



# Cows and Fish Report

Cows and Fish Evaluation 2017

Cows and Fish

Alberta Riparian Habitat Management Society      Report No. 047

## **Acknowledgements**

Funding for this project was provided by the Alberta Riparian Habitat Management Society (Cows and Fish), via an Alberta Environment and Parks grant. The authors wish to thank Norine Ambrose, Executive Director, for her valuable input and feedback on this project; Lorne Fitch, Riparian Specialist, for his guidance on this evaluation process; and the Cows and Fish program staff for sending out the surveys and managing the updates to the contact list.

## **About Cows and Fish**

Riparian areas are those areas along rivers, streams, lakes, wetlands, springs, and ponds that are strongly influenced by water and are recognized by water-loving vegetation. Cows and Fish is striving to foster a better understanding of how riparian areas function and how improvements in management strategies in riparian areas can enhance landscape health and productivity for the benefit of livestock producers, their communities and others who value these landscapes.

Cows and Fish Partners: Producers and community groups, Alberta Beef Producers, Trout Unlimited Canada, Canadian Cattlemen's Association, Alberta Agriculture and Forestry, Alberta Environment and Parks.

Other Funders: AltaLink

*Working with producers and communities on riparian awareness*

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The Praxis Group and NRG Research Group. 2017. Cows and Fish Evaluation 2017. Prepared for Alberta Riparian Habitat Management Society (Cows and Fish). Cows and Fish Report Series 047. Lethbridge, Alberta. 113 pp.



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# Cows and Fish

Alberta Riparian habitat Management Society



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## Summary of Key findings

### INTRODUCTION

The Alberta Riparian Habitat Management Society, also known as "**Cows and Fish**", is a non-profit society striving to foster a better understanding of how improvements in grazing and other management of riparian areas can enhance landscape health and productivity. This is undertaken for the benefit of landowners, agricultural producers, communities and others who use and value riparian areas.

Cows and Fish has undertaken two prior program evaluations in 2001 and 2004. The current program evaluation is designed to assess what has occurred since the previous evaluations, in particular, a review of the successes and challenges with a view to the future. Ultimately the evaluation will assist Cows and Fish with understanding how they can best support landowners and other stakeholders in their efforts toward maintaining healthy riparian areas, and will assist Cows and Fish in making program delivery decisions to increase effectiveness.

The focus of the evaluation is on what has been achieved from the perspectives of a variety of stakeholders including:

- Landowners (lakefront, agriculture, acreage)
- Community or Watershed Stewardship Group Representatives
- Agricultural Fieldman /rural extension staff
- Municipality staff
- Provincial or federal staff
- Members of a conservation/environmental organization

### METHODOLOGY

A multimodal research approach was used in the 2017 evaluation involving both a quantitative online survey and qualitative in-depth interviews.

#### Online Survey

An online survey was administered to landowners and other stakeholders who had previously been in contact with Cows and Fish as part of riparian health (or range) work and were therefore in the Cows and Fish database. All participants surveyed were involved with a riparian health (or range) assessment completed since 1998. Understandably, the initial database of 1,466 contacts going back more than 20 years contained out of date information. There were 293 records where the contact information was no longer valid (i.e. incorrect or incomplete email or mail address, deceased, moved). The online survey was completed by 303 people from a total of 1,173 valid contacts (26% response rate). This sample size provides a margin of error of +/-4.9%, 19 times out of 20.

#### In-depth Interviews

Personal interviews were conducted with 37 stakeholders from a range of organizations to determine how the partnership has worked and might work in the future. Interviews followed an interview guide, but also encouraged a free-flowing dialogue in relation to Cows and Fish.



Note that the in-depth interviews and the online responses have been analyzed separately within the report as it is not valid to combine qualitative data and quantitative data. Nevertheless, the contrasts between the two modes of evaluation are of interest in terms of identifying similarities and differences. All references to in-depth interview results do not include percentages as these data are qualitative and not based on a representative sample.

## **AWARENESS**

Overall, online survey participants and in-depth interview participants alike believe awareness of Cows and Fish programs is good among landowners and land managers but could be improved. Just under one-third of online survey participants rated awareness of Cows and Fish among landowners and land managers in their area as good or very good, with a further 31% rating awareness as average and 22% providing a rating of poor or very poor (16% did not know). Commentary supports the quantitative findings and suggests there is a need and an opportunity for Cows and Fish to increase awareness among landowners in their respective areas.

## **INTERACTION**

Awareness can come from many sources, and in the case of Cows and Fish this is likely to be driven mostly through the various forms of interaction they have within the community. To this extent, interaction is taking place across a wide range of methods, most notably receiving riparian (or range) health reports (76%), one on one interactions (68%) and reading written materials (63%).

Both quantitative and qualitative results showed that although interaction in the online realm is low, provision of social media outlets such as Facebook, Twitter and podcasts are perceived as putting Cows and Fish in the right direction and would work to engage the younger population.

Most online survey respondents feel group interaction, rather than one-on-one interaction provides the greatest opportunity for learning (74%).

Although most online survey participants feel Cows and Fish is doing a good job with the tools and communications it uses (53%), a large percentage also feel there is a need to enhance communication and follow-up. In particular, landowners note that once the practice changes have been implemented it would be valuable to have a follow-up assessment. It must be noted Cows and Fish does assessments at the request and invitation of local communities or stewardship groups in most cases; and when there is no longer a group active or working on riparian health, Cows and Fish are typically not invited back. It may therefore be necessary for Cows and Fish to reach out to those who have completed their riparian practice change work and ask if a follow-up assessment is of interest to the landowner. In this regard there is also recognition among participants in the quantitative and qualitative surveys that the good work being done by Cows and Fish is limited by the number of staff available. This is not a reflection of the quality or integrity of staff, just the perception that the number of staff is spread very thin.

## **Cows and Fish Website**

Around half of all landowners and other stakeholders surveyed have visited the Cows and Fish website. Website visitation is significantly more frequent by representatives of government departments and agencies and non-government organizations (NGOs) working on riparian issues than landowners.



On the Cows and Fish website, publications and program and event information are perceived to be most useful. As such, Cows and Fish need to ensure these features are kept up to date and are easily accessible on the website for all to see and navigate.

