

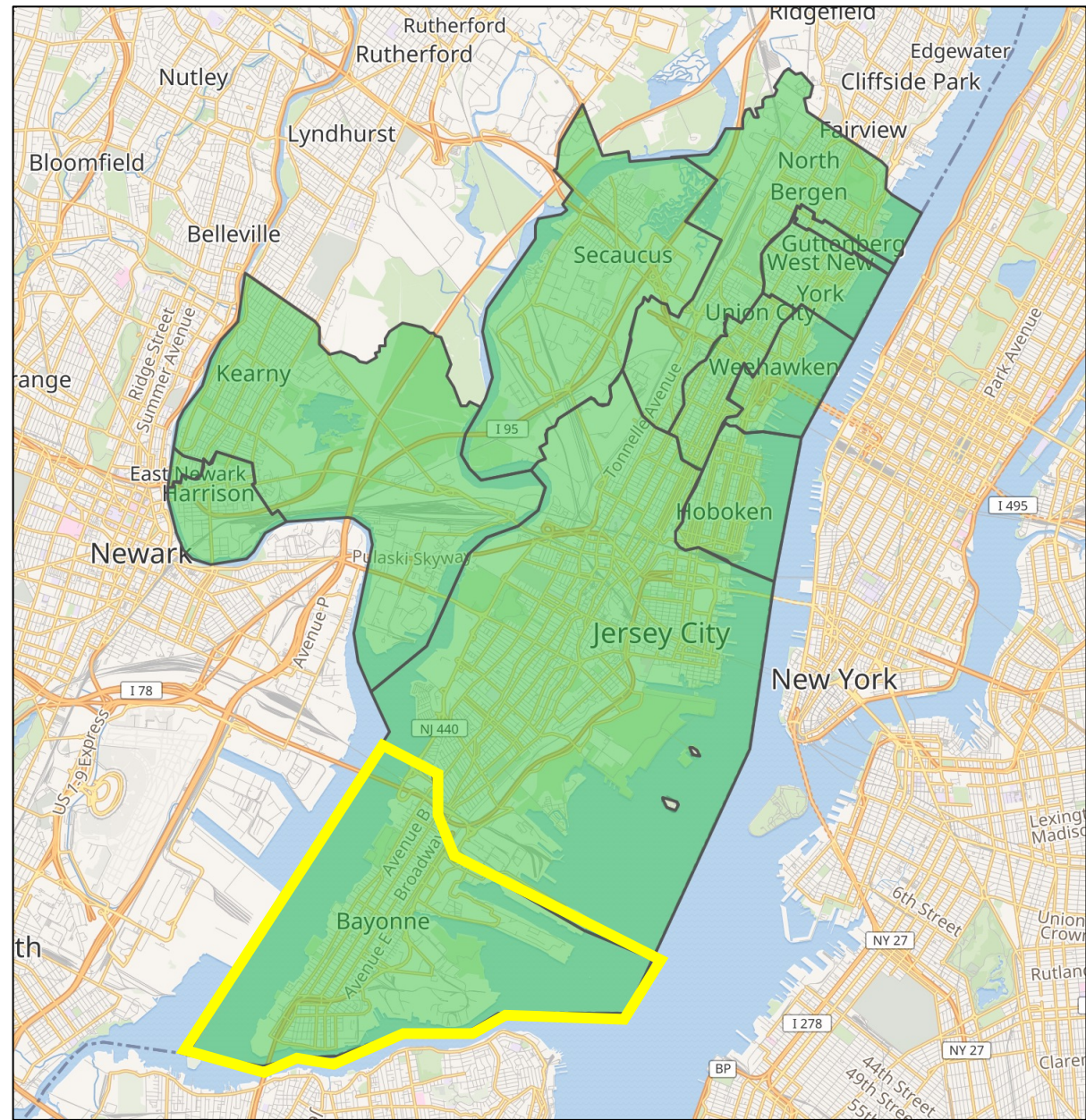
Integration of UAS into Lifesaving Operations

