Why Are Catholic Schools Concerned About Climate Change?

In *Laudato Si* (2015), Pope Francis develops an *integral ecology* which calls us to respond to both the “cry of the earth” and the “cry of the poor.” He asserts that environmental education should facilitate making the leap towards the transcendent which gives ecological ethics its deepest meaning. It needs educators capable of developing an ethics of ecology, and helping people, through effective pedagogy, to grow in solidarity, responsibility, and compassionate care.

As a bioregional response to *Laudato Si*, the California Catholic Bishops’ wrote a pastoral statement, *God Calls Us All to Care for Our Common Home* (2019), which calls upon teachers and catechists to:

1. **Create an environmental consciousness** within all Catholic families that incorporates the principles of *Laudato Si* into the formation of their children, and let a concern for *integral ecology* and for the common good guide every family’s lifestyle.
2. Ensure that environmental education in California public, private, and Catholic K-College classrooms is not only based on *authentic scientific information*, but also develops an *ethics of ecology*.¹
3. **Enhance environmental literacy** by educating all California students in environmental principles and concepts, as well as an *integrated approach* to combating poverty, restoring dignity to the excluded, and respecting life by protecting nature.
4. Expand opportunities for *outdoor environmental education* and access to *experiential learning* about nature for all California students, especially those in poor communities.
5. **Weave themes from *Laudato Si***, especially our *shared home as a common good* and *integral ecology*, throughout parish religious education programs and Catholic school curricula.

With these vocational calls in mind, all Catholic educational leaders are encouraged to read the following overview of the recently released 6th *Assessment of the Intergovernmental Panel on Climate Change (IPCC)*, reflect on its impacts, and discern actions for our schools’ campuses, curriculum, communities, and culture.

The ultimate aim for environmental education in Catholic schools is not for students simply to amass scientific information or satisfy spiritual curiosity, but rather, to discover God in the created world and “to become painfully aware, to dare to turn what is happening to the world into our own personal suffering and thus to discover what each of us can do about it.”²

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¹ Pope Francis, *Laudato Si*, paragraph 209-215
² Ibid 217
Purpose and Overview

A majority of Americans are feeling alarmed or concerned about climate change, but many are not sure exactly what this means for their everyday lives, or how this might impact their roles and responsibilities in their professional lives. For K-12 educators, there is a growing demand for schools and teachers to do more. For example, according to a survey conducted by NPR in April 2019, the vast majority of parents (over 80%) and teachers (over 86%) believe that Climate Change and environmental issues should be taught in schools. Furthermore, every school community is already experiencing impacts of Climate Change (i.e. wildfires, public power shut-offs, poor air quality, high heat days, water shortages, flooding, transportation disruptions, etc.), and is having to navigate the challenges related to these impacts such as school closures and disruptions to learning.

Yet, many educators feel overwhelmed or even confused about the realities of climate change, and how to fit this into an already long list of priorities and activities. Other educators express guilt that they are not doing enough, and many others are concerned about the increase in Eco-Anxiety (or Climate Despair) that they are seeing in children and youth. The purpose of this document is to help educational leaders understand the severity of the climate crisis, as outlined by the Intergovernmental Panel on Climate Change (IPCC) Report (released in August 2021), and to provide tangible action steps that educational leaders can take to move forward in the climate era. School leaders have risen to the challenge of caring for communities during the COVID-19 crisis and recognizing the inequities faced. It is time to do the same thing for climate change.

STEP ONE: The first action step that an educational leader can take is to spend thirty minutes building a solid understanding of the IPCC’s Sixth Assessment Report and the serious implications it has for the K-12 education system. This document will provide that starting point, and will lay a roadmap of the next actionable steps to take from there. The intended outcome is educational leaders who understand where climate change fits into their professional roles and responsibilities, and how to mitigate and adapt to the challenges we now face in order to build healthy, equitable, and sustainable school communities. Utilize the bookmarked links below to get started:

- What is the IPCC? (69 words)
- What are the IPCC Assessment Reports? (130 words)
- What is in the IPCC’s Sixth Assessment Report? (86 words)
- What are some of the key findings of the Sixth Assessment Report (AR6 WG1)? (640 words)
- Is there a viable pathway forward (is there hope)? (169 words)
- What is the key message of the Sixth Assessment Report for Educational Leaders? (588 words)
- What are the Top Ten things Educational Leaders can do to respond?

