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Executive Summary

Oregon State University continues to garner national attention as a sustainability leader and strives to be in the top 10 colleges and universities in the United States for excellence in sustainability. Since Fiscal Year 2010 (FY10), OSU has utilized the Sustainability Tracking, Assessment and Rating System (STARS) to track and report sustainability performance. Oregon State was the first institution to submit ten STARS reports and continues to show national and international leadership in sustainability assessment by submitting more STARS reports than any other institution. With each report, OSU has achieved a Gold rating from STARS.

Fiscal Year	Submission Date	STARS Version	STARS Score
2010	Jan 31, 2011	1.0	69.74
2012	May 11, 2013	1.2	68.95
2013	Apr. 30, 2014	2.0	70.94
2014	Apr. 30, 2015	2.0	72.78
2015	Mar. 4, 2016	2.0	73.27
2016	Feb. 28, 2017	2.1	72.21
2017	Jan. 31, 2018	2.1	72.23
2018	Dec. 20, 2018	2.1	72.61
2019	Dec. 20, 2019	2.1	74.57
2020	Dec. 23, 2020	2.2	74.29
2021	Dec. 8, 2021	2.2	74.49
2022	Dec. 9, 2022	2.2	73.38

STARS Ratings (all versions)					
Platinum	9				
Gold	161				
Silver	207				
Bronze	64				
Reporter	23				

Table 1 - Oregon State University's STARS submissions

Table 2 - STARS participant ratings

FY22 marked the first year of full in-person operations after 15 months of remote operations due to COVID-19. This return to in-person operations in all OSU location had a significant impact on OSU's operations compared to FY21.

In August 2019, the STARS assessment tool moved to version 2.2, which included a streamlined set of credits, auto-calculated metrics, and a collaborative review and revision process. Where possible, this report both attempts comparisons and examines the limitations of those comparisons. The table below summarizes and trends OSU's sustainability performance by STARS subcategories for FY22.

OSU's FY22 sustainability performance by STARS subcategories						
Positive trending STARS subcategories, FY21-FY22	Negative trending STARS subcategories, FY21-FY22 Research Waste Wellbeing & Work					
 High performing STARS subcategories, FY22 Research Campus Engagement Public Engagement Water Coordination & Planning 	Low performing STARS subcategories, FY22					

Table 3 - performance by STARS subcategory

Some low performing and downward trending areas are due to changes in data available assessment factors, but most indicate actual opportunities for performance improvement. large organizations, some improvements will be more easily attained than others.	•

Introduction

Oregon State University (OSU) took larger steps toward creating a more sustainable university and community during Fiscal Year 2022 (FY22). With performance that puts OSU in Edition, and other awards detailed below, sustainability has become business as usual for Oregon State.

This report highlights accomplishments and provides a summary of indicators for the period between approximately July 1, 2021 and June 30, 2022. OSU's sustainability indicators are based largely on the now widely adopted <u>Sustainability Tracking</u>, <u>Assessment and Rating System</u> (STARS).

Assessment, Awards and Recognition



Recognition from external entities has been key to the visibility of OSU's sustainability success. Increasing visibility is an effective recruiting tool. In FY10, OSU for the first time participated in STARS, administered by the **Association for the Advancement of Sustainability in Higher Education** (AASHE). Used by over 950 higher education institutions, STARS is more comprehensive and standardized than any other sustainability rating or ranking system for higher education and serves as the platform for the key performance indicators in this report. Critically, STARS is also the mechanism by which data are shared with entities like Princeton Review, saving staff time and resources, and standardizing – to the greatest degree practicable – the assessment process. In addition to the STARS assessment, OSU's awards, ratings and rankings for FY22 are listed below.

Visit the sustainability recognition page for information on these and other awards.

AASHE recognized OSU in the **2022 Sustainable Campus Index** for submitting a STARS report with zero data errors. This is the second time OSU has been recognized for submitting exemplary STARS reports. Oregon State was also recognized in the 2022 Index as a Top Performer in the Waste category.





The <u>Princeton Review's 2022 Guide to 387 Green Colleges</u>: OSU was recognized for sustainability practices such as food sourcing, transportation, and green building, as well as opportunities to focus on the environment and sustainability in curriculum and energy efficiency.

League of American Bicyclists <u>Bicycle Friendly University</u> **program**: OSU maintained a Gold designation as a bicycle-friendly campus for students, staff and visitors.





Tree Campus USA: OSU has been recognized each year since 2010 for effectively managing campus trees, developing connectivity with the community beyond campus borders to foster healthy, urban forests, and engaging students in learning opportunities centered on campus and community forestry events.

Fiscal Year 2022 Sustainability Highlights

OSU Professor receives \$7M for study of biological impact of chemicals

Professor Robyn Tanguay received a \$7 million grant to study the biological impacts of chemicals, which could potentially lead to reducing or eliminating the need for chemical testing on animals. Tanguay, a distinguished professor in Oregon State University's College of Agricultural Sciences, is the recipient of the eight-year grant in the field of predictive toxicology from the National Institute of Environmental Health Sciences.



For the past 20 years, Tanguay has pioneered the use of zebrafish in toxicology research, publishing more than 200 papers and leading several large teams from her 17,000-square-foot Sinnhuber Aquatic Research Laboratory.

OSU leading National Science Foundation-funded research hub for coastal resiliency



The National Science Foundation selected Oregon State University and the University of Washington to lead a <u>collaborative research hub</u> focused on increasing resiliency among coastal communities in the Pacific Northwest. The Pacific Northwest coastline is at significant risk of earthquakes from the Cascadia Subduction Zone, which stretches nearly 700 miles along the coast from Cape Mendocino in California to Oregon, Washington and Vancouver Island, Canada.

The initial award for the Cascadia Coastlines and Peoples Hazards Research Hub, or Cascadia CoPes Hub, was for \$7.2 million and the total request over five years is nearly \$18.9 million. The hub will provide an avenue for coordinating research in Pacific Northwest coastal communities among numerous academic and government organizations to inform and enable integrated hazard assessment, mitigation and adaptation in collaboration with local communities.

OSU led global project to optimize, evaluate marine protected areas

Led by Oregon State University researchers, more than three dozen scientists from around the globe <u>produced a guide</u> to help nations better plan, evaluate and monitor marine protected areas set aside to safeguard ecosystems and support a healthy ocean.