Hugh Roarty

July 12, 2022



© geology.com



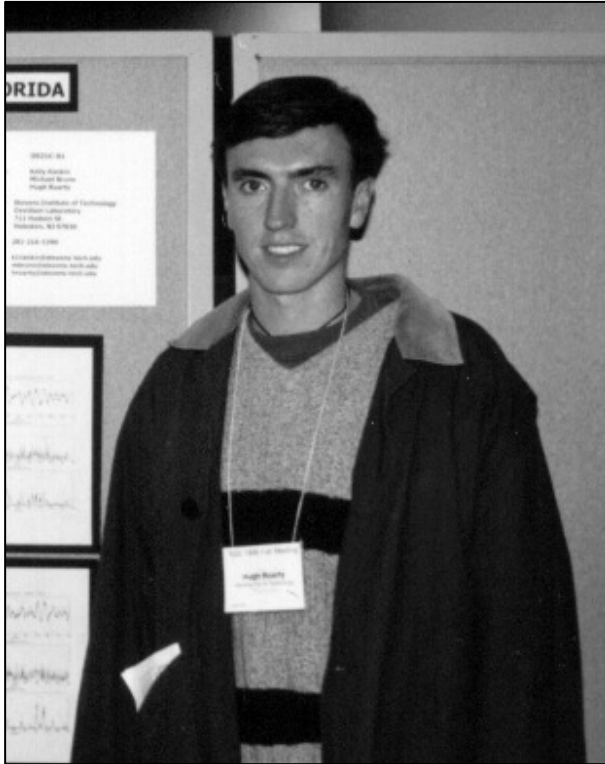


Dr. Hugh Roarty



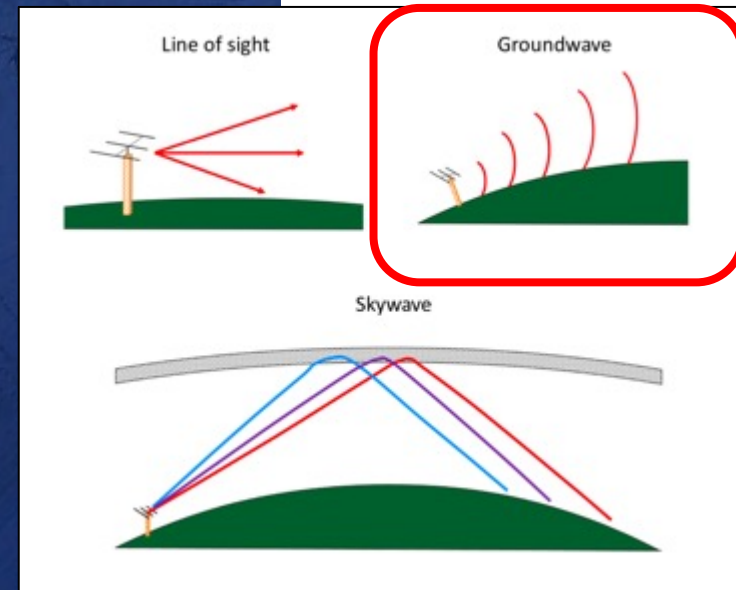
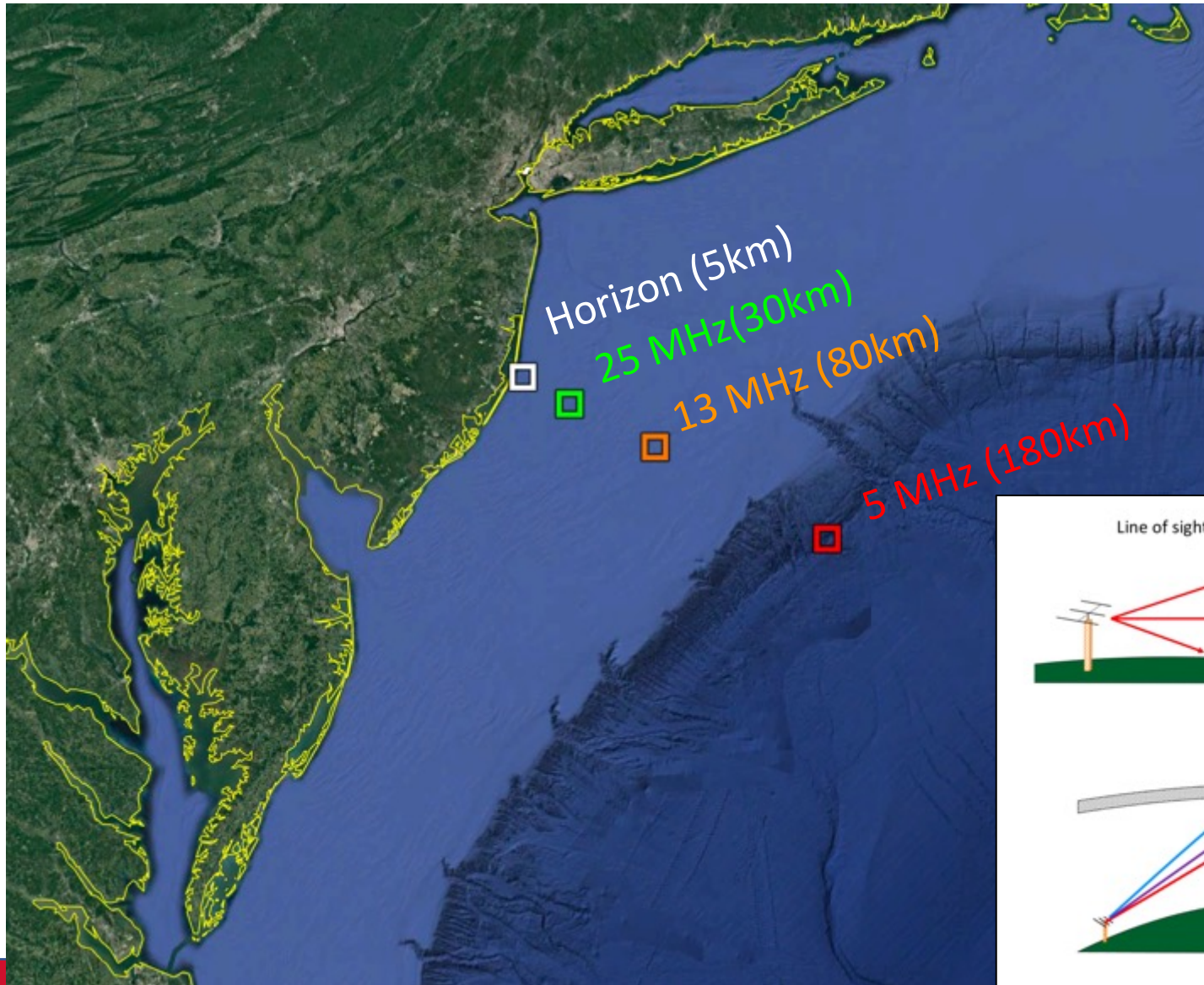
- Ph.D. in Ocean Engineering from Stevens Institute of Technology
- 13 years experience working with HF radar
- Research Project Manager at Rutgers University