For landowners and stakeholders who haven't visited the website, they would be motivated predominantly by circumstance (e.g. needing information on riparian areas and management); however, there is a chance to engage more with these groups as the website can fall off the radar for some.

### **PERCEPTIONS AND ATTITUDES TOWARDS COWS AND FISH**

Overall, attitudes towards Cows and Fish are very positive. Qualitative results support the high ratings in the online survey with all those spoken to holding the belief that there is a very high level of trust for Cows and Fish. Cows and Fish are seen to have a great reputation across all stakeholders. In addition, Cows and Fish are not perceived as 'pushy', rather their approach is to wait for an invitation to be involved (although as noted earlier, Cows and Fish should consider contacting landowners to see if follow-up is desired).

Typical of the responses from in-depth interviews are as follows:

*"Very high level of trust, higher than the highest. Most highly trusted for riparian information and on the ground activities and they have no vested interests." (provincial government)*

*"They are trusted. They are not pushing an agenda on anyone. They work well with everyone. They are great to work with." (not for profit organization)*

The majority of landowners and other stakeholders surveyed online feel that Cows and Fish are relevant (80%), and this relevancy is driven mainly by the provision of information and education to increase awareness of riparian management practices, conducting riparian assessments and protecting watershed systems and water quality.

Cows and Fish staff received very high ratings on their knowledge of riparian management (94% agree that Cows and Fish staff are knowledgeable in this area) and being knowledgeable around the practicalities of living and working near riparian areas (87% agreement).

Perceptions on 'being knowledgeable' can be linked to credibility and this is another area Cows and Fish are seen to be performing well (90% agreement). In addition, being perceived as respectful also helps to highlight that Cows and Fish understand the practicalities of living/working near riparian areas and performance is also currently strong on this attribute (90% agree that Cows and Fish staff are respectful).

Cows and Fish can display many characteristics to create a public persona. Here landowners and stakeholders believe that first and foremost, Cows and Fish should continue to demonstrate that they are knowledgeable about riparian area management and that they understand the practicalities of living and working near riparian areas. These were also the top ranked characteristics in 2004, reinforcing the need for consistently high performance on these areas.

It is worth noting that credibility is considered more important when helping others learn or raise their awareness about riparian areas while the ability to motivate is considered more important when helping others adopt new sustainable riparian management practices.





Overall, 84% feel that Cows and Fish has a good reputation of fostering a better understanding of management practices in relation to riparian areas and ecosystem health and productivity. Qualitatively, there is an overall feeling that most landowners and community organizations are motivated to do the right thing but need further assistance in turning that motivation into action. This was a theme in both the in-depth interviews and the comments provided within the online survey. Cows and Fish is seen to provide a bridge to work on riparian actions and these actions are effective in the local areas and with the landowners.

### **RETURN ON INVESTMENT AND IMPACT**

Respondents from all organizations involved in the in-depth interviews believe they are getting a good to excellent return on investment from their relationship with Cows and Fish. This is not only in terms of a financial relationship but also the time and resources applied to any project or outreach activity.

The online survey demonstrated the positive impact Cows and Fish have on riparian area management and practice change. Almost two-thirds (63%) of all landowners surveyed indicated they made a practice change as a direct result of contact with Cows and Fish. Almost half (48%) of landowners made a practice change sooner than they would have otherwise. Among the landowners who indicated they made a practice change, 68% indicated they made the change differently than they would have had they not been in contact with Cows and Fish. For example, comments from online survey participants in this regard follow:

*"Left a larger zone fenced off, trying different grazing to control weeds while grasses recover."*  
(producer)

*"Today, not only myself but many of my neighbours have adopted a different position towards riparian reintroduction. They enjoy the beauty of the landscape having a broader biodiversity"*  
(acreage owner)

An important consideration in relation to practice change is that the initial landowners' riparian health assessments covered the full range of riparian health, from very healthy to poor health. Therefore, not everyone in the Cows and Fish database would have been in need of practice change.

### **BEHAVIOUR AND KEY CHANGE MOTIVATORS**

The key motivators behind riparian management practice changes are 'a sense of responsibility to manage the area for health' (52%) and 'a greater awareness of management impact or land use on riparian health or function' (45%). These motivations did not differ significantly by the time in which action was taken, indicating that these motivations are what Cows and Fish need to be most conscious of in terms of the core drivers of change.

As previously mentioned, there are a number of means by which Cows and Fish interacts with landowners and other stakeholders. In terms of what is deemed most useful in making the decision for change three areas topped the list; in-person interactions (82%), hands on field activities (76%) and Cows and Fish staff presentations (75%).





### **FUTURE FOCUS and IMPROVEMENT AREAS**

Cows and Fish aims to use a local community-based approach to deliver its programs and for the most part (74%), landowners and other stakeholders believe that group settings will work well for learning and practice change.

When asked for additional thoughts on how Cows and Fish can help landowners and others improve riparian area management practices, most (53%) indicated no improvements are needed or could not suggest anything. Among those with suggestions for improvements, most mentioned the need for follow-up with landowners and reaching out and communicating with past and new landowners.

Some requests for final thoughts resulted in some interesting responses from the in-depth interviews:

- *“Cows and Fish are doing an amazing job with a lack of resources. I hope things will get better and better for them.” (watershed council)*
- *“Don’t stray too far from your current work. We don’t want to see the current efforts diluted. No one else has the core body of expertise around riparian issue that Cows and Fish have.” (provincial government)*
- *“They are on a fundraising treadmill. They (we) really need to find new ways to change the funding model. The carbon levy may be a new opportunity.” (watershed council)*
- *“What do Cows and Fish do when they grow up? What business will they be in? Urban areas have big riparian issues. So do the rural areas. Cows and Fish only have so many resources so they need to do some serious strategic planning to decide what they want to do in the future.” (provincial government)*

Cows and Fish has demonstrated it has a high level of credibility among all stakeholders. The expertise and solutions provided to landowners has resulted in many positive impacts, including practice changes that would not have occurred otherwise and accelerated timelines. There is a view that more landowners can benefit from Cows and Fish reaching out even further (as noted in the assessment of awareness) and that new opportunities exist in this regard. However, there was concern expressed in both the online survey and the in-depth interviews that moving beyond the current scope will be challenged by the current resources available.



