COLLEGE MATTERS

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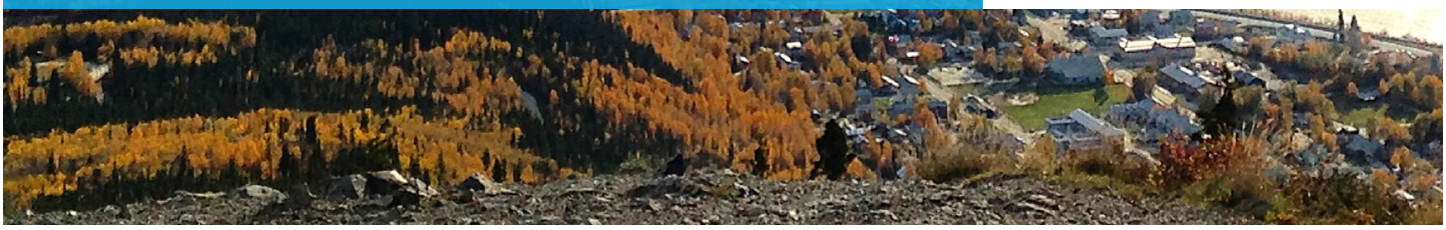
COLLEGE OF
APPLIED BIOLOGY
Professional Accountability



2019 UBCM TRADESHOW & CONVENTION

During the week of September 23, 2019, the College was one of many delegates at the Vancouver Convention Centre for the Union of BC Municipalities (UBCM) annual convention. The College had a booth at the trade show where fellow delegates and other participants could meet with senior staff and the President to learn more about the College. In the photo above, Christine Houghton, Chief Executive Officer, and Derek Marcoux, RPBio, Registrar, were in attendance during the trade show and met with several delegates during the two-day event.

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The College of Applied Biology is the regulator of applied biology professionals in British Columbia. Established by government legislation in 2003, the College protects the public interest by ensuring that applied biology professionals – Registered Professional Biologists (RPBios), Registered Biology Technologists (RBTechs) and Applied Biology Technicians (ABTs) – meet rigorous standards of professional and ethical competency.

OUR VISION

The College is a leading voice to promote and uphold scientific principles and methods in applied biology, and the principles of stewardship. We provide assurance to the public of professionalism in the practice of applied biology by our members.

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COLUMNS

ANNOUNCEMENTS

FEATURE ARTICLES

BEST PRACTICES

MEMBERSHIP

***Disclaimer: the opinions expressed in *College Matters* do not necessarily represent those of the College, its Council, or other members.**

More of Presidential Ponderings

By Brian Clark, RPBio, President

Tell the Truth (tell me who has been fooling you……)

HERE WE ARE, several weeks after a federal election where six different parties ran on platforms meant to serve the public interest. We are left with no single party representing the majority of Canadians and journalists warn us daily that our Dominion is at risk of breaking into separate states based on a diversity of ethnic, geographical, economic and environmental interests. Lay that over our provincial diversity of interests (and another minority government) and then please tell me – what is the public interest we as applied biology professionals serve?

And, should we care?

Someone once said that wisdom comes with overlooking some things, so maybe we don't even try to figure out what the public interest is, let's just keep it simple and serve it.

The first principle of our Code of Ethics is pretty clear – "Provide objective, science-based, unfettered, forthright and intellectually-honest opinion, advice and reports in applied biology." That's simple enough – tell the truth, based on science-based knowledge in your area(s) of competence. Right or wrong is a judgement based on our own interests, it's not truth.

> "Whatever the public interest is, it is best served by science-based, honest and unbiased advice to inform decision making. We need to do our due diligence to ensure that advice is clear and clean."

That's not to say we don't have any further responsibility in serving the public. Consideration of our Principles of Stewardship assists in the protection of the public interest. The fourth Principle of Stewardship says "Alternative management strategies are weighed over a range of spatial and temporal scales by considering reasonably foreseeable outcomes, consequences, combined incremental effects of environmental change or disturbance, and risks and uncertainties." Our advice can be expanded beyond the original question. Indeed, it is our responsibility to provide alternative options, again, based on objective, science-based knowledge. The decision to accept that alternative is up to the public, whether an individual, industry, government or special interest group.

Applied biology professionals have a critical role in the future of the province. The big decisions in resource management will be made by others, based on their or the public's interest, at that time, in that town, for that issue. Our role is to provide the unbiased science – the truth – to ensure those decisions are wise ones.

Whether an individual is pro-pipeline or against all fossil fuels, whether a developer is protecting species at risk or paving paradise, whether government legislation favours short-term solutions or long-term sustainability, whether or not your paycheck depends on it – it doesn't matter what the interest is – just tell the truth.

I look forward to any comments or challenges you may have on this topic.

"The Only Thing Constant is Change"

By Christine Houghton, Chief Executive Officer

SO SAID THE Greek philosopher Heraclitus over 2500 years ago. The past two years have demonstrated the truth of statement – and the next few years will continue to uphold that philosophy.

Since the Professional Reliance Review was announced in the October of 2017 (just two short years ago) the College has spent considerable time and effort engaging with government and other regulatory partners in the development of policy that has led to the legislation (the *Professional Governance Act*), and is now moving forward with the regulations that will implement that *Act*. We have also invested in connecting with College registrants particularly focusing on better defining Scope of Practice for applied biology professionals.

Now the changes really start to happen.

This fall saw the first significant shift with a new merit-based nominations and election regime (***https://www.cab-bc.org/2020-elections-nominations-process***). This new process – brought into force in May of this year through the Professional Governance General Regulation – is intended to ensure that verifiable merit is applied to candidates who have been put forward to stand for election to Council. This is the first step in a transition that will see a changes to the size and composition to Council as well as new three (3) year term limits.

As well there will be important changes to the five (5) statutory committees identified in the *Act*. Those committees (Credentials, Audit & Practice Review, Investigations, Discipline and Nominations) will continue to be appointed by Council and operate under Council approved policies and procedures, but they will not have any Councillors as members. These committees – with Council oversight – are the core of the College's mandate to protect the public interest.