Stevens Institute of Technology Hoboken, NJ



Introduction to HF Radar

Benefit of High Frequency Radar



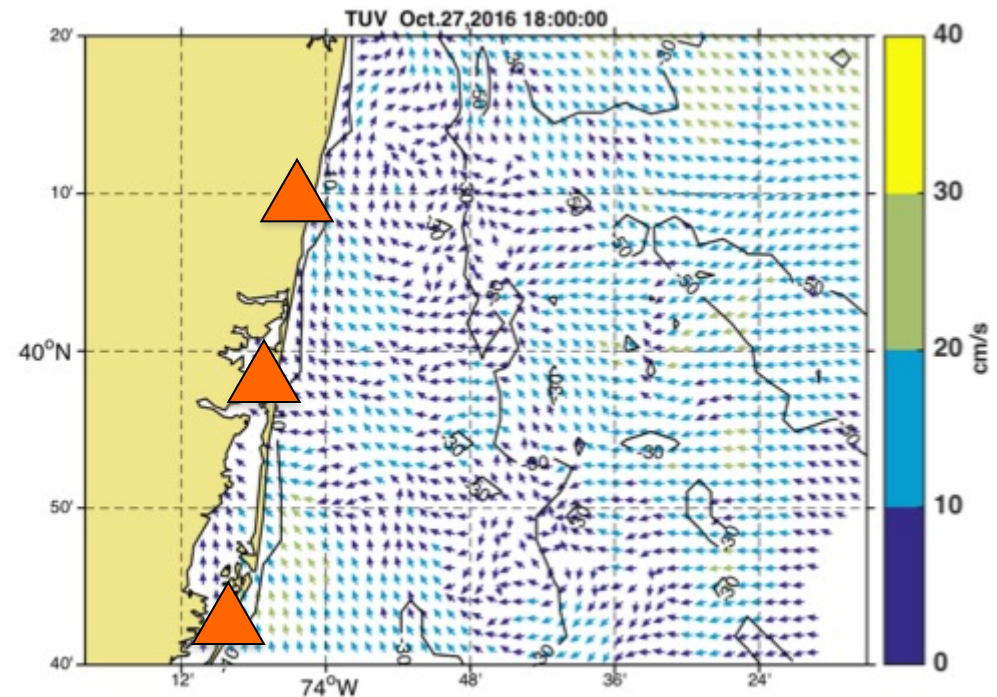
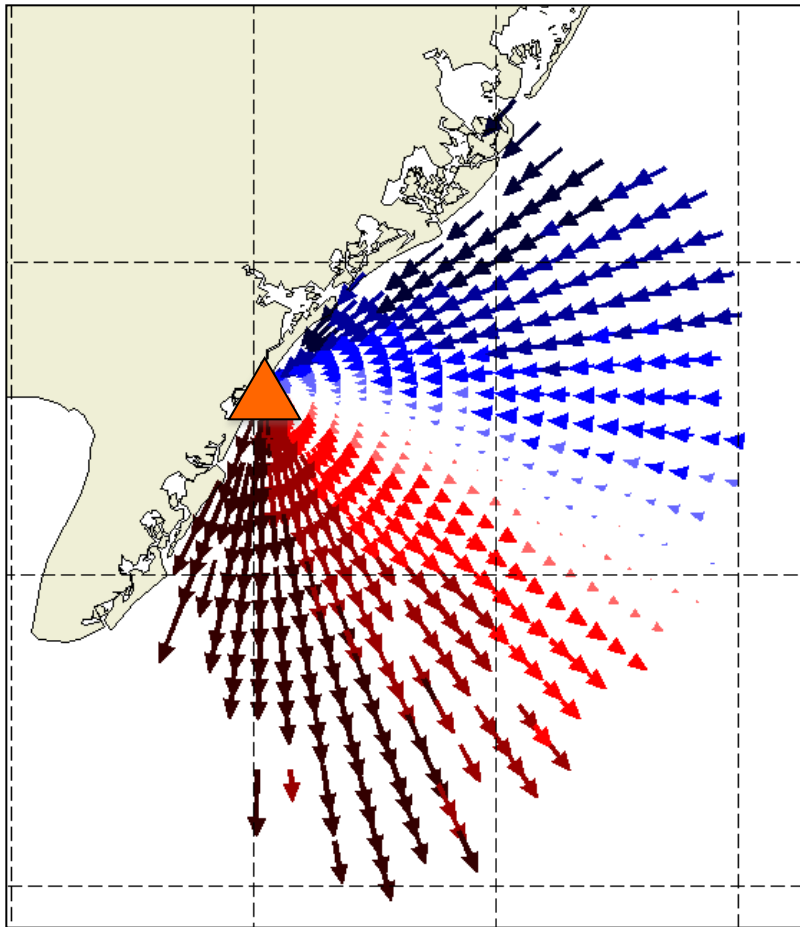
High Frequency Radar

