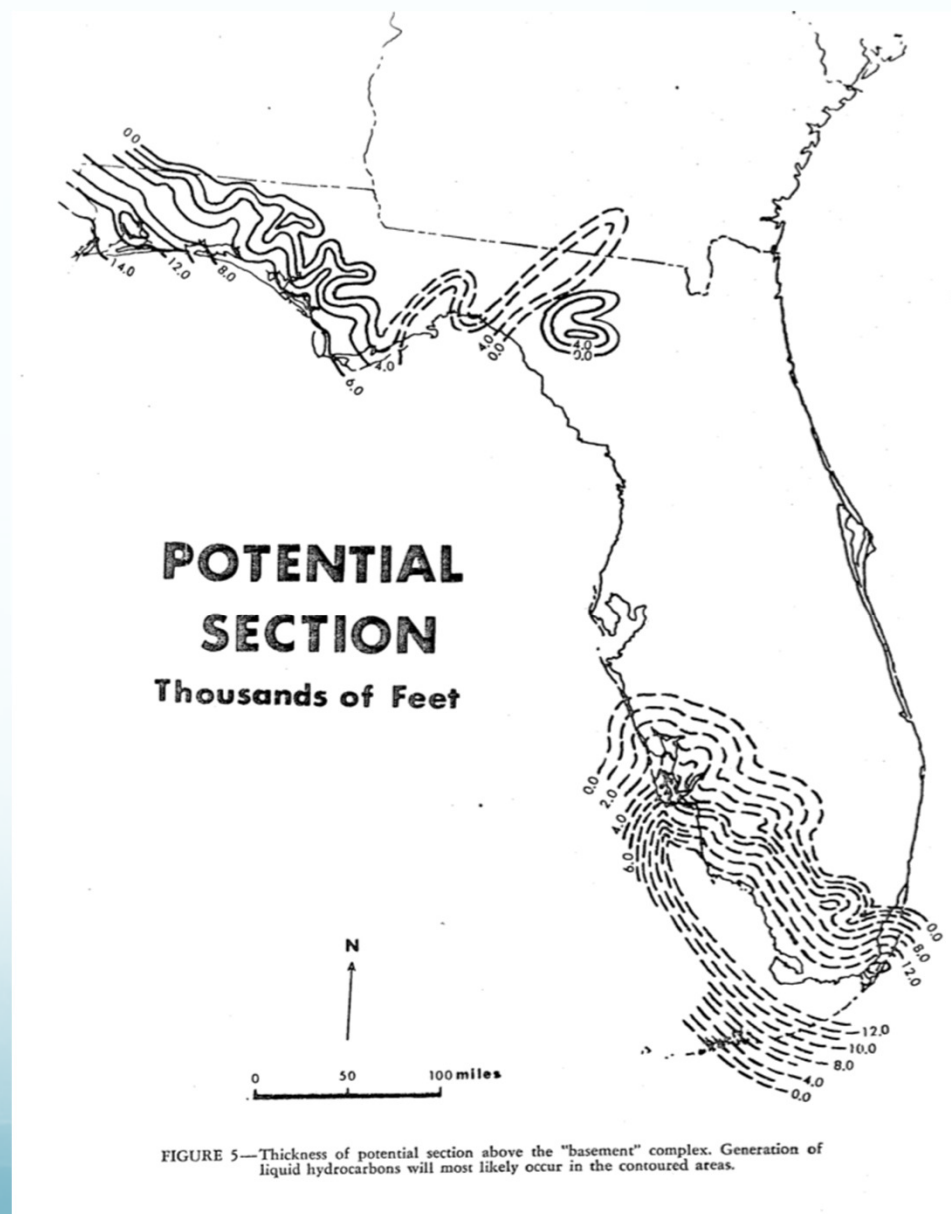


The location of the Sunniland Reefs



Thickness of Sedimentary Section in Florida above 221 Degrees F

From Reed and Griffin, 1971



Sources and Acknowledgments

- Samuel Elliott Morrison: History of United States Naval Operations In World War II
- Clay Blair: Hitler's U-Boat War
- Michael Gannon: Operation Drumbeat
- Stephen O. Sears: Facies Interpretations and Diagenetic Modifications of the Sunniland Limestone, South Florida

For More information, see StephenOSears.com

A sequel to Sunniland will be published in 2022: The Orinoco Uranium