# Section 1 Overview and Methodology

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## 1.1 Introduction

The Alberta Riparian Habitat Management Society, also known as "**Cows and Fish**", is a non-profit society striving to foster a better understanding of how improvements in grazing and other management of riparian areas can enhance landscape health and productivity. This is undertaken for the benefit of landowners, agricultural producers, communities and others who use and value riparian areas. Their mission is to promote the improvement of riparian areas and their ecological processes and functions, through a collaborative partnership and voluntary, proactive community-based action. This is undertaken via education and awareness about management options for producers, other landowners and their communities; extensive riparian health monitoring with landowners and groups; development of tools and training on riparian function and management; and extensive collaboration with landowners, local stewardship groups and other organizations and agencies.

## 1.2 Program Evaluation

Cows and Fish has undertaken two prior program evaluations in 2001 and 2004. The current program evaluation is designed to assess what has occurred since the previous evaluations, in particular a review of the successes and challenges with a view to the future. Some of the questions asked in the 2004 evaluation have been be used again for comparative purposes, in addition to new questions. Ultimately the evaluation will assist Cows and Fish with understanding how they can best support landowners and other stakeholders in their efforts toward maintaining healthy riparian areas, and will assist Cows and Fish in making program delivery decisions to increase effectiveness.

The focus of the evaluation is on what has been achieved from the perspectives of a variety of stakeholders, including: producers and other landowners; county and municipal district employees; provincial and federal government personnel; and those involved with conservation, stewardship and non-government organizations.

## 1.3 Approach and Methodology

A multimodal research approach was used in the 2017 evaluation involving both an online survey and in-depth interviews. The online survey and the in-depth interview guide were developed in conjunction with Cows and Fish and based largely on what was asked in 2004. The online survey and the interview guide are included as Appendix 1 and 2.

Please note, for clarity reference to those 'interviewed' is always associated with the in-depth interviews and reference to those 'surveyed' is always in associated with those who completed the online survey. Also, percentage values are never assigned to the in-depth interview results as these are qualitative and not based on a random sample.



### In-depth Interviews

In-depth interviews were conducted with 37 stakeholders and senior staff from a range of organizations to determine how the partnership has worked and might work in the future. In-depth interviews followed an interview guide, but also encouraged a free-flowing dialogue in relation to Cows and Fish. Although several questions were the same or quite similar to those used in the online survey, it is not acceptable practice to combine quantitative and qualitative data, therefore they have been considered separately in this report.

The 37 interviews were drawn from an initial list of 100 stakeholders, provided by Cows and Fish staff. These are broken down as follows:

- Municipalities, municipal districts, counties: 10
- Provincial and federal government: 9
- Watershed Planning and Advisory Councils: 3
- Other Non-Government Organizations: 15

### Online Survey

The second approach was an on-line survey administered to all landowners and other stakeholders who were in the database because they had riparian health assessment or inventory work done on their land (or land they manage or oversee). Although the database has been added to with new contacts as more riparian health work was done, historical information has not been updated unless there has been follow-up contact (e.g. revisits). Understandably, the initial database of 1,466 contacts going back more than 20 years contained out of date information. The full disposition of contacts is shown in Table 1. From the initial list of 1,466 there were 293 non-usable records.

**Table 1 Contact List Disposition**

|   |                  |
|---|------------------|
| <b>Total Initial Database</b>                                     | <b>1466</b>      |
| <b>Status (included)</b>  | <b>Frequency</b> |
| Successful (no bounce or return to sender)                        | 1114             |
| Email delivery failed; confirmed and sent paper survey            | 23               |
| Requested paper copy  | 19               |
| Mail failed; confirmed and sent survey by email                   | 15               |
| Do not contact again (angry refusal)                              | 2                |
|   | <b>1173</b>      |
| <b>Status (excluded)</b>  | <b>Frequency</b> |
| Letter returned to sender (no such address)                       | 113              |
| No mailing address or email address on file                       | 88               |
| Removed from list - no letter sent - no valid contact - duplicate | 64               |
| Deceased  | 20               |
| Moved   | 7                |
| Delivery failed, did not send paper copy                          | 1                |
|   | <b>293</b>       |



All records in the database were assigned a unique personal identification number (PIN). Administration of the survey depended on what contact information was on file. If an email address was present, the survey link and PIN were sent via email. If only postal address information was available, then a letter was sent from Cows and Fish containing the invitation to partake in the survey along with the survey URL and a unique PIN. The respondent would then be able to complete the survey online. Instructions were also provided to allow the respondent to obtain a paper survey by calling a toll free number.

Surveys were sent out on February 6, 2017 with a requested return date of March 1, 2017. Due to a lower than expected response by March 1 (n=177), it was decided to call all non-respondents where there was a phone number in the database. The impact of the calling was significant by not only substantially increasing the response rate but also updating the contact information. An additional 126 surveys were completed after the calling, bringing the total to 303 surveys.