There are changes coming for College registrants as well:

• Amendments are required to the Code of Ethics to align them more directly to the principles contained in the *Professional Governance Act*

• Declarations of competency and conflict of interest will become mandatory – what that actually looks like is yet to be determined

• Requirements regarding standards of ethical conduct and competence set in bylaws – much is already contained in the Code of Ethics but specific bylaws will be developed for some areas to ensure clarity for registrants, employers and the public at large

• Mandatory duty to report – while the College has always had the obligation in The Code of Ethics for a member to "address poor conduct and/or practice of another member in order to protect the public interest", Section 58 of the *Professional Governance Act* is much more explicit in its requirement

And then there is Practice Rights – or Reserved Practice as it is identified in the *Act*. The work done over the past year with the Scope of Practice Task Force has brought a long way in further refining the scope of regulated practice for applied biology professionals (***https://www.cab-bc.org/sites/default/files/node_uploads/files/framework_sop_reviewed_sept_2019_formatted-web.pdf***). We are continuing to meet with regulatory associations, government officials and other partners to ensure that the public interest is truly protected by making sure that practitioners of applied biology are regulated professionals and are accountable as every member of the College is already.

To get there we have created new pathways for competent practitioners to become registered professionals through the work of the Credentials Task Force. The new streams for registration maintain the rigor the College has always applied to ensure competency while enhancing recognition of experience.

This is by no means an exhaustive listing of the changes that lay ahead for professional regulators and regulated professionals. The College will continue to work diligently to make sure that the profession of applied biology is recognized as an equal and important partner in resource management. The changes that lay ahead while somewhat daunting, also offer a huge opportunity for better protection of the public interest. As Heraclitus also said, "big results require big ambitions."

This is all very exciting but it is going to take time, energy and diligence if we are going to continue to carve a path forward for the profession not just here in BC – but across Canada. CM

Applications Already Trending Upward Ahead of Transition to New Credentialing Standards

By Derek Marcoux, RPBio, Registrar & Director of Compliance

THE CREDENTIALS TASK Force has completed their work reviewing the standards for entry as a Registered Professional Biologist (RPBio). At the September meeting, College Council approved four credentialing pathways to achieve registration as an RPBio. With the potential practice rights for applied biology professionals, it is anticipated there will be an increase in the number of applicants that have significant experience in applied biology applying for registration. Already, the College has observed a 50% increase in applications over the last several years; in 2019 it's been closer to a 60% increase.

These new credential pathways have been created to provide suitable options while still maintaining high rigour for entering into the profession as a regulated professional. New experienced-based pathways that take into account an applicant's applied work experience as well as graduate and post-graduate work will be recognized. As well, there will be changes to some undergraduate course requirements for applicants that will allow for greater flexibility.

At the same time, there will be increased rigour for work experience requirements, reference vetting, and examples of professional work. Work experience will still require a minimum of 36 months in applied biology; however that experience will need to be demonstrated in several competency areas. Likewise, referees will be required to validate work experience in several of the same competencies. Examples of work will still require submission of evidence demonstrating a scientific report. In addition, there will be the requirement for applicants to demonstrate their ability to communicate science to a lay audience.

> "As well, the College is working hard at securing new accreditation agreements with post-secondary institutions. The agreements assist credentialing immensely as they provide clear direction to applicants and institutions regarding academic requirements for entry."

These changes are the beginning of several initiatives the College is embarking toward to ensure we protect the public interest under the *Professional Governance Act*. Please feel free to contact me for more information.

Career Advancement, How Do You Make It a Reality?

By Shona Lawson, MSc, RPBio, Director of Practice & Deputy Registrar

ONE OF THE frequent questions in-training, student and junior members have is "how can I advance my career?" I think the real question people want an answer to is: "how can I develop as a professional to benefit my career", particularly as professional development is almost always tied to career growth and advancement. Below are some tips that may answer this age-old question.

- **1. Identify your career objective(s).** Having a good idea of where you wish your career to go is a good start to get there. For example, do you want to be a biologist that oversees staff and manages projects; do you want to work for a non-profit and manage their conservation programs? Remember goals are not set in stone and they will likely evolve over the course of your career.

- **2. Identify Specific, Measurable, Achievable, Relevant, Timely (SMART) goals.** It's a good idea to tie goals to continuing professional development (CPD). For example, if you want experience in project management you can take a course and also ask for a chance to manage a project at work. This will allow you to gain new knowledge, a new skill(s) and expand your work experiences.

- **3. Assess your completed SMART goals, newly/expanded skill(s) and knowledge regularly.** You do not have to be wedded to these goals so it's good to assess and evaluate them regularly, particularly after taking a course, attending a seminar and/or new work opportunities. This allows you to assess if you are satisfied and met the goal, if the goal still needs development, or if you wish to pursue a different goal entirely.

- **4. Try new experiences at work or as a volunteer.** You never know what new skill or experience an opportunity can provide. It's also a good way to discover if you really like something. If it turns out you don't like managing people or projects when given the opportunity then you can focus on pursuing other opportunities you do like.

- **5. Talk to experienced professionals (not just biologists) at various career levels, in a variety of sectors such as industry, government, non-profits and in different organizational structures and sizes.** Find out what they did to develop professionally and advance. Their experiences and paths can provide valuable information, different insights and ideas that can help guide yours.

- **6. Use professional services such as professional resume writers and University and College Career Center professionals.** Often these services are free of charge to Alumni. Most people didn't or don't take advantage of these services as a student. However, as a wiser alumnus or student maybe now's the time. These professionals are valuable resources who can help you get to where you want to be or at least on your way.

- **7. Regularly record your CPD and update your CV to reflect newly acquired skills, knowledge, accomplishments and work experience.** These tasks are important because 1) CPD tracking is mandatory as a member of the College and is required in an audit, 2) having an up-to-date CV/resume is a good way to physically record your development as a professional, 3) when the time comes to apply for another job or be considered for a promotion you have one less task to do.