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3Yale’s Climate Communication Program: Global Warming’s Six Americas in 2020
4 NPR 2019: Most Teachers Don’t Teach Climate Change; 4 In 5 Parents Wish They Did
5 Washington Post Magazine: Eco-Anxiety is Overwhelming Kids
What is the IPCC?

The Intergovernmental Panel on Climate Change (IPCC) was established in 1988, and is an international body of scientists set up under the United Nations Framework Convention on Climate Change (UNFCC). Their role is to assess scientific data related to climate change, and produce reports that provide policymakers with regular updates about the scientific understanding of climate change, possible impacts, and options for mitigation (reducing greenhouse gas emissions), and adaptation.6

What are the IPCC Assessment Reports?

The assessment reports present current climate and projections of future climate change based on different global emissions scenarios (rapid reduction or continued growth), and the corresponding risks for human and natural systems. While they lay out response options and their implications, the reports do not tell policymakers what actions to take – they are policy relevant but not policy prescriptive.

IPCC assessments are written by hundreds of leading scientists from around the world and formally adopted by the governments of its 195 member countries. The IPCC works by assessing existing published studies rather than conducting its own scientific research. The main IPCC assessment reports come out about every six years, with more focused Special Reports released in between. The last set, the Fifth Assessment Report (“AR5”), was finalized in 2013-14.

What is in the IPCC’s Sixth Assessment Report?

This Sixth Assessment Report (“AR6”)7 began its release cycle in 2018, and will conclude with the final synthesis in September 2022. There are a number of pieces to this Sixth Assessment Report, including special reports and working group reports. This document summarizes the first Working Group report, which was released in August 2021 (AR6 WG1). View an overview of the entire Sixth Assessment Report in Appendix A - Sixth Assessment Report Structure and Process, and/or view a video overview to the Sixth Assessment Report (AR6) here.

What are some of the key findings of the Working Group One’s Sixth Assessment Report (AR6 WG1)?

It has been about eight years since the IPCC’s Fifth Assessment of climate science (“AR5”). So the IPCC’s Sixth Assessment (AR6) has benefited from almost a decade’s worth of additional research, observations and technological progress. To see a side-by-side comparison of the two reports visit Carbon Brief's comparison of AR5 and AR6.8 Below are some of the key findings and tools in the report, as well as connections between these findings and schools operations:

KEY FINDING: Global Warming is Unequivocally Caused by Humans: AR5 found that it was extremely likely (95-100% sure) that “human influence has been the dominant cause of the observed warming since the mid-20th century”. For AR6, the authors conclude that it is “unequivocal (100% certain) that human influence has warmed the atmosphere, ocean and land”. Some of the key ways that schools contribute to global warming is from the scope one.

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6 Office for Climate Education at UNESCO: IPCC Global Warming of 1.5 C Special Report Summary for Teachers
7 The Intergovernmental Panel on Climate Change (IPCC): Sixth Assessment Report
8 Carbon Brief: In-Depth Q&A on Sixth Assessment Report and Comparison of AR5 and AR6
two, and three greenhouse gas emissions\textsuperscript{9} from the facilities and operations activities such as energy use for lights, appliances, cooking, heating water, transporting people and goods to and from school, waste generated at school, etc. In addition to buildings, schools tend to manage their grounds with asphalt instead of ecologically beneficial landscaping such as trees and native plants.

KEY FINDING: The Impacts of the Climate Crisis are Already Here: The impacts of climate change (which can also be seen in the image to the right from EPA’s Archived Site: Student’s Guide to Global Warming)\textsuperscript{10}, are already felt even with only 1°C of warming - record-breaking heatwaves and severe droughts, catastrophic wildfires, devastating floods, melting sea ice and sea level rise, etc. These climate related challenges have increasingly become part of daily reality, and will continue to increase in intensity and frequency with 1.5°C of global warming, and even more so at 2°C of warming.\textsuperscript{11} For schools this means a significant increase in climate related disaster days, which have already become one of the largest contributors to school closure days in 2019\textsuperscript{12}.

Temperatures Have Already Increased and Will Continue: AR6 outlines that climate changes have already increased in all regions of the globe at our current increase of 0.08 °C (0.13 °F) per decade since 1880, or 1.09°C (1.9 °F) warmer total than 1850-1900. This warming we are experiencing now is the result of emissions that happened decades ago and we are already locked in to more temperature increases for a few more decades - learn more about this concept of definite temperature increase in the “Is there a Viable Pathway Forward?” section. For students just entering Kindergarten, this means their entire K-12 experience is assured to be significantly impacted by ongoing climate disruptions locally and globally.

