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Geoscience Bulletin Board – 9 December 2019 – compiled by Elaine J. Hanford

Single-celled microbes transitioned into complex multi-cellular organisms – Ediacaran Weng’an biota

- <https://www.sciencedaily.com/releases/2019/11/191127121231.htm>
- Paper: [https://www.cell.com/current-biology/fulltext/S0960-9822\(19\)31429-0](https://www.cell.com/current-biology/fulltext/S0960-9822(19)31429-0)

Utah geologists highlight scenic wonders on 2020 Utah Geological Survey Calendar

- <https://www.deseret.com/utah/2019/11/30/20984476/utah-geological-survey-calendar-2020>
- Online interactive: <https://geology.utah.gov/calendar-of-utah-geology-2020/>

Tectonic plate interactions that produced 2018 M7.1 Anchorage EQ

- <https://www.adn.com/alaska-news/science/2019/11/29/how-a-few-seconds-of-shifting-deep-below-the-earths-surface-caused-the-biggest-earthquake-in-anchorage-since-1964/>

Study finds match between diminishing thickness of ice shelves and acceleration of glaciers feeding them on Antarctica – response called “instantaneous”

- <https://www.bbc.com/news/science-environment-50625396>

Analysis of seismic patterns as method to forecast magnitude of EQ aftershocks

- https://www.eurekalert.org/pub_releases/2019-12/rooi-asp120119.php
- Paper: <https://www.nature.com/articles/s41467-019-11958-4>

Swarm of seismic activity and 3.6M EQ at Mount Rainier in Washington State

- <https://www.seattletimes.com/seattle-news/mount-rainier-caps-swarm-of-weekend-seismicity-with-3-6-magnitude-quake/>

Possible mechanism responsible for Great Oxidation & Lomagundi events 2.5 byo

- <https://phys.org/news/2019-12-mysteries-linked-breathable-oxygen.html>
- <https://www.brightsurf.com/news/article/120219498146/breathing-thank-volcanoes-tectonics-and-bacteria.html>

EQs, wildfires...and volcanoes in California – Margaret Mangan to retire after 7 years with CalVO

- <https://phys.org/news/2019-12-california-famous-earthquakes-wildfiresbut-dont.html>

“Big Tex” to drill 5-mile Mill Creek Tunnel beneath Dallas, Texas, to handle 9M gpm stormwater

- <https://www.dallasnews.com/news/2019/12/03/officials-christen-the-great-big-digging-machine-that-will-carve-a-5-mile-tunnel-under-dallas/>

New methodology for calculating soil properties most favorable for preserving pollen

- <https://eos.org/articles/looking-for-prehistoric-pollen-check-the-floodplains>

GPR study of footprints at White Sands sheds light on mechanics of mammoth footsteps

- <https://arstechnica.com/science/2019/12/radar-reveals-ghostly-footprints-at-white-sands/>

Low-level airborne magnetic survey of Eastern Mojave Desert

- <https://www.usgs.gov/news/airplane-make-low-level-flights-over-parts-eastern-mojave-desert-california-and-nevada>

During Late Cretaceous to Early Paleogene much of SW US had elevations in excess of 10,000 feet

- <http://www.sci-news.com/geology/arizona-plateau-07874.html>

Mimodactylus libanensis – Cretaceous fossil remains of previously unknown Pterosaur species

- <http://www.sci-news.com/paleontology/mimodactylus-libanensis-07872.html>

Six new species of 50 myo dragonflies discovered in Okanagan Highlands

- <http://www.sci-news.com/paleontology/dragonfly-fossils-07864.html>

Southern elephant seal helps gather data to improve understanding of heat transport by Antarctic Circumpolar Current

- http://www.spacedaily.com/reports/Seal_takes_ocean_heat_transport_data_to_new_depths_999.html

New maps reveal changes in salinity of ocean surface

- http://www.spacedaily.com/reports/New_maps_of_salinity_reveal_the_impact_of_climate_variability_on_oceans_999.html

This extreme metallophilic archaeon *Metallosphaera sedula* prefers to eat meteorites

- http://www.spacedaily.com/reports/Meteorite_loving_microorganism_999.html

Eyes of modern horseshoe crab have same structure as 400 myo *Jaekelopterus rhenaniae*

- http://www.spacedaily.com/reports/The_visual_apparatus_of_todays_horseshoe_crabs_goes_back_400_million_years_999.html

