

Lesson 3: Collaborative Research

Overview: Students will explore the concept of collaborative research and how this relates to marine planning. They will consider types of knowledge, including local knowledge, Traditional Knowledge, Traditional Ecological Knowledge (TEK), and academic research.

Suggested Time: 2 classes (75 minutes each)

* **Teacher Note:** Materials with a * are available on the Great Bear Sea USB, or at www.greatbearsea.net.

Materials and Resources:

- Computer, projector and screen
- Lesson 3 Film Clips:
 - Traditional Knowledge (8 mins)
 - Collaborative Science (8 mins)
 - Bear Research (5 mins)
 - First Nations History Overview (14 mins) – *optional video and audio files*
- Teacher Background – Lesson 3
- 3.1 Collaborative Research
- 3.2 Interview with Doug Neasloss – *optional*
- Haida Marine Seasonal Round * – *optional*
- Kwakwaka'wakw Seasonal Use Cycle * – *optional*

Learning Objectives:

Students will:

1. Explore and explain different perspectives around place, particular with regard to the environment and sustainability.
2. Identify different types of knowledge, particularly Traditional Ecological Knowledge, and how these contribute to scientific research.
3. Understand how research and information gathering can help inform decision-making at the local and provincial levels.

Lesson Context

This lesson explores the concept of collaborative research, looking specifically at how this approach is being used to assist decision-making for the future of the Great Bear Sea through the Marine Planning Partnership. Students explore the concept of Traditional Knowledge, and look at some examples from the Great Bear Sea region, considering how this knowledge is critical to future planning, and particularly ecological planning that is connected to place. Students watch film clips describing some of the innovative research taking place in the region, with partnerships between local communities, First Nations, and academic researchers. This collaborative research approach explains how Traditional Knowledge and academic research can help inform the decision-making process.

Teacher Background – Lesson 3 provides an overview of Traditional Knowledge (or Indigenous Knowledge), as well as the concepts of Traditional Ecological Knowledge (TEK) and collaborative research. Whereas TEK continues to be a fundamental aspect of Indigenous culture as it has been for thousands of years, it is only recently being recognized as integral to furthering the knowledge base of the scientific community and general public. The collaborative research modelled through the Marine Planning Partnership is an innovative approach to resource management in British Columbia.

Learning Activities

Part A

Activity 1: Types of Knowledge (30 minutes)

1. In small groups, have students consider the following 'what if' scenario:
 - Imagine we have all just survived a large catastrophe (like an earthquake, a near apocalypse, etc.). Modern and technological forms of electricity, communication, etc., are currently not available and may not return.
 - i. What would we need to know and do to survive?
 - ii. What types of knowledge might we have to seek out?
 - iii. Who would we ask for help?
 - iv. If you just moved to the area, what would make this more challenging?
2. Facilitate a class discussion, with groups sharing their ideas. Ask students to consider knowledge that has been passed down from generation to generation and knowledge that is connected to the land or place in which you reside. Have them consider specific types of knowledge that they have that has been passed on to them from their families or communities. Have students also consider how this knowledge has been passed on, and how this process may have changed over

time. Whereas in the past, traditions were generally passed down orally, this is becoming more and more challenging now as we rely more on technology or the written word. Preserving traditions orally becomes very important in the scenario above. What are the consequences of diminishing oral histories?

Activity 2: Traditional Knowledge (45 minutes)

1. If it has not come up already, introduce the term Traditional Knowledge (see **Teacher Background – Lesson 3**), and ask students to explain what they think this means. It is important to recognize that Traditional Knowledge encompasses a vast and sophisticated system of knowledge, including stories (such as Underwater Bighouse, Story of Gitnuganaks from Lesson 1 extension activity, or other local stories that students may be familiar with), values (such as, harvesting only what one can eat, process or distribute), governance systems (such as, where specific families or groups hold rights to marine harvests).
2. Explain to students that one particular type of Traditional Knowledge – the local knowledge First Peoples have about the natural world in their traditional environment – is sometimes referred to as Traditional Ecological Knowledge (TEK). Facilitate a discussion about TEK, and have students provide examples from their own local communities or what they have seen so far in the film clips. Some important points to reiterate:
 - TEK is local knowledge pertaining to the particular territories in which people live, which has been (and continues to be) passed down from generation to generation. While First Peoples share some common values and worldviews, local knowledge captures the nuances and specifics of place, about local ecosystems, sustainable use of resources and the interconnectedness of all living and non-living things.
 - TEK is knowledge about how to live and thrive in a particular place. For Indigenous peoples around the world (and First Peoples here in BC), TEK has allowed communities to flourish for thousands of years, with knowledge passed on from one generation to the next.
3. Watch the **Traditional Knowledge** film clip as a class. As students watch, have them take note of the examples of Traditional Knowledge and TEK as they watch.
4. In groups, have students share their examples and record their notes on chart paper. They can add other examples based on their own experience, examples from their communities, etc.
5. Provide the groups with time to review the charts from other groups, ask questions, and provide feedback.