Temperature Increases Vary by Region and Urban/Rural Settings: Many of the characteristics of climate change are directly related to the level of global warming; however, because local climates are different all over the world, what people experience is varied. For example, warming over land is larger than the global average, and it is more than twice as high in the Arctic. This is one of the reasons why AR6 used a new tool named “Atlas” for flexible spatial and temporal analyses of different regions (see image to the right). Cities and urban areas are particularly vulnerable to temperature increases due to urban heat island effect. This effect is mainly caused by the close proximity of tall buildings, limited vegetation and tree canopy, and the heat-absorbing properties of concrete. Unfortunately, this effect is all too common at schools, as a majority of schools have very limited tree canopy (58% of schools in CA have less

\textsuperscript{9} EPA Scope 1, 2, and 3 Emissions
\textsuperscript{10} EPA Archive: A Student’s Guide to Global Warming and Climate Change
\textsuperscript{11} The Nature Conservancy Media Statement: IPCC AR6 makes the case for urgent climate action clearer than ever before
\textsuperscript{12} Cal Matters: Disaster Days and Wildfires
Is there a viable pathway forward (is there hope)?

The IPCC report breaks down five scenarios designed to show possible pathways forward based on emissions and reductions. In all scenarios, from the most high-emissions scenario presented in which humans do little to slow emissions, to the most aggressive scenario in which humans act urgently, temperatures are still likely to rise 1.5°C within the next two decades. Essentially, the heat we are experiencing now, and the rise to 1.5°C that we are locked into, is due to the result of emissions that happened decades ago.

However, if humans act urgently, temperatures could peak and then decline, helping to stabilize the planet and life on it. If we allow emissions to continue unchecked, temperatures are likely to rise more than 4.4°C by the end of the century—a level that would make life unlivable on vast areas of the planet. While the pathway to limit warming to the 1.5°C mark has narrowed and requires an extraordinary level of action, there is still a narrow opportunity to avoid catastrophe.

What is the Key Message of the IPCC Sixth Assessment Report for K-12 Educational Leaders?

The findings of the IPCC’s Sixth Assessment Report (AR6) Working Group One are undisputed by every country in the world, and the scientific community. The report found that action must happen immediately, and requires a paradigm shift for every country, every sector, and every human. Effective paradigm shifts require engaging all different levers for change, including policy, behavior, and mindset.

The K-12 education sector has a hand in all three of those levers of change, but most importantly for the cultural mindset. In the words of David Orr (Professor of Environmental Studies, Oberlin College), “The planetary emergency unfolding around us is, first and foremost a crisis of thought, values, perception, ideas and judgment. In other words, it is a crisis of mind, which makes it a crisis of those institutions which purport to improve minds.”

In the past few decades, educational leaders have risen to many challenges. For example, initiatives at the federal, state, and local level seek to address the significant inequalities we face in the K-12 education system in regards to academic outcomes, additionally leaders have begun to address the epidemic of trauma in schools, transforming schools into “trauma-informed” or “trauma-sensitive” environments. Most recently educational leaders have responded to the COVID-19 crisis, which has

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13 [Green Schoolyards America](http://greenschoolyardsamerica.org)
14 [Healthy Places Index](http://healthyplaces.com)
15 [Podcasts: Outrage and Optimism - IPCC Sixth Assessment Report, and Climate Pod - IPCC Report Ed Hawkins Interview](http://climatepod.org)
16 [Change Theories for Solutionaries](http://changetheories.com)
17 [The Campaign for Climate Literacy](http://climatecampaign.org)
18 National Education Association: [Trauma Informed Schools](http://traumainformedschools.org)
been a complete overhaul of every aspect of daily life for school communities. The IPCC report calls on educational leaders to now do the same for the climate crisis in order to protect those most vulnerable to the impacts laid out in the IPCC’s Sixth Assessment Report: children and youth.