- **8. Regularly re-assess your career objectives and SMART goals to ensure they align.** Tie this activity to reviewing/updating your CPD. Use this activity to guide/expand goals (new and/or existing), reflect on your development as a professional and how your career is advancing. CM

Training Session for Lay Council Members: Theresa Fresco, Cairine Green & Brittany John

By Brittany John, Lay Council Member

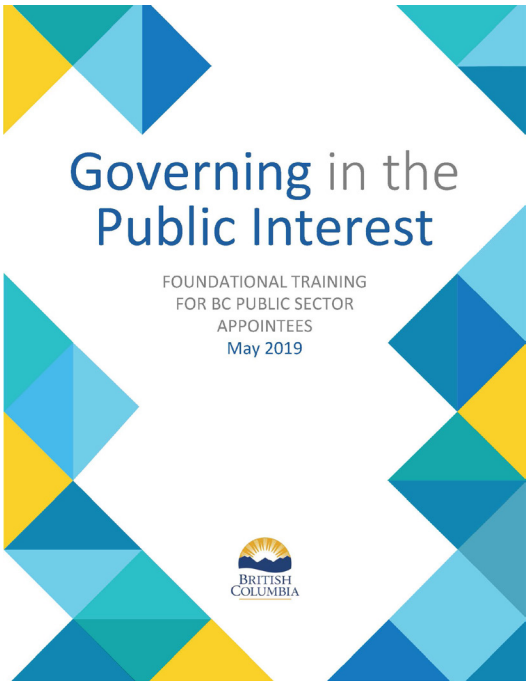
ON MAY 23, 2019 the Crown Agencies and Board Resourcing Offices (CABRO) held a training session for all newly appointed Board members. This event saw individuals from the 300 different Public Sector Organizations (PSO) gather to receive training focused on governance in the public sector. Council of Applied Biology Lay Members Cairine Green, Theresa Fresco, and I attended.

Our keynote speakers were Honorable Carole James, Minister of Finance and Deputy Premier and Don Wright, Deputy Minister to the Premier and Head of BC Public Service. The two keynote speakers touched on their experiences working in the public service sector, and the necessity of PSOs and how they represent and protect the public interest.

Everyone was expected to attend four modules: Governing in the Public Interest, Financial Governance, Risk Management, and Human Resources. All together these four modules provided an overview of our roles and responsibilities within our respective PSOs. The facilitators did a good job of presenting applicable information that we can also share with other Board members. In addition to the four core modules, there were other sessions such as Gender-Based Analysis Plus/Gender Equity, Tribunals, and Inside Government: Deputy Minister Panel, among others. I did get the opportunity to attend the 'Strengthening Indigenous Relations' session, which I noticed was mostly attended by CEOs and Presidents of PSOs. This lifted my spirits as reconciliation is not an easy topic, but it is essential for building relationships and collaborating with BC First Nations. As a new lay member, I found value in the information shared that day including the opportunity to learn and hear from others about their experiences.

Cairine Green, another lay member of the College, added, "The focus on the public interest and on expanding diversity within public bodies was helpful in better clarifying and defining our role as Lay Council members; a worthwhile day, and important to strengthening our relationships in a learning setting."

A Link to the four modules referenced above is included here: ***https://www2.gov.bc.ca/gov/content/governments/organizational-structure/ministries-organizations/central-government-agencies/crown-agencies-and-board-resourcing-office***. CM



Scientists, Machines, and an Outlook on Our Role in a Research Future

By D.A. Duffus, Ph.D. & R.E. Burnham, Ph.D., RPBio

DATA FROM THE natural world is increasingly being gathered by remote systems. For certain phenomena, it is one of the only ways to collect information; atmospheric, oceanographic and ecological systems that extend over large spaces, and data requirements for long or continuous time lines have yielded their secrets to satellites, buoys, submarines, drones, and other technologies. The development of remote collection methods has, in recent years, propelled a parallel growth in automated analysis systems to deal with the large data sets that result.

There are many practical and economical reasons to employ automated data collection technologies. A few days of work hauling instrument lines in winter highlights a practical reason to wish for instrumentation that can sit on its own through darkness, cold spray, and heaving seas. Automated instrument systems can survey at times and in places that otherwise would be impractical, unsafe, or simply impossible. Equally, we are aware, and frequently reminded by accountants, managers, or clients, that the expense of field operations is prohibitive whether it be by ship, aircraft, or on foot.

There are, however, compelling reasons to incorporate automation into field science research with caution. First, between the data and the original phenomena there may be systematic and random error. Many data collection and analysis systems need extensive training, or ground-truthing, to build their accuracy to an acceptable level. Frequently, system developers neglect to develop a list of the number or type of errors that occur most commonly, largely because they do not have a range of experience with the different types of data the system will be collecting. In some cases, false positives or false negatives have different consequences if decision makers use outputs for evidence-based policy development. The need for expert interpretation or validation of the automatically derived results often only has a passing mention. A second issue is that the availability of large data sets, especially if uncorrected, becomes a bait of sorts for scientific bottom dredging. We in the universities are increasingly falling into this trap. Graduate students will trawl for a database on some phenomena and ask questions after perusing the data and summarizing its characteristics. Questions can be developed with reference to data availability, but in no way should this set the limits of inquiry. Modern scientific method is clear on the route for inquiry; hypotheses derived from careful observation are developed and tested, with questions firmly rooted in theory. A third issue is that we sense a growing cadre of 'experts' on organisms and ecosystems who have no experience with the phenomena, setting, or sometimes even the theoretical foundations of 'their subject'. It is becoming increasingly common to sit through a meeting with a manager of some program who has never seen, nor knows anything of the fundamentals of the organisms or landscapes of which they are in charge. Even more disconcerting is to attend a scientific meeting and hear a panel of experts deliver sermons with no research background, except perhaps by remote systems, on the species or environments under discussion. To be called an expert on an aspect of the natural world is a heavy crown to wear; it should not be accomplished from behind a desk.

Photo: Dr. Burnham hauling a plankton net sampling the mysid prey of gray whales in Clayoquot Sound.

Automation may be an expression of the modern needs of the modern world, representing the desire for quick answers to slow questions, or to make something seem firmly established based solely on its immense foundation in numeracy. Unfortunately, removing the experienced practitioner from research design and data collection is creating a breed of scientists whose greatest engagement with the entire process is entering code and command lines.

Drawing on our field experience, good science is about careful observation and the excitement of a novel discovery; whether that be fleeting glimpses of whale surface behaviour, sampling a dense patch of zooplankton, a slick of rapidly sinking fecal matter or, most recently, vocalizations of endangered whales from far offshore. However, the interpretation of these data needs to be done with a sound theoretical and ecological background.

> “Automated systems or machine learning models should not be seen as the absolute answer, but only one step in the process of the analysis. They can reduce the labour spent in data analysis, but expert verification is still needed to guard from misrepresentation in the results.”

Our observation is that remote sensing systems and automated interpretations of the data are tools to supplement more traditional methods. In taking this perspective, critical tasks are still the province of the scientist. Our most common grumble was the difficulty in obtaining data; our subjects spend most of their time underwater and in some cases far from shore. By using remote sensing technologies we now have a means to overcome these hurdles, mostly without intruding on the subjects. Now the grievance has progressed to the amount of data that automated systems collect, which is not a complaint we give much credence to. There are logistical difficulties with ‘big’ data, and many hours of patient analysis ahead but, for scientists whose lament has been a lack of data, these immense streams are bounty. When they are properly caste, the outcome will be useful and timely.

