

Animals on the Move: Stories of migration and dispersal over land and under sea

Customization-- Selecting datasets for your own stories



The Science On a Sphere® (SOS) Live Program “Animals on the Move: Stories of migration and dispersal over land and under sea” was developed for the Buttonwood Park Zoo in New Bedford, MA, in a project led by the Woods Hole Oceanographic Institution. The datasets in the playlist showcased at the 2018 SOS Workshop and provided to the SOS Users Network are relevant to this specific partnership. To help customize a live program to your local audience, we suggest alternative datasets in the table below that you might use at your SOS facility to share stories aligned to this Next Generation Science Standard (NGSS):

“LS2.C: Ecosystem Dynamics, Functioning, and Resilience. What happens to ecosystems when the environment changes? When the environment changes in ways that affect a place’s physical characteristics, temperature, or availability of resources, some organisms survive and reproduce, others move to new locations, yet others move into the transformed environment, and some die.” (<https://www.nap.edu/read/13165/chapter/10#155>).

In the table below, datasets that are already [tagged with this NGSS Disciplinary Core Idea](#) are *in italics* (SOS Data Catalog accessed 2019-05-31). Datasets used in the Live Program “Animals on the Move” are listed first **in bold**.

Environmental change	Selected datasets for “physical characteristics, temperature, or availability of resources”	Selected datasets for Animals on the Move *
Seasonal (refine search by Keyword "Seasons")	Surface Temperature Biosphere: Marine Chlorophyll Concentration and Land Vegetation Vegetation - Real-time Sea Surface Temperature NOAA Model (with vegetation) Sea Surface Temperature - Real-time Snow and Ice - Real-time Sea Ice Extent- 1978 - 2018	Shark Tracks Bird Migration Patterns - Western Hemisphere Seal and Seabird Tracks: Pacific Ocean Loggerhead Sea Turtle Tracks [interannual cycle: EarthNow: Effects of El Nino and La Nina on Phytoplankton and Fish]
Abrupt ** (e.g., Themes "Natural Disasters," "Major Events")	Fires - Real-time Earthquakes and Eruptions - 1960 - 2010 Flood Events - 2000 - 2009 Drought Risk - Real-time Meander	Deep-Sea Vent Locations Live Program: vents/vent_site_Galapagos/ Deep-Sea Vents: Smoke and Fire Underwater Coral Bleaching: Alerts - Real-time

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<p>Long-term ** (e.g., Theme "Climate Change")</p>	<p>Blue Marble: Sea Level, Ice and Vegetation Changes - 19,000BC - 10,000AD</p> <p>Changing Climate, Changing Ocean</p> <p>Arctic Sea Ice: The New Normal</p> <p>Ocean Acidification: Saturation State</p> <p>Ocean Acidification: Surface pH</p> <p>Acidifying Oceans: Oceans and Climate Change</p>	<p>Warm Forecast for Coral Reefs (and Coral Reefs in Hot Water)</p> <p>Protecting Wildlife in a Changing Climate</p> <p>Live Program: Visualizing Change: Ocean Acidification</p>
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* To search for animal-related datasets in the SOS Data Catalog, choose either Main category Land or Water and select the Subcategory Life. Also, you can select "All" categories and then "Refine by" Theme "Animals". You can also "Refine by" Keyword "Migration" which hits on some but not all the same datasets (SOS Data Catalog accessed 2019-05031).

** For abrupt or long-term change, you may also refine your search by Theme "Human Impacts," e.g., [The Human Era: A World of Changes](#) and [The Only Thing that is Constant is Change](#).

Also consider connecting this presentation with some of the NOAA SOS phenomenon-based learning modules: <https://sos.noaa.gov/education/phenomenon-based-learning/>

[Can elephants sense tsunamis?](#) [They're all ears](#) [The tortoise that crossed the ocean](#)

NGSS Disciplinary Core Idea (DCI) recommended progression

LS2.C Ecosystem dynamics, functioning, and resilience

K-2 n/a

3-5 When the environment changes some organisms survive and reproduce, some move to new locations, some move into the transformed environment, and some die.

6-8 Ecosystem characteristics vary over time. Disruptions to any part of an ecosystem can lead to shifts in all of its populations. The completeness or integrity of an ecosystem's biodiversity is often used as a measure of its health.

9-12 If a biological or physical disturbance to an ecosystem occurs, including one induced by human activity, the ecosystem may return to its more or less original state or become a very different ecosystem, depending on the complex set of interactions within the ecosystem.