In partnership with families, educational leaders share the responsibility of adapting and building resilient school systems that protect and nurture children and youth. In particular, our lowest income students who bear the brunt of environmental injustice and climate disasters (in the United States this disproportionately means students that are Black, Indigenous, and People of Color (BIPOC)). Building off of the work done on Adverse Childhood Experiences (ACEs), the Milken Institute for Public Health developed a framework that pairs the original Adverse Community Environments (ACEs) issues with environmental issues, such as poor housing quality and affordability, poverty and discrimination, and other conditions related to environmental justice and equity - aka the “Pair of Aces”. Additional thought partners have added on the layer of Climate Change to illustrate that there are Three Realms of Aces. ¹⁹

To learn more about environmental and climate trauma visit: Trauma Informed Practices and Environmental Literacy. ²⁰

What we have learned through the COVID-19 crisis, is that in order to protect and nurture children and youth during a global crisis, conventional K-12 schooling needs to be reimagined. The reimagining that was needed during COVID-19, in particular for risk management and learning loss, has a lot of similarities to climate related disruptions (fires, floods, high heat, etc.). What we now know from the

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¹⁹ Paces Connections: Three Realms of Aces
²⁰ Trauma Informed Practices and Environmental Literacy
IPCC’s Sixth Assessment Report is that our children and youth are already experiencing a Volatile, Complex, Uncertain, and Ambiguous or VUCA world, and that it is going to get worse. The key message from the IPCC Sixth Assessment Report for educational leaders, is that educational leadership in the climate era means accepting this reality, and putting a plan in place that reimagines every single aspect of schools - from campus facilities and operations, to curriculum, to community engagement and overall school culture - through a lens of sustainability and climate resiliency.

So how do you get started? Check out the Top Ten Actions (ok maybe a few more than ten…) that educational leaders can do right now to respond and take action.

What are the Top Ten Actions that Educational Leaders can do right now to respond and take action?

A) THE BIG FIVE - GET STARTED HERE: Utilize the following five suggestions as a starting point for responding and taking action.

1) **Continue to Learn:** Utilize the following resources to continue your journey as a learner.
   - Watch a climate change documentary to get more familiar with the science and impacts of the climate crisis - explore options on the following lists: [List 1](#), [List 2](#), [List 3](#)
   - Learn more about how to get better at talking about climate change by utilizing this [Climate Steps Guide](#)
   - Subscribing to a climate change related podcast - a great starting point is [Outrage and Optimism](#)
   - Participate in a fellowship program that takes you from knowledge to solutionary action for sustainable and climate resilient schools, for example: the San Mateo County Sustainable and Climate Resilient Schools Administrator Fellowship

2) **Embrace Changemaking Leadership:** Being a leader during the climate crisis means that you will be managing change. Sometimes it will be a change you bring to your community, and other times it will be a disruptive change that is forced onto the community. Get familiar with change theories, and utilize change management techniques to guide your school community to embrace solutionary and transformative change.

3) **Integrate Sustainability and Climate Resiliency Into Your Leadership Philosophy:** Incorporate key ideas from the Educators’ imperative for Sustainable and Climate Resilient Schools into your philosophy for educational leadership.

4) **Invest in Systemic Change:** Long-term institutional change benefits from dedicated and compensated staffing models. It is recommended that districts and schools hire Sustainability Coordinator/Directors or Climate Justice Coordinator/Directors. See sample job descriptions: [Site Level Sustainability Champion](#) and [District Sustainability Coordinator](#).

5) **Accept/Reject the Responsibility:** Being an educational leader is an already challenging job without the pressures of global crises such as pandemics and global warming. However, the reality of today is that the climate crisis is here, and we have entered into what the United
Nations has called the “Decade of Action.” Meaning a decade of bold leadership and decision making that breaks down the status quo, and shifts humanity into a more sustainable and climate resilient paradigm. Take the time to reflect on whether or not you are prepared to lead during this extraordinary time, and whether or not you want the responsibility of doing so in a K-12 education setting. The children and youth in the K-12 educational system are relying on adults in leadership positions to build pathways for a future where they can survive and thrive.

B) TOP TEN ACTIONS FOR WHOLE SCHOOL SUSTAINABILITY AND CLIMATE RESILIENCY: The section below is organized in a framework for Whole-School Sustainable and Climate Resiliency. This framework provides a roadmap for where to operationalize principles and practices of environmental literacy, environmental sustainability, and climate resiliency across all aspects of a school community: Campus, Curriculum, Community and Culture. The suggestions in each section focus specifically on actions related to climate resiliency.