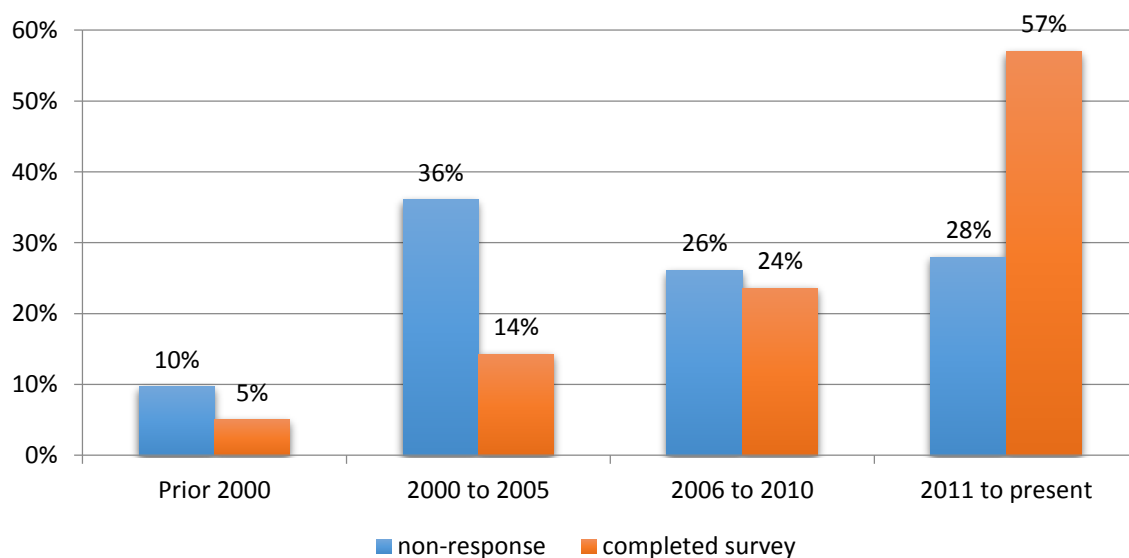
Table 1 shows of the 1,466 contacts in the database, there were 293 surveys that did not get through to the intended recipient, or did not get sent because the contact information was invalid or incomplete. For the purposes of calculating the margin of error, the population is considered 1,173.

The margin of error associated with a sample of 303 surveys within a population of 1,173 is +/- 4.9%, 19 times out of 20.

Unfortunately 11 additional surveys arrived after the final database was compiled which were not included. These additional surveys were turned over to Cows and Fish so the information was not lost (with personal identifiers removed).

Figure 1 compares the year of most recent contact among those who responded to the survey with those who did not. The comparison shows those with a more recent contact history have a higher propensity to respond to the survey. Data for this comparison was obtained from the Cows and Fish database, not the survey.

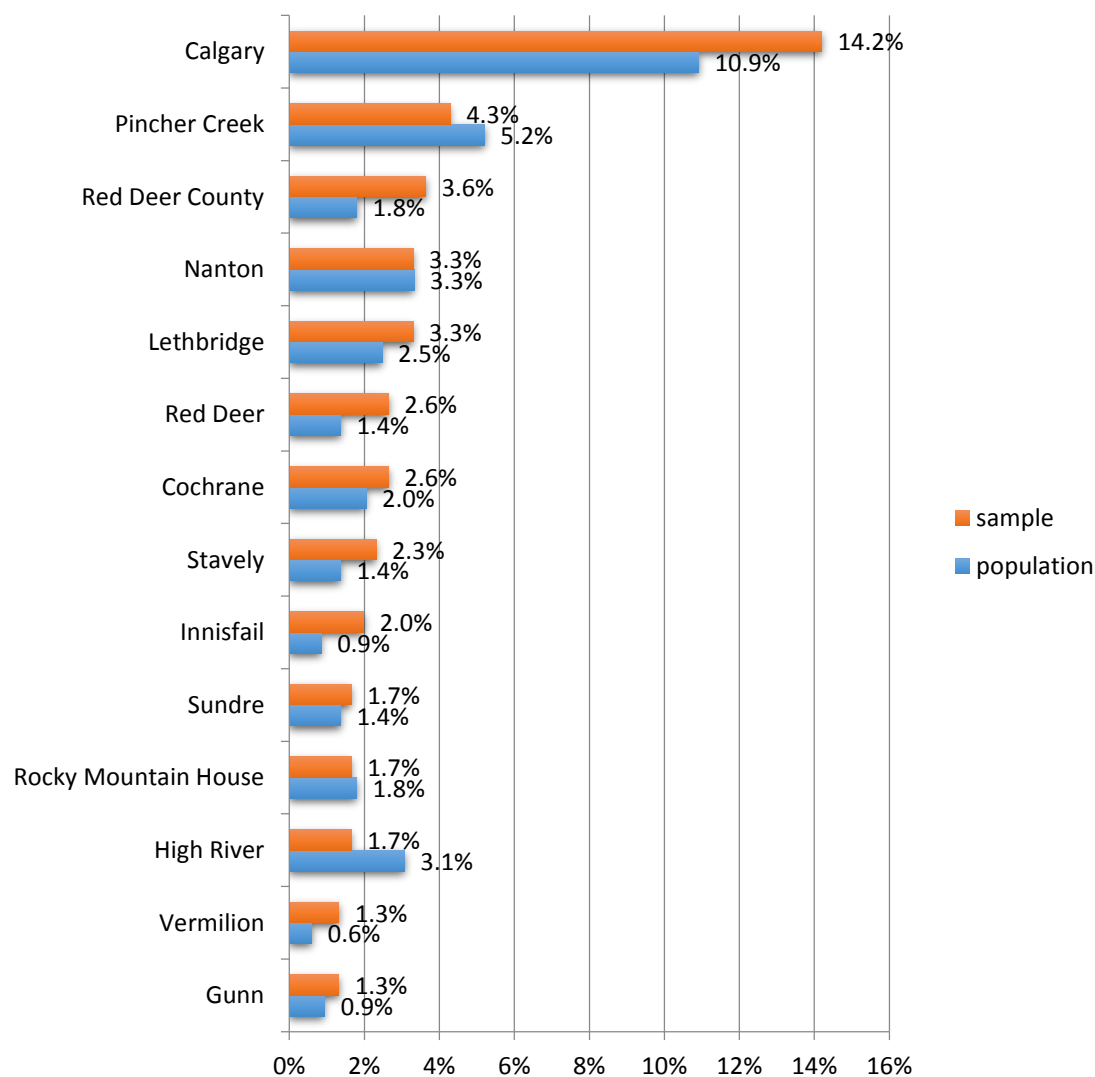
**Figure 1 Comparison of Year of Most Recent Contact (n=1170)**





Comparing address information between the sample and population can demonstrate the degree to which the sample is geographically representative of the population. Figure 2 shows the distribution of the sample in relation to the population for cities and towns of greater than 1.0% of the total sample. The full list of cities and towns is provided in Appendix 3. The distribution shows the cities and towns have generally been represented within the sample consistent with their population values.