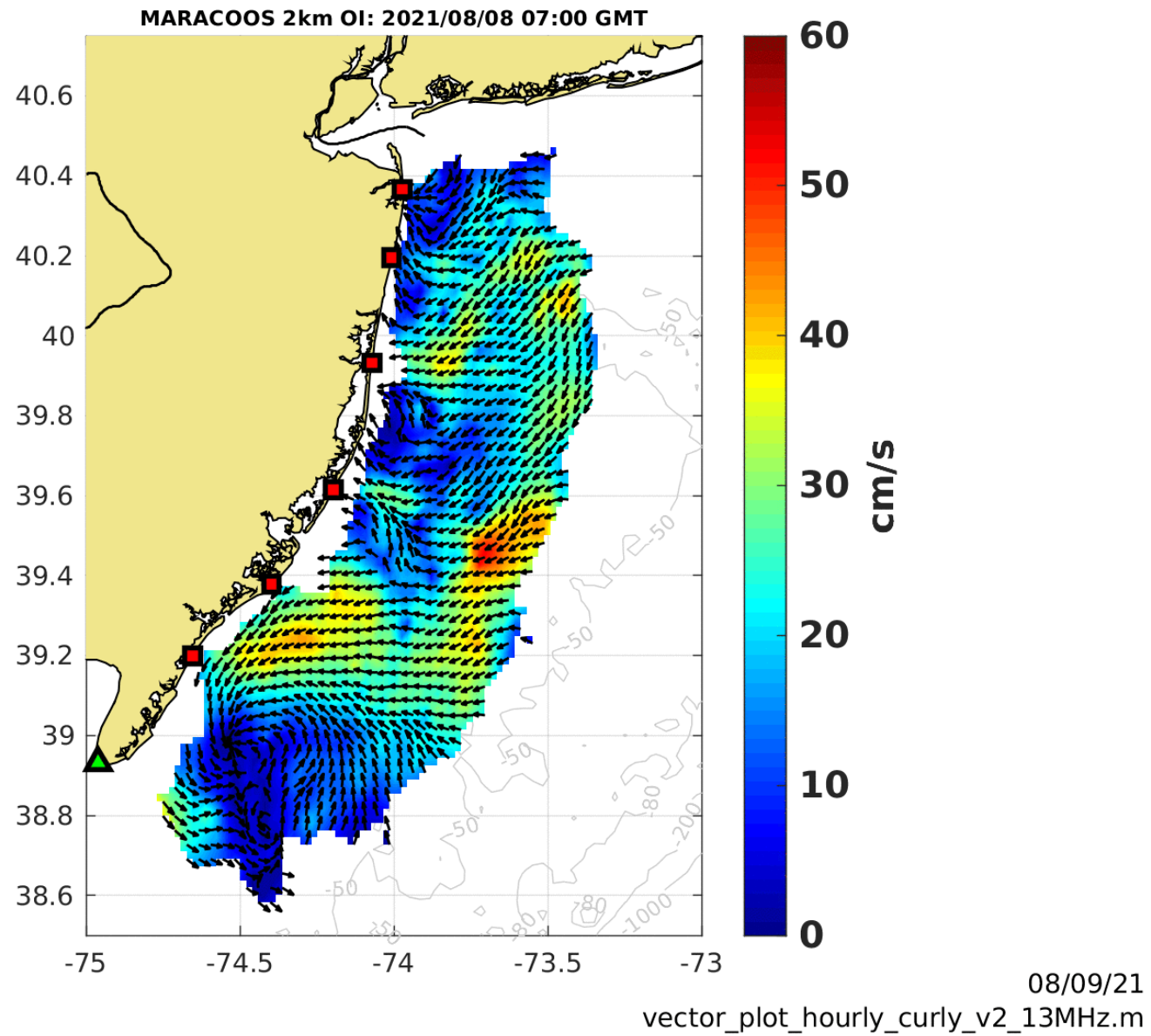


Hourly radial surface
current measurements



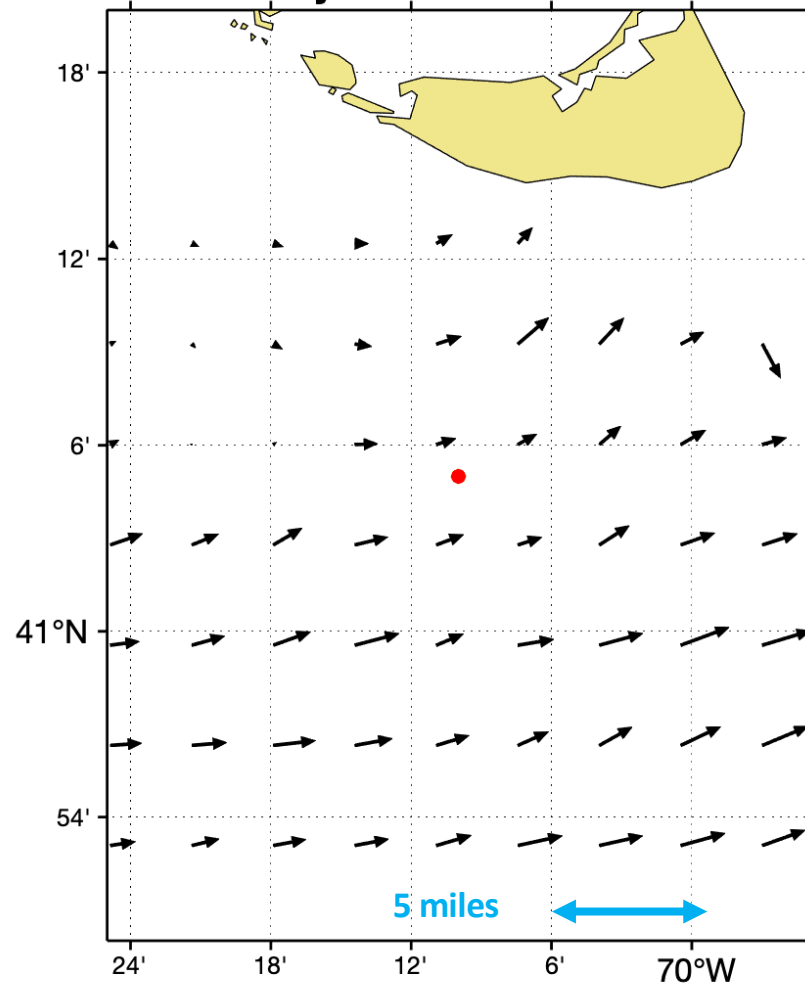
Hourly total current
measurements





Surface Currents from HF Radar

MARA Particle Trajectories: 2020/04/18 00:00 GMT

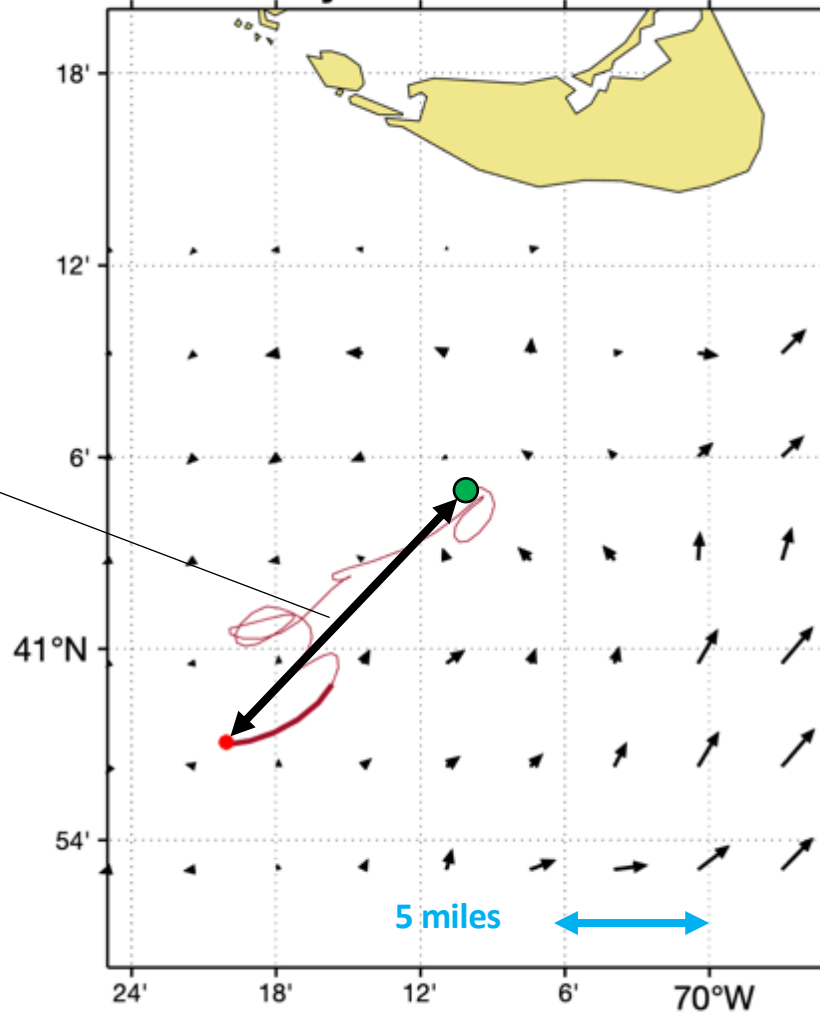


04/21/20 trajectories_from_5.m

Surface Currents from HF Radar

MARA Particle Trajectories: 2020/04/20 23:00 GMT

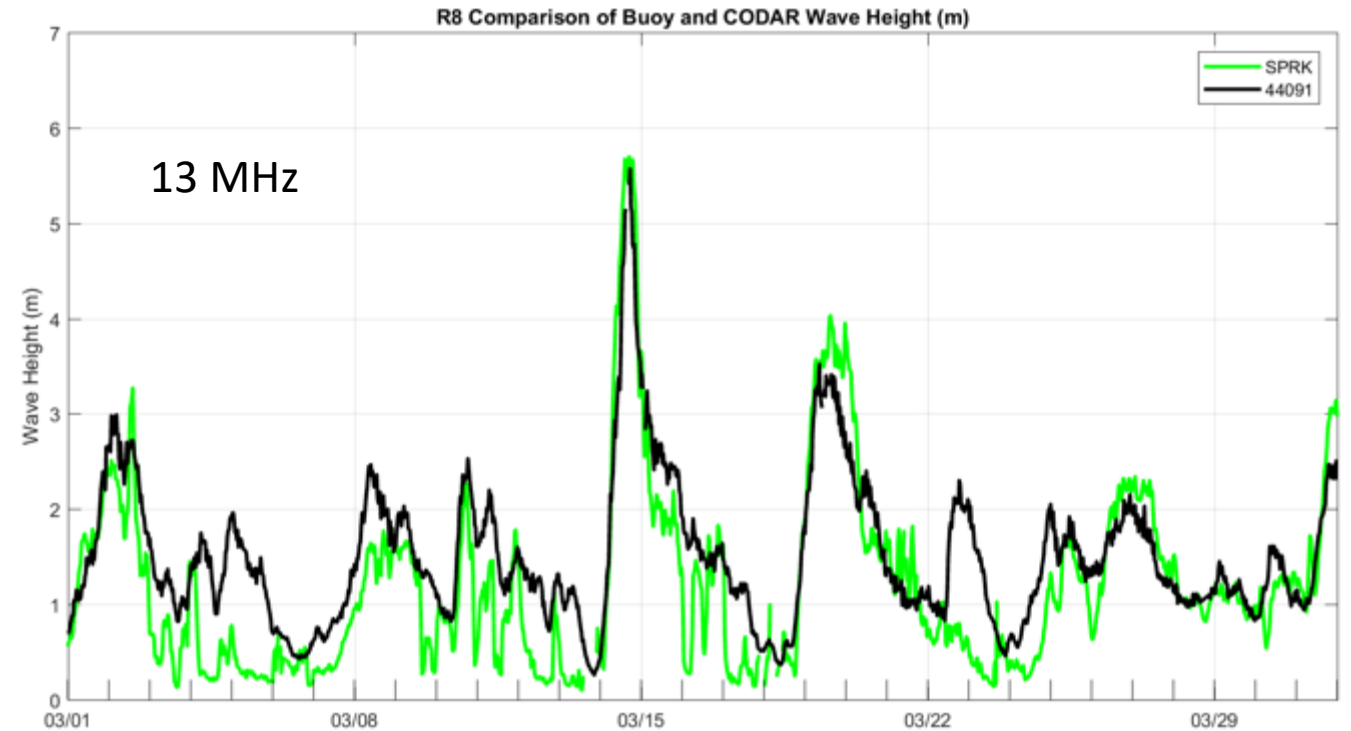
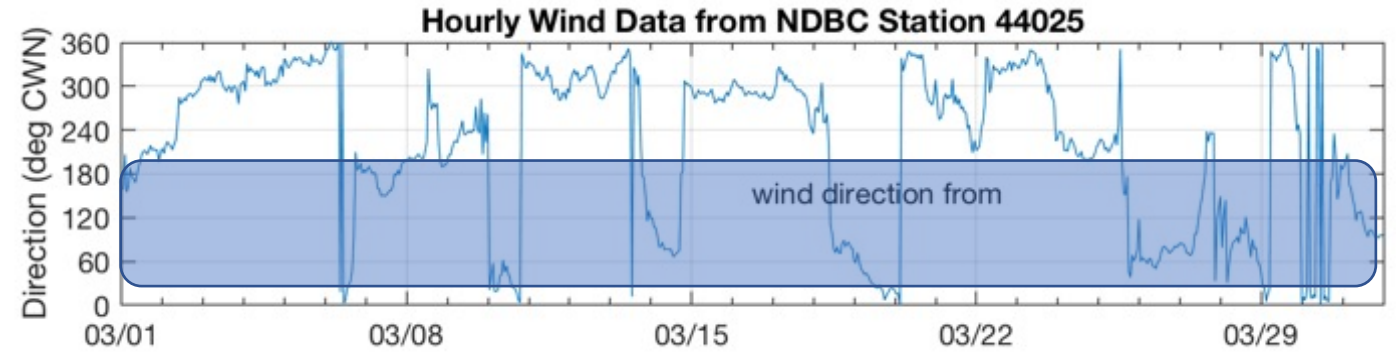
24 km
70 km
total path
in 3 days



04/21/20 trajectories_from_5.m

Wave Measurements from HF Radar Stations

Frequency (MHz)	Radio λ (m)	Ocean λ (m)	Period (s)
5	60	30	4.4
13	23	11.5	2.7
25	12	6	2.0



March 2017



Calibrating HF Radar







Long Branch - 2017





Other Applications

Sharks spotted off Jersey Shore beach, police say



By **Katie Park | For NJ.com**

on June 30, 2016 at 3:20 PM, updated July 01, 2016 at 6:35 PM

DEAL - Beachgoers were frantically ushered out of the water near Deal Casino and the Conover Pavilion on Thursday, after lifeguards spotted a gray, angular fin snaking its way through low tide.

For about an hour on Thursday morning, the ocean near the beach club was devoid of visitors as lifeguards temporarily closed off the water to monitor the area for suspected sharks.

Deal police Sgt. William Hulse said lifeguards thought they saw two sharks near Conover Pavilion following a school of dolphins.