We appreciate the additions these systems can make, and encourage their use if their application broadens our horizons without curtailing the use and role of practitioners’ experience. As technology and information accessibility develops apace, we hope that biologists will not lean towards easy-access science and instant gratification in data analysis. The excitement of successfully collecting samples and unearthing subtle clues on the functioning of the natural world is slowly but surely being displaced by simple input-output processes. In short we advocate for scientists to go out, get wet, muddy and cold. Find that lesser-spotted species or once in a thousand year phenomenon, and see, feel, observe, measure, and record it, and marvel in the ‘why’. Revel in all the means we have at our disposal to take steps to answer this burning question. CM

Photo: Dr. Burnham and her team deploying a Slocum ocean glider to sample whale communities off the continental shelf break of Clayoquot Sound, BC.

Stads K'un – Wings Brushing on Boughs

By Melanie Wilson, RPBio

Melanie Wilson, MSc, RPBio, works as a wildlife biologist for the Ministry of Forests, Lands, Natural Resource Operations and Rural Development in the South Coast.

"Kak-Kak-Kak-Kak"

I MIMIC AND BROADCAST the Goshawk alarm call into the forest, hoping to elicit a territorial response from a breeding pair. This is a good patch of forest for nesting — mature closed canopy timber, lots of large diameter fir with hefty branches to support a large stick nest and an open understory for hunting. We spot a plucking post used to strip prey of fur or feathers before delivering to chicks. My Goshawk radar is on high, there must be a nest somewhere! As we move on, a dark shadow travels across the sunlit forest floor. I look up but the shape vanishes into the canopy. "We've been spotted" I say to my technician as I reach for my binoculars. I scan the treetops for movement and Goshawk-shaped features.

Then we hear it, "Kak-Kak-Kak-Kak." We pinpoint it upslope and to the left. "I've got a visual!", I whisper to my partner. We confirm that it is an adult, you can tell by the blue-grey back and prominent white eye stripe covering its blood-red eye, light grey barred underparts, and fluffy white undertail coverts. Brief encounters like this are a rare occurrence for this elusive forest raptor, even for someone who actively searches for them. Quite rare to uncommon throughout its range, the Goshawk has evolved morphological and behavioural adaptations which enable it to hunt a variety of prey under the closed canopy forest. Short powerful wings paired with a long tail help them maneuver effortlessly at high speed in pursuit of squirrels, hares, grouse, woodpeckers and larger songbirds. And this is how they acquired their Haida name, Stads K'un "wings brushing on boughs." (Council of the Haida Nation, 2017).

Declared by the Haida Nation as the national bird of Haida Gwaii, the Northern Goshawk coastal subspecies laingi (*Accipiter gentilis laingi*) is one of two subspecies in BC occurring between the Coast Mountains and the Pacific extending to coastal islands. Slightly smaller and darker than the interior subspecies, *Accipiter gentilis atricapillus*, the coastal Northern Goshawk is about the size of a raven and the largest of BC's *Accipiters* compared to the slender Cooper's Hawk and much smaller Sharp-Shinned Hawk. The coastal Goshawk has unique breeding requirements, specifically preferring structurally old and mature forest stands. These are increasingly at risk from fragmentation or permanent loss due to forest harvesting activities. This in conjunction with a small population size and limited range extent has led to its uplisting from vulnerable to threatened by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and has placed it on the provincial Red List. To ensure recovery of the coastal Goshawk the federal recovery strategy has set population

Photo by Tomas Taylor. Chris More O'Ferrall and Melanie Wilson attaching telemetry backpack to a Goshawk in the Sechelt area.

and distribution targets as well as identified several knowledge-gaps to address. This research will help inform knowledge-gaps and identify critical breeding and foraging habitat that can be prioritized for inclusion within reserves.

In 2018, the province approved an Implementation Plan to address its requirement to manage and recover critical habitat identified in the federal Recovery Strategy. Breeding and foraging habitat are critical to the long-term persistence of Goshawk populations. However, there is uncertainty regarding science-based criteria to accomplish this. To date the majority of protection has focused on breeding habitat while relatively little is known about diet and foraging requirements, limiting our ability to identify and protect critical forage habitat. To better understand coastal Goshawk diet and foraging requirements the Ministry of Forests, Lands, Natural Resource Operations, and Rural Development (MFLNRORD) initiated a pilot project in 2018/19 to address several persistent knowledge-gaps and help inform the province's foraging management actions and recommendations to federal government.

Photo by Tomas Taylor. John Johnson, certified tree climber from Bartlett Tree Experts, installing a Goshawk nest camera in the Sechelt area while two nestlings watch.

Modern technological advancements have significantly broadened scientists' ability to accurately track the movement and behaviour of birds. To understand Goshawk space use across foraging habitat we fitted seven Goshawks with telemetry backpacks. Telemetry devices send out signals to orbiting satellites where the location of the transmitter on the ground is geometrically determined. Global Positioning System (GPS) locations are collected on a user-defined schedule called a fix-rate and are stored on the device which has enough on-board memory to store 30,000 GPS fixes. Data can then be downloaded using remote base stations that scan areas up to 6km away for the tags specified Ultra High Frequency (UHF). These base stations can be placed at the nest, used on the ground or in the air to obtain data downloads. To date we have collected over 11,000 Goshawk fixes with up to 50 locations captured per day and have estimated home range averages of ~8,900ha for males and ~6,500ha for females during the breeding season. That's about the size of Gambier Island ~7,000ha.

Photo by Reconyx trail camera photo. Goshawk nestlings with prey in the Hope Valley.

High quality Goshawk habitat can be determined by the amount and type of resources, including prey, that it contains which in turn can define the size of a home range. Understanding the relationship of prey to Goshawk habitat will enable us to identify higher quality habitats that can be prioritized for protection.

To understand Goshawk diet we installed motion activated trail cameras at nest sites overlapping telemetry tagged birds. Cameras capture type and frequency of prey delivered and allow us to identify prey items to species. To supplement the camera data, egested pellets, prey remains, feathers and white wash around the nest were also collected for analysis. To date we have accumulated over 62,000 nest photos with investigations underway. Preliminary results show an overall preference for squirrels and confirmed suspected prey species such as woodrat, shrew and mountain beaver.

