

Minutes of the BC Environmental Articulation Committee Annual General Meeting May 19, 2021

Attendance

1	Anna Tikina	BCCAT
2	Eric Anderson	BCIT
3	Cheryl Schreader	Capilano University
4	Ken Shaw	Coastal Mountain College
5	Shona Lawson	College of Applied Biology
6	Andrea Erwin	College of New Caledonia
7	David Dick	College of the Rockies
8	Katie Burles	College of the Rockies
9	Derek Turner	Douglas College (Earth Sciences)
10	Mike McPhee	Douglas College (Geography)
11	Andrew Egan	Langara College
12	David Tracey	Native Education College
13	Barb Ramovs	Okanagan College environment and geography
14	Allison O'Neill	Okanagan College WET program
15	Matt Dodd	Royal Roads University
16	Robert Macrae	Selkirk College, host and committee chair
17	David Zandvliet	Simon Fraser University
18	Paul Kingsbury	Simon Fraser University
19	Tom Pypker	Thompson Rivers University
20	Geraldine Jordan	Trinity Western University
21	Craig Nichol	UBC Okanagan
22	Tara Ivanochko	UBC Vancouver
23	Phil Owens	University of Northern British Columbia
24	Stefania Pizzirani	University of the Fraser Valley
25	Stefanie Duff	Vancouver Island University

Location: online three hour 9:00 am to noon Zoom meeting hosted by Robert M. Macrae at Selkirk College, 301 Frank Beinder Way, Castlegar, BC V1N 4L3

Minutes: recorded by Robert M. Macrae

- Welcome.** There was a very brief welcome. For a number of participants, this was their first time attending a BC EAC AGM. The new participants were: Shona Lawson, Andrea Erwin, Katie Burles, Derek Turner, David Tracey, Barb Ramovs, David Zandvliet, Paul Kingsbury, Craig Nichol, Phil Owens, and Stefani Pizzirani.
- Attendance:** See the table above and the note under Welcome regarding new participants.
- Minutes from previous meeting:** Given the BC EAC meets once annually, minutes are distributed following the meeting for review. Once the minutes are finalized, they are submitted to BCCAT to be posted on the BCCAT web site. There was no 2020 BC EAC AGM. The minutes from the 2019 BC EAC AGM were reviewed and posted on the BCCAT web site in 2019.
- Agenda:** The agenda followed the order of the items listed in the minutes.

5. Members' Reports:

Although scheduled to finish by 10:30 am, members' reports continued until 11:15 am. To work through twenty-five reports in just less than two hours was difficult, but helpful because it allowed members to reconnect with colleagues at other institutions and to share information including the exceptional challenges presented by a pandemic. All members are thanked for their reports and discussion.

- a. Phil Owens (UNBC Environmental Science program): An electronic report was submitted and is posted on the shared drive. Among the highlights and initiatives:
 - i. New academic structure implemented as of 1 April, 2021
 - ii. Five new Faculties replaces two Colleges
 - iii. UNBC establishes the Office of Indigenous Initiatives, appoints Dr Henry Harder as Vice-Provost of Indigenous Initiatives to help coordinate UNBC's response to the Truth and Reconciliation Committee's Call to Action
 - iv. Interim President Geoff Payne has established a Task Force on Equity, Diversity and Inclusiveness, with plans to establish an Office of Equity Affairs
 - v. The Geography & Environmental Sciences programs have joined to form the Department of Geography, Earth and Environmental Sciences within the new Faculty of Environment
 - vi. Dr Catherine Nolin is the Acting Chair of the Department, replacing Dr Todd Whitcombe who was Chair of the previous administrative unit.
- b. Allison O'Neill (Okanagan College WET programs): An electronic report was submitted and is posted on the shared drive. Among the highlights and initiatives:
 - i. The Water Engineering Technology program is a unique engineering technology program focusing specifically on water both in the natural and engineered environments.
 - ii. Articulation Goals: WET is keen on developing future academic-transfer partnerships with BSc engineering programs, and WET is willing to develop a bridging program to make this happen.
 - iii. Advice is sought from anyone with experience with laddering into the University of Lethbridge or Lakehead University
 - iv. The WET program is nationally accredited by the Technology Accreditation Canada (TAC) and is recognized by the Applied Science Technologists and Technicians of British Columbia and the College of Applied Biology of British Columbia. Graduates are eligible for registration as an Applied Science Technologist (AScT) and/or a Registered Biology Technologist (RBTEch) after two years of related work experience. After one year of related work experience, graduates are eligible for EOCP registration as Certified Water Professionals or Certified Wastewater Professionals.