Herbivorous Mesozoic dinosaurs evolved common traits in the skulls and teeth

- <https://www.sciencedaily.com/releases/2019/12/191205141752.htm>
- Paper: [https://www.cell.com/current-biology/fulltext/S0960-9822\(19\)31390-9](https://www.cell.com/current-biology/fulltext/S0960-9822(19)31390-9)

Rainfall intensity increases as winds and storm surge weaken in hurricanes

- <https://www.sciencedaily.com/releases/2019/12/191205130542.htm>

Finding duck-billed dinosaur footprints and other biodiversity in Aniakchak, Alaska

- <https://sciencetrends.com/duck-billed-dinosaurs-uncovered-in-aniakchak-alaska/>

Mekong River usual yellowish-brown color changing to blue-green hue as sediment load decreases

- <https://www.dailymail.co.uk/wires/ap/article-7759199/Experts-say-Mekong-River-s-new-color-worrying-sign.html>

Analysis of sea-floor cores suggest EQs on Cascadia fault may trigger tremors on San Andreas

- <https://www.nature.com/articles/d41586-019-03769-w>

Red dust from bushfires in Australia changing the surface color of glaciers in New Zealand

- <https://www.standard.co.uk/lifestyle/travel/new-zealand-red-glaciers-australia-bushfire-a4305301.html>
- <https://www.sciencealert.com/new-zealand-s-glaciers-have-turned-red-australia-s-bushfires-might-be-causing-it>

Time-lapse video of disappearance of surface lake on Store Glacier in Western Greenland

- <https://www.livescience.com/greenland-ice-sheet-lake-drains.html>

Analysis of bones in aquatic reptiles shows some plesiosaurs were built for diving

- <https://www.dispatch.com/news/20191201/geology--study-of-bones-in-aquatic-reptiles-shows-some-made-for-diving>

Cascade effect in earthquakes

- <https://phys.org/news/2019-12-earthquake-cascade.html>

Dr. Lucy Jones has been called the “Beyoncé of earthquakes”

- <https://www.eugeneweekly.com/2019/12/05/the-new-big-one/>

Geologist urges city of Burlington, Vermont, to take action to prevent landslides

- <https://www.wcax.com/content/news/Geologist-urges-Burlington-to-take-more-action-in-preventing-Riverside-Avenue-landslides-565722591.html?ref=591>

Cataclysm, mass extinctions, and consequent myths

- <https://www.ancient-origins.net/history-important-events/cataclysm-0012949>

New geomorphologic map of Titan

- <https://blogs.scientificamerican.com/life-unbounded/titans-geomorphologic-map/>

Canterra Gold suspended open-pit mining operations at Kumptor mine in Kyrgyzstan following significant waste rock dump moment and loss of 2 employees

- <https://www.mining-technology.com/news/centerra-gold-suspends-kumtor-open-pit-mine-operations/>
- <https://www.mining-journal.com/gold-and-silver-news/news/1376986/search-continues-for-missing-kumtor-miners>

NASA to undertake 5 airborne and surface field campaigns to record weather, ocean temperature & salinity, deltaic ecosystems and marine boundary layer clouds

- <https://phys.org/news/2019-11-nasa-embarks-air-sea.html>

Understanding the impacts of deep-sea nodule mining

- <https://phys.org/news/2019-12-impact-deep-sea.html>

Storm-quakes are seismic activity on the seafloor by powerful storms

- <https://phys.org/news/2019-12-stormquakes-powerful-storms-seafloor-tremors.html>

Detailing the slow-moving volcanic caldera collapse of the 2018 Kilauea eruption in Hawaii

- <https://phys.org/news/2019-12-klauea-caldera-collapse.html>

The geologic legacy of Clyde Wahrhaftig

- <https://eos.org/articles/the-layered-legacy-of-clyde-wahrhaftig>

Fleet of 50+ MERMAID floating sensors to clarify massive lower mantle plume in South Pacific

- https://www.eurekalert.org/pub_releases/2019-12/asoa-moj120219.php

Using radio-telescopes and InSAR to monitor changes on Earth on global scale

- <https://eos.org/articles/more-than-just-astronomy-radio-telescopes-for-geophysics>

Predictive model large igneous province causing carbons emissions flux 55 myo – NAIP & PETM

