SBMM - Whale Exhibit Rough Draft Content Outline

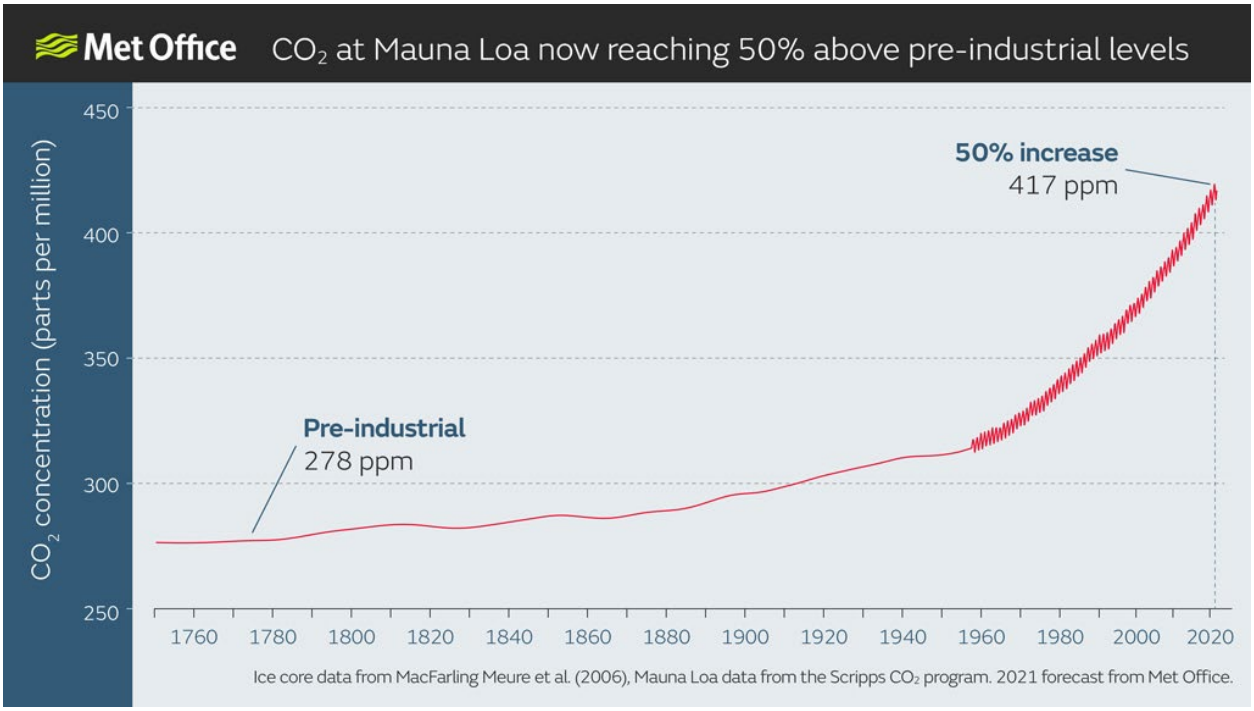
Exhibit Theme: Whales are Superheroes
Possible Exhibit Title: (IMAGE: whale Illustration)

WHALES ARE SUPERHEROES: Saving the Planet One CO2 Molecule at a Time

PANEL 1
What is Climate Change
How burning of fossil fuels has accelerated an increase of greenhouse gasses, including CO2 in the last 150 years
(Instead of greenhouse gasses)

Greenhouse gases cause global warming
How the greenhouse effect works. (IMAGE: greenhouse effect diagram)
How a hotter climate impacts people. (IMAGES: examples of troubles)

Fires
Flooding
Drought
Economic / Political Upheaval
Health Hazard (respiratory / pandemics)
(see climate change infographic example)



Ways to live in better balance with nature
(focus on the CO2 opposed to greenhouse gasses that is the connection between whales, whale poop /plankton/ photosynthesis…)
Ways to reduce greenhouse gasses and mitigate warming
Reduce carbon and other greenhouse gas emissions.
Remove existing carbon from the atmosphere.

PANEL 2

~~How Do They Do It? (possible subtitle)~~
~~OR~~
Saving the Planet One CO2 Molecule at a Time (absolutely LOVE this line!)
How do they do it?