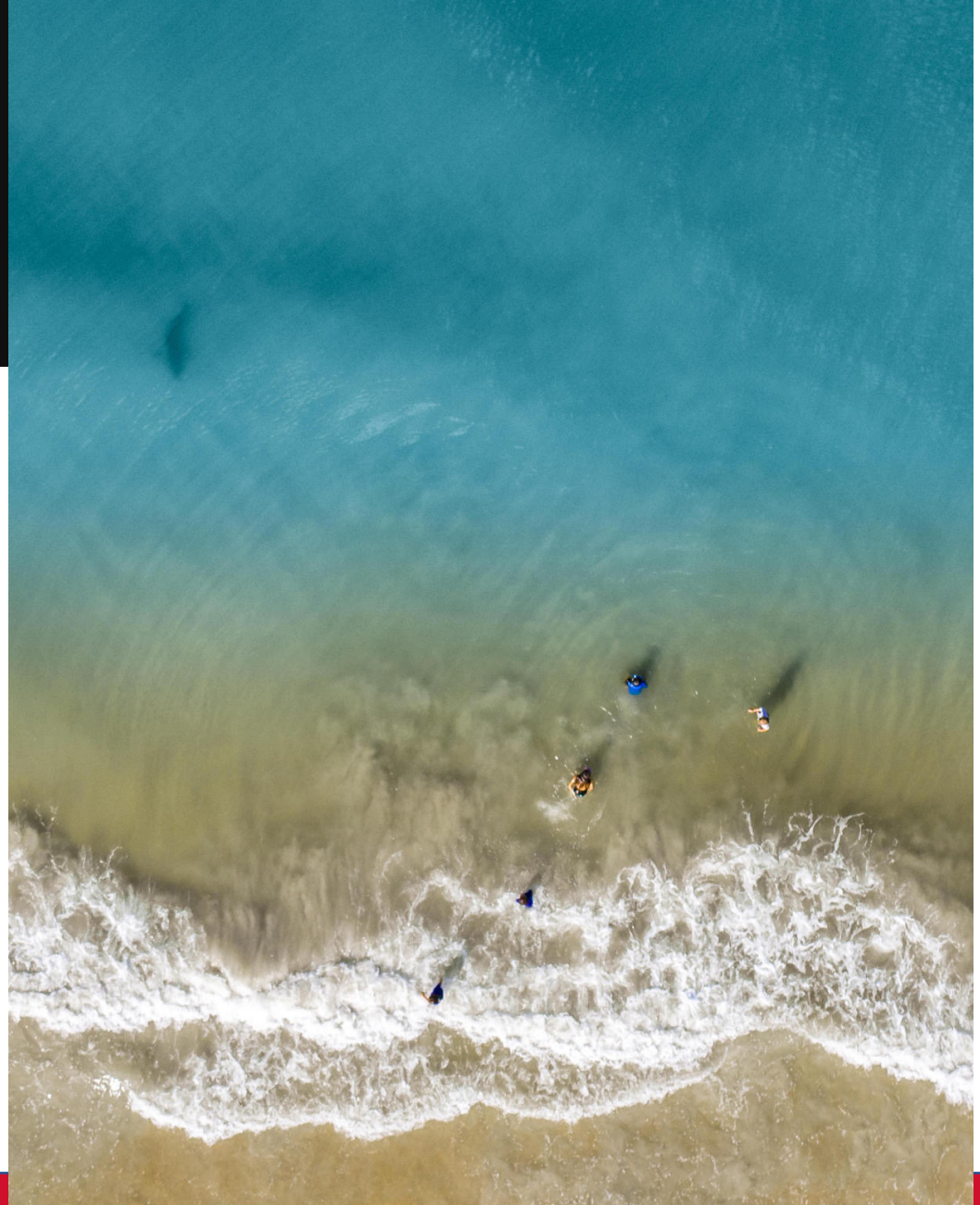
"No one was hurt," Hulse said. "Everyone was removed safely (from the water)."

Police sent out an alert at 11:55 a.m. notifying the public that a 6- to 7-foot shark was spotted approximately 100 yards off Deal Casino.

Florida dad spots shark swimming near his children while taking photos with drone