Part B

Activity 1: Collaborative Research (75 minutes)

1. Recall the film clips watched previously in Lesson 1 and 2 (as well as the Marine Planning Partnership website if students have reviewed). Ask students to consider what type of information the partners (the 18 First Nations and the Province of British Columbia) would need to gather in order to develop the regional plans.
 - Reiterate that as a means of creating the regional plans, partners draw on different types of knowledge and research to help inform their decisions.
2. Provide each student with a copy of **3.1 Collaborative Research**. As they watch the **Collaborative Science** film clip, have students note examples of the different types of research/knowledge being used to inform decision making, and specifically how the different aspects of TEK and academic research connect.
3. After watching the clip, provide students with a few minutes to take notes. Repeat this process with the **Bear Research** film clip. You may also suggest that students note some of the similarities and differences between the examples of collaborative research.
4. Have students discuss their answers with a partner, then share as a class.
5. Have students return to their Traditional Ecological Knowledge charts from Part A, and suggest additional thoughts after viewing the film clips.
6. Together as a class, come up with a definition for collaborative research (see the **Teacher Background – Lesson 3**).
7. Have students submit a reflective response to one of the following questions:
 - Think of another example where collaborative research may be helpful for planning or decision-making. How might it be used and how would it be helpful?
 - Think about the potential consequences of not being mindful to record oral history as we move into the future. Consider what might be lost if histories are not recorded. You may wish to use an example from the past to reinforce your thinking (whose voices were silenced by not recording history in the past, the value we place on stories as a society, etc.).

Closing

- In preparation for Lesson 4, divide the class into four groups, one for each region of the Great Bear Sea:
 - Central Coast, North Vancouver Island, Haida Gwaii, North Coast

- Lesson 4 assumes that student groups have access to technology to view their portion of the film as a small group (on devices in the classroom or in a computer lab). Depending on your circumstances, students could watch the film clips at home after Lesson 3 or the class could watch all four film clips together in class and then break off into groups thereafter. For watching at home, the clips are available on the website: www.greatbearssea.net. Clips on the website are YouTube links, so these can be embedded into your own class website and/or online learning space, with additional instructions for students, opportunities for sharing comments, etc.

Extension Ideas

- Disseminate the **3.2 Interview with Doug Neasloss** (or use the film or audio files with **First Nations History Overview**) describing the history of the First Nations in the Central Coast region of BC as told by Doug. Have students write a journal response addressing one of the comments/issues that Doug raises.
- Seasonal rounds or seasonal use cycles map the Traditional Knowledge of an area, displaying the when and what of harvesting around the seasons for a specific place. Have students explore two examples from the Great Bear Sea region using the **Haida Marine Seasonal Round*** and the **Kwakwaka'wakw Seasonal Use Cycle ***.
- Have students research an example of Traditional Knowledge in your local region, and/or invite a Knowledge Keeper into the classroom as a guest speaker.
- As a class, explore the First Nations Principles of OCAP, a set of standards that establish how First Nations data should be collected, protected, used or shared. (www.fnigc.ca/ocap.html)

Assessment Ideas

- Formatively assess students' engagement in group work and large group discussion.
- Collect **3.1 Collaborative Research** for each student.
- Collect the reflective responses.