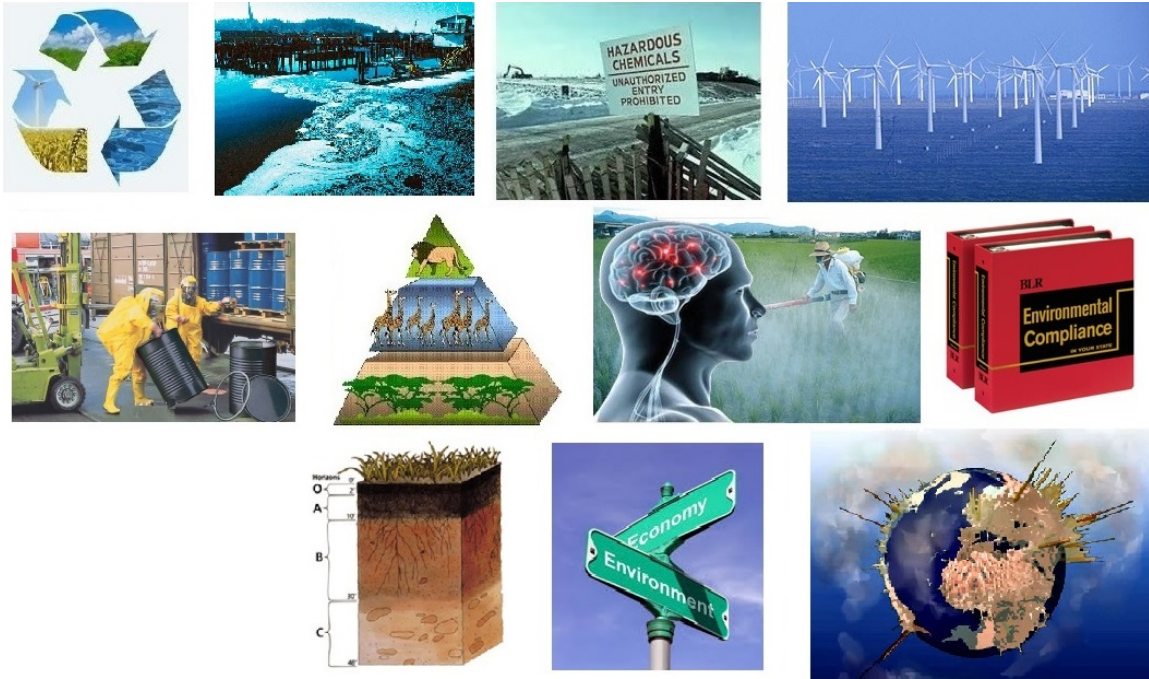
- https://www.upi.com/Science_News/2019/12/05/Volcanic-rock-movements-caused-dramatic-shift-in-climate-55-million-years-ago/1411575575703/
- Paper: <https://www.nature.com/articles/s41467-019-12957-1>

Volcanic eruptions in 1690s helped create modern Scotland

- <https://www.sciencemag.org/news/2019/12/how-volcanic-eruption-helped-create-modern-scotland>

New report compiles data & examines groundwater in Northeast Wyoming

- <https://www.wyomingpublicmedia.org/post/state-geological-surveys-report-details-northeast-wyomings-groundwater-resources#stream/0>
- Report: <https://www.wsgs.wyo.gov/products/wsgs-2019-tm-08.pdf>



Environmental Science Bulletin Board – 9 December 2019 – compiled by Elaine J. Hanford

E. coli outbreak linked to romaine lettuce from Salinas, California, now in 23 states

- <https://www.msn.com/en-us/health/health-news/e-coli-outbreak-linked-to-california-romaine-lettuce-expands-more-than-100-ill/ar-BBXM1QH>

Soil is a non-renewable resource – growing concern over “alarming rate” of erosion and nutrient runoff – World Soil Day not just 5 Dec 2019 but every day

- <http://www.fao.org/world-soil-day/en/>
- <https://en.farsnews.com/newstext.aspx?nn=13980911000268>
- <http://thecommunityword.com/online/blog/2019/11/27/alarming-rate-of-soil-erosion-and-nutrient-runoff/>
- <https://www.iaea.org/newscenter/news/nuclear-techniques-help-reveal-high-rate-of-soil-erosion-in-benin>
- <https://www.tasnimnews.com/en/news/2019/12/02/2151193/world-soil-day-soil-a-non-renewable-resource>
- https://globegazette.com/business/carney-iowa-is-leaking-nutrients-better-left-in-its-soil/article_0ab4d2dc-5e9b-5574-bee5-f426839a2d66.html
- <https://blueandgreentomorrow.com/environment/horrifying-environmental-impacts-of-worsening-erosion/>
- <https://newseu.cgtn.com/news/2019-12-02/How-Spain-s-farmers-are-battling-climate-change-and-desertification--M4CXP6cF0Y/index.html>
- <https://fijisun.com.fj/2019/11/04/soil-erosion-a-concern-for-vatulovona-villagers/>
- https://www.lancasterfarming.com/farm_life/conservation/farmers-climate-adaptation-vital/article_669fd1e9-c398-5a27-ac5f-b93179bf4ded.html

