**Global Change Biology (BIOL 411, 2021)**

This list will be updated through the course and changes will be highlighted in yellow.

**Recommended journal papers:**

Barnosky et al, 2011. Has the Earth’s sixth mass extinction already arrived? *Nature* 471:51-57.

Bradshaw et al, 2014. Human population reduction is not a quick fix for environmental problems. *Proceedings of the National Academy of Sciences* 111(46):16610-16615.

Bradshaw et al, 2021. Underestimating the Challenges of Avoiding a Ghastly Future. *Frontiers in Conservation Science* 1:615419.  <https://doi.org/10.3389/fcosc.2020.615419>

Ceballos et al, 2017. Biological annihilation via the ongoing sixth mass extinction signaled by vertebrate population losses and declines. *PNAS* 114 (30) E6089-E6096; <https://doi.org/10.1073/pnas.1704949114>

Ceballos et al, 2020. Vertebrates on the brink as indicators of biological annihilation and the sixth mass extinction. *PNAS*117 (24) 13596- 13602; <https://doi.org/10.1073/pnas.1922686117>

Diaz, S. et al 2019. Pervasive human-driven decline of life on Earth points to the need for transformative change. *Science* 366(6471), eaax3100.

Grogan, P. 2013. Our Anthropocene Future - What can biology tell us? *Free Inquiry*. February/March issue. Vol. 32(2):16-19. Council for Secular Humanism. New York. This paper is available directly at: [PDF, 2.6MB](https://www.queensu.ca/terrestrial-ecosystem-ecology/sites/webpublish.queensu.ca.teelwww/files/files/Publications%20and%20Outreach/FreeInquiry.pdf).

Ripple, W.J. et al. 2017. World Scientists’ Warning to Humanity: A Second Notice. *BioScience*, 67(12), 1026–1028. <https://academic.oup.com/bioscience/article/67/12/1026/4605229>

Ripple, W.J. et al 2020. World Scientists’ Warning of a Climate Emergency. BioScience, 70(1), 8–12. <https://doi.org/10.1093/biosci/biz088>

Rockstrom et al. 2009. A safe operating space for humanity. *Nature* 461, 472–475.

Rockstrom et al. 2009. Planetary Boundaries: Exploring the Safe Operating Space for Humanity. *Ecology and Society* 14(2), Article 32

Steffen, W., et al 2015. Planetary boundaries: Guiding human development on a changing planet. *Science* 347(6223), 736-746

Steffen, W., et al 2015. The trajectory of the Anthropocene: the great acceleration. *The Anthropocene Review*, 2(1), 81-98.

Vitousek et al, 1997. Human domination of Earth’s ecosystems. *Science* 272:494-499.

**Books (I have copies of these if you cannot locate them in the library):**

Aarssen, L. 2015. What are we?  Exploring the evolutionary roots of our future. Especially Chapter 12 – Becoming the solution.

Brown, L. R. (2009). Plan B 4.0: Mobilizing to save civilisation. Earth Policy Institute.

Brown, L. R. (2011). World on the Edge: How to prevent Environmental and Economic collapse. Earth Policy Institute

Diamond, J. (1991) The Third Chimpanzee: The Evolution and Future of the Human Animal

Harari, YN. (2015). Sapiens:  A Brief History of Humankind

Homer-Dixon, T. (2006). The Upside of Down: Catastrophe, Creativity and the Renewal of Civilisation. Island Press.

Kimmerer, R. W. 2014. Braiding Sweetgrass: Indigenous wisdom, scientific knowledge

and the teachings of plants. Milkwood books.

Macy, J and Johnstone, C. 2012. Active Hope : How to Face the Mess We're in without Going Crazy. New World Library.

McKibben, B. 2006. The End of Nature. Random House.

Ponting, C. (2007). A New Green History of the World: The Environment and the collapse of great civilisations. 2nd edition. Penguin.

Suzuki, D. and H. Dressel (2010). More Good News: Real solutions to the global eco-crisis. Vancouver, Greystone.

Wright, R. (2004). A Short History of Progress. New York, Carroll and Graf. (An excellent and very readable description of the rises and falls of earlier civilisations, and the major over-riding causes.)