Teacher Background – Lesson 3

Indigenous and Traditional Ecological Knowledge (TEK)

Thinking generally about these concepts, Indigenous or Traditional Knowledge refers to the vast, diverse and sophisticated body of knowledge of a group of peoples that has been generated over thousands of years, is passed down from one generation to another, and continues to evolve over time. It is knowledge that pertains not only to cultures and beliefs, but also physical space, environments and place. As noted by the Assembly of First Nations:

“Although there is no universally accepted definition of “traditional knowledge”, the term is commonly understood to refer to collective knowledge of traditions used by Indigenous groups to sustain and adapt themselves to their environment over time. This information is passed on from one generation to the next within the Indigenous group. Such Traditional Knowledge is unique to Indigenous communities and is rooted in the rich culture of its peoples. The knowledge may be passed down in many ways, including: storytelling; ceremonies; dances; traditions; arts and crafts; ideologies; hunting and trapping; food gathering; food preparation and storage; spirituality; beliefs; teachings; innovations; medicines.”

The term Traditional Ecological Knowledge (TEK) is perhaps the most popular term used to refer more directly to the knowledge that First Peoples' have in relation to the natural world, and specifically the distinct ecosystems and landscapes in their traditional environments. Again, there is not a universally recognized definition of TEK, but in helping students understand this concept, the following points may be useful:

- TEK is local knowledge pertaining to the particular territories in which people live, which has been (and continues to be) passed down from generation to generation. While First Peoples share some common values and worldviews, local knowledge captures the nuances and specifics of place, about local ecosystems, sustainable use of resources and the interconnectedness of all living and non-living things.
- TEK is knowledge about how to live and thrive in a particular place. For Indigenous peoples around the world (and First Peoples here in BC), TEK has allowed communities to flourish for thousands of years, with knowledge passed on from one generation to the next.
- The environmental knowledge of generations about a specific local place is very important in the study of science, and thus TEK is used widely in various fields of science, such as resource management, climate change and sustainability.

It is important to recognize that Indigenous Knowledge or Traditional Knowledge does not just encompass ecological knowledge (TEK), but also a variety of other systems

of knowledge including (but not limited to) cultural, historical, economic, political and societal information belonging to a group of peoples. Consider some of these additional resources to learn more:

Appendix A: Interview with Doug Neasloss

Appendix B: Indigenous Knowledge

Assembly of First Nations Environmental Stewardship – Traditional Knowledge

www.afn.ca/uploads/files/env/ns_-_traditional_knowledge.pdf

First Nations Education Steering Committee Science First Peoples Resource

www.fnesc.ca/science-first-peoples

Traditional Ecological Knowledge Prior Art Database

<http://ip.aaas.org/tekindex.nsf/TEKPAD?OpenFrameSet>

World Intellectual Property Organization

www.wipo.int/freepublications/en/tk/920/wipo_pub_920.pdf

Collaborative Research

Contributed by Alejandro Frid - Science Coordinator/Ecologist Central Coast Indigenous Resource Alliance (27 April 2016). Do not duplicate without permission from the author.
www.alejandrofridecology.weebly.com/marine-resources-and-first-nations.html

Modern Indigenous people embrace new technologies and do not isolate themselves from contemporary culture and economy, yet maintain a tradition of deep interconnection with our non-human kin. Their gathering of edible and medicinal plants, their hunting and fishing, bring nourishment that not only is physical but also essential to sustaining worldviews that have been rooted in place for many generations. The implication is that habitat destruction and biodiversity loss are inseparable from the demise of cultural diversity, and therefore the rights of many human beings. Not surprisingly, Indigenous people have become conservation leaders in many parts of the world. Their efforts to conserve the ecosystems that sustain their traditional foods – mainly through protected areas that exclude large-scale exploitation – could make ecosystems more resilient to climate change and other stressors.

In the Central Coast of British Columbia, the Heiltsuk, Kitasoo/Xai'xais, Nuxalk, and Wuikinuxv First Nations have joined forces to proactively manage their resource, fostering collaborative research between scientists and holders of traditional knowledge. The elements of this collaboration are complementary.

On the one hand, science tests for explicit mechanisms that might affect ecological communities – such as fisheries and climate change – and uses empirical findings to

predict future conditions. Yet science often occurs in short spurts and in few places, suffering from short-term, narrow perspectives that limit understanding.

In contrast, Indigenous Knowledge derives from cumulative and collective observations made by many generations of people who are connected to the resources of vast ecosystems. Oral traditions preserve this knowledge as Indigenous laws and stories that transcend many limitations of science.

In concert, science and traditional knowledge can merge the holistic and long-term perspectives of Indigenous people and the predictive abilities of science. The potential result is a stronger foundation for conservation and resource management policies.