- c. David Tracey (Native Education College): NEC has a nine month Indigenous Land Stewardship Certificate (ILS) program. The program may be completed on a full or part-time basis. It has block transfer agreements with CapU, KPU, UBC, and SFU. The ILS program is offered in-person or entirely on-line including online field schools that were developed prior to COVID. The online version of the course proved valuable during the pandemic. It runs parallel with the in-person version of the course with asynchronous lessons, but the same schedule for assignment completions and assessments. This model works well to reach students in remote locations.
- d. Craig Nichol (UBC-O): An electronic report was submitted and is posted on the shared drive. Among the highlights and initiatives:
- i. The Department of Earth, Environmental, and Geographic Sciences (EEGS) consists of 18 faculty and 4.8 support staff. All course work in 2020/2021 was delivered remotely using Canvas learning management system. All summer courses will be online. The university is planning to return to in-person teaching in September 2021. The department expects to offer a blend of fully online courses and courses with some in-person instruction.
 - ii. EEGS normally offers two field schools (Field Techniques and Geological Field Mapping) but both were cancelled due to COVID. Several students joined virtual field schools offered by Western University and University of Toronto in May/June 2021. EEGS is considering offering Field Techniques during the regular term (2021-22). We are participating in national discussions regarding virtual field schools.
 - iii. EEGS has begun a major review of undergraduate curriculum.
 - iv. EEGS has four \$10,000/yr undergraduate scholarships funded from a donation by Dr. Charles Fipke that was matched by the UBC Blue and Gold fundraising campaign. Transferring students are eligible for scholarships.
 - v. EEGS has launched a Career and Personal Development program of non-credit courses including a free webinar series on technical communication.
 - vi. A micro-credential in technical communication began 2021. The credential was funded by BC Ministry of Advanced Education and Skills Training. Work is under way on other non-credit micro-credentials.
 - vii. A new Bachelor of Sustainability degree program proposal has been submitted to the BC MAEST.
 - viii. The EEGS cartography room was converted into a 24-seat computer lab to support the GIS Minor.
 - ix. EEGS 100 level courses are switching to open source textbooks and lab manuals.
 - x. EEGS Admission requirements have been simplified to enhance articulation

- e. Paul Kingsbury (SFU): An electronic report was submitted and is posted on the shared drive. Among the highlights and initiatives:
- i. The School of Environmental Science (SES) is now accredited by the College of Applied Biology.
 - ii. SES is planning their program to offer a default, general program with opt-in concentrations and honours programs.
 - iii. An SES new professor, Dr. Brendan Murphy, will teach a new course: Special Topics in Watershed Ecology and SES will offer a new course: Special Temporary Topics in Environmental Data Analysis.
 - iv. In the Department of Geography, a new professor, Dr. Jesse Hahm, will teach two new courses: The Water Planet and Ecohydrology. Geography will introduce a new course: Climate Crisis: Understanding a World on Fire (taught by Dr. Geoff Mann). Geography has also launched its Minor in GIS and is finalizing a Minor in Climate Change and Society.
 - v. In Spring, 2020, the School of Resource and Environmental Management (REM) launched its Major Planning Stream, which focuses on fisheries management, food and agriculture, sustainable planning and governance, forest management, amongst other environmental themes. REM is revising its Sustainable Development Certificate and Minor and introduced 3 new courses: Planning for Sustainable Food Systems, Indigenous Peoples and Resource Management, and Wildlife Conservation.
 - vi. SES has a new block transfer agreement with Native Education College. Graduates of the ILS Certificate will receive 30 transfer credits upon admission.
- f. Matt Dodd (RRU): Matt reported on a collaborative project to offer first and second year post-secondary courses in the West Shore area of Victoria. The partners are RRU, UVic, and Camosun College. RRU has been delivering online courses for many years and was therefore well-positioned to respond to the COVID-19 pandemic. Enrollment in the various RRU environmental programs remains strong.
- g. Stefania Pizzirani (UFV): An electronic report was submitted and is posted on the shared drive. Among the highlights and initiatives:
- i. UFV implemented a Bachelor of Environmental Studies (BES) and a Bachelor of Environmental Studies-Natural Sciences (BES-NS) in 2019/2020. The BES has 39 students and the BES-NS has 10 students. Revisions are in progress: more agriculture, data visualization (statistics), architecture, global development, graphic design, business, a professional competency form and a directed studies course option. A new ENV course: Sustainable Fashion is being team taught by a communications expert to highlight the challenges and opportunities in fashion advertising, messaging, psychology, etc. A new GEOG course: Sustainable Transportation is being offered. The 400 Environmental Seminar course alternates instructors and topics such as the psychology of climate change with future topics on graphic design and climate change, and portrayal of environmental issues in the performance arts.