All of this work has been in partnership with Simon Fraser University and funded by grants obtained by the Habitat Conservation Trust Foundation (HCTF), FLNRORD Implementation Plan funding, FLNRORD Research and South Coast Region (LBIS). Based on the success of this pilot project we plan to implement a full-scale research program which includes adding another 25 telemetry tags and 10 nest cameras over the next two years expanding westward across South Coastal BC. This research provides a unique opportunity to investigate the ecology of this threatened forest raptor and will provide valuable data to inform provincial management recommendations and ensure species recovery. CM

All About Audits

By Barbara Wernick, RPBio

The Audit and Practice Committee will soon be entering another cycle of audits and thought it would be helpful to provide an overview of the process and some of the common themes that came out of the last review cycle.

1 WHY AUDITS ARE DONE

The primary objectives of conducting audits of College members are as follows:

- To look out for the public interest
- To meet statutory obligations
- To provide a professional development mechanism to ensure compliance and provide remedial options to resolve non-compliance and deficiencies.

At this time, audits are the primary mechanism the College uses to verify that members understand the legal requirements, responsibilities, and accountability of being a regulated professional in the College and expectations regarding mandatory Continuing Professional Development (CPD).

2 THE PROCESS

Members are randomly selected in December and notified in writing by College staff in January. Auditees are required to respond with documentation in January/February, which may include: a CV and job description, answering questions on a form about things like your professional practice and how you manage your records, and a description of CPD activities. Audit and Practice Review Committee members and volunteer auditors review the information and their findings are "ratified" by the Committee. During the audit period, auditors may ask auditees for additional information or clarification on the documentation provided.

The Chair of the Audit and Practice Review Committee will consider requests for extensions when there are extenuating circumstances (e.g., parental leaves), but generally will not defer an audit beyond the current audit cycle. Resigning from the College after being selected to undergo an audit does not relieve the member of the requirement to be audited upon their reinstatement.

3 THEMES AND LESSONS LEARNED FROM 2019 AUDITS

At the May 2019 Audit and Practice Review Committee meeting with auditors, Committee members and volunteer auditors reflected on lessons learned from their review of materials submitted during the 2019 audit cycle and a number of themes emerged:

3.1 RESPONSE TO AUDIT NOTICES

Most audit communications and submissions are professional and suitably detailed. However, we still encounter a few auditees who are at best not timely or responsive, and at worst unprofessional in their conduct to College staff and auditors.

The tone, quality, and timeliness of an audit submission and interaction with College staff and the auditor can say a lot about an individual's professionalism and their understanding of their obligations as members of the College. This is an annual process that is binding, laid out in the College Rules, and detailed on the College's website so it should not come as a surprise to be selected (and yet some are still surprised!).

The audit instructions and forms are designed to prompt a description that demonstrates you understand your obligations as a member of the College, which are articulated in the *College of Applied Biology Act* and associated Rules. It is helpful to auditors if you elaborate on responses, such as with examples or specific reasons why an activity or approach meets the requirements of the *Act* and Rules.

Reading the questions carefully and responding in kind will help minimize the amount of clarifications required on your part. For example, some questions ask "how do you decide this?" rather than "what do you do?" For other questions, Auditors are looking for consistency in details, such as whether listed statutes match the work products provided as examples of applied biology work.

3.2 DIFFERENCE BETWEEN PROFESSIONAL PRACTICE AND CPD

Professional practice is what a member does on a daily basis and how they use their knowledge in the area of applied biology. For most members, this means their employment, where they conduct technical work and help develop/mentor co-workers and other colleagues in the same work.

Your job description, if your day-to-day job is in applied biology, is a good place to start with understanding the bounds of your professional practice and what might be "above and beyond" the requirements of your employment. For example, "undertaking environmental assessments", "obtaining environmental permits", "conducting wildlife surveys", or "giving presentations on technical matters" may be listed in a job description and would therefore be considered part of one's professional practice. It is implicit that there is a certain degree of professional development through that technical work and fixed credit is available in the CPD form for employment.

In comparison, CPD is about demonstrable activities "above and beyond" formal employment that are about your own growth generally as a professional (e.g., first aid, ATV training, project management) and more specifically as an applied biologist (e.g., taking a technical course, attending a technical conference, reading technical literature). Auditors will also be looking to see that you are keeping up with regulatory changes relevant to your area of practice (e.g., the new federal *Impact Assessment Act* or revised *Fisheries Act*).

There is also an element of community service and mentoring of aspiring applied biologists outside your daily professional practice. Volunteering for a biology-related non-profit or the College of Applied Biology, or talking to students or recent graduates about careers in applied biology all contribute to the public good and can be claimed for CPD credit.

When documenting CPD, sufficient detail is required to give the auditor confidence that the activity is appropriate and authentic (e.g., dates, organizations, titles of journal articles or other literature read).

3.3 RECORDS MANAGEMENT

Our members belong to a range of companies, from sole-proprietor to global organizations that employ thousands of professionals. Regardless of company size, members need to be aware of records management systems that must to be in place and how they work, as well as how they meet the requirements of the College around accessibility, recoverability, and security of files.

Some factors that contribute to good records management are: password protection; anti-virus software and firewalls; back-up of files and off-site storage; controlled access to workspaces; keeping confidential files separate from general files and in locked cabinets; understanding privacy protections provided (or not) by cloud-storage systems.

3.4 SIGNING AND SEALING DOCUMENTS

Rule 13 describes the appropriate use of the professional seal and signature of a College member, for example, on what type of documents (anything that contains a professional opinion or work product), in what form (affixed by hand or an electronic signature use that meets security requirements as identified by the College), and when a member can seal the work of others (where that person has satisfied themselves that "the work has been carried out to a standard acceptable of a College member").

When asked how you decide when to apply the seal and signature, good responses include information on the type of work product being prepared, a description about the process of due diligence you go through to verify that applicable statutory and professional standards have been followed in the preparation of the work, and an acknowledgement that even if a seal is not applied, College members are still professionally accountable for the work they produce.