Name: _____

3.1: Collaborative Research



3.2 Interview with Doug Neasloss

The following is an excerpt from an interview with Doug Neasloss, Chief Councillor, Kitasoo/Xai'xais Band Council & Resource Stewardship Director, Kitasoo/Xai'xais Integrated Resource Stewardship Authority. Doug shares some of the history of the First Nations in the Central Coast region of BC.

Doug: My name is Doug Neasloss. I am from a small community called Klemtu, which is right on the central coast of British Columbia, and it is home to the Kitasoo/Xai'xais Nation. I have a few different titles. I work as a Marine Planning Coordinator. I work as a Resource Stewardship Director, with land and marine stewardship and a whole bunch of other things that come out of that as well. I also work as the elected Chief of the community, and my background's mostly been in tourism for the last 14 years.

To me, I think, this is one of the most special areas in all of the coast. I think the Great Bear Rainforest is definitely a very special and unique area. A place that still has intact old growth forests. We live in the largest intact temperate rainforest on the planet. It's one of the last strongholds you'll get for bears and other wildlife that are in the region. And it's just full of life. And I think that's something that's really neat. It still has the aquatic resources. It still has a lot of the land animals and I think there's not too many places on the planet that have what we have here and that's what keeps me here.

Karen Meyer (Great Bear Sea film maker): Taking a look back, talk about things that had a really significant impact on First Nations.

Doug: I think there's been a bit of a rough past when it comes to First Nations, I mean, I think just not long ago, whether it's 150 years to 200 years there was nobody else here, it was just First Nations communities, you know, in my area here we have two different nations from Klemtu. We have the Kitasoo, who are Tsimshian and they're the southernmost Tsimshian group and lived on the islands and then we have the Xai'xais people who lived on the mainland and in both Nations moved in the Klemtu in the 1850's, but prior to that, people lived, you know, quite nomadic lifestyles, and they followed the food resources in all of these different areas. At the time our cultures were very complex. It wasn't just as simple as following food. People had very complex governance structures, they had very complex relationships with different families. We had clan systems that distinguished different family groups and who had access to different areas based on different seasons. So it was a really complex relationship.

Around 1884 the government at the time decided to ban the Potlatch, which was the Potlatch in our community, our culture was the glue that held everything together. The singing, the dancing, the storytelling, the governance, coming-of-age ceremonies, passing of chieftainship, passing of copper shields. All those things were really important in our culture and in our community. And people used to prepare years in advance for Potlatch. So if I was going to host a Potlatch, some people would prepare 4 or 5 years in advance. But the Canadian government wanted to assimilate First Nations people into

the mainstream society so at the time they banned the Potlatch in 1884 to 1951. And the same thing happened in other regions. In the U.S. it happened in 1884 to 1936. But 1884-1951 during the banning of the Potlatch, it was illegal to Potlatch. And if you were caught potlatching, you were arrested for doing that.

So at the time the government sent what they called the "Indian Agent," and it was a person up here to monitor the activities of the local communities. And so everyone was paranoid about potlatching. People didn't want to Potlatch. But it was such an integral part of our culture and our community, people decided to take it underground in a way and Potlatch in secret. So what people used to do is they used to take the regalia and put it in the cedar bentwood boxes to make it look like it was a burial box, but it was actually their storage area for all of their regalia. And they used to paddle out to this one place we call it Dis' Ju, and it's a gathering place for people. And this Big House is hidden in the forest, you can't tell it's there going by in the boat, and people used to paddle out there in the roughest times of the year to go and Potlatch, so the Indian Agent wouldn't follow them out there.

Unfortunately around the early 1900s, there were so many families that did not make it back. A lot of families died trying to go out and Potlatch in secret. So by the early 1900s Klemtu stopped potlatching altogether. And that was a huge loss for the culture. Again, because that was the glue that held everything together. And that was just, you know, one of the reasons why we, during that time, we lost a lot.

Karen: What are some of the key things that your Elders tell you about what life was like here pre-contact?

