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Approach

The Provincial Government has enacted a *Professional Governance Act* (2018) (PGA), which will lead to Right to Practice for Applied Biologists. This will have significant implications for both registrants and non-registrants of the College of Applied Biology and result in the need to define Scope of Practice for applied biologists, consider how this overlaps with other professions, and to consider how to create a smooth and fair path to Right to Practice.

To inform decisions on this process, the College hosted a series of events in Vancouver, Kelowna, Prince George and Nanaimo, and a provincewide webinar. In-person events included a drop-in session, presentations on the PGA, and focus group sessions with multiple professions.

The purpose of this consultation process was to:

- ♦ Give CAB members (registrants), applied biology practitioners who are not registrants, and other partners in resource management an opportunity to learn more about the *Professional Governance Act* and its implications.
- ♦ Seek input into Scope of Practice (SOP) for Applied Biology Professionals, in order to inform the input to Government from the College on Right to Practice regulations.
- ♦ Interface with members of other professional associations at the practitioner level on areas of exclusivity and overlap, and consider how overlaps can be identified and addressed *in situ* and in policy (including tools and structures).
- ♦ Better understand where non-members are practicing and how to enable them to become registered.

This Summary Report provides an overview of the key information and advice provided by participants in this process.

Note that the ideas expressed in this document come from the participants in the drop-in sessions and focus groups, and do not necessarily represent the position or the priorities of the College.

Scope of Practice for Applied Biology Professionals

1. Applied biologists have diverse skills and areas of practice

Participants provided input on the proposed scope statement:

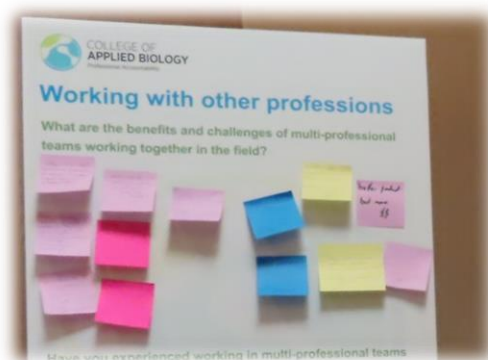
Applied biology professionals provide science-based advice to inform decisions, policies, and assessments for the long-term sustainability of natural aquatic and terrestrial ecosystems, and their living organisms and their habitats.

Detailed comments are provided in Appendix 1. Appendix 2 lists the areas of practice and specialities of participants.

2. There is a need for guidance on when applied biologists should bring in another professional

(Happily), participants consistently noted the need to bring in another professional (another biologist or another profession) when the requirements of the task were outside of their area of expertise. An example was given of the engineers/foresters' stream crossing guide – this is a good model for determining when the risk level (when the foresters should bring in an engineer for bridge design).

- “ *Once you are outside best management practices, need to bring in the right expertise*
- “ *Knowledge and experience more important than designation, professional reputation more important*
- “ *The longer you work, the more you know you don't know*
- “ *For large construction projects, we hire consultants and QEPs for projects that have many different components...what do we need to prescribe in terms of credentials – do we need to hire someone with a specified area of competency? How does the proponent and/or project manager identify what they need?*



Participants noted that some clients assume that just because you are a biologist, you can perform all of the biology-related aspects of the work. Some clients will pressure the biologist to take on work outside of their scope of practice to save on project costs. Similarly, a client may encourage another professional to do the biology work to save time or money.

“ *Concern that people not always qualified, people wearing multiple hats*

“ *Engineers come in many forms, we don't expect them to know everything*

“ *Concern re client pressure*

3. An applied biologist's area of practice will likely change over time

Participants noted that for any individual, their scope of practice will change over time. New graduates will not have a speciality at first. Practicing biologists will likely explore new fields of interest, and/or become less current in areas where they no longer practice.

The way that competencies and scope are declared should allow for this.