**Films/Documentaries**

**A Life on Our Planet** (2020)~80 minute documentary by David Attenborough (available on Netflix <https://www.netflix.com/browse?jbv=80216393> , and <http://www.documentarymania.com/player.php?title=David%20Attenborough:%20A%20Life%20on%20Our%20Planet>)

**Surviving progress** (2011) Available via Queen’s library video collection (NFB) at: <https://www-nfb-ca.proxy.queensu.ca/film/surviving-progress/>

**Force of Nature** – David Suzuki’s retrospective documentary film (~ 2 hours). Available from Queen’s library (NFB), and commercially as DVD.

**An Inconvenient Sequel**: Truth To Power (Documentary sequel to the original film entitled An Inconvenient Truth – by Al Gore on climate change)

**What a way to go – life at the end of empire**. Highly rated documentary film (2 hours) <http://topdocumentaryfilms.com/what-a-way-to-go-life-at-the-end-of-empire/>

**Anthropocene – The Human Epoch**. A new documentary film by Burtynsky et al. Available via Queen’s library video collection at <https://queensu.kanopy.com/product/anthropocene-human-epoch>

**Quest for Fire**. Set 80,000 years ago, a human tribe depends on an ever-burning source of fire. After it eventually extinguishes, and lacking the knowledge to start a new fire, the tribe sends three warriors on a quest to find a new source.

<https://www.nytimes.com/1982/02/12/movies/quest-for-fire-a-prehistoric-odyssey.html>

Available via Queen’s library video collection (Criterion on Demand)

**Video: Planet Earth The future episode 1 Saving species** <https://queens-only-library-queensu-ca.proxy.queensu.ca/video/video-planet-earth-the-future-episode-1-saving-species>

**Video: Planet Earth The future episode 2 Into the Wilderness** <https://queens-only-library-queensu-ca.proxy.queensu.ca/video/video-planet-earth-the-future-episode-2-into-the-wilderness>

**Video: Planet Earth The future episode 3 Living Together**. David Attenborough. <https://queens-only-library-queensu-ca.proxy.queensu.ca/video/video-planet-earth-the-future-episode-3-living-together>

**Food Inc.** Documentary film about the industrialisation of food production. Excellent. HIGHLY RECOMMENDED. Available via Queen’s library video collection entitled Criterion on Demand at <https://media3-criterionpic-com.proxy.queensu.ca/htbin/wwform/006?T=AL111097>

**The Call of the Mountain**: Arne Naess and the Deep Ecology Movement (full version ~ 50 mins) <https://www.youtube.com/watch?v=Wf3cXTAqS2M>

**The Social Dilemma** A documentary examining how social media apps foster dependency and addiction. Available via Netflix.

**Manufactured landscapes**. A really excellent documentary film (~ 1.5 hours) about the work of photographer Edward Burtynsky as he observed social and industrial activities in China and elsewhere. Available via Queen’s library video collection (NFB), and <http://www.youtube.com/watch?v=SZnZOe_tKCs&feature=related>

**Colonization Road:** The path of reconciliation is long and winding – An excellent documentary on the history and impacts on settler colonisation on Canadian indigenous communities (CBC Documentaries PointOfView) <https://www.youtube.com/watch?v=u03qLJ50bf4>

**The Story of Stuff** - <https://www.youtube.com/watch?v=9GorqroigqM>

**Interesting electronic media links:**

Project Drawdown: Excellent resources focussed on developing climate change solutions <https://drawdown.org>

Forget Taking Shorter Showers – the video I mentioned in the context of personal versus organizational level change:  <https://www.youtube.com/watch?v=m2TbrtCGbhQ>

The ‘Pale Blue Dot’, and Carl Sagan quote:

<https://www.planetary.org/explore/space-topics/earth/pale-blue-dot.html>

<https://solarsystem.nasa.gov/resources/536/voyager-1s-pale-blue-dot/>

The Stockholm Resilience Centre – Sustainability Science for Biosphere Stewardship <https://www.stockholmresilience.org>

Future Earth: <https://futureearth.org>

Will we survive this century? TedTalk by Martin Rees who served as Britain’s Astronomer Royal (14 minute talk) <http://www.ted.com/talks/lang/eng/martin_rees_asks_is_this_our_final_century.html>