Doug: Yeah, I've sat down and had a lot of discussion with our Elders about life, and even, you know, we live in a pretty isolated area, so we didn't have actually a lot of contact until quite late. The first contact we had was actually Captain Vancouver. I believe that was in 1793, when he came up and it was what people, the Elders always talk about how nomadic the lifestyles were. They talked about the seasonal camps, and the permanent camps. They said the food harvest would start in the wintertime. It would start with the clams and cockles in the winter. And then early spring, around March, the halibut would start to come in and they would start harvesting halibut. And then once the halibut was finished, they would start to move over to the herring and the herring eggs. And that was huge. That was probably one of the most important foods in our community, because it wasn't just used for food consumption, but it was also used for trade. And there was a huge trade routes along the Coast amongst different families up and down the coast. So Klemtu used to harvest the herring eggs and trade it with the Bella Coola people [Nuxalk] and also the Kitamaat people [Haisla], and they used to trade for eulachon grease, and that was huge because we didn't have eulachons in Klemtu area, and then once that was finished, we'd move over to seaweed in May, and right after seaweed was finished then you would go on to salmon, in particular sockeye salmon, and then later on in the summer, late summer, you would start to get all the salmon, so the coho, pink, and chum would start to come in.

So people were very dependent on all of these resources, and especially because it was such an isolated community, those aquatic resources are extremely important because food costs here in the community are so expensive. People, you know, depended on those, and we had different camps based on different things. Like Marvin Island is a herring camp. People just went there to go and harvest herring eggs. And while they were there, they would dry the herring eggs, they would dry the halibut, because a long time ago there were no refrigerators or freezers, so they would dry everything. Everything was sun dried. Or they would smoke it. And that's how they'd preserve things.

We've watched a lot of those resources dwindle over the last number of years. Partly because of mismanagement, and people coming in and harvesting too much. And, you know, in my lifetime, we've witnessed huge declines. Everything from abalone. Abalone used to be a once abundant shellfish in our territories. And the Elders talk about it ... that in some areas they said you couldn't even touch the ground there was so many abalone. They were all over the place. Today, you probably will never see an abalone. In my lifetime I've never actually tried an abalone in the last probably 20-something years now because they've all just been wiped out. You know, the commercial fishery came in and harvested way too many and they just haven't been able to come back in numbers. With things like abalone you need large numbers because they're broadcast spawners and so the population just hasn't been able to come back and do that.

Same thing with salmon. I listen to the historical numbers of salmon. Some of the Elders will say some of the rivers and the estuaries would be full of salmon. They said some rivers were just plugged wall to wall with salmon. And I looked at the historical numbers of them, and there were about 80,000 fish in some of those systems. Today, we are down to about 5 or 6 thousand in some of those same rivers.

So, you know, I think there's been way too much over harvesting. I think with things like global warming, there's a number of different impacts that are effecting salmon. So, I think we have a long way to go.

Karen: What happened as a result of banning of Potlatches and other events, post-contact?

Doug: Well, I think the loss of culture during the ban of the Potlatch, I mean that was huge. I mean we had, you know, very strict ceremonies for different seasons. The return of salmon. The return of eulachons. The return of herring. The return of all these separate things were celebrated in a way, but also it was a ceremony to let the community know what time of the year it was, and food harvesting, I think there was traditional stories that were lost during that time and traditional stories that taught lessons of respect for certain resources and you know I think the governance structure, I think there was a lot that was lost, you know, songs and dances, and songs in our culture was a way of documenting an event, you know, that was going on so it wasn't just a simple song it had some meaning to it, and it came from a certain area, and it belonged to a certain family.

The passing of chieftainship. You know we have a very complex hereditary chief system in our community. So hereditary chiefs, you weren't just born a hereditary chief, you were groomed to be a chief, and you know the rule of the hereditary chief is you're there to steward, you had a responsibility to take care of a certain area, and so if you were a chief you would carry title to a certain inlet, or a certain estuary, and it was your responsibility to make sure that what was going on there was sustainable and "chief" in our language means "to serve." It means that you're there to maintain order of a house. So we had chiefs that had ... they're responsible for a Raven House. And that house, they had to make sure people were keeping the songs alive, keeping the stories alive. You know, harvesting the different berries, or harvesting deer, and salmon, and things that hunters and gatherers harvested.

But they would also grant permissions to certain people to access certain areas, and that was all based on sustainability. So you had to make sure that the stocks were there, and if they weren't there, they would deny access to certain areas.