- h. Andrea Erwin (CNC): An electronic report was submitted and is posted on the shared drive. Among the highlights and initiatives:
- i. The College of New Caledonia (CNC) Natural Resources and Forest Technology (NRFT) program is offered at the Prince George campus. It is a two-year technology diploma program, nationally accredited as a forest resource technology program recognized by the Association of BC Forest Professionals and the College of Applied Biology. CNC has been developing research initiatives through the CNC Research Forest Society which is connected to the NRFT program and provides opportunities to expose stakeholders to applied research projects and employment opportunities.
 - ii. NRFT is built on a core of forest-based courses with a focus on harvesting/engineering, forest measurements, forest protection, silviculture, and GIS. The program is intended to provide graduates with the skills required for work in various forest-land-based natural resources sectors primarily for the forest sector but with potential to support natural resource aspects of oil and gas exploration and mine exploration/development/operations.
 - iii. Student employment is excellent with virtually 100% placement in natural resources and mostly forest sector jobs. Currently, there are more jobs than graduates.
 - iv. Effects of COVID-19. Because NRFT is primarily delivered in an in-person cohort format, five days/week with extensive field labs requiring mandatory participation and travel. In response to COVID-19, all lectures went online and we continued to offer in person field labs, with appropriate protocols. Lectures were recorded. Most lectures were delivered live (synchronous) but were sometimes prerecorded and uploaded to Moodle. Student feedback was mixed. Many enjoyed asynchronous lectures. Capacity is 22 students for lectures and labs, but to reduce contact risk, the cohort was halved into two lab sections. Students were required to sanitize and wear masks during transport on the bus. This substantially increased costs and workload for instructors and the lab technician. Because we have workload assigned to conduct applied research, we were able to put research on pause to allow time for the increased workload of running two lab sections. For fall 2021, NRFT plans to return to in-person lectures and single lab sections.
- i. Andrew Egan (Langara College): An electronic report was submitted and is posted on the shared drive. Among the highlights and initiatives:
- i. Langara College's Environmental Studies program is housed within the Interdisciplinary Studies Department within the Humanities Division. Created in 1992, the program offers four credentials, Associate of Arts degree, Associate of Science degree, Diploma in Arts and Science, and a Citation. Courses are often co-taught by instructors from different departments (e.g. Geography and Geology, Chemistry, and Biology) or professionals from outside the College's full-time faculty. Students enrolled in the program often transfer into the research-intensive universities; however, as of late, a significant number are transferring to BCIT.
 - ii. There have been a few staffing changes including the retirement of the distinguished Frank Williams.
 - iii. There continues to be involvement with CityStudio.

- iv. The 2020/21 academic year was unlike any other: Langara College offered predominantly online courses. Domestic student enrolment at Langara increased due to the pandemic; however, restrictions on international travel led to a reduction in the college's international enrolment. International students were able to enroll while residing in their home thus reducing the effect on enrollment. Overall the ENVS program pivoted toward the "online" model well and delivered a full range of courses in the 2020/21 academic year. Lectures were prerecorded and offered in an asynchronous format, with a "skosh" of synchronous course material (exams, assignments, fieldwork).
- v. The ENVS program is currently undergoing the provincially mandated program review.
- vi. The ENVS program mitigated the impact of the COVID-19 pandemic in the following ways:
 - 1. ENVS 1105 online "Zoom" lectures and seminars were online, local seminars were mixed with many internationally hosted seminars at institutions such as King's College, London, Oxford, UBC, SFU, Dalhousie, MIT, etc.
 - 2. ENVS 2100 students worked in groups online, creating digital projects and meeting at CityStudio's virtual Hubbub.
 - 3. ENVS 2100's "Community Kelp" project won First Prize
 - 4. ENVS 2410, a newly adopted online textbook aided students with the delivery of course objectives and learning outcomes, and all classes were held online.
 - 5. ENVS 2470 Instructors shifted from the traditional field school in Pacific Rim National Park Reserve and began a monitoring program in East Vancouver's Still Creek watershed. The Still Creek Environmental Monitoring Program (SCMP) received support from the City of Vancouver, and some local NGO and private companies. Students collected weekly water quality and discharge measurements, benthic invertebrates and fish samples, and evaluated local land-use using GIS. Working in small groups, following the safety protocols and SOPs, in a local urban environment led to the successful offering of this course in a time of uncertainty and the cancellation of many other experiential learning-based courses. SCMP will continue throughout 2021 creating a strong baseline dataset for future uses.
- j. Barb Ramovs (Okanagan College, Penticton): An electronic report was submitted and is posted on the shared drive. Among the highlights and initiatives:
 - i. In 2021-22 enrollment declined in Geography, Earth and Environmental Science (GEOG/EESC) courses. Many students taking 100-level courses are completing a general Associate of Arts or Associate of Science program.
 - ii. The ES Diploma has a 2nd year retention rate of ~80%. Enrollment and retention rates reflect students enrolled in the program. It is possible to graduate out of the program without officially enrolling in the program. We are working with the Registrar's office to better identify all students in our programs.