**Figure 2 Comparison of Respondent Residence to Population**





### Open-ended Questions

The survey contained 19 open-ended questions enabling respondents to elaborate on the quantitative results. To facilitate the analysis and presentation of these findings, comments have been coded into theme categories for this report. A full report of the verbatim comments has been provided to Cows and Fish under separate cover. Contact information was removed.

### Base sizes and “n”

Throughout the report the “n” (number of respondents) is shown to indicate the sample size associated with the chart or graph. Generally, questions pertaining to the entire sample have a base size of n=303. Landowners, including agriculture, lakefront, acreage and others generally have a base size of n=242. Base sizes vary by question since some participants may not have responded to a particular question.

### Survey Structure

The quantitative survey instrument was structured into six sections.

**Respondent Profile:** The opening section provides a profile of the respondent including;

- Relationship with the land
- Relationship with Cows and Fish
- Nature and frequency of contact with Cows and Fish

**Land Management Practices:** The second part of the survey focuses on land management practices. These questions were asked specifically of landowners (agriculture, acreage, lakefront). Other respondents skipped this section as the questions were not pertinent<sup>1</sup>. The topics included;

- Knowledge change
- Practice change, including timing and specifics
- Motivation to change
- Usefulness of Cows and Fish contacts in making the changes
- Approaches, methods and actions

**Assessment of Cows and Fish:** The third component of the survey focused on an assessment of Cows and Fish based on the respondents experience with them over the years. Some of the factors measured in this section were also measured in 2004 allowing comparisons to be made.

- Desirable characteristics of Cows and Fish staff
- Reputation and awareness of Cows and Fish
- Performance of Cows and Fish staff

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<sup>1</sup> It became apparent after several weeks of data collection that having respondents who do not own land answer the questions related to practice changes on their land (Section 2) was causing confusion. For this reason, a branch was introduced in the online survey so that only producers, lakefront, acreage and other land owners were invited to complete Section 2. All others skipped to Section 3.





**Cows and Fish Website:** A fourth component of the survey was in relation to the Cows and Fish website (a new section in 2017 hence no historical comparisons are possible).

**Program delivery methods, tools and interactions:** Three open-ended comment questions were asked in relation to Cows and Fish program delivery methods, tools and interactions.

**Future Contact:** The final section of the survey asks respondents if they would like Cows and Fish to remain in contact with them, and if so to confirm their contact details. The contact information provided to Cows and Fish was separated from the survey results, so the survey remained anonymous.

### Analysis Framework

Comparison of results across groups can be used to derive more in-depth information from the analysis. Throughout the report two main groups have been used in the analysis; a grouping based on interaction with Cows and Fish and a grouping based on the primary role of the respondent in relation to land management.

It is important to note that in 2004 the in-person interviews (n=29) were combined with the mail-back self-completed surveys (n=178). There was also a heavier representation among respondents who were part of a community watershed group in 2004 (46% in 2004 compared with 14% in 2017). In 2017 the in-person interviews were not combined with the self-completed surveys. In 2004 there was also five Cows and Fish staff that completed the survey, and included in the results. In 2017 Cows and Fish staff was not asked to take part in the evaluation of Cows and Fish.

### Grouping based on Role in Interacting with Cows and Fish

**Table 2 Grouping based on Role in Relation to Interaction with Cows and Fish**

| How would you best describe your role in interacting with Cows and Fish? | 2004       |             | 2017       |             |
|--|------------|-------------|------------|-------------|
|  | n          | %           | n          | %           |
| Local community watershed group  | 93         | 46%         | 41         | 14%         |
| Government department or agency  | 22         | 11%         | 41         | 14%         |
| Non-government organization  |            |             | 21         | 7%          |
| Landowner (not part of group)  | 81         | 38%         | 185        | 61%         |
| Other  | 6          | 3%          | 15         | 5%          |
| Staff  | 5          | 2%          | N/A        | N/A         |
| <b>Total</b>   | <b>207</b> | <b>100%</b> | <b>303</b> | <b>100%</b> |

Note that in 2017 of the 41 representatives of a community watershed group, 36 are landowners involved in agriculture, acreage owners or lakefront owners.





### Grouping based on Role in Relation to Land Management

A second group used to classify responses relates to the respondent's role in relation to land management. Table 3 shows the breakdowns used in the 2004 and 2017 surveys.

**Table 3 Role in Relation to Land Management**

| Role in relation to land management | 2004 |      | 2017 |      |
|-------------------------------------|------|------|------|------|
|                                     | n    | %    | n    | %    |
| producers                           | 146  | 71%  | 198  | 65%  |
| lakefront                           | 46   | 22%  | 26   | 9%   |
| acreage owner                       |      |      | 9    | 3%   |
| non-landowner                       |      |      | 63   | 21%  |
| other                               | 15   | 7%   | 7    | 2%   |
| Total                               | 207  | 100% | 303  | 100% |

**Producers** include respondents who identified their role in relation to land management as agriculture (mixed, livestock or crop). Within the producer category there are 30 community watershed group representatives, five agriculture fieldman/extension staff, three municipal staff, three provincial or federal staff and 23 NGOs. What this group has in common is that they are all involved directly in agricultural production.

**Lakefront owners** include both seasonal as well as permanent lakefront owners. This group includes four acreage owners who are also lakefront owners and six agriculture producers who are lakefront owners.

**Acreage owners** are too few in number for analysis therefore have been included in the overall response totals, but not shown separately in the report. This also applies to the **other** group.

**Non-landowners** are respondents who did not identify involvement in agricultural production, lakefront or acreage ownership. They consist of community watershed representatives (n=7), provincial or federal government or agency staff (n=15), municipal staff (n=19), agricultural fieldman/extension staff (n=4), and members of a conservation or environmental group (n=19). The distinguishing characteristic of this group is they are not landowners but they play a role in land management.

### Group Comparisons

When comparing values between the categories in the groups it is important to determine if the values are actually different or if this difference is due to chance or error. This is determined through the use of statistical "t tests". Unfortunately when dealing with small sample sizes, many of the results are found not to be 'significantly different'. Statistical significance is done to determine if the values are truly different from one another, not to ascertain if the differences are large or meaningful.

Statistically significant differences are determined at  $p \leq 0.05$  throughout.