"The MPA Guide: A Framework to Achieve Global Goals for the Ocean," published on September 09, 2021 in Science, is the culmination of decades of work by hundreds of scientists and stakeholders and establishes a structure for "an evidence-based understanding of where we stand on ocean protection," said Kirsten Grorud-Colvert, the lead author.

OSU to lead National Science Foundation-funded Center for Oldest Ice Exploration



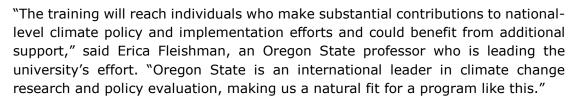
Oregon State University will lead a <u>National Science</u> <u>Foundation-funded effort</u> to discover Antarctica's oldest ice and learn more about how the Earth's climate has changed over the past several million years.

The Center for Oldest Ice Exploration, or COLDEX, will be created under a five-year, \$25 million Science and Technology Center <u>award</u>. The center will bring together

experts from across the United States to generate knowledge about Earth's climate system and share this knowledge to advance efforts to address climate change and its impacts.

OSU hosted United Nations-sponsored training academy on climate change

Oregon State University was one of three institutions worldwide selected to host a five-year international training program to support climate leaders within national governments in meeting goals established under the 2015 Paris Climate Agreement.





The <u>Climate Action and Support Transparency Training Adaptation Academy</u> is an initiative of the United Nations Framework Convention on Climate Change, or UNFCCC, and the Corvallis-based <u>Alliance for Global Water Adaptation</u>.

OSU took measures to reduce water usage in response to statewide drought conditions



Oregon State University took steps to reduce its water usage in response to serious drought conditions across the state and an executive order issued by Gov. Kate Brown that directed state agencies to curtail nonessential water use and implement water conservation measures.

While public universities were not required to follow the order, OSU took measures to reduce water usage at its locations throughout Oregon. The university also reviewed its water conservation practices to assure they were in line with the governor's order.

The university already practices water conservation efforts, including using low flow faucets and toilets in many buildings, carefully watching water meter usage to spot leaks, installing rainwater catch basins in certain buildings for toilet flushing and using a sophisticated irrigation control system that measures temperature, humidity and evaporation rate.

OSU scientists collaborated on road map for adapting dry forests to new fire

regimes

OSU scientists and collaborators from throughout the West say that thinning and prescribed burning are crucial parts of adaptive management for seasonally dry, fire-dependent forests such as those east of the Cascade crest.

In a paper published in Ecological Applications, Andrew Merschel, James Johnston and Meg Krawchuk of the OSU College of Forestry join other researchers in acknowledging the role of Indigenous fire stewardship in past and present landscapes and the value of restoring that stewardship – intentional low-severity burning that reduces fuels and is culturally important.

The Oregon State team was among dozens of scientists across the western United States who teamed up on three papers that the <u>journal</u> published simultaneously, all dealing with approaches for managing fire-dependent forests following a century of fire suppression and in the face of climate change. Collectively the scientists analyzed more than 1,000 published papers going back more than 100 years.

OSU was part of \$20M effort to develop artificial intelligence for agriculture



Thirteen researchers from OSU's College of Engineering are part of a \$20 million federal effort, known as the AgAID Institute, to develop artificial intelligence to tackle mounting agricultural challenges such as diminishing water and labor supplies, weather variations and climate change.

"It is essential to improve the robustness, efficiency and adaptability of food production," said Alan Fern, professor of computer science and the principal investigator representing OSU. "The institute aims to achieve this by

identifying the best ways to integrate humans and AI/robotics technology."

The AgAID Institute seeks to involve the people who will use the AI tools – like farm workers and policymakers – in their development, said Washington State's Ananth Kalyanaraman, the institute's lead principal investigator.

OSU selected to lead Department of Energy capture carbon project

OSU chemistry professor May Nyman was selected as one of the leaders of a \$24 million federal effort to develop technologies for combating climate change by extracting carbon from the air. The funding is spread among nine research projects, with Nyman receiving \$1.6 million over three years to lead a collaboration that includes scientists from the Argonne National Laboratory as well as Oregon State. The work by Nyman, OSU computational chemist Tim



Zuehlsdorff and Argonne's Ahmet Uysal and Michael Servis is part of a carbon capture and storage mission being funded by the U.S. Department of Energy.

Nyman's team will explore how some transition metal complexes can react with air to remove the greenhouse gas carbon dioxide. These complexes appear to extract an impressive amount of carbon dioxide – four CO2 molecules taken up for every transition metal ion – and convert it to a stable solid, a metal carbonate similar to what is found in many naturally occurring minerals.

OSU helps uncover strikingly simple means of diagnosing ecosystem health

An international collaboration including Oregon State University researcher Bev Law says the <u>health of a terrestrial ecosystem</u> can be largely determined by three variables: vegetations' ability to uptake carbon,



its efficiency in using carbon and its efficiency in using water.

<u>Findings</u>, published in Nature, are important because scientists and policymakers need easier, faster and less expensive ways to determine how the ecosystems relied on by humans respond to climate and environmental changes, including impacts caused by people.

"We used these complex, continuous data to develop equations that can be applied with fewer measurements to monitor forest response to climate and other factors," Law said. The team of researchers, led by the Max Planck Institute for Biogeochemistry in Jena, Germany, used satellite observations, mathematical models and multiple environmental data streams to determine that those three factors combine to represent more than 70% of total ecosystem function.

OSU received \$10 million grant to study hemp market in western U.S.

Oregon State University's Global Hemp Innovation Center was <u>awarded a \$10 million</u> grant from the U.S. Department of Agriculture to define economic opportunities for hemp in the western United States.

The five-year project is funded by the <u>USDA National</u> <u>Institute of Food and Agriculture's Sustainable</u> <u>Agricultural Systems</u> grant program. Oregon State scientists are partnering with eight institutions across



the nation on this research, which addresses the needs of Native American and other rural community businesses and farmers in a four-state Western Pacific region.

OSU received \$2.5 million grant to create wood stoves that burn more cleanly



A team of Oregon State University researchers received a \$2.5 million federal grant to work on reducing harmful emissions from wood-burning stoves, a primary source of heat in Native American communities and in low-resource areas in the United States.