- iii. Four courses were cancelled for the 2020-21 year due to low enrollment or faculty leave. Three new courses were added. Efforts continue to revise the block transfer agreement with UNBC.
 - iv. Approximately 30% of sections in 2021/22 will be online to accommodate out-of-region students and specific faculty health/family circumstances.
 - v. GEOG-EESC faculty members (Welch, Day, Redding) were active contributors to the BC Campus Open Geography Lab Manual. Many of these labs were used in GEOG 111 and 121.
 - vi. Textbook selection is instructor dependent. Roughly 60% of sections used open-access textbooks.
- k. Robert M. Macrae (Selkirk College)
- i. Rob shared a Powerpoint presentation using images submitted by students from an outdoor final examination. The exam was delivered as an orienteering course. Rob demonstrated his newly acquired skill of adding a music track to a Powerpoint presentation as an example of how we've adapted to instruction during a pandemic.
- l. Cheryl Schreader (CapU): An electronic report was submitted and is posted on the shared drive. Among the highlights and initiatives:
- i. Cheryl Schreader represented the Geography and Biology departments' environmental courses. Enrollments have been very good, often full.
 - ii. CapU has a number of environmental credentials in development: a BSc General with majors in Life Science and Clean Technology, and a Bachelor of Environment and Society.
 - iii. CapU has Indigenization Initiatives. The Capilano Centre for Teaching Excellence (CTE) Learning Symposium in May 2021 is focused on Land and Decolonized Place-Based Learning. An Indigenous Education Steering Committee has been created within the Office of Indigenous Education & Affairs.
 - iv. CapU has Outreach and Campus Initiatives. GEOG316: Climate Change class participated in a CityStudio project with the City of North Vancouver. Students reviewed action areas of the City's new Environment Strategy and Electric Vehicle plan, then undertook research and developed recommendations on how to address health, equity, and effects when pursuing these actions.
 - v. Chris Gratham and Cheryl Schreader are faculty members who received a Creative Activity, Research and Scholarship (CARS) Unified #3 Grant for a project: A Study of Environmental Factors Affecting the Transmission of COVID-19 Virus. They've hired a student to work on this project over the summer.
 - vi. Cheryl Schreader is the lead for a second (CARS) Unified #3 Grant for a project: Teaching and Learning in the time of COVID-19: Exploring the challenges and opportunities for problem-based education in K-16. Two students are working on this project over the summer.

- vii. Geography and Biology faculty are members of a committee organizing a UN Sustainable Development Goal Launch event this fall.
 - viii. CapU is a university partner in the Howe Sound Biosphere Region Initiative. Several FAS faculty are working on various initiatives related to this partnership.
 - ix. Geography and biology faculty are organizing a Biosphere Symposium next fall through the Canadian College and University Environmental Network (CCUEN).
- m. David Dick (College of the Rockies, CotR): An electronic report was submitted and is posted on the shared drive. Among the highlights and initiatives:
- i. Paul Vogt and Paul Tiege started at the College in the positions of President & CEO and Manager of Applied Research and Innovation. Deborah Carty was appointed to the position of Vice President, External
 - ii. The College has partnerships with the East Kootenay Conservation Program, Mainstreams and Columbia Outdoors School. CotR is a member of the Association for the Advancement of Sustainability in Higher Education (AASHE).
 - iii. In addition to the installation of more solar panels on more buildings, two new projects were completed this year. An electric vehicle charging station was installed, and with \$30,000 from Columbia Basin Trust, we were able to purchase a large composter with the intent of composting food waste generated on campus.
 - iv. New residences were completed this year that will house 100 students. The new student housing meets Step 5 of the BC Energy Step Code requirements, representing “net-zero energy ready”.
 - v. College of the Rockies has three environmental programs: (1) Bachelor of Business Administration Degree – Sustainable Business Practices; (2) Environmental Studies Certificate; (3) Associate of Science Degree – Environmental Sciences
 - vi. The Associate of Science Degree was modified and was first offered in its new form in September, 2020. The program uses an interdisciplinary approach to build a strong foundation in the physical, chemical, and biological sciences. It was designed for students to obtain 60 credits (two years, 900 hours of lectures and 540–630 hours of labs) and then transfer to either Simon Fraser University, University of Northern British Columbia, or University of Lethbridge to complete a Bachelor of Science in Environmental Science.
 - vii. Five new courses are a part of this program. Introduction to Environmental Science, Introduction to GIS, Meteorology, Climate, and Hydrology, Quantitative Geography and Introduction to Chemical Analysis. Field trips and guest lecturers are important components of these courses.
 - viii. Course Delivery in 2020-2021 in response to the pandemic: Math and science courses were offered in an alternate format, except for some online math courses. Alternate format science courses include synchronous and asynchronous online lectures and in-person labs. In-person labs have been safely offered in small sections of nine students who are physically distanced, wear PPE, and follow campus exposure control guidelines. Comments from students indicated that they appreciated the in-person lab experience. Some courses also had in-person final exams.