4 IN CLOSING

The College of Applied Biology Audit Program is an educational and professional development process that monitors and promotes excellence in members' practice of applied biology. The program assists the College in meeting its legislated public interest mandate by providing the means for a proactive quality assurance check on members' practice. If you have questions about the Audit Program, please consult the ***College web site*** or ***contact the College*** at 250-383-3306.CM

New Registered Professional Biologists (RPBio)

Philip Anderson	3259
Kimberly Armour	3264
Camila Avendano	3276
Michelle Bacon	3250
Matthew Bayly	3233
Jean-Philippe Bechtold	3263
Landon Benson	3228
Paula Bentham	3218
Erica Bonderud	3257
Daniel Brown	3222
Jennifer Buchanan	3208
Shane Byrne	3270
Stacey Carnochan	3202
Kristina Cary	3273
Christopher Cena	3215
Sarah Cheng	3224
Nadine Clifton	3209
Katrina Cook	3206
Daniel Cooper	3211
Evangelos Dadiotis	3219
Catherine Denny	3275
Kevin Doddridge	3253
James Dwyer	3234
Curtis Eikhoff	3262
Stephanie Ellis	3244
Sean Engelking	3280
Valerie Evans	3269
Caroline Feischl	3232
Cody Fouts	3267
Heloise Frouin -Mouy	3246
Vincent Futoransky	3213
Leslie Gault	3205
Crisostomo Gomez	3225
Seewoosunkur Gopaul	3268
Travis Gooliaff	3258
Olivia Gray	3236
Kimberly Hains	3277
Randy Haviland-Janzen	3229
Kerry Head	3265
William Kyle Henderson	3217
Ben Hewitt	3237
Jacqueline Huard	3249
Joyce Ip	3241
Amy Jimmo	3204
Jessica Kidd	3242
Jennifer Kleinitz	3227
Justin Krilow	3274
Janice Kwo	3279
Philip Lee	3203
Anne Loosen	3168
Karlene Loudon	3245
Courtenay Mason	3223
Sean McBain	3221
Gregory McCullagh	3260
Laurel McDonald	3207
Alison McPhail	3248
Collin Middleton	3200
Stephan Morck	3214
Johanna Moretto	3230
Leah Neigum	3281
Melissa Nottingham	3216
Naomi Owens-Beek	3195
Brendan Peachey	3266
Sterling Pearce	3226
Vahab Pourfaraj	3261
Andrew Pustina	3210
Kevin Shantz	3256
Ciara Sharpe	3254
Glenn Sidwell	3240
Veronica Silverthorn	3212
Andrew Smith	3220
Karlee Snetsinger	3239
Jens-Uwe Spremberg	3282
Francais Thommai	3252
Rob Underhill	3238
Kersti Vaino	3247
Lajos Varga	3243
Kelli Warren	3235
Kevin Watt	3278
Aron Weir	3231
Emily West	3271
Charlotte Whitney	3251

New Registered Biology Technologists (RBTech)

Gabriel Garcia	128
Kayla Read	127
Elizabeth Shebib	129

New Applied Biology Technician (ABT)

Patricia Meldrum	006

Recently Returned (Re-instated) Members

BIT

Katherine Sahaydak	739

RPBio

Mariah Arnold	2966
Eva-Maria Boehringer	1830
Lise Galand	2516
Lauren Howell	2938
Louisa Knight	1028
Lilia Kotzeva	2951
Victor Ladipo	2939
Cory Lagasse	3112
Naomi Nichol	2828
Mandeep Purewal	2423
Anna Rankin	2157
Lindsay Rear	2159
Betty Rebellato	2035
Jacqueline Shaben	1912
Mary Toews	2729
Jennifer Trowell	2517
Sandra Warren	2837
Kirstin Webster	2480

New On Leave Members

BIT

Larissa Darc	1183
Courtney Dean	1142
Cassandra Harper	1071
Samantha Jung	1087

RBTech

Arainn Atkinson	89
Eleanor Kim Klaczek	87

RPBio

Jennifer Atkins	3000
Daniel Brown	3222
Carolyn Churchland	2587
Amy Duncan	2903
Jeanette Goulet	2852
Maryam Khoshnoodi	3075
Kristina Lensky	2011
Danielle Marcotte	3059
Kirsten McNeill	2555
Allison Schein	2678
Ingrid Sorensen	2900

New Enrolled Biologists In Training (BIT)

Annabel Arnott	1193
Michelle Baker	1200
Jennifer Barrett	1203
Jillian Bisaro	1210
James Carmichael	1180
Alexis Carter	1164
Jennifer Caws	1185
Skyla Dalen	1192
Larissa Darc	1183
Stephanie Davis	1197
Terita Deare	1199
Kiara Gannon	1218
Alexis Gottfriedson	1220
Ian Higgins	1167
Jennifer Humphries	1217
Ryan Jaeger	1177
Gwen Jongejan	1215
Courtney Kellock	1205
Erin Kelly	1207
Marie King	1188
Megan Kinley	1208
Franz Kirschbaum	1172
Rebecca Kordas	1163
Shayne Kuchma	1175
Alison Kwan	1206
Christian Lackey	1181
Andrea Lenardt	1186
Candy Lo	1191
Jesse McEwen	1179
Paul Mozin	1168
Dallas Nikal	1216
Mikayla O'Ferrall	1214
Jillian Packham	1173
Jennifer Parenteau	1194
Neil Pilgrim	1213
Braydi Rice	1202
Steven Ryan	1182
Claire Shrimpton	1169
Erin Sowerby-Greene	1209
Brett Squirrell	1198
Lauren Steele	1161
Ivy Strother	1170
Alexandras Terrick	1171
Lindsay Thiessen	1212
Jamie Trottier	1162
Nicole Tweddle	1195
Vanessa Uschenko	1166
Grant Usick	1187
Sebastian van Leeuwen-Steghaus	1176
Erin Vekic	1190
Ashleigh Westphal	1204
Mae Whyte	1184
Natasha Wilbrink	1201
Eleanor Willson	1156
Cassiya Ouellet	1138
Tammie Windsor	1196
Elizabeth Zajc	1165
Nicole Zathey	1174
Karle Zelmer	1178
Brandan Zoehner	1189

New Enrolled Technologists In Training (Trainee(RBTech))

Enobong Adejokun	79
Saikiranreddy Alla	72
Dominique Bailey	73
Jonathan Bergshoeff	74
Cara Blair	78
Christine Brophy	76
Elissa Crouse	77
Steele Warkentin	75

New Enrolled Technicians In Training (Trainee(ABT))