PANEL 3
a) Whale food and elimination cycles feed phytoplankton. (IMAGE: diagram)
**whales are conveyor belts, delivering important nutrients* -- need to include Photosynthesis (whale pump)
https://whalescientists.com/whale-pump-engineers/

i) Their feces help phytoplankton to grow and multiply
ii) Phytoplankton feed zooplankton
iii) Zooplankton small schooling fish and whales too (Blue whales feed on krill (a type of zooplankton) and humpbacks in the N. Pacific feed on fish- anchovies here in the SB Channel.
iv) Whales then poop, fertilizing phytoplankton again, and the cycle continue

b) Phytoplankton are mini-superheroes in two ways:
i) They remove CO2 from the atmosphere, which has a cooling effect.
ii) They release oxygen into the atmosphere, which we need to survive. (every other breath we take is a gift from the sea) ☺

(1) Over half of our oxygen (every other breath) come from phytoplankton.

PANEL 4 (IMAGE: diagram)
a) Whale movements re-distribute nutrients, helping marine ecosystem thrive.
i) Diving and surfacing mixes water vertically, carrying nutrients up from the ocean floor.
ii) Migration distributes nutrients laterally (all around the world).

PANEL 5
a) Whales
i) The whales of Santa Barbara (IMAGES: Two maps)

(1) The whales seen off the shore of Santa Barbara migrate from the waters off Alaska to as far south as Mexico and Costa Rica.

(a) They feed in northern waters in the summer, then migrate to warmer southern waters in the winter to “calve”(bear their young).
ii) Whales around the world (POSSIBLE IMAGE: Beauty shot)

(1) Whales are intelligent, playful, social, curious, and share cultural traditions—just like us.
(2) Baleen and sperm whales, known collectively as the “great whales,” include the largest animals to have ever lived on Earth.

PANEL 6
a) Whale Falls (IMAGE: diagram)
i) When whales absorb and store up to about 120,000 tons of CO2 (as much as 80,000 cars produce in one year).
ii) When they die, they sometimes fall to the ocean floor, storing carbon there (and thus removing it from the greenhouse effect problem)
iii) Within days, scavengers descend on the carcass for a feast. Most live in the deep ocean, keeping carbon safely out of our atmosphere.

PANEL 7

a) While the natural death of whales helps the ecosystem, over-hunting of whales damages the marine ecosystem and impacts human welfare. (IMAGES: to support story)
i) Traditional indigenous hunting allowed for ecosystem balance.
ii) Industrial whale hunting decimated populations and damaged the marine ecosystem.

(1) During the 1800s and 1900s commercial whalers killed millions—up to 90% worldwide for some whale species.
iii) Protests in the early 1970s led to worldwide regulations that set limits on whaling. In the United States all whales became protected under the Marine Mammal Protection Act in 1972.
iv) Some whale species have since recovered, but others are still endangered.
v) Today, biologists, resource managers and citizen scientists work together to collect data to best protect all whales—including those off our shores and around the world.

8) VINYL ELEMENT 1 - About Partners (TBD) (IMAGES: logos, QR codes, possible photo) (to be located on side walls, outside the glass, or on wall below glass)
9) VINYL ELEMENT 2 - For Young Children (IMAGES: (Simple graphics reflecting general story) (to be located on face of exhibit case, below glass)

i) Whales Are Superheroes

(1) They help keep the ocean healthy and make the planet when they
(a) Eat (and poop)
(b) Swim
(c) Die

When possible, could someone provide more specifics about what species of whale(s) and fish we should show in the infographics? It might be simplest for comprehension of concepts if we consistently show the same type of whale in all graphics. (We could always show an icon for each type on the central migration map). Happy to accommodate your preference.

Best whales to use for consistency: Blue whales, Humpback whales and Gray Whales. If you think we should keep to one species, then humpbacks. I am happy to provide additional details.

I think an image like this will be helpful to show how biologists ID individual whales and follow them over time.

I like these too!

The ocean's natural fertilizer

A whale's iron-rich feces fertilizes phytoplankton and marine plants, which go on to remove carbon from the atmosphere through photosynthesis.

Unbelievable but true:

Even a 1 percent increase in phytoplankton productivity would capture the CO_2 equivalent of 2 billion trees.

- International Monetary Fund

FOR SCALE:
The biggest animal on the planet, the blue whale, can grow up to 110 feet, or 15x the size of a human.
Whales also store carbon in their bodies
Plants, animals, and even humans act as carbon reservoirs throughout their lifetimes.
Animals that are larger and live longer store more carbon, another reason why whales play a vital role in reducing global carbon emissions.

An ocean of solutions
Restoring whale populations is one of the many remarkable ways the ocean can help tackle the climate crisis.