- n. Derek Turner (Douglas College Environmental Science): An electronic report was submitted and is posted on the shared drive. Among the highlights and initiatives:
- i. Douglas offers an Associate Degree in Environmental Science, a University Transfer (UT) program that leads to BSc degrees in Environmental Science. We are interested in further course and program-level transfer opportunities for our students. Further information on this credential program is available on the Douglas College website.
 - ii. Credential Program (Continuing Education): Practical Energy and Advanced Knowledge–Buildings Certificate Program (PEAK-Buildings) trains building-sector workers in building science, energy efficiency, and environmental sustainability.
 - iii. Courses are being aligned with BC Housing’s Continuing Professional Development program for builders, contractors, and developers. For more information contact program coordinator Steven Bishop bishops@douglascollege.ca or Brian Chapell, Dean of Science & Technology at chapellb@douglascollege.ca .
 - iv. The Institute of Urban Ecology continues to deliver environmental workshops to local youth in Vancouver area schools. The UNIBUG program engages community volunteers to monitor, and enhance habitat for beneficial insects in home and community gardens. For further information contact Rob McGregor mgregorr@douglascollege.ca
 - v. As a result of COVID-19, all labs were moved to an online format for the 2020-2021 year. The content of these labs was not substantially changed, but was altered in some cases to reflect the online environment. We plan to return to in-person lab instruction this coming academic year. Only minor curriculum changes are likely compared to pre-pandemic courses during this transition.
- o. Eric Anderson (BCIT Ecological Restoration (ER) program): An electronic report was submitted and is posted on the shared drive. Among the highlights and initiatives:
- i. The ER program is a year 3 - 4 BSc completion (students can enter with a diploma or ≥60 suitable credits). The program was initiated in 2010, and enrolls ~26 students per cohort. The ER program has articulation agreements with diploma programs at BCIT, Selkirk College, Lakeland College and is seeking further articulation agreements with certificate, diploma or associate degree (AD) programs.
 - ii. BCIT Fish, Wildlife & Recreation Diploma + ER BSc received RPBio accreditation in 2019. The ER BSc program received Certified Ecological Restoration Practitioner (SER) accreditation in 2020.
 - iii. The program completed its first program review in 2019. Key outcomes were additions to faculty, curriculum upgrades, Indigenous and GIS curriculum initiatives. Key ongoing challenges include limited faculty (faculty are shared between ER BSc and MSc programs), and issues associated with being a year 3-4 program (e.g., designing curriculum compatible with different diploma programs that feed into the ER program and attracting suitable students).
 - iv. Response to COVID-19. During the summer of 2020, safety plans and risk assessments for in-person programming were developed. BCIT approved blended delivery for 2020-2021. For the Fall 2020/Winter 2021 semesters, most programming was online, although in-person field labs were offered. The latter relied on: training

- (pandemic exposure course), planning (COVID-19 safety guidelines integrated into existing safety plans), safety practices (screening, distancing, masking, sanitation, managing exposure to public, recommended best practices for carpooling, retrofitting school vans), compliance (regular spot checks by BCIT Occupational Health and Safety personnel).
- v. During the Summer 2021, BCIT is proposing a phased return to in-person, on-campus instruction if conditions prevent full return (per provincial health order).
- p. Geraldine Jordan (TWU): An electronic report was submitted and is posted on the shared drive. Among the highlights and initiatives:
- i. Last year, the administration undertook an Internal Prioritization Process (IPP) or “university-wide assessment of cost-efficiencies.” The Task Force has only evaluated the academic programs to date. It submitted recommendations to the University regarding what academic programs to keep and strengthen and which to sunset. Happily, the Geography and Environment Program (GENV) is being recommended to be kept.
 - ii. Dr. Paul Brown retires at the end of this year.
 - iii. Prof. Karen Steensma is going on sabbatical next year. Dr. David Clement will be stepping back into the co-chair role with Dr. Maxwell Ofosuhene until she returns.
 - iv. The enrollment trend in our key introductory courses is a gradual decline in student enrollment. Some of this decline may be attributed to the implementation of new TWU core course requirements. For example, the new core no longer requires students to take a non-lab science course (e.g., GENV131). Some of the decline in 2019-2020 is due to the cancelling of GENV 121 summer courses due to the COVID-19 pandemic.
 - v. In response to COVID-19, TWU moved its learning to an online format. The biggest challenge has been getting students to engage with hands-on material under COVID-19 protocols. There was also a general challenge in the workload required of faculty and staff in order to pivot and improve course delivery.
 - vi. Lab science courses proceeded with expectations regarding students’ responsibility for access to certain tools (e.g., phone with GPS app), so students could continue field-based work remotely.
 - vii. The GIS lab became a virtual lab with ArcGIS Pro licenses distributed to students with permission from ESRI and the ArcGIS online platform. Students also had limited access to the physical GIS lab, with strict COVID-19 protocols.
 - viii. At the Western Division of the Canadian Association of Geographers (virtual) meeting in March 2021: a GENV student presented a GIS research poster.
 - ix. GENV Lab TA, Natalie Cook, presented a research paper based on co-authored work with Dr. Clements and others.
 - x. Dr. Geraldine Jordan presented a paper on Physical Geography 12 in the BC Curriculum.