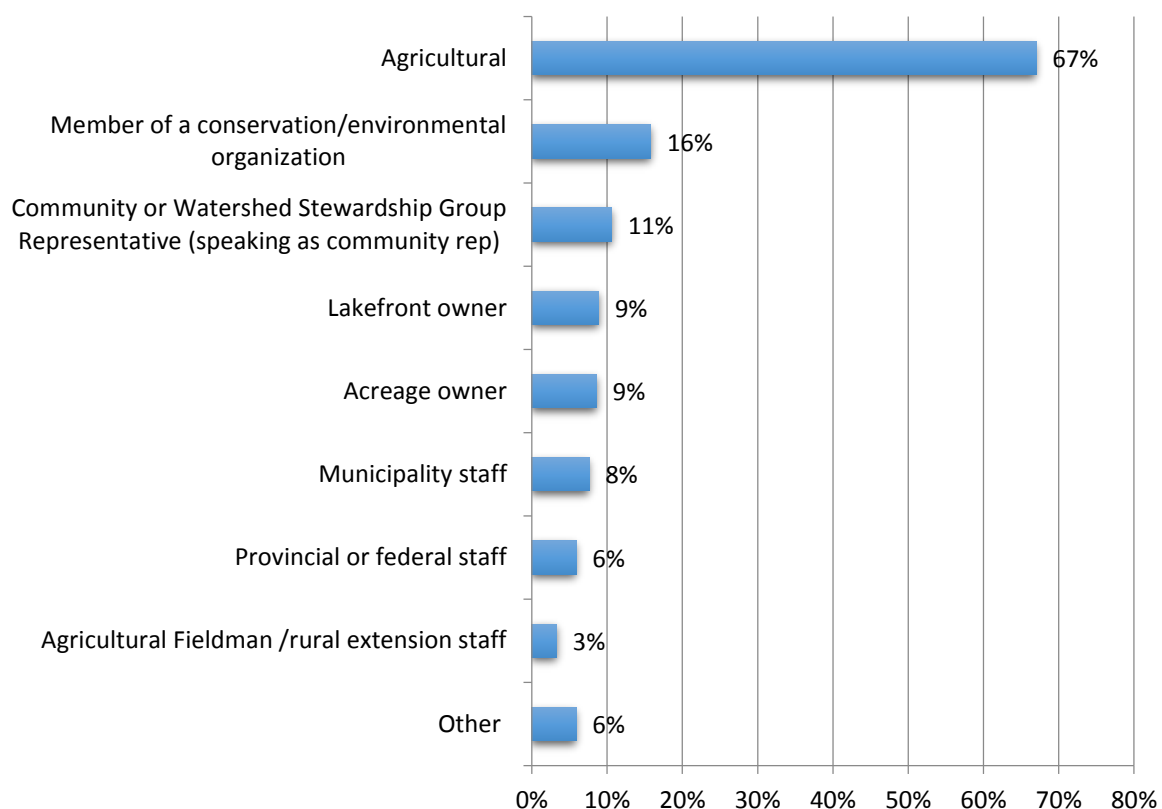
## Section 2 – Survey Findings

**Please Note: Section 2 presents the online quantitative survey results. Section 3 presents the in-depth interview results.**

### 2.1 Respondent Profile

A large majority of the survey respondents are involved in agriculture (67%). Respondents could choose more than one role in relation to land management; therefore Figure 3 totals add up to more than 100%.

**Figure 3 Role of Respondent (n=303)**



Agriculture producers were further asked to identify if they are involved in crop only, livestock only or mixed farming. Lakefront owners were asked to further identify if they are seasonal or permanent. Although cross over between categories is possible, in most cases the sample sizes beyond the major groupings (e.g. lakefront vs. seasonal lakefront) are too small for analysis. For example, there is one respondent who is a permanent lakefront owner involved in crop farming.



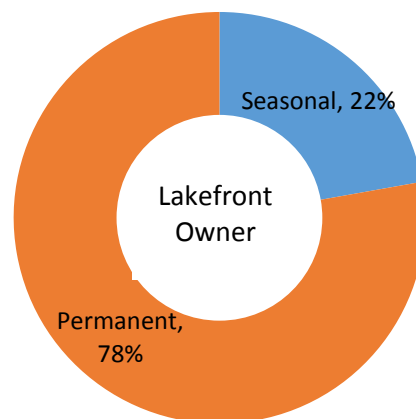
Almost half (47%) who identified agriculture as their role in relation to land management are involved in livestock farming, a further 46% involved in mixed farming and 6% crop production only.

**Figure 4 Breakdown of Agricultural Producers (n=204)**



Lakefront owners represent nine percent of respondents. Most of the lakefront owners (78%) are permanent residents.

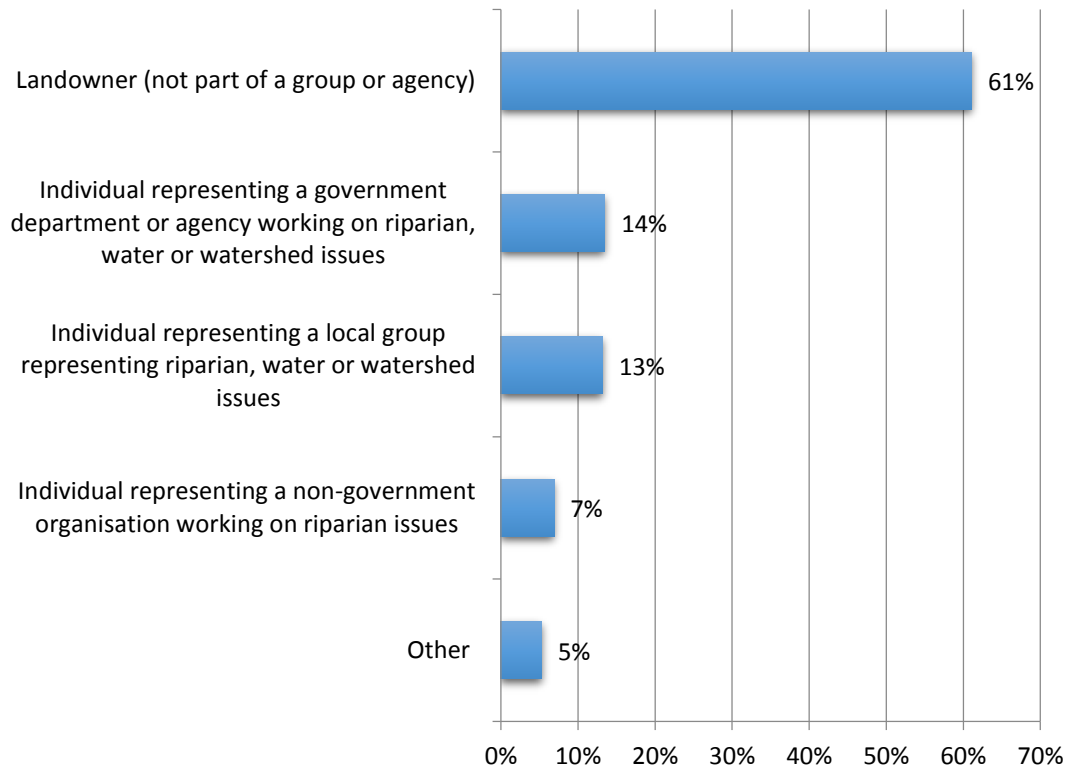
**Figure 5 Breakdown of Lakefront Owners (n=26)**