Jean-Benoit Beaulieu	002

New Student Biologists

Jason Alexander	270
Tawni Drinnan	277
Guillermo Hasbun	267
Eugene Ho	272
Laureal Klassen	273
David Nash	274
Melissa Nelson	275
Geoffrey Ng	276
Kathryn Nundal	271
Sophia Renn	269
Sharonn Sylva	266

Recently Resigned Members (since August 2019)

BIT

Tamara Babcock	1062
Anna Drabosenig	1111
Jennifer Glover	1077
Matthew Hiscock	1129
Haley Hooper	1150
Chanel Lewis	988
Colleen Murchison	907

RPBio

Lily Cesh	2240
Laura Darling	578
Kevin deBoer	2293
Dominic Gerelle	1113
Grahame Gielens	2614
Mark Hornsby	2742
Kathryn Jones	1250
Maureen Ketcheson	160
Kimberly Walters	2043
Stacey Wilkerson	2579

RPBio(Ret)

Greg Caw	432
Mark Deeley	1363
Grant Furness	1027
Ian Robertson	187

St

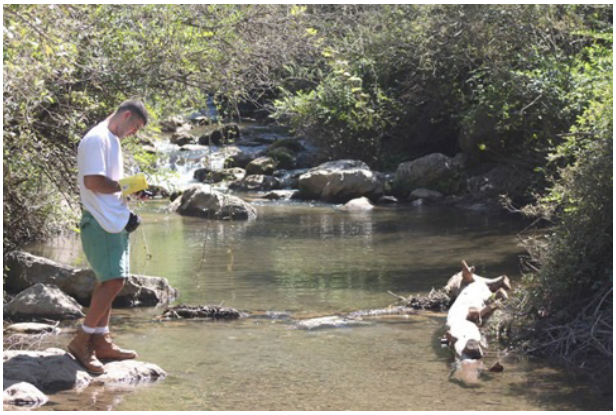
Lisa Bland	276
Alyssa Togado	235

Recently Retired Members (since August 2019)

RPBio

Juergen Baumann	416
Andy MacKinnon	188
Carrie Morita	832
Richard Page	229

Lamine Mohamed Benrabah, RPBio #2965



Pictured above is Mohamed Benrabah, RPBio, conducting baseline habitat surveys on a known barbary macaque foraging site.
https://doi.org/10.2305/IUCN.CH.2019.01.fr.

Question 1: What compelled/inspired you to be a member?

My interest in biology formed through an interest in natural history. When I was eight, my parents took me to the Royal Museum of Natural History in London, UK. I recall vividly the grand statue of Charles Darwin greeting visitors at the main staircase and musing over his original illustrations and diary excerpts. My interest progressed to curiosity, as this early exposure introduced me to the development of the discipline and history of science. During my high school education I volunteered at a fish hatchery. This sparked my interest in conservation and motivated me to enroll in the Biology major at the University of Victoria. I worked as a wildlife rehabilitator, academic researcher and professional consultant for a variety of organisations and projects in BC. In order for me to continue to practice in my field of training, the progressive step was to enroll and volunteer as a member with the College of Applied Biology.

What is your academic background?

Through my childhood travel I developed an understanding of anthropogenic history and environmental influence. This further led to my interest in understanding the long term – 3000-5000 years before the present – effects of anthropogenic effects to the environment. After completing an undergrad in Biology, I found myself more interested then ever in making a positive impact. I completed a research master's degree on an endangered primate species, which allowed the opportunity to complete field research in the Atlas Mountains to record the Barbary macaque (*Macaca sylvanus*) population density, distribution and population genetics. The research topic had generated impact in its respective field, and in 2015 I was awarded the Primate Society of Great Britain award for the Born Free Foundation to complete an additional field season.
http://www.psgb.org/pdfs/Lamine_M._Benrabah_FINAL_small.pdf

The study results were included in a series of conferences prompting an upgrade of the species on the Convention on International Trade of Endangered Species (CITES) list from Appendix II to Appendix I. Appendix I is designated for species facing threats of extinction. Trade in specimens of these species is regulated and only permitted in exceptional circumstances. In 2016 I was included in the development of the Strategy for the Conservation of Barbary macaque in Algeria 2018-2027. The strategy developed an action plan using a similar framework implemented by the International Union for the Conservation of Nature (IUCN) , European Union (EU), and Moroccan government. ***https://doi.org/10.2305/IUCN.CH.2019.01.fr***

Question 2: What's your favorite aspect of your work?

Finding solutions to problems. I enjoy the dichotomy of applying highly technical scientific solutions to everyday problems. In doing so, I enjoy the continual learning and application of biological principles and techniques.

Question 3: How has the RPBio/RBTech/ABT designation benefited you in your career?

It has allowed me to develop professionally as a scientist since employers are actively seeking this designation. I found through the College I was able to continue to develop professionally and maintain important industry news, training and Continuing Professional Development (CPD).

Question 4: Which advice do you have for fellow members with respect to maintaining their requirements as College members?

Keeping current and up to date CPD is important for maintaining College requirements but also for self-growth. I would recommend reviewing and recording your CPD as it pertains to your work responsibilities and activities, including hobbies!

Question 5: What advice do you have for young members/ students beginning their careers as applied biologists?

Network and diversify your skills. As a young graduate, I took on a variety of projects and additional training to diversify my technical skills, which allowed me to develop my interests and identify a speciality field of practice. CM

A Canoe, a Biologist, and 29 Days

By Corrie Allen, M.Sc., R.P.Bio.

Photo by Jeffrey Gibbs. Corrie (front) and 3 of the other 7 participants on the 2019 Sustainable Living Leadership Program.

To say that 29 days canoeing and rafting down the Fraser River was intimidating, would be an understatement. Yet, after armouring myself with the extended weather forecast (mostly rain of course), I found myself standing at the start of a 1,400 km journey, at the headwaters of the Fraser River. Decidedly, it was time to become acquainted with one of Canada's last remaining natural salmon runs.

Hosted by the Rivershed Society of British Columbia, the Sustainable Living Leadership Program (SLLP) is an annual event with the goal of inspiring a passion for the Fraser River and community stewardship, while emphasizing the importance of healthy watersheds. Instead of a traditional classroom-style program, participants are immersed in the history, culture, and ecology of the river over a month-long journey from its headwaters to sea. This year, I was one of seven participants from disparate backgrounds who was invited to participate in the 2019 SLLP trip (***https://rivershed.com/get-involved/sustainable-living-leadership-program/about-the-sllp/***).