- x. Dr. Clements is the primary researcher on the Burnaby Climate Change Project. Dr. Clements' research group published the final report in June 2020 on a study of tree health in Burnaby's Central Park funded by the City of Burnaby.
- xii. Research assistants, Vanessa Jones, Virginia Oeggerli and Natalie Cook, supervised by GENV faculty David Clements and Geraldine Jordan are currently working on an extension of the contract, looking at climate change impacts on invasive plants and their management.
- xiii. A Master's student and five undergraduate students supervised by David Clements are investigating light relations, dispersal and management of invasive knotweed. The knotweed team is part of a larger group working under a SSHRC knowledge mobilization grant lead by Art and Design Faculty,
- xiv. Joshua Hale is to investigate how to communicate knotweed research results to stakeholders and the public.
- xv. A Master's student and an undergraduate student supervised by David Clements and Jennifer Williams (UBC) are conducting a two year project to model the risk of potential new invasive plants in Metro Vancouver due to climate change, funded by Metro Vancouver and an NSERC Alliance Grant.
- xvi. Dr. Tracy Stobbe is completing a journal article on farmers' markets.
- xvii. Dr. Geraldine Jordan published a paper regarding elimination communication ("diaper-free") as an approach to infant care giving, in the journal of *Medical Hypotheses*.
- xviii. Ecosystems Study Area: The provision of \$60,000 each year over the next 3 years has been made available from student recreational fees to upgrade our Ecosystem Study Area trail system. This summer, 1-2 research students will work on campus in the Ecosystem Study Area.
- xix. Blaauw Eco Forest and Wetlands Research projects: The TWU Blaauw Eco Forest, formerly 35 acres, was extended by the addition of 5 acres of a former gravel pit. Research students and classes are involved in restoring the pit area as well as studying the wetland. This research funded by the Blaauw family will be augmented by funding from the Derby Reach Brae Island Parks Association as undergraduate research student Natalie Ross compares the ecological status of the Langley Bog and the Guirrhoorn Bog, supervised by David Clements and David Jordan.
- xx. Crow's Nest Ecological Research Area studies on Salt Spring Island: Three undergraduate research students are stationed on Salt Spring Island during the early summer of 2021 to continue long-term ecological projects conducted on the TWU Crow's Nest Ecological Research Area. A 10-year project on invasive grasses and deer browsing was presented at the 2020 Weed Science Society of America annual meeting by David Clements and is being currently written-up for publication.
- xxi. The Salt Spring Island travel study (marine ecology and plant ecology courses) has been planned and launched with 18 students enrolled. The group departed April 30, under strict COVID-19 protocols, and will return on May 28.

- xxii. Outdoor Schools: The Langley School District requested permission for their Outdoor School to hold classes on our campus beginning in January 2021. A contract was negotiated to permit up to 60 K-5 students plus teachers to be in the Ecosystem Study Area for 2-3 days each week through June.
 - xxiii. A new certificate in Outdoor/Environmental Education is being explored with the TWU School of Education. At least two TWU students, one in Education and one in GENV, have been able to interact with the Outdoor School elementary students and gain advice from mentor teachers this semester.
- q. Ken Shaw (Coast Mountain College, CMTN): An electronic report was submitted and is posted on the shared drive. Among the highlights and initiatives:
- i. Pandemic Adaptations – everything went online via distributed learning for the fall and winter terms. Some applied courses in the 2020 fall term were rescheduled for the 2021 spring term and winter term field work was delayed until April. The regular 15 week term was reduced to 13 weeks, and the program was moved to full in-person field work starting early April to conclude in late June. With a smaller group of students and a rigorous safety plan, everything has been going well.
 - ii. A program review is currently underway with Robert M. Macrae from Selkirk College and Phil Burton of UNBC as part of the external review panel.
 - iii. The program received a \$250,000 grant just before the COVID-19 pandemic to purchase a second boat and equipment to support experiential field activities although the expenditures went on hold for the past year, but have restarted.
 - iv. International enrolment has been strong. Thanks to changes in the residency requirement for student visas, most students started online last fall and winter and have travelling to Canada as they obtained their visa and travel permission.
 - v. The majority of international students take the Post Degree version of ACE (1 year of study) rather than the two year diploma version. Many then switch to the Environmental Geoscience certificate for their 2nd year of studies and due to the overlap of courses between the two programs they have advanced credit for the certificate. This significantly reduces the number of courses and cost to complete two years of study in Canada.
 - vi. The ACE program's major partnerships are with DFO and the Port of Prince Rupert on the Aquatic Invasive Species monitoring program. Green crab trapping, a plate watch for invasive tunicates, and plankton and larval sampling form the major part of this program. Students receive experience in the deployment, sampling, and assessment process and the program receives much needed funding to support the operation of a small boat on loan from DFO.