In response to the question, “how would you best describe your role in interacting with Cows and Fish?”, 61% of respondents indicated their role is as a landowner interested in riparian area health or management but not as part of a group.

**Figure 6 Role in Interacting with Cows and Fish (n=303)**



‘Other’ includes a woodlot owner, a golf course operator, recreation or tourist related businesses, a conference centre, consultants, and unspecified.

Table 4 shows the number of respondents broken down by their role in interacting with Cows and Fish by the survey participant’s role in land management.

There are 242 landowners in the sample (80% of all respondents). Among landowners, 204 (84%) are producers, 26 (11%) are lakefront owners, 13 (5%) are acreage owners, and 9 (4%) are other.

Note that six of the producers and four acreage owners are also lakefront owners.



**Table 4 Relationship with Cows and Fish by Role in Land Management (number of survey participants)**

| Role of respondent in relation to land management       | Relationship of respondent with Cows and Fish |                                 |                             |   |           | Total      |
|---|---|---------------------------------|-----------------------------|---|-----------|------------|
|   | local riparian or watershed group             | government department or agency | non-government organization | landowner (not part of a group or agency) | Other     |            |
| Agricultural - livestock                                | 15  | 1                               | 2                           | 70  | 7         | 95         |
| Agricultural - Crop                                     | 3   |                                 |                             | 8   | 1         | 12         |
| Agricultural - mixed                                    | 10  | 4                               | 2                           | 72  | 3         | 91         |
| Acreage   | 2   |                                 | 1                           | 6   |           | 9          |
| Lakefront -seasonal                                     | 2   |                                 |                             | 1   |           | 3          |
| Lakefront - permanent                                   |   |                                 | 1                           | 12  |           | 13         |
| Agricultural - livestock - lakefront                    |   |                                 |                             | 2   |           | 2          |
| Agricultural - crop - lakefront                         | 1   |                                 |                             |   |           | 1          |
| Agricultural - mixed - lakefront                        | 1   | 1                               |                             | 1   |           | 3          |
| Acreage - lakefront                                     |   |                                 |                             | 4   |           | 4          |
| Community or Watershed Stewardship Group Representative | 4   | 1                               | 3                           | 1   |           | 9          |
| Agricultural Fieldman /rural extension staff            |   | 4                               |                             |   |           | 4          |
| Municipality staff                                      | 2   | 15                              |                             |   |           | 17         |
| Provincial or federal staff                             |   | 15                              |                             |   |           | 15         |
| Member of a conservation/environmental organization     | 1   |                                 | 12                          | 1   | 2         | 16         |
| Other   |   |                                 |                             | 7   | 2         | 9          |
| <b>Total</b>  | <b>41</b>                                     | <b>41</b>                       | <b>21</b>                   | <b>185</b>                                | <b>15</b> | <b>303</b> |

Survey participants were asked to indicate when their most recent contact occurred with Cows and Fish. Almost half of survey participants indicated they had contact with Cows and Fish within the past two years. It is interesting to note respondent recall differs substantially from what is in the Cows and Fish database. In the Cows and Fish database 57% of the most recent contacts are after 2011 compared with 76% as reported by the respondent through the survey. This likely reflects an issue with the respondent's recall more so than the Cows and Fish database being incorrect. Although the numbers differ, the implication is the same, showing a higher propensity to respond to



the survey for those with more recent contact with Cows and Fish. For consistency the ensuing analysis uses the survey response to this question, not the Cows and Fish database.