And we also had very complex arranged marriages as well, so if you wanted to access an area, today people just go on there and fish in an area. A long time ago it wasn't like that. You had to get very strict permission or it was often done through arranged marriage. So, if I was a chief and I wanted to access some else's area, you'd do an arranged marriage, and I would have access to their salmon, they would have access to my berries. So it wasn't just anybody that could go in. And that could get you in big trouble, I think, a long time ago if you just waltzed in there today and go and access certain areas. So I think that system, the hereditary system they used, a lot of that was lost during that time. Luckily we do have some Elders that still have some of that knowledge.

You know, I think the appetite of the time was really to assimilate First Nations people to mainstream society. And it started off with the governments and the church at the time banning things like the Potlatch and I guess just before the Potlatch, disease ran fairly rampant in our communities in around the 1860s.

I think at the time there was this huge movement to assimilate First Nations people into the mainstream society, so banning the Potlatch was a huge step in terms of trying to assimilate and get First Nations people to forget their culture, but prior to the banning of the Potlatch came disease. So disease ran rampant in all of our communities and we estimated we had a population of about 3,500 to 4,000 people out in Kitsoo Bay alone and disease swept through there around the 1860s and there was a smallpox epidemic that killed off quite a bit of the communities. In some cases it was like 99% of the communities. So we have some stories where one or two people survived the smallpox epidemic. Also around 1913, there was also the flu epidemic as well, and that decimated, again, quite large populations. I heard stories from our Elders where so many people died that they didn't really have time to give them a proper burial. It was just dig a big hole, put them in the ground, and hopefully you don't get sick. So I think those introduction of diseases played a huge role and a lot was lost.

So not just did we have to deal with smallpox and the flu epidemic, and the banning of the

Potlatch. Communities were still around in the early 1900s so the government started to introduce Reserve systems. They started to take First Nations nomadic people and started to push them all to these small parcels of Reserve and basically said "You're not going to live in these areas anymore." And they sort of pushed these people into small little blocks. So, my community was settled here in Klemtu and this is about 100 acres here in the community. It's not very big, but our community, our territory is massive because we followed all the foods and that's what our territory is based on today.

You know, unfortunately, now if you look at our system now, we only have about, we have less than 1% of our land base, if you were to go by their reserve system today. Although my people have always said they never signed a treaty. They've never surrendered rights and titles, so they've always said "this is theirs" and it's based on the chieftainship that's there.

So, it wasn't just all of those things – disease, the banning of the Potlatch. Another major event was residential schools. In the 1930s the government created these residential schools and basically, you know, we have some of the literature from the churches that said the banning of the Potlatch wasn't working – people were still speaking the language, people were still practicing their culture, whether that was being done in secret. So they needed some ways to really try and get people to forget their culture, forget their language, and become, to be assimilated into mainstream society, so the idea of residential schools was created.

There were boats that came into the community in the early 1930s and basically scooped up all the kids in the community and people had no choice, and they had to go and they were taken on the boats and they were taken out to schools, and they were spread out all over. A lot of people from Klemtu went down to Vancouver Island. And around Alert Bay area. Some people went down to Port Alberni. Some people from Klemtu went as far over as Edmonton in the 1930s. Some people went to Vancouver, to the mission school that was there. And the idea was to separate young people from their parents so that oral tradition wasn't passed on. And people, if you listen to the Elders who have gone through these residential schools, they were strapped for speaking their language. They had to cut their hair a certain way. The food quality wasn't good and there was a lot of other things that went on in the background that were not the best things to happen to young kids. And that really changed a whole generation of kids, because now you take a bunch of kids, you put them in these residential schools so that that love you get from your parents was not passed on throughout families and that had a trickle down generation, we still feel the effects today of that generation because some parents grew up without the parenting skills that you would learn from your parents.

Some people grew up with no love and that really affected households, families and communities, and so I think it's my generation, kind of the first generation, that are fortunate and hasn't had to deal with all of that stuff now, and I think things are a bit different today than they were back then. So I think you're going to start to see a bit of a resurgence of stewardship and I think you're going to get this new generation that's

going to come up and start to reassert their stewardship responsibilities, reassert their authority as hereditary chiefs, as owners, or stewards of the land. And I think that's something that we want to be able to work with provincial and federal governments. And we want to stop the mismanagement of these resources and we want to work together and somehow come out with some sort of strategy to best take care of these areas.