- r. Mike McPhee (Douglas Associate of Arts Degree in Environmental Studies): An electronic report was submitted and is posted on the shared drive. Among the highlights and initiatives:
- i. The interdisciplinary Environmental Studies Program at Douglas College is a 60 credit, Associate of Arts Degree program. Seventy-six students were enrolled in the program in the winter 2021 semester. The program has good enrollment. Students complete required courses and electives that are open enrolment university transfer courses. All courses have been articulated. Students graduating with this Associate of Arts Degree transfer to universities, the majority transferring to SFU, often into the Geography – Environmental Specialty stream or Bachelor of Environment. However, more students are looking for other transfer options, particularly programs designed around environmental studies, environmental planning and environmental design. Douglas is currently examining opportunities for graduates to transfer into the new Bachelor of Environmental Studies program at University of the Fraser Valley.
 - ii. An interdisciplinary Environmental Studies Committee of faculty submit advice on the structure of the Associate of Arts Environmental Studies program. Dr. Marni Westerman (Sociology Department) coordinates all the Associate of Arts Degree Specialty Programs.
 - iii. The program is currently undergoing a review led by Dr. Marni Westerman. The review is expected to be completed by August 2021.
 - iv. The Iceland Field School (summer 2019) led by Mike McPhee, Kathy Runnalls and Susan Smythe ran a successful Iceland Field School in May and June 2019. The field school involved three courses. Most days were spent doing field work related to earth sciences, and the culture and sustainability of Iceland. We partnered with GeoCamp Iceland. Further field schools have been postponed due to COVID-19.
 - v. Urban Challenges Forum is a popular, faculty-led series of presentations sponsored by Douglas College, SFU Urban Studies and the City of New Westminister. These sessions are open to the public. Topics have dealt with environmental and sustainability issues such as climate change, public transportation and local food.
 - vi. The Climate Emergency Action Committee was established by the Douglas College Faculty Association to engage the College community regarding the climate emergency through awareness, education and policy change. The Committee includes representation from faculty, staff and students. The Committee sponsored a talk by Seth Klein and more events are planned for fall and next year.
 - vii. Faculty are working on a proposal for a certificate in Environmental Sustainable Leadership certificate. This would be a micro-credential and would utilize existing courses and facilities. To be awarded, students will be required to complete designated courses and a combination of projects, service work or employment in the environment field.
 - viii. The College has established a Sustainability Committee. A new building is being planned across the street from the existing New Westminister campus with the objective of being a "green" building.

- s. Stefanie Zaklan Duff (VIU) reported on the environmental programs offered at Vancouver Island University (VIU) using a Powerpoint presentation. The presentation was submitted as a pdf file and is posted on the shared drive. Among the highlights and initiatives:
- i. VIU offers a range of Organismal Sciences: Forestry Diploma (2 years), Resource Management Officer Training Diploma (2 years), Bachelors of Applied Sciences in Biology (BSc) with majors and minors, Fisheries and Aquaculture Diploma (2 years and an 8 month post-degree), a minor in Aquaculture in the BSc program. The BSc in Fisheries and Aquaculture is no longer offered. The Fisheries and Aquaculture Diploma includes 5 lecture/lab courses/semester, 5 semesters of practicum involving 6 days per semester during 4 semesters plus one summer practicum, off-campus work experience, a skills course once a week with a faculty member of a student's choosing for stream walks to study salmonids, fish health, micro-algae, invertebrates, aquaponics, sturgeon, trout, tilapia, etc.
 - ii. VIU has hired some new faculty, new administration, but reduced the number of technicians.
 - iii. VIU is ensuring it meets current animal care standards.
 - iv. The Deep Bay research facility is seeking a Research Chair in oyster genetics to breed varieties able to withstand the effects of climate change.
 - v. VIU may reduce the number of instructional hours of its programs and reconsider how it calculates course credits.
 - vi. The big news is the Centre for Shellfish (CSR)/Fish Health Research has opened and is looking for projects.
 - vii. VIU soldiers on with its sturgeon research in its sturgeon building.
 - viii. Stefanie recommended the following books:
 1. Dieter Helm. *Natural Capital: Valuing the Planet*.
 2. George Monbiot. *Feral: Rewilding the land, the sea and human life*.
 3. Robin Wall Kimmerer. *Braiding Sweetgrass*.
- t. Tara Ivanochko (Department of Earth Ocean and Atmospheric Science (EOAS) UBC-V): An electronic report was submitted and is posted on the shared drive. Among the highlights and initiatives:
- i. Most UBC undergraduate instruction moved online in response to COVID-9, including environmental sciences. University-wide online teaching guidelines were developed that highlighted the need for students to progress, synchronous instruction (regardless of time zone), limited high-stakes exams, and wellbeing (awareness of zoom burnout for both students and instructors).
 - ii. All EOAS field courses were run in highly modified formats.
 - iii. The newly renovated UBC-Teck Geological Field Station will be officially opened in late summer or early fall.