Fueled by root vegetables and oatmeal, we made our way east from Mount Robson through the Rocky Mountain Trench to Prince George, south down the Fraser Canyon to Hope, and through the meandering reaches of the Lower Fraser before finally reaching the Salish Sea. Crossing ten unique biogeoclimatic zones, we were rewarded with exceptional views, rare flora and fauna, and a perspective of the river that not many have experienced.

This year was a particularly interesting year to be on the river. A recent landslide near Big Bar created a five-metre vertical cascade, obstructing salmon on their northward migration. Although we had to portage around the slide, we had the opportunity to meet the many Indigenous communities, biologists, and people from all levels of government who were working to remove the salmon migration barrier.

But, even before the landslide, Fraser River salmon have been in a state of decline, with some species, such as steelhead, on the brink of total collapse. "There are not enough fish," was a sentiment echoed by every Indigenous community we met with along the journey. This was perhaps most clear when we travelled through traditional fishing areas, where hundreds of racks stood empty due to the sockeye and chinook salmon closures as a result of the slide.

So, what has this experience meant to me as a Professional Biologist? I found a great deal of inspiration and motivation from my month on the river. The Fraser River watershed is a complex system that connects almost a quarter of this province by water. Even after spending a month on its shores, I'm still enamoured by its size and role in BC's ecology.

What surprised me most was the relatively intact state of the river. Prior to this experience, my perspective of the Fraser was largely shaped by the lower mainland, where extensive development has drastically altered the estuary. I have learned that this perspective is not representative; there is still considerable opportunity to conserve, protect, and restore this amazing watershed.

Stepping out of my comfort zone (which was, by definition, uncomfortable), embracing a month without showers, and living on the Fraser River was an amazing experience. Now, back at work in the lower mainland, I look forward to my field days on the river, reminded of my time paddling.

Corrie Allen is a Registered Professional Biologist at Keystone Environmental Ltd. in Burnaby, BC. This summer she was one of 7 participants of the 2019 Sustainable Living Leadership Program, hosted by the Rivershed Society of BC.

Call for Nominations -- 2020 Council Elections

Have you had a chance to check out the details on becoming a Councillor for the College? Nominations are open, and you can read all about nominations, elections and expectations for Councillors at the College website.
Apply now! ***https://www.cab-bc.org/2020-elections-nominations-process***

Have a favourite field photo? We're seeking cover shots for *College Matters*.

We'd like to display our members' talents by featuring their photos or artwork in future editions of *College Matters*. Contributors will be attributed and should be prepared to grant both copyright and moral rights to the College for the use of the submissions, in the event that editing is required. Please submit your images in as high a resolution as possible to **adminassist@cab-bc.org .**

Call for Contributions

We invite members to contribute to College Matters by pitching us an article, sending in photos, artwork, or simply suggestions for content.

Submission Dates

Summer issue: June
Winter issue: October

Randle BAKER, RPBio #922
September 1958 - November 2018

Randle (Randy) Ferris Baker, MSc, RPBio, died unexpectedly on November 21, 2018 at the age of 60 while participating in a scientific research expedition with the World Wildlife Fund in the Himalaya, specifically the remote Dolpa region of Nepal. The objective of the trip was to survey the habitat of blue sheep and snow leopards. It was a dream trip for Randy.

Randy is survived by his parents George and Kathleen Baker; his partner, Joanne Westwood (and their cat, Pebbles), his sister Denise Baker and her husband Juri Matejak, his brother Brad Baker and his wife Cathy Baker; and his three nephews Ryan Baker, Kyle Baker and Alex Baker.

Randy was born in Lachine, Quebec on September 22, 1958, to George and Kathleen Baker, although he has always considered Winnipeg, Manitoba as his hometown. It was there that he spent many formative years and completed much of his formal education. A self-confessed "shy nerd" who loved chess- club and tennis, he graduated from Silver Heights Collegiate in Winnipeg in 1976. Randy secured his Master of Science in Zoology in 1983 at the University of Manitoba. He was an aquatic ecologist, focusing on the impacts of chemicals, especially mercury, on the environment. His focus on mercury began in 1979 on a reservoir in Manitoba, while employed with Department of Fisheries and Oceans.

Randy went on to participate in more than 300 investigations in such diverse environments as the Arctic, central and western Canada, South America, Southeast Asia and the Indian Ocean. He worked tirelessly to harmonize international efforts to assess the impacts of mercury related to both small-scale gold mining operations and reservoir development. In 2000, Randy became a founding partner at Azimuth Consulting Group, where he worked alongside his colleagues to solve complex issues. Randy was a competent, committed and knowledgeable professional, but his passion and excitement about the natural world, travel and the 'important things in life' were his trademarks.

Randy was a devoted son, brother and partner. He effortlessly juggled his career activities, travel, friends and family, never dropping a ball. He valued and nurtured relationships with others; distance was never an issue. His love of music and passion for enjoying (sensibly) and collecting fine wine (not so sensibly) was legend. He would travel widely to see his favorite bands and wasn't shy in sharing his appreciation for these bands with others. He will be deeply missed by his friends, family, and the many who knew and loved him. We will all miss his company, wit, smile and the ever-present twinkle in his eyes.

> *One moment can change a day. One day can change a life. One life can change the world.*
> *-- Buddha*

Photos courtesy of Azimuth Consulting Group Partnership

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COLLEGE MATTERS

COVER PHOTO:
Photo by Alexandra Tait, RPBio. Confluence of the Klondike and Yukon Rivers at Dawson City, Yukon Territory.
Graphic design template by Rocketday Arts

Call for AGM Resolutions

In accordance with Rule 3.18 and 3.19 of the College of Applied Biology Rules, resolutions are being solicited for discussion and action at the 2020 Annual General Meeting of the College of Applied Biology on April 3, 2020, at the Manteo El Dorado Resort in Kelowna, BC. All voting members of the College are eligible to submit resolutions.

Resolutions must be received no later than 4:00 pm on March 2, 2019.

Submissions should be outlined in the following form:

A. In that (outline issue or problem)

B. Be it resolved that (state the resolution)

C. Discussion (present points concerning the need, logic or benefit of the resolution).

Please contact the Registrar if you are considering putting a resolution forward. More information about Resolutions is posted on the College website: ***https://www.cab-bc.org/call-for-resolutions-2020***.
Registrar, College of Applied Biology #210 – 852 Fort Street
Victoria, BC V8W 1H8. Email: ***registrar@cab-bc.org*** or Tel: (250) 383-3306 ext 2