Conservation tilling promotes soil management, reduces erosion & runoff, improves water retention & crop yields

- <https://phys.org/news/2019-12-soil-tilling-soils-yields.html>

\$1B per year flood risk calculated over 40 years due to “atmospheric river” storms in Western US

- <https://scripps.ucsd.edu/news/atmospheric-river-storms-create-1-billion-year-flood-damage>
- Paper: <https://advances.sciencemag.org/content/5/12/eaax4631>

Black Friday sparks protests over environmental concerns & consumer culture

- <https://www.nbcnews.com/news/us-news/black-friday-sales-climate-protests-kick-around-world-n1093296>

Montreal Protocol banning CFCs had greater impact than Kyoto Protocol on greenhouse gases

- <https://phys.org/news/2019-12-ozone-layer-global.html>

EU ban on pesticide chlorpyrifos that causes developmental defects in humans will be effective in 2020

- <https://phys.org/news/2019-12-eu-controversial-pesticide.html>

Technological risk: smart TVs

- <https://finance.yahoo.com/news/now-even-fbi-warning-smart-194715311.html>

Disabled bear named Usko who used wheelbarrow for mobility has died in Greek sanctuary Arcturos – injury caused by humans who killed his mother on 2015

- <https://news.yahoo.com/first-wheelbarrow-bound-bear-dies-greek-wildlife-group-135230983.html>
- <https://www.devdiscourse.com/article/international/763763-first-wheelbarrow-bound-bear-dies-greek-wildlife-group>

Germany on schedule to close all nuclear power plants – where to “dispose” of 28,000 cu m of radioactive waste?

- <https://www.msn.com/en-us/news/world/germany-is-closing-all-its-nuclear-power-plants-now-it-must-find-a-place-to-bury-the-deadly-waste-for-1-million-years/ar-BBXxJfK>

Perspective: Consequences of the “green” movement

- <https://www.breitbart.com/politics/2019/11/29/greta-thunberg-goes-full-marxist/>

CRS Report: “Central Valley Project: Issues & Legislation” – area of significant & continued groundwater withdrawal and consequent land subsidence in California to which band-aids are applied

- <https://crsreports.congress.gov/product/pdf/R/R45342>

Barn fire at African Safari Wildlife Park in Ohio kills 10 animals – giraffes, river hogs, bongos & springbok

- <https://www.msn.com/en-us/news/us/giraffes-among-10-animals-killed-in-tragic-ohio-safari-wildlife-park-fire/ar-BBXunZc/>

US birth rate falls for 4th year in a row – lowest level in 3+ decades

- <https://www.forbes.com/sites/ebauer/2019/11/30/another-record-low-will-the-us-fertility-rates-collapse-ever-end/#3d1a5ce05e45>

- <https://www.msn.com/en-us/health/health-news/us-birth-rate-falls-for-4th-year-in-a-row/ar-BBXoN1W>
- <https://thehill.com/policy/healthcare/public-global-health/472287-birth-rate-falls-for-fourth-consecutive-year>

Ilisu Dam reservoir in Turkey will stretch nearly 100 miles, displace 70,000+ people, wipe out endangered species, flood ancient settlements & reduce flow of Tigris & Euphrates Rivers

- <https://www.msn.com/en-us/news/world/a-turkish-dam-is-about-to-flood-one-of-the-oldest-continuously-settled-places-on-earth/ar-BBXqipm>

President of Brazil blaming Leonardo DiCaprio for destructive fires in the Amazon – Leo responds

- <https://qz.com/1759093/leonardo-dicaprio-responds-to-jair-bolsonaros-amazon-fire-claims/>
- https://www.huffpost.com/entry/leonardo-dicaprio-jair-bolsonaro-amazon-fires_n_5de2b9b4e4b0913e6f7fb665