Nordica MacCarty of the OSU College of Engineering is the principal investigator on the award from the Department of Energy's <u>Bioenergy Technologies Office</u>.

MacCarty will work with three other OSU researchers plus tribal and industry partners to develop a firebox retrofit that uses the injection of turbulent jets of air to help stoves burn more cleanly and efficiently – even under suboptimal conditions such as wet wood or too much fuel in the firebox.

'Blue Heart,' an exhibit of the Japanese folk art of fish rubbing, was on display at Hatfield Marine Science Center

An <u>exhibit</u> of works featuring the traditional Japanese folk art style of gyotaku, or fish rubbing, was on display in the Gladys Valley Marine Studies Building at OSU's Hatfield Marine Science Center.

"Blue Heart: Beauty and Change Along America's Western Shoreline," by artists Dwight Hwang and Duncan Berry, was on display through October 2022. The exhibit, sponsored by OSU's Marine Studies Initiative and Hatfield Marine Science Center, was free and open to the public.



Gyotaku is a method of applying ink to the surface of the subject and placing lightweight paper on top and rubbing until the contours of the subject are transferred to the paper. Hwang creates classical gyotaku art using traditional materials and Berry uses modern ink and application methods.

The 25-piece exhibit featured pieces by each artist as well as works on which they collaborated. The collection reflects the power and beauty of the Pacific Ocean as well as the deep and lasting climate-driven changes occurring along the western shoreline.

OSU Extension Small Farms Program strengthened Oregon's food systems



Two Oregon State University Extension Service Small Farms program projects were awarded U.S. Department of Agriculture grants totaling more than \$800,000 to strengthen the viability of Oregon's small and mid-scale farms and food businesses.

The OSU <u>Center for Small Farms & Community Food</u>
<u>Systems</u> received a \$249,511 grant from USDA's Regional Food Systems Partnerships program to work with eight Oregon food hubs -- businesses or nonprofits that manage distribution, marketing, networking and aggregation of locally grown food, said Lauren Gwin, associate director of the center.

Food hubs share tools and knowledge to improve long-term sustainability for small- and mid-scale operations, while at the same time prioritizing values and practices such as racial equity, climate change resilience and fair labor practices. Hubs connect growers and food makers to markets and provide a framework for collaborative research, training and planning, Gwin said.

OSU research found way to scrub carbon dioxide from factory emissions, make useful products

Carbon dioxide can be harvested from smokestacks and used to create commercially valuable chemicals thanks to a novel compound developed by a scientific collaboration led by an Oregon State University researcher.

Published in the Journal of Materials Chemistry A, the study shows that the new metal organic framework, loaded with



a common industrial chemical, propylene oxide, can catalyze the production of cyclic carbonates while scrubbing CO2 from factory flue gases.

Carbon dioxide, a greenhouse gas, results from burning fossil fuels and is one of the primary causes of climate change. Cyclic carbonates are a class of compounds with great industrial interest, meaning the findings are a boost for green-economy initiatives because they show useful products such as battery electrolytes and pharmaceutical precursors can be derived from the same process deployed to clean emissions from manufacturing facilities.

The new, three-dimensional, lanthanide-based metal organic framework, or MOF, can also be used to catalyze cyclic carbonate production from biogas, a mix of carbon dioxide, methane and other gases arising from the decomposition of organic matter.

OSU winter lecture series explored what a future with frequent wildfires means for community



An Oregon State University remote lecture series hosted speakers who discussed what living with wildfire looks like in practice, both as individuals and as communities. "Lookout: Envisioning Futures with Wildfire" was presented by the Spring Creek Project and the Environmental Arts and Humanities Initiative within OSU's College of Liberal Arts. The Spring Creek Project works to meld environmental science with arts and

humanities to better understand the relationship between people and the natural world.

The series aimed to "complicate and clarify" people's understanding of wildfire so it's not just something to fear, said Spring Creek Project manager Carly Lettero.

"Of course ecosystems need to burn and fire is a natural element. But we're interested in people who are asking the question, 'What does it mean to live with wildfire?' It's not an easy thing to imagine doing," Lettero said.

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OSU was granted nearly \$5M to establish children's environmental health research center

An interdisciplinary team at Oregon State University received a nearly \$5 million grant to create a new research center to transform what scientists know about environmental health risks for children into public health interventions and policy.

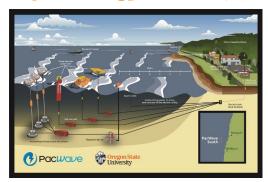
The five-year grant is from the National Institute of Environmental Health Sciences, part of the National Institutes of



Health. It will fund the OSU "ASP3IRE" Center, one of six <u>children's environmental health research</u> <u>translation centers</u> in the country. The others will be at Emory University, Johns Hopkins University, New York University, University of Pennsylvania and University of Southern California.

The OSU center will be housed in the university's Hallie E. Ford Center for Healthy Children and Families within the <u>College of Public Health and Human Sciences</u>.

Dept. of Energy awarded \$25 million for wave energy technology testing at OSU



The <u>Department of Energy</u> awarded \$25 million to eight groups for testing wave energy technologies at Oregon State University's <u>PacWave South</u> facility off the central Oregon coast near Newport.

Construction began in June 2021 on the approximately \$80 million facility, to be located about seven miles offshore. When completed, PacWave South will be the first commercial-scale, grid-connected wave energy test site in the United States. It is expected to be

operational in 2023, and grid-connected testing is anticipated to begin the following year.

"The DOE's announcement represents an exciting new development in the pursuit of producing renewable energy from ocean waves," said Oregon State's Burke Hales, PacWave's chief scientist and a professor in the OSU College of Earth, Ocean, and Atmospheric Sciences. "This commitment to in-water testing at the PacWave site is the bridge from conceptual or scaled-down designs to operational power production in the fully energetic open ocean. It also shows the agency's long-term commitment to the completion and operation of the PacWave test facility."

OSU received grant to implement equity reforms in College of Public Health and Human Sciences

Oregon State University is one of seven institutions nationwide to receive a new grant from the Robert Wood Johnson Foundation to create and implement reforms that make public health academic programs more equitable.

The 18-month <u>"Transforming Academia for Equity"</u> grant allocates \$300,000 to OSU's <u>College of Public Health and Human Sciences</u>.