“ *Everyone develops their own scope, and this scope develops and changes over someone's career*

4. Guidelines for defining “competency” are needed

Participants suggested that a check-off competency list would be helpful. Suggestions for determining competency included asking:

- ♦ What is client legally required to do (if you don't know you should be hiring someone else)?
- ♦ Risks and consequences (when you sign it you assume responsibility) – can you defend the recommendation?
- ♦ Are you reading information to learn what to do, or are you reading it to make sure you are using the most up to date information?
- ♦ Where is the question too technical for you?
- ♦ Are you willing to attach your name to this? Can you defend your decision?
- ♦ Are you willing to go to court with this? Would the courts call on you as an expert?
- ♦ Would others in your profession have made the same decision? Can another replicate this?
- ♦ Is there training specific to your profession?
- ♦ Do you have sufficient knowledge in that specialized area? (Challenge can be level of speciality – e.g., ungulate specialist vs caribou specialist, must also include knowledge of habitat, associated species)

- ♦ Do I have at least three years' experience?

“ *Problem of people over-scoping their abilities*

“ *Everyone pushes boundaries of scope because they want to learn something new*

“ *How to define the level of experience needed to “check the box” for competency*

“ *Self declaration needs to include enough detail (but not too much)*

“ *Level of competency not just about letters*

“ *Can you defend your decision? Do I know how to do this?*

“ *What is the minimum level of competence – exam you need x% to pass, similar approach – minimum competency to practice this speciality*

“ *For a new grad with academic qualifications – how much experience is required, who signs off their work?*

5. There is a need for guidance for other professionals on when to bring in a professional biologist

People gave examples of projects where biologist were not brought in (and should have been). This may happen if a client is trying to cut costs, or a firm underbids/compromises in order to get work.

“ *Can we prepare guidance on where to consult with biologists?*

6. All professionals should be subject to their code of ethics and disciplinary action

Registration alone does not guarantee compliance with the Code of Ethics; there will always be ‘bad actors’. RTP will ensure that everyone is at least subject to discipline.

“ *Need for strong discipline process with clout (onerous and expensive and critical)*

“ *Good to have audit function, good check. Risk of a submission that is found deficient will mean big \$\$\$. Provides good lessons learned, but is expensive process!*

Defining Areas of Exclusivity and Overlap

7. Overlap with other professions is extremely common

Participants cited numerous examples of overlap among the other professions (especially with Foresters, Agrologists, Applied Scientists and Geologists).

“ *Few examples with zero overlap*

“ *Lots of overlap with agrologists – many of who do similar jobs – environmental management, planning, monitoring, fish habitat restoration /offsetting for construction projects*

“ *Most frequent overlap is with forestry practitioners*

“ *Environmental assessments – multiple professions completing natural ecosystem inventories and impact assessments*

“ *Work with engineers on fish habitat design, bank protection, erosion control, bridge crossings*

“ *Contaminated sites and hydrogeologists – assessing potential impacts from contaminated groundwater on aquatic ecosystems*

8. Defining exclusivity may be hard

Defining exclusive practice is challenging, given the frequent overlap among professionals. Some felt that there was a need for a clearly defined 'core' practice that does not overlap, noting that some general areas (like environmental monitoring) might have greater overlap. Participants suggested that multiple professionals could practice some of the more general tasks, as long as they have appropriate qualifications. As well, there are many individual professionals with dual credentials (e.g., both RFP and RPBio), and some areas of practice have no clear lead professional (e.g., air quality issues and deposition onto plants).

Participants suggested that it may be best to continue accepting this level of overlap as long as the professional is clearly appropriately qualified. There is a need for a mechanism to deal with challenges arising from overlapping scope.

Their advice was to not worry overmuch about overlap, but to focus on what biologists do.

- “ *Don’t try to be too exclusive, allow overlap*
- “ *More overlap than exclusivity, e.g., stream assessment*
- “ *Hard to get RTP for overlap*
- “ *Many practicing PAgS doing bio work – e.g., fisheries. Some are dual registrants – working within their experience but would not qualify for RPBio*
- “ *Make it easy to work cross-profession – don’t put up barriers*
- “ *Learn from Joint Practices Board (Foresters and Engineers) and build other MOUs (get criteria from associations). They have started to nail down skill sets to do specific tasks – dialogue and get it on paper*
- “ *Exclusive practice should not have a reasonably foreseeable overlap with other professions, i.e., the five core disciplines. There is definitively room for overlap in more general areas like environmental monitoring or anything that is caught under the “general environmental” umbrella*

9. Education, experience and risk are key criteria for defining exclusive practice

When asked about criteria for having exclusive practice, responses included:

- ♦ Education (including ongoing professional development)
- ♦ Demonstrated knowledge and experience
- ♦ Accreditation
- ♦ Risk

Appropriate education was seen as an important pre-requisite for the practice of applied biology. Equally important is the need for supervised, on-the-ground experience (that is well documented and signed off by the supervisor), as well as a high standard of ethical and professional practice.