Top Ten Actions for a Climate Ready CAMPUS*

The majority of greenhouse gas emissions in school based settings come from practices in the campus facilities and operations. It is important that educational leaders take action to reduce GHG emissions, and to “walk the talk” of environmental sustainability and climate resiliency. These choices are not only healthier for the planet, but also contribute to improved health and well being for campus occupants.

| MILDE | 1) Set a goal (or two) to reduce GHG emissions  
2) Encourage staff in charge of facilities and operations to transition to healthy, sustainable school grounds and buildings, especially for students that may lack access to green space, clean air or water, and healthy food  
3) Go on a local or virtual tour of green schools to observe and understand what green school facilities and operations look like in practice  
4) Plant trees and native/drought tolerant landscaping |
| MEDIUM | 5) Assess current facilities and operations practices for their impact on the environment - utilize the Green Ribbon Program as a framework.  
6) Create and implement a carbon reduction plan (sample SFUSD Carbon Neutrality).  
7) Design outdoor learning and play spaces that provide students with opportunities to reconnect with nature |
| SPICY | 8) Design and implement Living Schoolyards that incorporate climate resilient practices such as water resiliency (for flood and drought),  
9) Participate in a Local Hazard and Mitigation Plan Workshop to get started on a Local Hazard and Mitigation Plan for your school community  
10) Climate Action Plan: Work with cities on climate adaptation and mitigation plans that are already in place or being created now. See example of how school districts can connect with municipal and county Climate Action Plans in this San Mateo County Climate Action Plans Overview. |

*Note that it is possible to utilize COVID-19 Recovery Funding for many of the above steps - for more information visit the Build Back Better Recovery Funding Guidance for K-12 Schools: Integrating Environmental Sustainability and Climate Resiliency.
Top Ten Actions for a Climate Ready CURRICULUM

Students need opportunities to learn about and tackle these complex environmental and climate related challenges now: “Humanity cannot wait for students to graduate and get started on doing things that contribute to a better world. We need to give students in every school, at every age, real agency and authentic opportunities to make a difference in this volatile, unpredictable, complex, and ambiguous world” - David B. Hawley, Chief Academic Officer of International Baccalaureate (IB) (Edutopia, 2015).

It should be noted that learning about climate change can and should happen in every subject area, as it is transdisciplinary. It is okay to start with science, but expand beyond to include climate related topics and issues in all subject areas.

| MILD | 1) Support faculty to Incorporate a sustainability/climate lesson at every grade level that is grounded in solutionary teaching and learning practices  
2) Build out your Library (or classroom library) resources utilizing suggestions from the Solutionary and Environmental Book Suggestions  
3) Provide professional learning opportunities for faculty that focus on how to integrate the Environmental Principles and Concepts (EP&Cs) into each subject area*  
4) Support faculty and staff to develop tools and strategies that integrate trauma informed practices into lessons centered on environmental topics and issues |
| MEDIUM | 5) Incorporate a sustainability/climate lesson or mini-unit at every grade level  
6) Integrate lessons and activities that expose students to the “Green Economy”**  
7) Support teachers with professional learning opportunities that are focused around environmental and climate justice and the integration of BIPOC voices and perspectives |
| SPICY | 8) Add a sustainability/climate unit to every grade K-12/and a main subject course pathway in secondary curriculum requirements - and make these units Solutionary Units of Study  
9) Integrate lessons and activities that help students obtain skills that will prepare them for the “Green Economy”**  
10) Work with local Community Based Partners (CBP) who provide Environmental Education experiences to build out a scope and sequence of learning opportunities for every student at every grade level. CA educators can find partners at the CAELI Community Based Partner Hub. |

*Note that the EP&Cs are part of already existing curricular mandates and expectations outlined in SB720  
**To learn more about the Green Economy visit: Green Economy Overview for K-12 Educators

Top Ten Actions for a Climate Ready COMMUNITY AND CULTURE

Start with the premise that taking action for the environment and climate change action is a shared value in the community, as the vast majority of teachers and students care about global issues that impact people, animals, and ecosystems around the world. Remember that the majority of America is alarmed or concerned about climate change, and that caring about equity and health is part of what it means to be an educational leader.
1) Put climate change on the agenda for your next meeting and invite faculty and staff to share their hopes and fears around the climate crisis
2) Integrate [Environmental Awareness Days](#) into your school calendar
3) Nature Connection Time: Facilitate opportunities for students, and faculty and staff to reconnect with nature using [Trauma Informed Nature Connection Activities](#)
4) Screen [Breaking Boundaries: The Science of Our Planet](#) OR any Climate Change Documentary (List 1, List 2, List 3) and facilitate a [Climate Ribbon Event](#) at school. It might be good to do this during the United Nations Climate Conference (Oct 31 - Nov 12)...