"As a land grant university, we have in our mission a goal of reaching every community throughout the state," said Jonathan Garcia, associate professor and director of OSU's Global Health program. "We are really tapping into what our vision and mission are and trying to redress some of the harm that the university and the laws in this state have done to people of color. Part of redressing that harm is making the university truly accessible and welcoming to people of all races, colors and all walks of life."

National Park Service director took part in OSU-hosted Traditional Ecological Knowledge Summit



Chuck Sams, director of the National Park Service, and members of the White House Office of Science and Technology Policy participated in the <u>National Traditional Ecological Knowledge Summit</u> hosted by an Oregon State University student group.

Representing the White House Office of Science and Technology Policy was Gretchen Goldman, assistant director for environmental science, engineering, policy and justice, and Haley Case-Scott, a member of western Oregon's Confederated Tribes of Siletz Indians.

"They will deliver a presentation about TEK and what the White House is doing on these efforts, followed by a public listening session that they will conduct at the summit," said Lara Jacobs, a graduate student in forestry and co-founder and chair of Oregon State's <u>Traditional Ecological Knowledge (TEK) Club</u>, which hosted the event. "This is a unique opportunity where people have an open mic to deliver comments directly to the White House."

Oregon Sea Grant awarded \$1.15 million to OSU researchers for marine-related projects

Oregon Sea Grant, a marine research, public engagement and education program at Oregon State University, has awarded \$1.15 million to five OSU scientists. The researchers will use the funds to study sea urchin farming techniques; electromagnetic fields' impact on marine life; effect of low oxygen conditions on crabs; prevention of beach erosion; and mud blister worm infestation of oysters.



<u>Oregon Sea Grant</u> receives a share of congressionally appropriated funds every two years that it awards – via a competitive process – to scientists at Oregon universities who are studying ocean and coastal issues important to the region and the nation. For 2022-24, Oregon Sea Grant is awarding all of that funding to researchers in three colleges at Oregon State. Each project will receive about \$230,000.

Art about Agriculture exhibit visited Corvallis, Baker City, Newport

Art About Agriculture's annual exhibition of agriculture and natural resource-themed artwork by Oregon

State University's College of Agricultural Sciences started a statewide tour in

Corvallis and continued on to Baker City and Newport.



The theme of the 39th annual juried competition and touring exhibition was "<u>Sustainable Feast</u>," and it presented art from Northwest artists whose work explores food production and consumption, sustainability, diversity and innovation in our food system.

This year's open call for artwork received 290 responses from artists in Oregon, Washington and Hawai'i. The tour will include artwork by artists from 12 Oregon counties, five Washington counties and one county in Hawai'i.

Oregon State University places 2nd in DOE Marine Energy

Collegiate Competition

<u>A group of Oregon State University students</u> placed second out of 17 teams representing five countries in the Department of Energy's 2022 <u>Marine Energy</u> Collegiate Competition.

The purpose of the competition is to produce new ideas for capturing the power of the ocean in pursuit of global climate goals, according to the DOE.



The third annual contest required each interdisciplinary team of graduate and undergraduate students to develop a wave energy converter and create a business plan supported by market research.

Representing OSU in the contest were a total of 22 students from the colleges of Engineering, Business and Liberal Arts.

OSU part of \$8M federal effort to improve electric grid operation

Oregon State University is part of an \$8 million <u>Department of Energy</u> effort to update and improve the operation of the nation's hydroelectric generation systems, many of which are roughly a century old.



Ted Brekken, professor of electrical engineering and computer science in the College of Engineering, will lead Oregon State's \$1.9 million portion of the project, along with co-principal investigators Eduardo Cotilla-Sanchez and Yue Cao, also electrical engineering and computer science researchers at Oregon State.

Brekken, who oversees the <u>Wallace Energy Systems &</u> <u>Renewables Facility</u> at OSU, will explore ways to enhance grid

function and flexibility as the grid receives more electricity from wind and solar sources and deals with modern loads such as charging electric vehicles.

Oregon State partnering with Yurok Tribe to envision Klamath River after dam removal

Oregon State University researchers embarked on a $3\frac{1}{2}$ -year partnership with the Yurok Tribe to study what the connections between river quality, water use and the aquatic food web will look like after four Klamath River dams are dismantled.

"We want to fill in gaps in the Western science as well as gaps in how we make equitable decisions based on both ecological science and Indigenous knowledge," said OSU's Desiree Tullos, professor of water resource engineering and the project's leader. "Our partnership with the Yurok Tribe aims to bring together multiple and complementary ways of understanding and making decisions about the Klamath system."

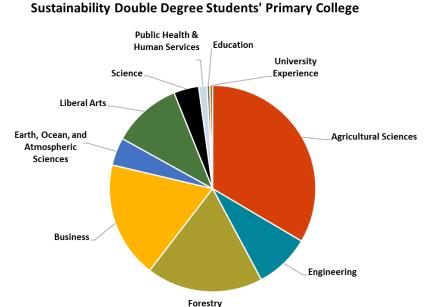


The joint project with the Yurok Tribe is the first attempt to represent tribal knowledge in decision processes in the Klamath Basin, she said.

The Sustainability Double Degree

The <u>Sustainability Double Degree</u> (SDD) exposes students to real-world problems and fosters knowledge, skills and abilities to address these problems in communities and workplaces. In step with the interdisciplinary nature of sustainability, the degree is designed to complement all OSU degree programs

and be earned as a second bachelors in addition to a major area of study. Students take a sustainability "core" consisting of five courses: environmental science, sustainable communities, sustainability assessment, and a choice of several economics and sociology courses. In academic year 2021-2022, there were 230 students enrolled in the SDD consisting of Corvallis campus students (38%), Ecampus students (57%) Cascades Campus students (5%). majority of SDD students have senior class standing (65%), 16% are juniors, 7% are sophomores, 1% are freshmen and 11% are post-baccalaureate. The inter-disciplinary SDD program includes students from all academic colleges as shown in the chart.



