Evaluating the Health of TBRE Dolphins

WHO The National Oceanic and Atmospheric Administration (NOAA), with the National Marine Mammal Foundation [NMMF]) and other technical experts are authorized to conduct scientific studies on the health of dolphins in the Turtle-Brunswick River Estuary (TBRE).

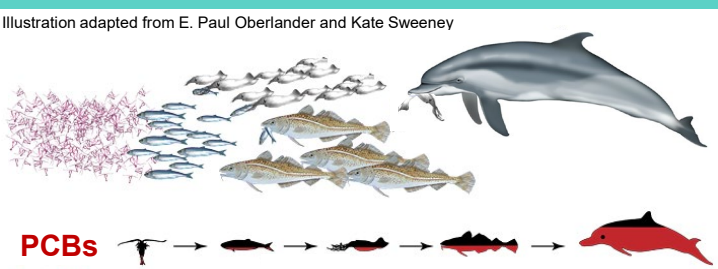
These studies are completed under strict guidelines outlined in Marine Mammal Protection Act permits Programmatic Environmental Impact Statement (https://repository.library.noaa.gov/view/noaa/4939), and Institutional Animal Care and Use permits.

NATIONAL MARINE MAMMAL FOUNDATION

WHAT Scientists can identify individual dolphins using photo-identification surveys and evaluate dolphin health by conducting veterinary health assessments.
Photo-ID studies are repeated, systematic surveys with photographers on boats to identify individual dolphins and estimate the number of dolphins in an area.

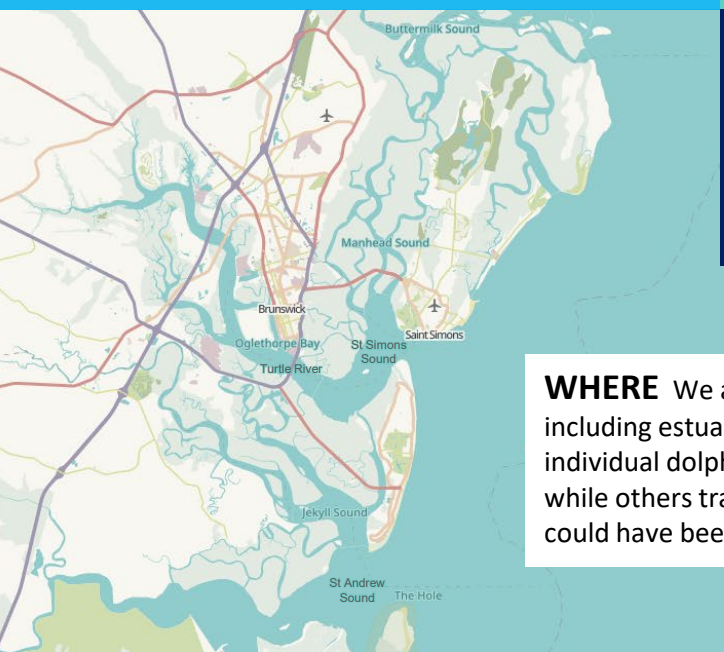
WHY The LCP Chemicals Superfund Site in Brunswick, Georgia released hazardous materials, into the environment where dolphins live, eat, and socialize. NOAA is conducting studies to determine how those contaminants, primarily PCBs, may affect local dolphins via the fish they eat.

Illustration adapted from E. Paul Oberlander and Kate Sweeney



Health assessments are used by scientists and veterinarians to evaluate individual animal health through examinations during temporary capture-release. These health assessments are similar to taking a dog or cat to the vet, but we bring the vets and medical equipment to the dolphins.

Dolphins are not only intelligent and long-lived animals, but as apex predators they can be helpful indicators of the overall health of their environment. Over their lifetimes, they accumulate certain contaminants, like PCBs, as they are passed up the food web.



WHEN Ongoing studies include efforts to determine contaminant levels, reproductive success, and the dolphins' overall health, as well as to examine factors that influence dolphin population dynamics (e.g., survival rate and emigration/immigration). We are currently collecting and analyzing data.

WHERE We are interested in dolphins throughout the TBRE, including estuarine waters to the north and south. Some individual dolphins stay in smaller areas in creeks and rivers, while others travel along the coastline. Any of these individuals could have been exposed to contaminants from LCP.