- “ *A professional working to the level of their training, competence and experience bound by a standard of ethical and professional practice*
- “ *Relevant training backed by practical experience and professional accreditation”*
- “ *Professional liability – if people rely on your decision, can they rely on this – will mean some exclusivity of practice*

Risk to resource may help in defining exclusivity, especially where the risks are higher (e.g., if there are species at risk). There is a “risk of defining risk” because of the complexity involved.

Risk (to people, to species, to ecosystems) should be part of the decision to bring in applied biologists with appropriate competencies. It will be important to communicate about risk, and which aspects of a project need specific expertise.

- “ *Low risk “anyone can practice”. Higher risk needs experience.*
- “ *Look at risk to resource/species – might help to draw the line (but beware of defining risk)*
- “ *There is a risk of defining risk!*
- “ *Degree of competency may relate to risk*
- “ *Scale also important in defining risk*
- “ *Have thresholds of risk where need to bring in other professional expertise. Must be someone who is prepared to take responsibility for their decisions. Must be the right person on the team – risk of consequences of a poor decision*

Working with Other Professionals

Many participants noted that they are already working in multi-disciplinary teams and that this process needs to enhance and facilitate this, not put up barriers. Multi-disciplinary approaches were generally seen as beneficial, although not always without some challenges.

10. Multi-disciplinary teams are beneficial

Identified benefits of multi-professional teams were:

- ◆ Learning from other professionals as well as adding to each other’s overall knowledge
- ◆ The appropriately qualified professional doing each task
- ◆ Having different perspectives can end in a better end result
- ◆ Ability to tackle more complex projects
- ◆ Maximizing opportunity for identifying optional strategies, solutions
- ◆ Better understanding of complex ecosystems and opportunity for developing better solutions
- ◆ Complementary strengths and weaknesses, multi-discipline mentorship

- “ *Only way to achieve goals or get best possible results*
- “ *Different perspectives sharing knowledge*
- “ *Broadest range of competence and experience, maximize opportunity for identifying optional strategies, solutions*
- “ *Trust between professionals. Can question other professionals (between or within professions), but recognize they are the ones signing off*
- “ *Share/soundboard ideas and opinions, differing perspectives, gain knowledge outside your area, gain insights, understand limits of prescriptions*
- “ *Multi-discipline office makes it easy to check in with colleagues*

Challenges included:

- ♦ Roles need to be clearly defined
- ♦ Additional time and cost, greater communication timelines, different knowledge base
- ♦ A good project manager is essential, and roles and authorities need to be clearly defined at the start of the project (without these there can be considerable issues)

- “ *Overlap in specialities may make it difficult for multiple professionals to self-regulate their specific roles and responsibilities*
- “ *Where objectives are contrasting, e.g., an ecosystem biologist working with a harvesting forester*
- “ *Challenge – the appropriate qualifications is subjective and can differ – especially where there are overlaps in professions*
- “ *Lack of leadership and clear communication*
- “ *Need mechanism to support accountability in areas of overlap between professional organizations*

11. There can be turf wars amongst professions

Although most participants spoke about positive working relationships among professionals, they also gave examples of where other professionals dismissed the value of the applied biologists or felt that they had sufficient knowledge and experience to complete the work themselves.

Others spoke of differing value systems and priorities amongst the professions. In some cases, this related to conflicting legislation/regulation and lack of knowledge from other professions about regulatory and best practices that applied biologists follow.

- “ *Disagreement as to whose discipline should carry the primary responsibility (weight)* ”
- “ *Lack of understanding by other professionals of RPBio scope and range of abilities* ”
- “ *Professionals with right to practice (e.g., PEng, PGeo) do not always respect the importance of scientists in other areas* ”
- “ *Biologists can be seen as “just bugs and bunnies”* ”
- “ *There will be dynamic tension between discipline, need to make sure all are respected* ”
- “ *Going forward, RTP will help* ”
- “ *Getting past problems – went into field together and looked at things on the ground (not in the boardroom)* ”

12. Multi-disciplinary teams need a strong project manager

A good project manager will bring in all of the relevant professionals from the start of the project, and provide clear roles, responsibilities and accountabilities, and a coordinated approach. That person should have familiarity (literacy) in the various professions and be able to build trust between and among professionals. A strong terms of reference and clear design also needed.