The Sustainability Minor

The <u>sustainability minor</u> was first offered at OSU in Fall 2015. This minor's interdisciplinary approach teaches students to think critically about complex issues facing society and how to develop possible solutions to mitigate them. It includes core sustainability courses and tailored elective courses to expand students' knowledge and experience of their primary major in the context of sustainability principles and frameworks. Completion of the sustainability minor requires 27 credits within the 180-credit minimum for graduation. In academic year 2021-2022, there were 95 students enrolled in the sustainability minor consisting of Corvallis campus students (62%), Ecampus students (32%) and Cascades Campus students (6%). The majority of students have senior class standing (67%), 34% are juniors, and 8% are sophomores, and 1% are post-baccalaureate.

Community Engagement and Leadership Programs Create Culture of Sustainability

<u>Community Dialogues</u> is an initiative offered in partnership with the Office of Institutional Diversity to advance a culture of dialogue and deliberation on campus. It is a once-per-term series which seeks to cultivate connection and deep learning through exploration of critical and contentious issues. Utilizing the National Issues Forum Model, it engages students, faculty, staff, and community members in dialogue which:

- Deepens understanding of critical issues and the tensions within them
- Encourages insight into different perspectives
- Creates connection between participants through their stories and experiences
- Guides exploration of personal ethics, morals, and values
- Inspires socio-political action, both individually and collectively.



Continued Excellence in Solid Waste Programs

<u>Campus Recycling</u> and its partners continued programming that moved OSU toward waste reduction. Specific highlights are below.

Repair Fairs: The Waste Watchers, a student volunteer team coordinated by Campus Recycling, ran their fourth year of an event series called the <u>Repair Fairs</u>. At these events, volunteers from the on- and off-campus community offered free repairs for common items such as appliances, bicycles, clothing and more.



FY22 Residence Hall Move-Out Donation Drive: Campus Recycling, Surplus Property and University Housing and Dining Services again coordinated a <u>donation drive</u> to give residents the tools to recycle and donate materials they do not want to bring home with them upon moving out. In FY22, 20,422 pounds of donations were collected and processed.

Continued Partnerships with the Corvallis Sustainability Coalition

Oregon State's extensive connections with and support of the <u>Corvallis Sustainability Coalition</u> continued in FY22. Activities included:

- Staffing various committees and action teams, including the Coalition Steering Committee and Executive Committee
- OSU staff leading several action teams, leveraging university resources through these channels
- Using the campus as a living laboratory for Coalition action team projects
- Offering OSU students internship opportunities with multiple Coalition projects and programs
- Students, faculty and staff volunteering at multiple events, projects and programs
- Promoting Coalition events and opportunities to the campus community through a wide variety of channels.

Sustainability Indicators

OSU continues to experience growth in enrollment and an overall increase in building square footage. Between FY10 and FY22, total student enrollment grew an astonishing 51.09%, from 21,969 to 33,193. Thirty percent of this increase were "distance education only" students enrolled in Ecampus courses; they were not physically present at the Corvallis campus. University building square footage also increased. For 2010, we reported an estimated 7 million square feet. Using more accurate and comprehensive methods for FY22, that number is approximately 10.57 million square feet. Other changes in assessment methods are discussed in more detail in this report.

Short narratives for three report subsections follow:

- 1. areas of significant performance change (improvements or declines greater than +/- 5%)
- 2. areas of consistently high performance
- 3. areas for potential improvement.

The following table shows OSU's STARS category scores for FY22.

STARS 2.2 category name	Points	FY	'22	FY20-FY21	
STARS 2.2 Category Haire	Possible	Score	%	% Change	
Academics (AC)	58	42.9	73.9%	-1.7%	
Engagement (EN)	41	33.4	81.4%	1.0%	
Operations (OP)	70	39.5	56.4%	-3.1%	
Planning & Administration (PA)	33	24.4	74.1%	1.5%	
Total	202	140.2	69.38%	-1.1%	

Table 4 - STARS score summary table

These high level category scores reveal:

- High performance in Academics and Engagement
- Continued strong performance in Planning & Administration
- Weaker performance in Operations.

As shown in the tables above, OSU's overall score decreased 1.1% between FY21 and FY22.

Like the report for FY21, this report performs analysis at the STARS subcategory level. However, <u>past</u> <u>analyses</u> are still relevant to OSU's progress. While this and subsequent reports focus on subcategory trends, readers are encouraged to explore the full set of credit scores in this document's appendix.

Subcategories of significant change between FY21 and FY22

This section details performance changes between FY21 and FY22 within STARS subcategories. "Significant change" is considered here to be greater than +/- 5% for STARS subcategory scores; **those scores are bolded below in Table 5**. The narratives following the table discuss possible reasons for subcategory score changes. As evident in the table, the number of points possible within a STARS subcategory heavily influences that subcategory's impact on the institutional score. A lower score in Grounds, for example, is more than offset by an improved score in Curriculum.

STARS 2.2 sub-sets some name	Points	FY	/21	F۱	/22	FY21-FY22
STARS 2.2 sub-category name	Possible	Score	%	Score	%	% Change
Curriculum	40	27.5	68.8%	27.5	68.7%	-0.1%
Research	18	16.4	90.9%	15.4	85.7%	-5.3%
Campus Engagement	21	17.2	81.7%	17.2	81.7%	0.0%
Public Engagement	20	15.8	79.1%	16.2	81.1%	2.1%
Air & Climate	11	6.2	56.1%	6.1	55.5%	-0.6%
Buildings	8	3.2	39.4%	3.2	39.4%	0.0%
Energy	10	5.1	51.3%	4.8	48.1%	-3.2%
Food & Dining	8	3.5	43.6%	3.5	43.6%	0.0%
Grounds	4	3.1	76.3%	3.1	76.3%	0.0%
Purchasing	6	3.6	60.7%	3.7	62.2%	1.5%
Transportation	7	4.3	61.3%	4.2	59.9%	-1.4%
Waste	10	7.6	75.8%	5.9	59.4%	-16.4%
Water	6	5.1	85.3%	5.0	83.2%	-2.2%
Coordination & Planning	9	7.5	93.8%	9.0	100.0%	6.3%
Diversity & Affordability	10	7.9	78.9%	7.9	78.9%	0.0%
Investment & Finance	7	3.2	46.3%	3.9	56.0%	9.7%
Wellbeing & Work	7	4.6	65.4%	3.6	51.9%	-13.6%
Total	202	141.68	70.49%	140.15	69.38%	-1.1%

Table 5 - STARS subcategory comparison - areas of significant change.