Blocked sewer main flooded basements and pushed human waste into about 300 homes in New York City

- <https://news.yahoo.com/sewer-line-backs-queens-pushing-233441413.html>

Illegal drone use at Crater Lake National Park

- <https://www.statesmanjournal.com/story/news/2018/04/18/drone-crater-lake-national-park-officials-plan-step-up-enforcement/522629002/>

Outbreak of measles on Pacific Island of Samoa - increasing cases and more deaths

- <https://news.yahoo.com/samoa-measles-cases-deaths-more-043432925.html>

Link between prevalence of ramen restaurants and higher risk of strokes & heart attacks

- <https://qz.com/1758980/japanese-study-links-ramen-shop-prevalence-to-high-stroke-risk/>
- Paper: <https://nutritionj.biomedcentral.com/articles/10.1186/s12937-019-0482-y>

SCOTUS to consider whether CERCLA bars state lawsuit against ARCO to restore Anaconda Smelter hazardous waste site in SW Montana

- <https://www.scotusblog.com/2019/11/argument-preview-justices-to-consider-whether-cercla-bars-state-lawsuit-to-restore-hazardous-waste-site/>

Reusable plastic shopping bags are making the problem worse

- <https://qz.com/1759150/reusable-plastic-shopping-bags-are-making-the-problem-worse/>

Japan to begin removing Fukushima nuclear debris beginning in 2021 – 10 years after meltdowns

- <https://www.aa.com.tr/en/world/japan-to-begin-remove-fukushima-nuclear-debris-in-2021/1661314>

Colorado has 27 of 400 high-hazard dams operating under restrictions – new rules apply to future dam designs

- <https://www.denverpost.com/2019/12/01/colorado-dam-safety-climate-change/>
- map: <https://www.denverpost.com/2019/12/01/colorado-dams-high-hazard/>

New Jersey Integrated Water Quality Assessment Report shows some improvement – many waters fail official standards in six categories

- <https://www.njspotlight.com/2019/12/rivers-lakes-show-some-gains-some-losses-in-water-quality/>
- Report: <https://www.nj.gov/dep/wqmp/docs/202190916-int-wqa-report.pdf>

US Army COE awards yet another contract for more structural controls in Fargo-Moorhead for diverting Red River

- <https://apnews.com/b5e5391db5af4ab8a232d0bb881c0ebe>

Ahhhh, the joys of traveling in an electric car over the Thanksgiving holiday & Black Friday

- <https://www.thedrive.com/news/31274/more-teslas-on-the-road-meant-hours-long-supercharger-lines-over-thanksgiving>

After human activity decimated the Everglades – now attempting to save it

- <https://apnews.com/161c4638d88c4fe19b8797df33784815>

Video Series: “What Can Be Saved” -

- <https://apnews.com/WhatCanBeSaved>

SFO to begin environmental studies for \$587M seawall project as San Francisco Bay continues to subside

- <https://www.wired.com/story/how-airports-protecting-rising-seas/>
- <https://www.businessinsider.com/san-francisco-bay-area-is-sinking-into-the-ocean-2018-3>
- <https://www.nytimes.com/interactive/2018/03/07/climate/san-francisco-sinking-land-flooding-climate-change.html>

\$12.7M dam project intended to protect 1,648 residents in village of Hatch, New Mexico, from flooding

- <https://apnews.com/e3bca342e25b42b5be9141d62427166d>
- http://www.villageofhatch.org/arts_and_culture/history_of_hatch
- <https://www.lcsun-news.com/story/news/2016/08/14/memories-hatch-flood-still-vivid-10-years-later/88642750/>

USDA restores original intent of SNAP – assistance through difficult times – not a way of life

- <https://www.usda.gov/media/press-releases/2019/12/04/usda-restores-original-intent-snap-second-chance-not-way-life>
- https://tucson.com/opinion/national/sonny-perdue-the-dignity-of-work-and-the-american-dream/article_a9109ba1-cd48-5038-b00a-41aecddd91fa.html

Pioneertown residents in California getting clean water from the tap after 3 years of bottled water use

- <https://www.sbsun.com/2019/12/02/pioneertown-residents-now-have-clean-tap-water-for-the-first-time-in-decades/>

30 places on Earth with the most polluted air quality (PM2.5 + PM10)

- <https://www.msn.com/en-us/health/wellness/the-30-most-polluted-places-on-earth/ss-BBXFHNA>