- “ *Need to have a coordinating professional who can provide whole project overview. Have the right person – not Finance!* ”
- “ *Project management is a different set of skills – need leadership, people skills, someone who understands the roles in a multi-disciplinary team* ”

13. Applied biologists must be part of the project team from the outset

Examples were given of bringing biologists into the team to support decisions already made (e.g., “we have decided to build the bridge here, how can we mitigate impacts” instead of “help us determine the best place to build the bridge to minimize or avoid impacts”).

- “ *Often proponents tailor the questions professionals are asked – e.g., they never ask “should we build this,” they ask “how do we build this?”* ”

14. The ability to bring in other professionals (other biologists or other professions) is essential

Participants advised that it is not just about having an RPBio on the team, but ensuring that this biologist has the appropriate qualifications and competencies. An applied biology professional should not be pressured to (or accept the risk of) taking on work outside of their area of speciality.

Clients can have expectations that an RPBio (or RBTech) can fill multiple roles, but it is important to stay within one's areas of competency, and important to let the client know that you will need to bring in subs with additional expertise.

“ *Being an RPBio does not mean you are competent in all areas of biology – you can't do everything!*

“ *Important to continue to work inside your own area, stick to what you know. This is already a professional obligation.*

“ *Professionals who are qualified to do 90% of the work should not be pressured to do the last 10% that they are not suited to*

15. Applied biologists need to be firm about their recommendations

In a multi-disciplinary team, someone from another profession may be signing off on a project, including the work done by the applied biologist.

People spoke of the challenge of being asked to modify recommendations if these compete with other values or project goals. Participants were clear that someone from a different profession (or with different scope of practice) should not change the biologist report. The professional's job is to stick to the science and provide their best advice and recommendations, noting the consequences if this was not followed.

On a similar note, people spoke of being asked to reduce the scope of their work in order to reduce costs. The risks (legal and other) of doing so should be clearly identified.

“ *Reality is that it is not about supervision, but about ensuring that signed professional reports are not changed by supervisors. You should sign your work and be firm about no changes.*

“ *Professional to provide their best advice and recommendations, strong presentation with process to optimize decisions, clearly communicate consequences if not followed*

“ *Stick to science, be firm (analogy of medical community that sticks to science, we don't ask them to lower their standards)*

16. Clear legislation is important for multi-disciplinary decisions

Different professions rely on different legislation – and sometimes these conflict! As well, some legislation is poorly written and unclear. Participants advised that it is important not to hide behind the legislation, but focus on the best results and how to get there. Legislation also helps to ensure that clients follow the rules.

- “ *Fix the statutes resource professionals work under*
- “ *There are regulatory grey areas. We need clearer rules that we are operating under, clear end goals*
- “ *Difference between legal requirements and best practices – is it ok to move a stream or not?*
- “ *Sometimes sense that “Unregistered biologist can do whatever they want” – but some actions specified in legislation*
- “ *If not required in legislation, ignored. If licencee doesn’t have to talk to FLNRORD, they don’t.*
- “ *E.g., run of river rehabilitation. Bios and foresters overlap – often clashing. Working under FRPA vs fed standards, how to monitor, what is the standard?*
- “ *What is the legal definition of wildlife in BC? (includes fish) CDC definition? Definition of natural ecosystems?*
- “ *Legislative framework doesn’t allow us to practice the way needed*

Transitioning to Right to Practice

Participants from all professions were generally very supportive of applied biologists getting Right to Practice (RTP). As with all transitions, there were fears and concerns raised about the process and consequences of this.