Research (FY21-FY22 change: -5.3%)

With OSU's Carnegie Classification as a high research intensity institution, and as one of only two land, sea, space and sun grant universities in the U.S., high scores in Research are not surprising. For FY21, OSU demonstrated engagement from 67.1% of departments that conduct research. Similarly, the percentage of the institution's faculty and staff researchers engaged in sustainability research in FY21 was 41.63%. In FY22, the percentage of the institution's faculty and staff researchers engaged in sustainability research was 36.08%, which resulted in a lower score for this category.

Waste (FY21-FY22 change: -16.4%)

Key credits in this subcategory trended negative with lower scores for Waste Minimization and Diversion than FY21. In FY22, there was an increase in total waste generated at OSU, which resulted in a lower score for this subcategory. This increase is due to FY22 being the first year of full in-person operations after 15 months of remote operations due to COVID-19. The table below shows progress in the Waste Minimization and Diversion credit.

	FY05 (base year)	FY20	FY21	FY22
Materials recycled	607.00	689.36	315.2	716.04
Materials composted	196.00	345.15	93.94	316.59
Materials reused, donated or re-sold	121.00	499.87	239.36	260.21
Materials disposed in a solid waste landfill or incinerator	3,105.00	1,835.40	1,283.75	2,061.54

Table 6 - Waste Minimization weights. All units are tons.

Coordination & Planning (FY21-FY22 change: +6.3%)

As with each STARS assessment, OSU has attained full scores for 1) having sustainability staff and committees; 2) having formal participatory or shared governance bodies through which students, academic staff, and non-academic staff can regularly participate in the governance of the institution; 3) having women and/or individuals who do not self-identify as men, comprise at least 20 percent of the official members of the institution's highest governing body; and 4) hosting or supporting one or more formal bodies through which external stakeholders (i.e., local community members) have a regular voice in institutional decisions that affect them. In FY21, full points were not attained because the university did not have a published plan or plans that include measurable sustainability objectives that address student, employee, or community engagement for sustainability. In FY22, OSU published the Path to Carbon Neutrality. The Path to Carbon Neutrality is a plan with nine actions that accelerate decarbonization of university activities. Action 7 of the Plan focuses on inspiring individual and collective actions that reduce carbon emissions by conducting outreach campaigns that engage the entire university community.

Investment & Finance (FY21-FY22 change: +9.7%)

The change in this subcategory is due to a 10% increase in sustainable investments. This increase was due to more available investment information and more thorough ESG reporting (particularly among private equity managers, about how they use sustainability considerations in their investment decisions).

Wellbeing & Work (FY21-FY22 change: -13.6%)

The change in this subcategory is due to a decrease in percentage of employees that receive a living wage. In FY21 the percentage of employees that receive a living wage was 84.57%; in FY22 it was 80.83%.

Subcategories of high performance

Categories of "high performance" are those where OSU achieved 80% or more of STARS points in the most recent submission. Those subcategories are bolded in the table below.

CTARC 2.2 cub actors we name	Points	FY	'21	F۱	FY21-FY22	
STARS 2.2 sub-category name	Possible	Score	%	Score	%	% Change
Curriculum	40	27.5	68.8%	27.5	68.7%	-0.1%
Research	18	16.4	90.9%	15.4	85.7%	-5.3%
Campus Engagement	21	17.2	81.7%	17.2	81.7%	0.0%
Public Engagement	20	15.8	79.1%	16.2	81.1%	2.1%
Air & Climate	11	6.2	56.1%	6.1	55.5%	-0.6%
Buildings	8	3.2	39.4%	3.2	39.4%	0.0%
Energy	10	5.1	51.3%	4.8	48.1%	-3.2%
Food & Dining	8	3.5	43.6%	3.5	43.6%	0.0%
Grounds	4	3.1	76.3%	3.1	76.3%	0.0%
Purchasing	6	3.6	60.7%	3.7	62.2%	1.5%
Transportation	7	4.3	61.3%	4.2	59.9%	-1.4%
Waste	10	7.6	75.8%	5.9	59.4%	-16.4%
Water	6	5.1	85.3%	5.0	83.2%	-2.2%
Coordination & Planning	9	7.5	93.8%	9.0	100.0%	6.3%
Diversity & Affordability	10	7.9	78.9%	7.9	78.9%	0.0%
Investment & Finance	7	3.2	46.3%	3.9	56.0%	9.7%
Wellbeing & Work	7	4.6	65.4%	3.6	51.9%	-13.6%
Total	202	141.68	70.49%	140.15	69.38%	-1.1%

Table 7 - STARS subcategory comparison – areas of high performance.

Because Research, and Coordination & Planning have been discussed previously in the subcategories of significant change section of this report, it will not be included in the discussion here.

Campus Engagement (FY22 score: 81.7%)

Oregon State continues to be a place of great opportunity for students who want to become engaged with campus sustainability projects, services and programs. OSU's strong commitment to student engagement around sustainability by Community Engagement and Leadership, Campus Recycling and the Sustainability Office, covered all student-oriented credits within this subcategory.

Public Engagement (FY22 score: 81.1%)

Oregon State continues to support students, faculty, and staff who want to become engaged with community partners. OSU's strong commitment to community engagement around sustainability is led by Community Engagement & Leadership, the Sustainability Office, and the Continuing Education Program.

Water (FY22 score: 83.2%)

It is valuable to look at a longer trend of the Water subcategory's largest (and only changing) credit: Water Use. Each year since FY10, OSU has held water consumption lower than the FY05 baseline established for STARS, which awards full points for the Water Use credit when institutions achieve a 30% or greater reduction relative to the baseline.

Reporting Year	Water Use (gallons)	Water Use per full time equivalent student (gallons)
FY05 (baseline year)	267,228,984	14,865.05
FY17	243,053,624	9,162.50
FY18	256,157,836	9,535.07
FY19	251,054,980	9,375.10
FY20	202,819,452	7,478.59
FY21	205,727,384	7,861.19
FY22	212,196,204	7,695.24

Table 8 - OSU Corvallis campus water consumption

Subcategories of potential improvement

This section details areas of potential score improvement and reasons for lower performance in some areas. Generally, subcategories for which the university scored 59.9% or fewer of available points are included in this section.