30 places in America with poorest air quality (PM2.5 + ozone)

- <https://www.msn.com/en-us/health/wellness/the-30-most-polluted-places-in-america/ss-BBXlaMW>

Worst American cities to drive in based on driving related measures

- <https://www.msn.com/en-us/autos/research/americas-worst-cities-to-drive-in/ss-BBX3V0w>

Most hazardous contaminated sites in America

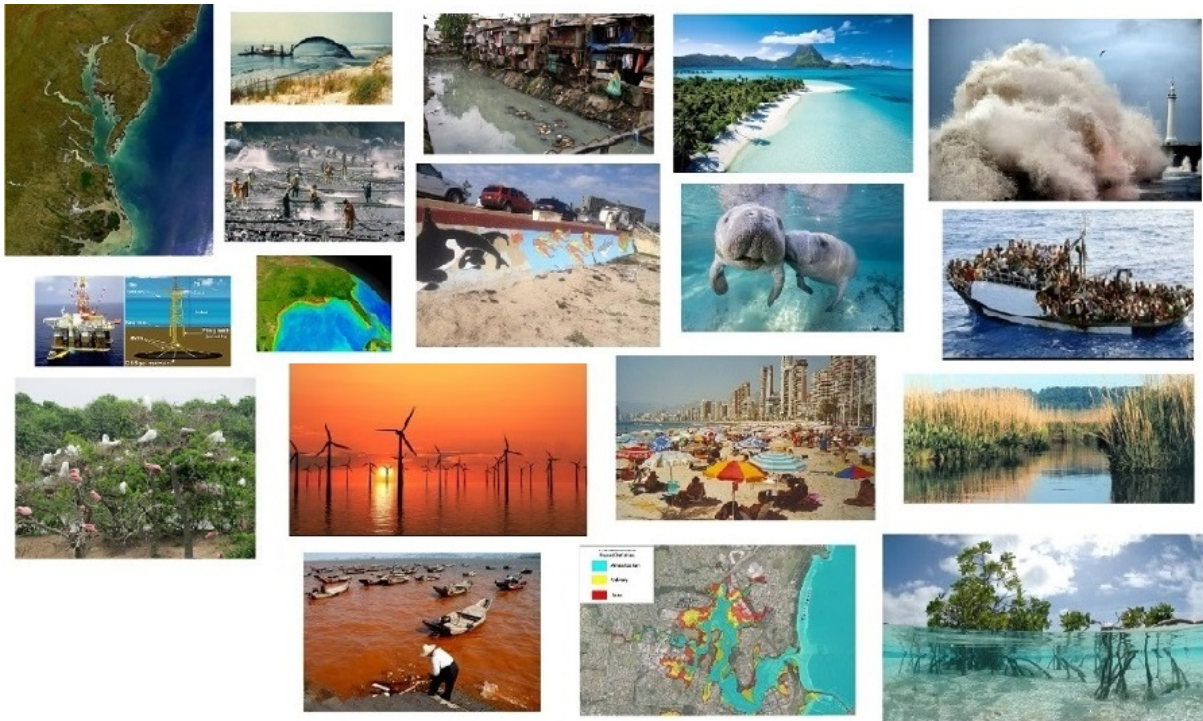
- <https://www.msn.com/en-us/health/causes/americas-most-hazardous-contaminated-sites/ss-BBWu38w>

Race against time to save genetic diversity

- <https://www.npr.org/sections/thesalt/2019/12/03/784259743/raiders-of-the-lost-crops-scientists-race-against-time-to-save-genetic-diversity>

Migrating bison in Yellowstone manipulate the landscape – influence lushness and nutrition of grasses

- <https://www.usgs.gov/news/yellowstones-migrating-bison-manipulate-springtime-green>



Coastal Zone Management Bulletin Board – 9 December 2019 – compiled by Elaine J. Hanford

Royal Caribbean cancels 2020-2021 cruises to Puerto Rico after docks privatized

- <https://www.msn.com/en-us/travel/news/royal-caribbean-cancels-sailings-to-puerto-rico-for-2020-2021-season/ar-BBXq5hS>

4M gallon raw sewage spill prompted closure of ocean & bay water areas in Orange County, California

- <https://www.msn.com/en-us/news/us/major-sewage-spill-in-orange-county-calif-closes-several-beaches/ar-BBXxkML>