5) Start a Solutions Oriented Book Club for faculty, staff, parents, and youth. Suggested books include: [Drawdown](#), [The Future We Choose](#), [The World Becomes What We Teach](#), [All We Can Save](#), [Facing the Climate Emergency](#), [A Practical Guide to Leading Green Schools](#)
6) Welcome Youth Climate Activism, and invite speakers from [Youth Climate Movement and Climate Movement Organizations](#) to speak at a school-wide event or parent sponsored event night
7) Help your community better understand how climate change is impacting your community directly. Tools for raising awareness include:
   - The [#ShowYourStripes Project](#) shows how temperature increase is experienced locally
   - The [Climate Ready Adaptation Simulation](#) (find video and resources [here](#))

8) Start a Sustainable and Climate Resilient Schools Committee or Task Force at the school (and district) that has a number of stakeholders. Create a structure that will be long-lasting (see example [district structure here](#)), compensated, and work to develop clear actionable goals.
9) Include climate change and environmental justice into already existing efforts around diversity, equity and inclusion. For example: start a compensated and supported BIPOC climate justice advisory council, introduce concepts from the [Intersectional Environmentalist](#), include resources from section III of [EJ and Climate Justice Webquest](#)
10) Support an annual Climate “Teach-In” during Climate Action Week, or during the United Nations Climate Change Conference (traditionally in Nov/Dec). See example “Teach-In” resources here:
   - Earth Day Network: [Earth Day Teaching In Toolkit](#)
   - Wild Center: [Youth Climate Summit Toolkit](#)

Other Top 10 Ways to Engage on Climate Action:
- Read: [The Future We Choose](#) - see PDF excerpts here: [Part III-10 Strategies to Get Started](#) (68 pages); [Take Action Now](#) (4 pages)
- Choose an action from Practical Action’s, “[10 Practical Things You Can Do to Countdown to the UN Climate Change Conference](#)”
Appendix A - Sixth Assessment Report Structure and Process

This Sixth Assessment Report (“AR6”) began its release cycle in 2018, and will conclude with the final synthesis in September 2022. There are a number of pieces to this Sixth Assessment Report, including those in the table below. View a video overview to the Sixth Assessment Report (AR6) here.

| A) Three Special Reports and One Methodology Report |
|---------------------------------|----------------------------------|
| October 2018 | Special Report: Global warming of 1.5°C → See summary for Teachers |
| August 2019 | Climate Change and Land |
| September 2019 | The Ocean and Cryosphere in a Changing Climate |
| B) Three Working Group Reports (these reference the special reports) |
| August 2021* | Working Group I - The Physical Science Basis: on past and possible future changes in the climate system and carbon cycle. This report has 12 core chapters, and an interactive “atlas” |
| February 2022 | Working Group II - Impacts, Adaptation, and Vulnerability: on past and future impacts, and options for adapting to them |
| March 2023 | Working Group III - Mitigation of Climate Change: on ways to reduce greenhouse gas emissions |
| C) Synthesis (this pulls together all the Working Group findings) |
| September 2022 | AR6 Synthesis Report: Climate Change 2022 |

*Original date was April 2021, but got pushed back due to COVID-19.

The general process for writing assessment reports is as follows, with specifics on this particular report detailed out:

- **Report Outlines**: First the IPCC agreed on report outlines for the working groups and special reports - *for the Sixth Assessment Working Group Reports, this was done in September 2017*. Each report contains chapters and supplemental materials.
- **Selecting Authors**: Then the IPCC selected authors, who agree to work on a voluntary basis - *for the Sixth Assessment, this was done in April 2018 with more than 700 authors in total*.
- **Drafting and Reviewing**: Next, the authors draft and review the report - *Working Group I is about 3,000 pages and references more than 14,000 scientific papers. In total there were three drafts of Working Group I, which was reviewed by experts and governments and received more than 70,000 comments*.
- **Summarizing for Policymakers**: The final step of each report is a line-by-line agreement (from all 195 countries) of the short summary for policymakers (SPM) document by government delegates. The SPM is a non-technical synopsis of the report’s key findings, and brings the 3,000 pages down to 40-50 pages.
Appendix B - Collaborating Thought Partners

A number of collaborating thought partners made contributions and edits to this document, including:

- Dr. Timothy Baird - superintendent of the Encinitas Union School District (retired)
- Vanessa Carter, Environmental Literacy Specialist - San Francisco Unified School District
- Dr. Amy Frame, K–12 program manager - Ten Strands
- Jonathan Klein, Co-Founder of Undaunted K12
- Jennifer Mutch, Science Coordinator - Santa Clara County Office of Education
- Amity Sandage, Environmental Literacy Coordinator - Santa Cruz County Office of Education
- Naomi Stern, Green Facilities and Operations Analyst - San Mateo County Office of Education