- iv. 400 level environmental science community projects were conducted remotely. Thirty-eight 38 students were engaged in 11 projects with 11 community partners:
 - 1. Determining viable small-scale renewable technologies for the Spruce Harbour Marina clubhouse in False Creek, Vancouver.
 - 2. Creating a Natural Asset and Ecosystem Services Management Framework that Centres Climate and Social Justice for the City of Vancouver.
 - 3. Developing a Biodiversity and Climate Change Based Educational Plan for use in the Riley Park Community Spring Break Program to Instill long lasting Ecological Literacy.
 - 4. Mapping climate mitigation, adaptation, and justice initiatives and climate policy in MetroVancouver.
 - 5. Mapping the distribution of endangered mosses in BC to inform sampling and assess regional effects of climate change.
 - 6. Electrifying Change: An Analysis of Electric Vehicle Charging of Multi-Residential Units in Vancouver.
 - 7. Assessing Avian Biodiversity in the City of Surrey.
 - 8. Holistic Sustainability Indicators for Small Scale Agricultural Practices.
 - 9. Reed Canary Grass in Stanley Park: Mapping and Mitigating the Spread of the Invasive Plant.
 - 10. Assessment of Factors Contributing to Poor Chum Salmon Returns in Spanish Bank Creek.
 - 11. Analysis of the Progress of Ecological Restoration Efforts in Pacific Spirit Regional Park
- v. Project reports are publicly available on cIRcle, the UBC repository for academic work:
- vi. Anticipating a decrease in student enrolment, UBC Science increased its acceptance rate in 20210/21. Rather than seeing a large attrition, EOAS retained a larger number of students and is now faced with increasing the intakes and quotas for a number of programs, including environmental science (we took 5 more students last year and will have to take an additional ~5 more this year). This will affect some of upper level courses.
- vii. There are two large curriculum initiatives currently ongoing in EOAS:
- viii. Quantitative Earth Science Transformation (QUEST): Evaluation and consolidation of quantitative courses targeting geophysics and physical oceanography.
- ix. Open Source Computing for Earth Science Education (OCES): embedding and scaffolding use of Jupyter Notebooks throughout our specializations.

- x. Environmental Science degree requirements were changed to incorporate Data Science (DSCI100) into first year. This was done by moving one “Communications” requirement to second year and expanding the choice of quantitative courses in second year.
- xi. Tara discussed UBC's Climate Emergency Declaration. The report is available online: <https://climateemergency.ubc.ca/>
- u. Tom Pypker (TRU): An electronic report was submitted and is posted on the shared drive. Among the highlights and initiatives:
 - v. There is a range of undergraduate environmental programs or courses offered at TRU by various departments, including Biology, Chemistry and Natural Resource Sciences in the Faculty of Science, as well as in Economics, Geography & Environmental Studies, and Tourism. This report covers the Department of Natural Resource Sciences and the interdepartmental Master of Science in Environmental Science.
 - w. The Bachelor of Natural Resource Science (BNRS) can be taken with co-op and honours options. Graduates meet the educational requirements to become a Registered Professional Forester (RPF), Natural Resource Professional, a Registered Professional Biologist, and a Professional Agrologist.
 - x. The department offers a two-year forestry transfer program and is an active participant in the Masters of Science in Environmental Sciences program.
 - y. The department is very active in research, with faculty holding NSERC and other peer-reviewed grants, supervising graduate students at TRU and other universities and publishing peer-reviewed journal articles. We have a strong commitment to undergraduate student research, supervising student research projects and hiring many students during the year to work as research assistants on various projects.
 - z. Total enrolment in BNRS courses has been strong over the past few years. The number of students applying to the program as of 1 May 2021 was 94 (17 higher than last year at this time). The maximum intake of 1st year students for the program is 60. We continue to accept students until the end of August. This year we will graduate 44 students , up 25 from last year, and more 12 more than our program profile of 32.

6. Discussion on professional accreditation (information sharing)

Shona Lawson, the registrar from the College of Applied Biology presented a short talk on recent legislative changes and the requirement to be accredited by a regulated governing body to earn the right to practice in the environmental field. Please see the shared document 17-Apr-20 Environmental Accreditation-orgs.doc

Craig Nichol, who has been tracking developments on this topic, shared comments.

7. Discussion of environmental field schools

Please see the shared document 28-Feb-20 Enviro Field School concept.doc on environmental field schools. David Zandvliet of SFU has experience in this area and shared comments. Among David's comments was the importance of building community partnerships when establishing field school programs.

8. Discussion of GIS

9. Unfortunately, there was little time to discuss GIS. Katie Burles reported from College of the Rockies. She will be teaching GIS courses in the CotR Associate of Science Degree – Environmental Sciences previously discussed. Robert Macrae suggested she visit Selkirk College to tour the GIS facilities and to consider positioning the Associate of Science Degree – Environmental Sciences so graduates can articulate into Selkirk's Advanced Diploma in GIS and BGIS programs.
10. **BCCAT Report:** Anna Tikina presented a short report from BCCAT regarding BCCAT's current initiatives and the status of articulation across the province.
11. **Other** (new business)
 - a. It was briefly mentioned that the BC Ministry of Advanced Education and Skills Training has initiated a program quality assurance initiative. A handbook describing the process is available online and as discussed in these minutes, some programs are currently or planning to undertake quality assurance review. As a part of these reviews, external panelists (auditors) are required. It may be worth suggesting external panelists from the BC EAC.
12. **Adjournment:** The meeting adjourned at noon.