BY CHRISTOPHER BRITO

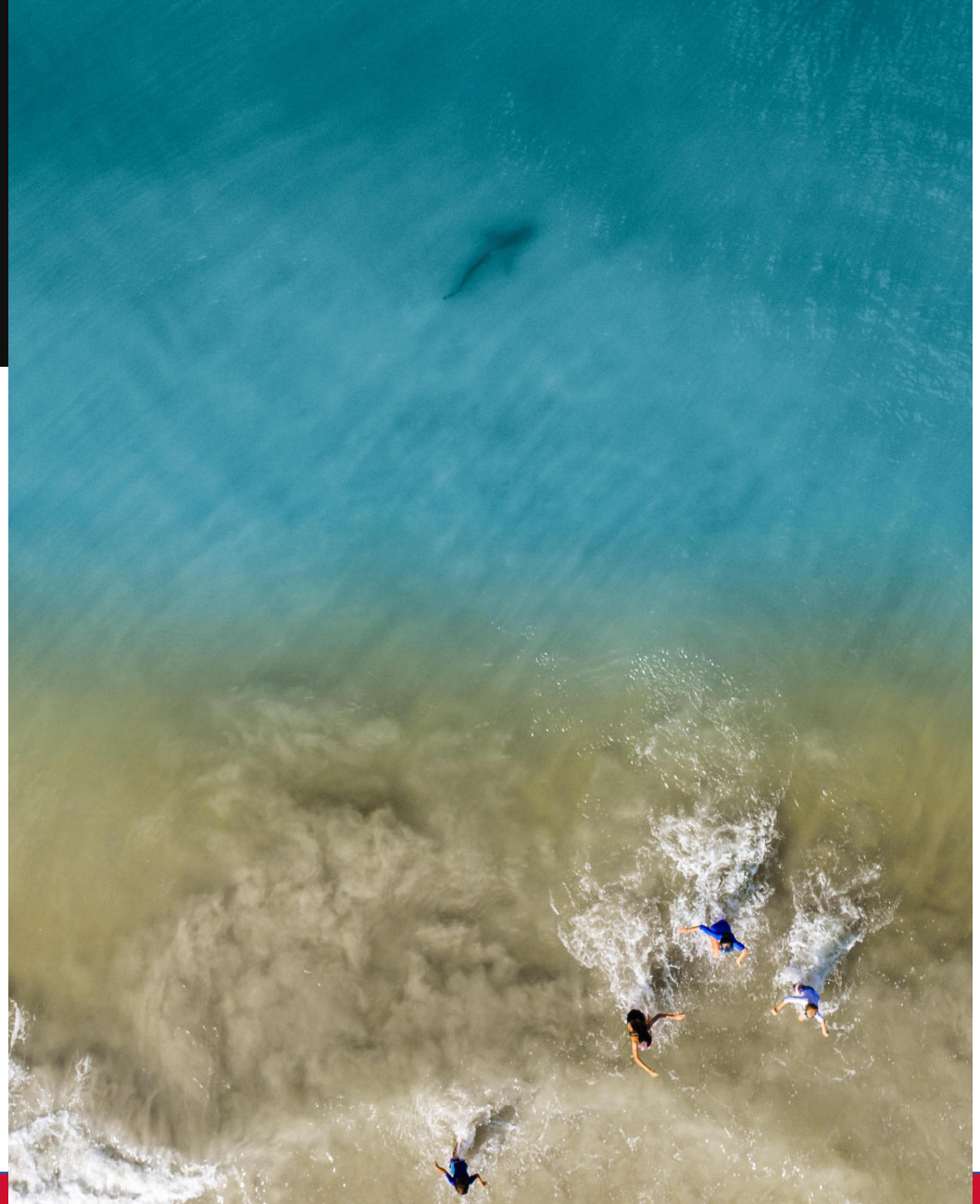
JULY 2, 2019 / 7:36 PM / CBS NEWS

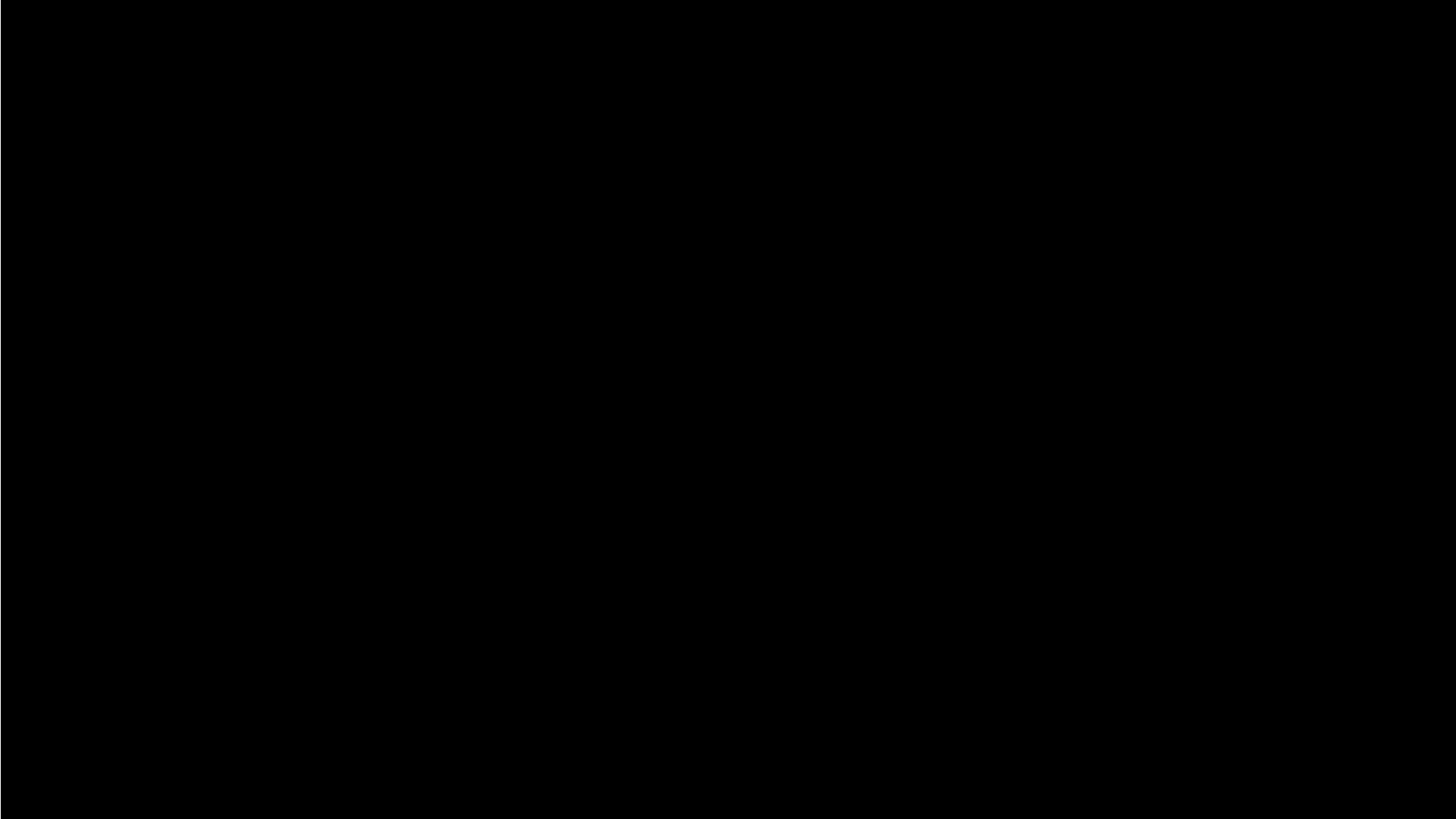


Florida dad spots shark swimming near his children while taking photos with drone

BY CHRISTOPHER BRITO

JULY 2, 2019 / 7:36 PM / CBS NEWS





<https://www.youtube.com/watch?v=uOoW2iD4NYg>