17. There are fears associated with the transition to RTP

Participants identified concerns with the transition, including:

- ◆ RTP will increase costs for clients
- ◆ Not enough qualified people to meet demand
- ◆ Non-registrants who work for government, but who review and approve the work of professionals
- ◆ It is unclear how firms will register

- ♦ RTP will lead to people being “pigeon-holed” into a very limited scope of practice
- ♦ Unclear as to how volunteers and citizen scientists will be affected, including financial impacts for non-profit organizations
- ♦ The cost of having membership in two professional associations

“ *I do worry that RTP will severely limit the ability of professionals to act adaptively for clients. Should this be implemented, there needs to be a way for the legislation to grow and develop as times goes by.*

“ *Route forward must be a collaborative one vs having a sense or perceived sense of entitlement*

“ *Make it easy to work cross-profession – don’t put up barriers. Dual credentialing, membership*

“ *Importance of dialogue across professions*

“ *Creation of slow processes in a fast-moving world*

“ *Many other professionals have biology expertise! – e.g., foresters, landscape architects*

“ *How will scope/right to practice affect the work of volunteers and citizen scientists? Will individuals or an organization have to be regulated?*

“ *How will licensing/credentialing by other organizations be handled (e.g., Federal bird-banding permits, North American Banding Council certification, permits under BC Wildlife Act, wildlife rehabbers)?*

“ *How to handle work with real experts that are not members once right to practice is achieved*

18. Non-registrants are concerned about the impacts of RTP

Concerns from/about non-registrants included:

- ♦ It will be hard for (some) non-registrants to become registered, even though they may have many years of experience
- ♦ A lack of available courses
- ♦ The cost of courses
- ♦ Shortage of suitable teachers and mentors

Risk needs to be reflected with practice rights, and it was noted that Right to Practice will not give absolute answers.

“ *Consider grandfathering in applicants/individuals who have practiced for many years and can demonstrate reporting/on the job experience*

“ *What about senior biologists with years of experience who don't meet the CAB admission requirements? Does mandatory RTP mean they can't practice in their field anymore?*

“ *University biology programs may not be aligned with CAB requirements*

19. Government should be included in RTP

Several participants said that government employees (federal, provincial and local) should also be required to be registered professionals.

“ *Ensuring competency and objectivity must extend to provincial employees tasked with reviewing the work of biology professionals*

20. The College will need to reach out to non-registrants

Participants noted the difficulty of reaching all non-registrants and provided suggestions for reaching out. Suggestions included:

- ◆ Universities (offering relevant courses); presentations to first- and second-year students (so that they can be sure to take the right courses)
- ◆ Consulting firms who hire applied biologists
- ◆ Municipalities who receive reports from professionals
- ◆ Professional associations
- ◆ Through CAB members and their networks
- ◆ Clubs and organizations (e.g., naturalist groups) – check in the BC Societies Act listings
- ◆ Media (advertising, articles)
- ◆ Social media
- ◆ Offering workshops, forums
- ◆ Word of mouth from registered professionals (encourage registered professionals to share with their colleagues)
- ◆ Webcasts

- “ *Info about CAB and professional reliance in BC should be mandatory for BC post-secondary institutions to pass on in the early years of any program that might lead to a career as a biologist, foresters etc.*
- “ *I think universities and colleges should play a bigger role in sharing this information and helping their students leave with the necessary requirements to be a working professional*

21. College will need to support the transition to RTP

Clear and achievable pathways to registration are required to support the transition. Some of the issues identified by participants were:

- ◆ Paperwork – effort and timeline for certification. Cost – often prohibitive for independent consultants
- ◆ Need to ensure university programs provide graduates with the requirements courses needed
- ◆ The need for pathways to include people with extensive experience but lacking formal education in that field; potential for ‘grandfathering’
- ◆ Availability and cost of courses for those who are ‘a few courses’ short of meeting the requirements; options to have documented experience count instead
- ◆ The College will need to consider how to credential people from out-of-country (and province). It was noted that the Foresters are using national standards as a baseline.

- “ *Unclear how firms will register, what will this mean*
- “ *Need pathways to bring in non-designated people. If they don’t want to register, then what?*

Other Ideas and Concerns

- “ *The concept of professional reliance has downloaded the responsibility of managing Crown land from the Province to professionals who are under financial pressure (often) to make financial decisions not best practices decisions*
- “ *Critical to have government backup – regulatory. Client needs to know they have to do xxx*
- “ *Communication on these changes so far has been fantastic. Continue communications as these changes are implemented is key.*
- “ *There will be culture change in the professions with RTP*
- “ *Make sure everyone understands what registrants can do – RRPBio vs RBTech”*

