

When Whales Walked Metrics and Outcomes

Goals

Lineage was designed to grow public understanding about the history of life on Earth, and illuminate why that history is important to understanding the present and future. Combining the power of public broadcasting, the interactive learning potential of Virtual Reality (VR), and extensive educational outreach collaboratively conducted with the NMNH, our goals were to:

- Reach a large national audience with a landmark film and supporting content;
- Convey the importance of studying fossils to understand the past and learn about the future;
- Illuminate the ways scientists learn about the deep past;
- Engage families in learning together through community-based activities and digital gaming;
- Empower educators to use the film and learning assets to teach complex scientific concepts; and
- Contribute to knowledge about how multi-media assets and intergenerational co-play can advance STEM learning.

Metrics

The project team employed multiple tools for measuring outcomes:

1. Broadcast reach via Nielsen +7 National household ratings, which report on audience for the premier plus seven days and includes DVR viewing of the recorded program;
2. Google analytics from PBS .org for streaming and website statistics;
3. Audience engagement with social media campaign via digital analytics;
4. Participation in NMNH and national outreach programming via participant counts; and
5. Results of external evaluation and a formal research study on the relative efficacy of Virtual reality versus hands-on activities in family co-learning.

Outcomes

Television Audience: The Wednesday, June 19th premiere of *When Whales Walked* was simulcast by PBS and Smithsonian Channel. Reach was very strong, with unique viewers totaling 5.2 million, nearly five million from PBS alone. It produced a strong 1.49 household rating on PBS, 22% above the season to date PBS primetime average. Further, *When Whales Walked* performed strongly in diverse homes. Black head of household homes averaged 171,000 in any minute, and totaled 553,000 across both networks. Looking across the system at the 9:00 to 11:00 pm time frame shows that Wednesday 6/19 was the highest-rated of the season among Black households and ranked second among households overall.

Streaming Audience: *When Whales Walked* streamed in its entirety on PBS.org and smithsonianchannel.com. Combined between PBS.org, mobile apps and OTT devices, the full program totaled 87,734 views. The web traffic for ancillary videos and promotional assets for our partner organizations totaled over 306K+ views. On Smithsonian's YouTube channel, the three featured *When Whales Walked* clips totaled 208,903 views. The film will remain available on PBS and Smithsonian member streaming platforms for the duration of the seven-year rights period.

Social Media: Total social media impressions across PBS stations, Smithsonian Channel and the Smithsonian National Museum of Natural History social media channels is over 309k+ impressions. Narrator Lee Pace's posts provided a significant bump to the number of impressions made on Instagram and Twitter. Also worth noting was PBS Eons Facebook livestream video on June 14th to promote the new Deep Time Hall opening and the upcoming *When Whales Walked* premiere. This livestream was a collaboration between NMNH, PBS Eons and Smithsonian Channel and resulted in 217,830 views across all three Facebook video posts. Together, the impact of the social media posts, web pages and online access to the film resulted in over 703k points of engagement with audiences around the country.

Educational Outreach: The Museum of Natural History (NMNH) produced six new hands-on activities based on the learning objectives of the film, and collaborated with TPT, the research and evaluation teams, and Schell Games to produce a new virtual reality game, *Deep Time Detectives*. The hands-on activities were facilitated within the new Fossil Hall by Smithsonian scientists, museum educators and trained volunteers for the crowd of over 42,000 opening weekend visitors. The activities and the *Deep Time Detectives* VR experience continued to be featured both on the Fossil Hall floor and within NMNH's Curious education space throughout summer 2019. All *Lineage* outreach resources will continue to be regularly integrated into the NMNH's Fossil Hall, fostering project sustainability.

Between September 2019 and February 2020, the film, activities and VR will be featured in a series of Family Fossil Festivals at the NMNH and, through the Smithsonian Affiliates network, six additional locations around the nation. The use of the materials at the Festivals will be the focus of our summative evaluation and research project. Pending the outcome of those reports, TPT plans to pursue funding that would enable us to make the film, activities and VR more broadly available to informal science learning centers as the film continues to be rebroadcast on public television stations over its seven-year rights period.

In preparation for the roll-out of the hands-on activities and VR game, the NMNH team developed a comprehensive workshop that empowers museum educators and volunteers to integrate *Lineage*'s informal science learning resources into existing museum programming. Training workshops include instruction around *Lineage*'s science content, co-learning strategies and facilitation techniques for both analog and VR activities. Workshop participants also learn how to navigate challenging conversations about evolution and climate change. Online resources were also provided to help workshop participants prepare for in-person training. These resources can be further used to train staff and volunteers at museums and science centers. This professional development content was placed on a Moodle platform, allowing for 24/7 access.

Evaluation and Research: Throughout the project, independent firm Rockman et al (REA) has conducted evaluations via live and online focus groups with families and educators. These evaluations determine participants' understanding of and engagement in evolutionary topics; attitudes and motivation around family-based learning experiences; and any increase in participating educators' skills. Additionally, REA conducted significant formative evaluations on the film and other project components that contributed to their final form and formats. Formative feedback provided assurances that the rough cut of the film was well-received by families that have children in the target age range for subsequent evaluation studies. The film and activities were also heavily informed by the project's advisory board of scientist working in the field of evolution and paleontology. (Advisor list attached.) The newly created hands-on activities and VR experience are being rolled out in Family Fossil Festival from September 2019 through

February 2020. REA is conducting the summative evaluation at these festivals. All evaluative findings will be available in spring 2020.

Additionally, the project's formal research project, led by Institute for Learning Innovation (ILI), focuses on how/if using virtual reality technology in family-based education programs enhances learning. All findings will be disseminated to the informal science-learning field and included in a final project report.