CTARC 2.2 auch antonomy name	Points	FY	'21	FY	/22	FY21-FY22
STARS 2.2 sub-category name	Possible	Score	%	Score	%	% Change
Curriculum	40	27.5	68.8%	27.5	68.7%	-0.1%
Research	18	16.4	90.9%	15.4	85.7%	-5.3%
Campus Engagement	21	17.2	81.7%	17.2	81.7%	0.0%
Public Engagement	20	15.8	79.1%	16.2	81.1%	2.1%
Air & Climate	11	6.2	56.1%	6.1	55.5%	-0.6%
Buildings	8	3.2	39.4%	3.2	39.4%	0.0%
Energy	10	5.1	51.3%	4.8	48.1%	-3.2%
Food & Dining	8	3.5	43.6%	3.5	43.6%	0.0%
Grounds	4	3.1	76.3%	3.1	76.3%	0.0%
Purchasing	6	3.6	60.7%	3.7	62.2%	1.5%
Transportation	7	4.3	61.3%	4.2	59.9%	-1.4%
Waste	10	7.6	75.8%	5.9	59.4%	-16.4%
Water	6	5.1	85.3%	5.0	83.2%	-2.2%
Coordination & Planning	9	7.5	93.8%	9.0	100.0%	6.3%
Diversity & Affordability	10	7.9	78.9%	7.9	78.9%	0.0%
Investment & Finance	7	3.2	46.3%	3.9	56.0%	9.7%
Wellbeing & Work	7	4.6	65.4%	3.6	51.9%	-13.6%
Total	202	141.68	70.49%	140.15	69.38%	-1.1%

Table 9 - STARS subcategory comparison – areas of potential improvement.

Because Waste, Investment & Finance, and Wellbeing & Work have been discussed previously in the subcategories of significant change section of this report, it will not be included in the discussion here.

Air & Climate (FY22 score: 55.5%)

In Air and Climate, OSU obtained 4.37 out of 8 points for FY22. As shown in OSU's annual greenhouse gas inventory reports, gross emissions increased since FY21, mainly due to FY22 being the first year of full inperson operations after 15 months of remote operations due to COVID-19. Full points are attained by achieving zero adjusted net Scope 1 and 2 GHG emissions, and by including Scope 3 GHG emissions from purchased goods and services, capital goods, and waste generated in operations.

Buildings (FY22 score: 39.4%)

In this category, an institution earns the maximum score by having all eligible building space certified at the highest achievable level under a multi-attribute, green building rating system focused on the operations and maintenance (O+M) of existing buildings, in addition to certification of new construction. Incremental points are awarded based on the percentage of building space that is certified at each level and/or maintained in accordance with a sustainable operations and maintenance policy/program. OSU space is **operated and maintained** in accordance with either a single-attribute or a multi-attribute, sustainable management policy/program, but not **certified** under an O+M rating system. Without third-party certified space, only partial points are available to OSU.

Energy (FY22 score: 48.1%)

FY22 saw 1,056,852 MMBtu of energy consumed across university properties while 983,840 MMBtu were consumed in FY21. This increase in energy use was due to FY22 being the first year of full in-person operations after 15 months of remote operations due to COVID-19. OSU must obtain energy from clean and renewable sources and/or by purchasing unbundled renewable energy products equivalent to 100 percent of total campus energy consumption to get full credit for this category.

Food & Dining (FY22 score: 43.6%)

An institution earns the maximum of 6 points available for this credit when the weighted cost of products that are sustainably/ethically produced and/or plant-based is equivalent to 100 percent or more of total food and beverage expenditures. OSU's percentage of total annual food and beverage expenditures on products that are sustainably or ethically produced was 10.28%. Similarly, OSU's percentage of total annual food and beverage expenditures on plant-based foods was 29.15%.

Data gathering for this category is difficult for food purchases using OSU's existing procurement system. Given staffing shortages in FY22, a full accounting of food purchases was not possible, therefore FY20 information was reused.

TRANSPORTATION (FY22 score: 59.9%)

An institution earns the maximum score when 1) all vehicles in its fleet are alternatively fueled or powered; 2) all students and employees use more sustainable modes of transportation (i.e., alternatives to conventional single-occupancy vehicles) as their primary mode of transportation for getting to and from campus; and 3) it has implemented five or more strategies to encourage more sustainable modes of transportation to reduce the impact of student and employee commuting. OSU's fleet is mainly gasoline powered, with only 7.4% electric vehicles. Additionally, the total percentage of employees that use more sustainable commuting options as their primary mode of transportation is only 45%.