CRS Report: Changes in the Arctic

- <https://crsreports.congress.gov/product/pdf/R/R41153>

Trinidad Bay lighthouse no longer at risk of coastal erosion – conflict between town & tribes

- <https://www.latimes.com/california/story/2019-11-29/lighthouse-sea-rise-native-americans-humboldt>

Concerns for whales as offshore wind energy is developed

- <https://www.npr.org/2019/12/05/782694371/offshore-wind-may-help-the-planet-but-will-it-hurt-whales>

Sonoma County Local Coastal Plan process

- Part 1: <https://www.sonomacountygazette.com/sonoma-county-news/changes-to-our-coast-the-local-coastal-plan-lcp>
- Part 2: <https://www.sonomacountygazette.com/sonoma-county-news/part-2-threat-to-our-coast-updating-the-local-coastal-plan>

Coastal flooding research along the Curry coast

- https://www.currypilot.com/news/environment-coastal-flooding-research/article_da02d720-12c3-11ea-883e-735ba28a70d4.html

Surfing & conservation group gives Florida a “D” for coastal management

- <https://www.floridatoday.com/story/news/local/environment/2019/12/04/surfrider-gives-florida-d-coastal-management-lack-planning/2606334001/>

Coastal storms are a threat to tourism in New England

- <https://www.wgbh.org/news/science-and-technology/2019/12/03/why-coastal-storms-are-a-threat-to-tourism>

Transdisciplinary approaches needed to ensure research is useful for planning in coastal communities

- <https://eos.org/research-spotlights/sea-level-science-grapples-with-uncertainty-and-usability>

Drones & 3D imaging may help discover coastal heritage sites in Puerto Rico

- <https://www.csmonitor.com/Environment/2019/1202/The-race-to-preserve-Puerto-Rico-s-coastal-heritage-is-underway>
- <https://dronedj.com/2019/12/03/drones-help-map-puerto-ricos-coastal-heritage/>

Delaware DNREC seeking public comment on proposed fees for coastal zone conversion permits

- <https://news.delaware.gov/2019/12/02/dnrec-seeking-public-comment-on-proposed-fees-for-coastal-zone-conversion-permits/>
- Permits: <https://dnrec.alpha.delaware.gov/coastal-zone-act/conversion-permits/>

- Baseline remediation report:
<http://www.dnrec.delaware.gov/Admin/CZA/Documents/Remediation%20Status%20Baseline%20Report%20for%20Existing%20Heavy%20Industry%20Use%20Sites%202019.pdf>

North Carolina DMF seeking input on Southern Flounder Fishery Management Plan

- <https://www.coastalreview.org/2019/12/dmf-seeks-input-on-southern-flounder-plan/>
- Portal: <http://portal.ncdenr.org/web/mf/southern-flounder-topic>

Mediterranean Action Plan supports efforts to implement Barcelona Convention & Protocols

- <https://sdg.iisd.org/commentary/policy-briefs/cooperation-for-healthy-mediterranean-marine-and-coastal-ecosystems/>

Meeting to address proposed legal protection for Olifants River estuary on coast of South Africa

- <https://www.groundup.org.za/article/bid-protect-west-coast-jewel-mining/>

Magnetic field of Earth and the Moon guide European eels on migration

- <https://news.mongabay.com/2019/12/moon-and-earths-magnetic-field-guide-european-eels-on-their-epic-migration/>
- Paper on brackish waters: <https://www.nature.com/articles/s42003-019-0619-8#Sec11>
- Paper on navigation at sea: <https://royalsocietypublishing.org/doi/10.1098/rsos.190812>

Project to study issues in estuaries of Northwest Florida to integrate historical data

- <https://www.pnj.com/story/entertainment/2019/12/03/uwf-uf-researchers-study-issues-facing-northwest-florida-estuaries/2600268001/>

Two-model approach to estimating coastal carbon sequestration

- <https://eos.org/research-spotlights/improving-estimates-of-coastal-carbon-sequestration>

Record high numbers of marine mammals stranded on Cape Cod in 2019

- <https://www.whoi.edu/news-insights/content/bioacoustic-alarms/>

Modeling the onset of fault slip between two bodies in frictional contact

- <https://phys.org/news/2019-12-gaining-insight-energy-earthquakes.html>

History of nuclear testing and disease outbreaks have impacts in the low-lying Marshall Islands

- <https://phys.org/news/2019-12-huge-disease-marshall-islands-war.html>