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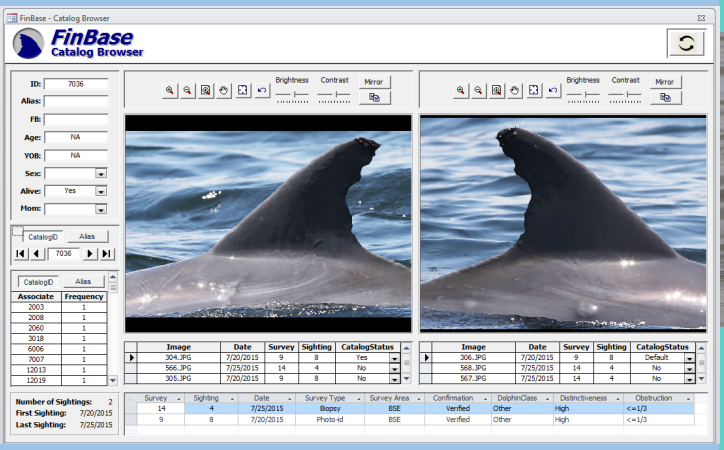
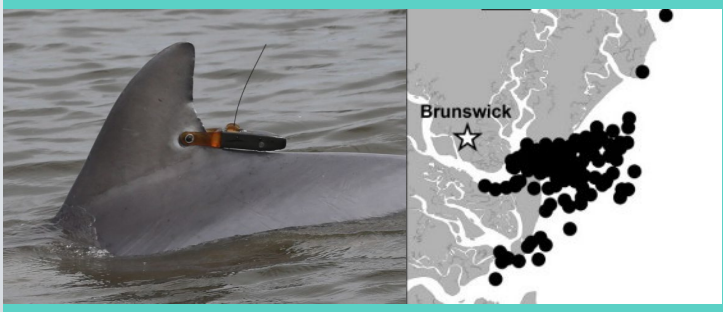
HOW We use a variety of data collection techniques to understand dolphin populations and individual dolphin health. Here are some examples:

Photo-ID Individual dolphins can be identified by their unique dorsal fin shapes, including nicks and notches on the fin. We use computers to help us match new photos to already known dolphins.



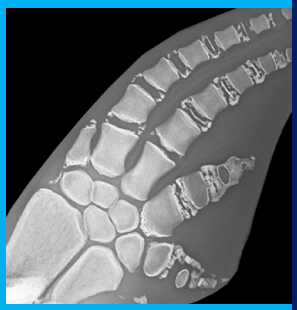
By repeating surveys each year, we can understand an individual's movements and survival over time, as well as the dolphin abundance in the area.

Satellite tags During health assessments, we temporarily attach satellite-linked tags to dorsal fins. The tags report dolphin locations and movements in real time for up to several months.



The attachment dissolves over time, eventually releasing the tag from the fin. Then the dolphin's skin heals over.

Flipper X-rays Knowing a dolphin's age can help us assess their health and their potential exposure to contaminants. Our veterinary team can take digital x-ray images of a dolphin's flipper, then, in real-time, estimate their age by looking at the bones.



Ultrasound Our veterinary team conducts ultrasound exams just like at your doctor or vet's office. Images of internal organs help us diagnose illnesses that might not be evident through visual exams. Exams of potential moms help us determine if they are pregnant, an estimated due date, and the likelihood of successful pregnancy.

Tissue samples During health assessments, we carefully collect blood, skin, and blubber from dolphins. Blood is sent to labs to learn about their electrolytes, hormones, infectious diseases, and more. Blubber is sent to labs to learn about contaminants, like PCBs. Skin is sent to labs to learn about contaminants and genetics/epigenetics, including relatedness, stock assignment, and age.

For more information about NOAA's LCP assessment, please visit: https://darrp.noaa.gov/hazardous-waste/lcp-chemical

For more information about the National Marine Mammal Foundation, please visit: www.nmmf.org

Unless indicated otherwise, all photos and procedures were conducted under NMFS Permit #18786.

We credit Ashley Barratclough, Todd Speakman, and Brian Balmer for photos and images.