Appendix

STARS 2.2 Credit Score Detail Table

	Points	FY21		FY22		%
	Possible	Score	%	Score	%	Change
Curriculum	40	27.52	68.8%	27.47	68.7%	-0.1%
AC-1: Academic Courses	14	11.87	84.8%	11.87	84.8%	0.0%
AC-2: Learning Outcomes	8	3.65	45.6%	3.60	45.0%	-0.6%
AC-3: Undergraduate Program	3	3.00	100.0%	3.00	100.0%	0.0%
AC-4: Graduate Program	3	3.00	100.0%	3.00	100.0%	0.0%
AC-5: Immersive Experience	2	2.00	100.0%	2.00	100.0%	0.0%
AC-6: Sustainability Literacy Assessment	4	0.00	0.0%	0.00	0.0%	0.0%
AC-7: Incentives for Developing Courses	2	0.00	0.0%	0.00	0.0%	0.0%
AC-8: Campus as a Living Laboratory	4	4.00	100.0%	4.00	100.0%	0.0%
Research	18	16.37	90.9%	15.42	85.7%	-5.3%
AC-9: Research and Scholarship	12	11.37	94.8%	10.42	86.8%	-7.9%
AC-10: Support for Research	4	3.00	75.0%	3.00	75.0%	0.0%
AC-11: Open Access to Research	2	2.00	100.0%	2.00	100.0%	0.0%
Campus Engagement	21	17.15	81.7%	17.15	81.7%	0.0%
EN-1: Student Educators Program	4	3.09	77.3%	3.07	76.8%	-0.5%
EN-2: Student Orientation	2	2.00	100.0%	2.00	100.0%	0.0%
EN-3: Student Life	2	2.00	100.0%	2.00	100.0%	0.0%
EN-4: Outreach Materials and Publications	2	2.00	100.0%	2.00	100.0%	0.0%
EN-5: Outreach Materials and 1 ublications	4	4.00	100.0%	4.00	100.0%	0.0%
EN-6: Assessing Sustainability Culture	1	0.00	0.0%	0.00	0.0%	0.0%
EN-7: Employee Educators Program	3	1.81	60.3%	1.83	61.0%	0.0%
EN-8: Employee Orientation		1.00	100.0%	1.00	100.0%	0.7 %
EN-9: Staff Professional Development	1					
EN-9. Stall Professional Development	2	1.25	62.5%	1.25	62.5%	0.0%
Public Engagement	20	15.81	79.1%	16.22	81.1%	2.1%
EN-10: Community Partnerships	3	3.00	100.0%	3.00	100.0%	0.0%
EN-11: Inter-Campus Collaboration	3	2.50	83.3%	2.50	83.3%	0.0%
EN-12: Continuing Education	5	5.00	100.0%	5.00	100.0%	0.0%
EN-13: Community Service	5	1.31	26.2%	1.72	34.4%	8.2%
EN-14: Participation in Public Policy	2	2.00	100.0%	2.00	100.0%	0.0%
EN-15: Trademark Licensing	2	2.00	100.0%	2.00	100.0%	0.0%
Air & Climate	11	6.17	56.1%	6.10	55.5%	-0.6%
OP-1: Emissions Inventory and Disclosure	3	1.73	57.7%	1.73	57.7%	0.0%
OP-2: Greenhouse Gas Emissions	8	4.44	55.5%	4.37	54.6%	-0.9%
Buildings	8	3.15	39.4%	3.15	39.4%	0.0%
OP-3: Building Design and Construction	3	1.25	41.7%	1.25	41.7%	0.0%
OP-4: Building Operations and Maintenance	5	1.90	38.0%	1.90	38.0%	0.0%
Energy	10	5.13	51.3%	4.81	48.1%	-3.2%
OP-5: Building Energy Efficiency	6	5.08	84.7%	4.76	79.3%	-5.3%
OP-6: Clean and Renewable Energy	4	0.05	1.3%	0.05	1.3%	0.0%
	I					

Food & Dining	8	3.49 43.6%	3.49 43.6%	0.0%
OP-7: Food and Beverage Purchasing	6	1.49 24.8%	1.49 24.8%	0.0%
OP-8: Sustainable Dining	2	2.00 100.0%	2.00 100.0%	0.0%
C C				
Grounds	4	3.05 76.3%	3.05 76.3%	0.0%
OP-9: Landscape Management	2	1.05 52.5%	1.05 52.5%	0.0%
OP-10: Biodiversity	2	2.00 100.0%	2.00 100.0%	0.0%
Purchasing	6	3.64 60.7%	3.73 62.2%	1.5%
OP-11: Sustainable Procurement	3	2 66.7%	2 66.7%	0.0%
OP-12: Electronics Purchasing	1	0.65 65.0%	0.65 65.0%	0.0%
OP-13: Cleaning and Janitorial Purchasing	1	0.74 74.0%	0.86 86.0%	12.0%
OP-14: Office Paper Purchasing	1	0.25 25.0%	0.22 22.0%	-3.0%
Transportation	7	4.29 61.3%	4.19 59.9%	-1.4%
OP-15: Campus Fleet	1	0.09 9.0%	0.09 9.0%	0.0%
OP-16: Commute Modal Split	5	3.60 72.0%	3.50 70.0%	-2.0%
OP-17: Support for Sustainable Transportation	1	0.60 60.0%	0.60 60.0%	0.0%
Waste	10	7.58 75.8%	5.94 59.4%	-16.4%
OP-18: Waste Minimization and Diversion	8	5.72 71.5%	4.42 55.3%	-16.3%
OP-19: Construction and Demolition Waste Diversion	1	0.86 86.0%	0.52 52.0%	-34.0%
OP-20: Hazardous Waste Management	1	1.00 100.0%	1.00 100.0%	0.0%
Water	6	5.12 85.3%	4.99 83.2%	-2.2%
OP-21: Water Use	4	3.12 78.0%	2.99 74.8%	-3.3%
OP-22: Rainwater Management	2	2.00 100.0%	2.00 100.0%	0.0%
Coordination & Planning	9	7.50 93.8%	9.00 100.0%	6.3%
PA-1: Sustainability Coordination	1	1.00 100.0%	1.00 100.0%	0.0%
PA-2: Sustainability Planning	4	3.50 87.5%	4.00 100.0%	12.5%
PA-3: Participatory Governance	3	3.00 100.0%	3.00 100.0%	0.0%
PA-4: Reporting Assurance	1	0.00 0.0%	1.00 100.0%	100.0%
D1 1/ 0 4 55 1 1 11/4				
Diversity & Affordability	10	7.89 78.9%	7.89 78.9%	0.0%
PA-5: Diversity and Equity Coordination	2	1.56 78.0%	1.56 78.0%	0.0%
PA-6: Assessing Diversity and Equity	1	1.00 100.0%	1.00 100.0%	0.0%
PA-7: Support for Underrepresented Groups	3	3.00 100.0%	3.00 100.0%	0.0%
PA-8: Affordability and Access	4	2.33 58.3%	2.33 58.3%	0.0%
Investment & Finance	7	3.24 46.3%	3.92 56.0%	9.7%
PA-9: Committee on Investor Responsibility	2	0.50 25.0%	0.50 25.0%	0.0%
PA-10: Sustainable Investment	4	1.74 43.5%	2.42 60.5%	17.0%
PA-11: Investment Disclosure	1	1.00 100.0%	1.00 100.0%	0.0%
177 11. ATVOCATIONA DISCISSARIO	'	1.00 100.0 /6	1.00 100.070	0.0 /0
Wellbeing & Work	7	4.58 65.4%	3.63 51.9%	-13.6%
PA-12: Employee Compensation	3	1.57 52.3%	0.85 28.3%	-24.0%
PA-13: Assessing Employee Satisfaction	1	0.36 36.0%	0.36 36.0%	0.0%
PA-14: Wellness Program	1	1.00 100.0%	1.00 100.0%	0.0%
PA-15: Workplace Health and Safety	2	1.65 82.5%	1.42 71.0%	-11.5%
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