Jared Diamond on why societies collapse (20 minute talk) <http://www.ted.com/talks/jared_diamond_on_why_societies_collapse.html>

Bjorn Lomborg – Which of our civilisation’s problems should get highest priority? <http://www.ted.com/talks/bjorn_lomborg_sets_global_priorities.html>

<http://theconversation.com/how-mindfulness-can-help-the-shift-towards-a-more-sustainable-society-79127>

Wilhelm Streeck is a political economist who is very accessible and has strong ideas on capitalism. He is interviewed in an excellent CBC radio ‘Ideas’ documentary: <http://www.cbc.ca/radio/ideas/surviving-post-capitalism-coping-hoping-doping-shopping-1.3973042>

Dr Henry Rosling explaining the past 200 years of world progress in terms of life expectancy and wealth, drawing an optimistic conclusion (4 minute video).

<http://www.gapminder.org/videos/200-years-that-changed-the-world-bbc/>

The Words That Come Before All Else (Thanksgiving Address) are an ancient supplication of the indigenous Six Nations peoples of Northeastern North America, the Mohawks, Onondaga, Oneida, Cayuga, Seneca and Tuscarora. The address is not a prayer but expresses gratitude and empathic connection to all of creation. The Words Before All Else are the words that Haudenosaunee  (Ho doe na show knee) people speak before ceremonial and governmental gatherings and some people speak it to start and end their days. The words address the People, Earth Mother, The Waters, Fish, Plants, Food Plants, Medicine Herbs, Trees, Birds, Four Winds, Thunderers, Sun, Grandfather Moon, Stars, Enlightened Teachers, and The Creator. Each element of the natural world is spoke to and thanked for their contributions to all life. These words bind us and promote empathy with all creation. <https://donnallong.com/sustainable-living/words-before-all-else/>; <https://www.smithsonianmag.com/blogs/national-museum-american-indian/2018/11/22/haudenosaunee-thanksgiving-address/>

Haudenosaunee information and education websites: <https://www.haudenosauneeconfederacy.com/who-we-are/> https://americanindian.si.edu/sites/1/files/pdf/education/HaudenosauneeGuide.pdf

Camus, A. 1942. The Myth of Sisyphus – <http://schmieder.fmp-berlin.info/collectibles/pdf/sisyphos_eng.pdf>

Russell, B. 1903. A Free Man’s Worship. <http://bertrandrussellsocietylibrary.org/br-pe/br-pe-ch2.html> ; <http://www.academia.edu/1278006/Bertrand_Russell_A_Free_Mans_Worship>

**Indigenous perspectives (some ideas to get us started):**

Queen’s Truth and Reconciliation website: <https://www.queensu.ca/provost/committees-and-reports/truth-and-reconciliation-commission-task-force>

Extending the Rafters: Truth and Reconciliation Commission Task Force Final Report (Queen’s University)

<https://www.queensu.ca/provost/sites/webpublish.queensu.ca.provwww/files/files/Comittees/TRC%20Reports/(WEB%20VERSION)%20Final%20Report%20of%20the%20Truth%20and%20Reconciliation%20Commission%20Task%20Force.pdf>

Tuck E, and Yang K.W. 2012. Decolonization is not a metaphor. *Decolonization: Indigeneity, Education & Society* 1(1),1-40. <https://www.researchgate.net/publication/277992187_Decolonization_Is_Not_a_Metaphor/link/57aa1a4e08ae3765c3b4988b/download>

Robinson D., Hill, J et al. 2019. Rethinking the Practice and Performance of Indigenous Land Acknowledgement. *Canadian Theatre Review*, Volume 177, pp. 20-30. <https://uwaterloo.ca/faculty-association/sites/ca.faculty-association/files/uploads/files/rethinking_the_practice_and_performance_of_indigenous_land_acknowledgement_a.pdf>

Michael Doxtater. Queen’s National Scholar October 2019 SNID seminar: Lecture 3 - The Adoption of Canada into the Long House of Many Nations

<https://stream.queensu.ca/Playlist/p6M3WtGo?destinationID=kKude6yc00O0pprOBbb46g&contentID=6k8g9t9IGEerrA_SSdku7Q&pageIndex=1&pageSize=10>