Appendix 1: Defining Scope of Practice for Applied Biologists

Defining scope of practice for applied biology professionals

Participants commented on the following draft statement:

*Applied biology professionals provide **science-based advice** to **inform decisions, policies, and assessments** for the **long-term sustainability** of **natural aquatic and terrestrial ecosystems, and their living organisms and their habitats.***

Proposed modifications/additions were:

"Science-based advice"

- ♦ We provide solutions, not just advice
- ♦ We collect scientific data
- ♦ Science based advice is good (unbiased advice)
- ♦ Advice – strengthen
- ♦ Not just advice – mitigation, compensation, restoration, habitat design
- ♦ Make recommendations
- ♦ Make recommendations on mitigation measures to avoid, minimize or restore impacts to wildlife and wildlife habitat as a result of industrial activities
- ♦ Statement seems to indicate that they provide advice into assessment, decisions, policies etc. but they may undertake these actions as well
- ♦ Sometimes pure science, species at risk, critical habitat assessment, SEI monitoring

"Decisions, policies and assessments"

- ♦ Also regulations and BMPs
- ♦ Also used to inform infrastructure design
- ♦ Within the context of existing regulations – i.e., we can't force actions if it is not required by our regulations

"Inform"

- ♦ Change "inform" to craft
- ♦ We also help clients comply with regulations, fund solutions to problems in real time
- ♦ Also involved in post decision – compliance and monitoring, interpreting decisions, follow
- ♦ Impact mitigation

"long term"

- ♦ What is long term – beyond just this project, including cumulative impacts, long term view
- ♦ How long is long term?

"sustainability"

- ♦ "Sustainability" is a challenging term (not sufficiently defined); consider "stewardship" instead
- ♦ Sustainability AND function – to capture valued ecosystem functions
- ♦ Can we use another word besides sustainability (very subjective) – stewardship?
- ♦ What is sustainable management? We may need to reengineer out processes and think globally
- ♦ "Long-term sustainability" is a goal, which doesn't belong here; the last phrase is redundant -- "ecosystems" cover it

"natural"

- ♦ "Natural" but what about restoration of disturbed areas
- ♦ We restore ecosystems (more than just making sure natural ecosystems continue)
- ♦ In a time of rapid change, the definition of natural must be broad enough to capture ecosystems that are evolving rapidly
- ♦ Remove natural
- ♦ Natural is appropriate and should always be

"aquatic and terrestrial"

- ♦ Include "marine"
- ♦ Does air and climate come under terrestrial, aquatic or is it its own heading (physical environment)?

"living organisms"

- ♦ Does "living organisms" include people (health) – water and air quality

General comments:

- ♦ Core of statement is good, just wordsmithing – need clarity, avoid jargon
- ♦ Applied biology should also incorporate hands on, feet on the ground, practical project application of this statement
- ♦ The scope is tailored for natural resources operations while the scope of applied biology is much wider – it should include the many other things like lab-based biology

- ♦ How does this macro definition align with the micro RPBio requirements? Appears to be a disconnect
- ♦ I agree and disagree. Ultimately the decision I make and I provide to clients is based on policy and legislation, not sustainability. However, ultimately policy and legislation may be based on sustainability. Holistically the statement captures what we do, but not directly.
- ♦ As written, seems to exclude things on "areas of knowledge" flip chart, e.g., biochemistry



Appendix 2: Areas of Practice and Specialities

“ *People define themselves by what they practice, not by species* ”

Participants identified the following areas of practice as part of the work that they do:

- ♦ Collecting biology-related data
- ♦ Analyzing biological data
- ♦ Habitat and population assessments
- ♦ Inventory and classification
- ♦ Developing policy and standards
- ♦ Environmental impact assessments
- ♦ Cumulative environmental effects assessments
- ♦ Landscape-level assessments; landscape ecology – cumulative impacts
- ♦ Planning, designing and managing projects
- ♦ Resource management and allocation decisions
- ♦ Prescribing and implementing restoration, remediation and mitigation measures
- ♦ Contaminated site remediation
- ♦ Environmental/construction monitoring
- ♦ Long term monitoring and compliance, auditing
- ♦ Citizen science /conservation engagement/applied biology communications and outreach
- ♦ Communication, outreach, public education
- ♦ Collaboration with First Nations /public