**Figure 7 Year of Most Recent Contact (n=300)**

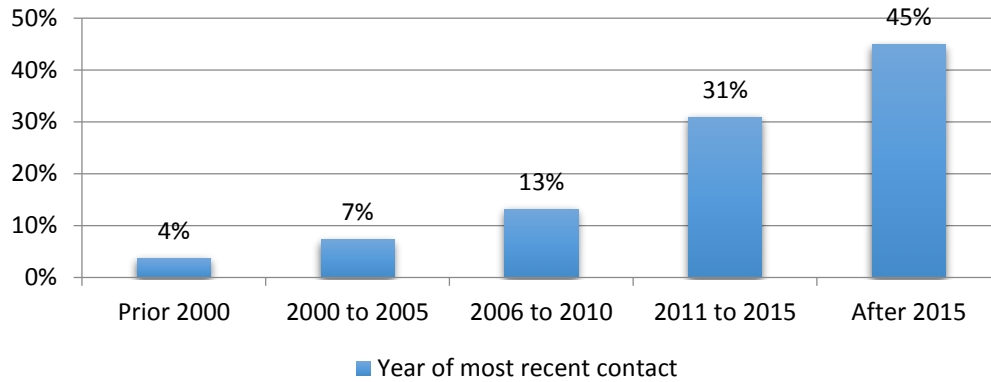
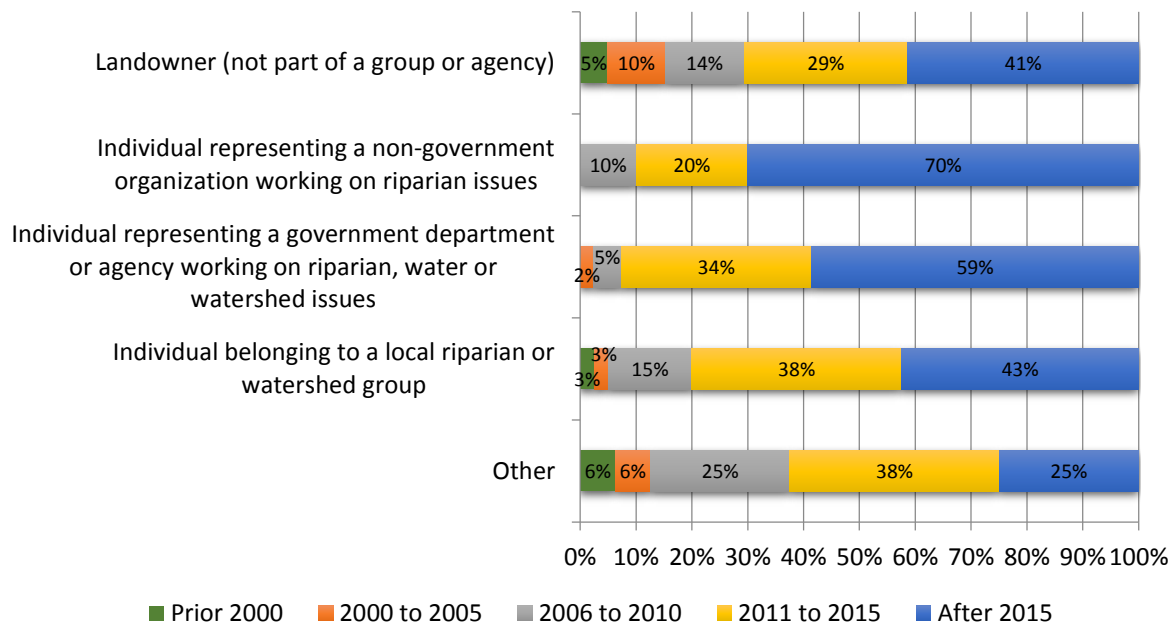


Figure 8 shows the most recent year of contact by the nature of the respondent's role in relation to Cows and Fish. Relative to landowners, NGOs and government respondents have the largest proportion of recent contact (the proportion of these groups having contact post 2015 is significantly higher than the comparable proportion among landowners).

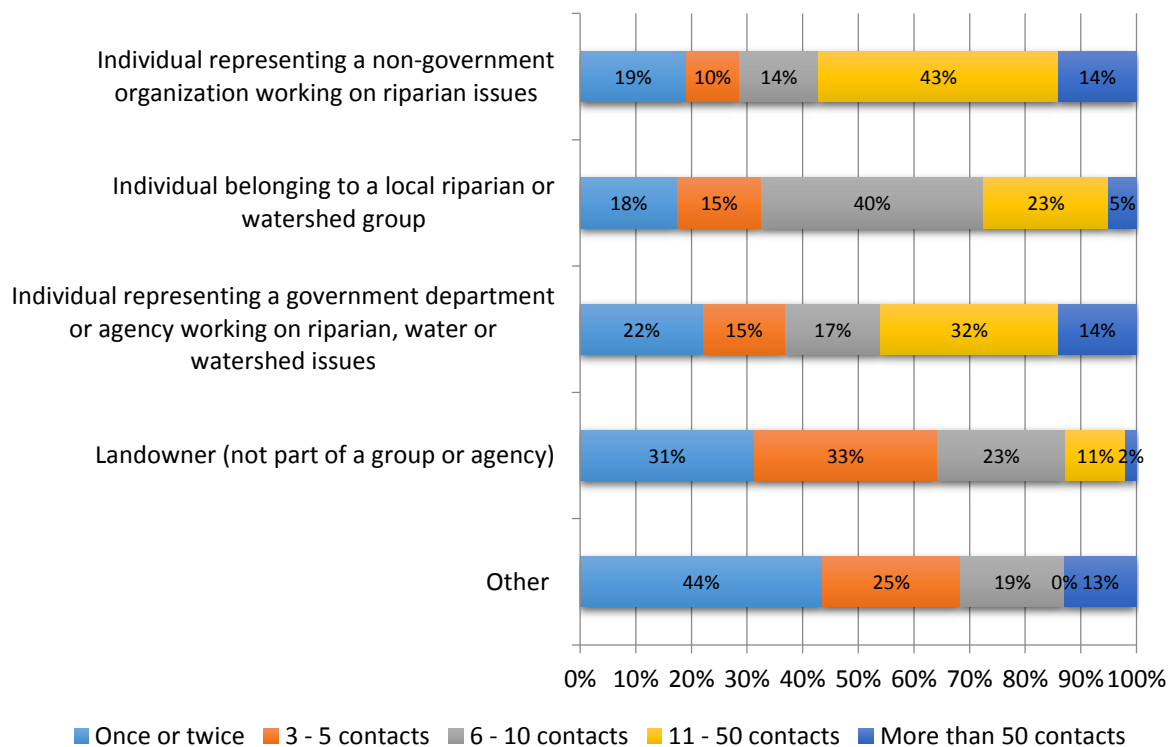
**Figure 8 Year of Contact by Role Type (Landowner; n=184, NGO representative; n=20, Government representative; n=41, Local group representative; n=41, Other; n=15)**





In general, individuals representing or belonging to NGO's, local groups representing riparian or watershed issues, and government departments and agencies have had the greatest number of contacts with Cows and Fish (Figure 9). Almost two-thirds (64%) of landowners (not part of a group) had between one and five contacts with Cows and Fish.

**Figure 9 Number of Contacts by Type of Interaction with Cows and Fish (Landowner; n=185, NGO representative; n=21, Government representative; n=41, Local group representative; n=41, Other; n=15)**



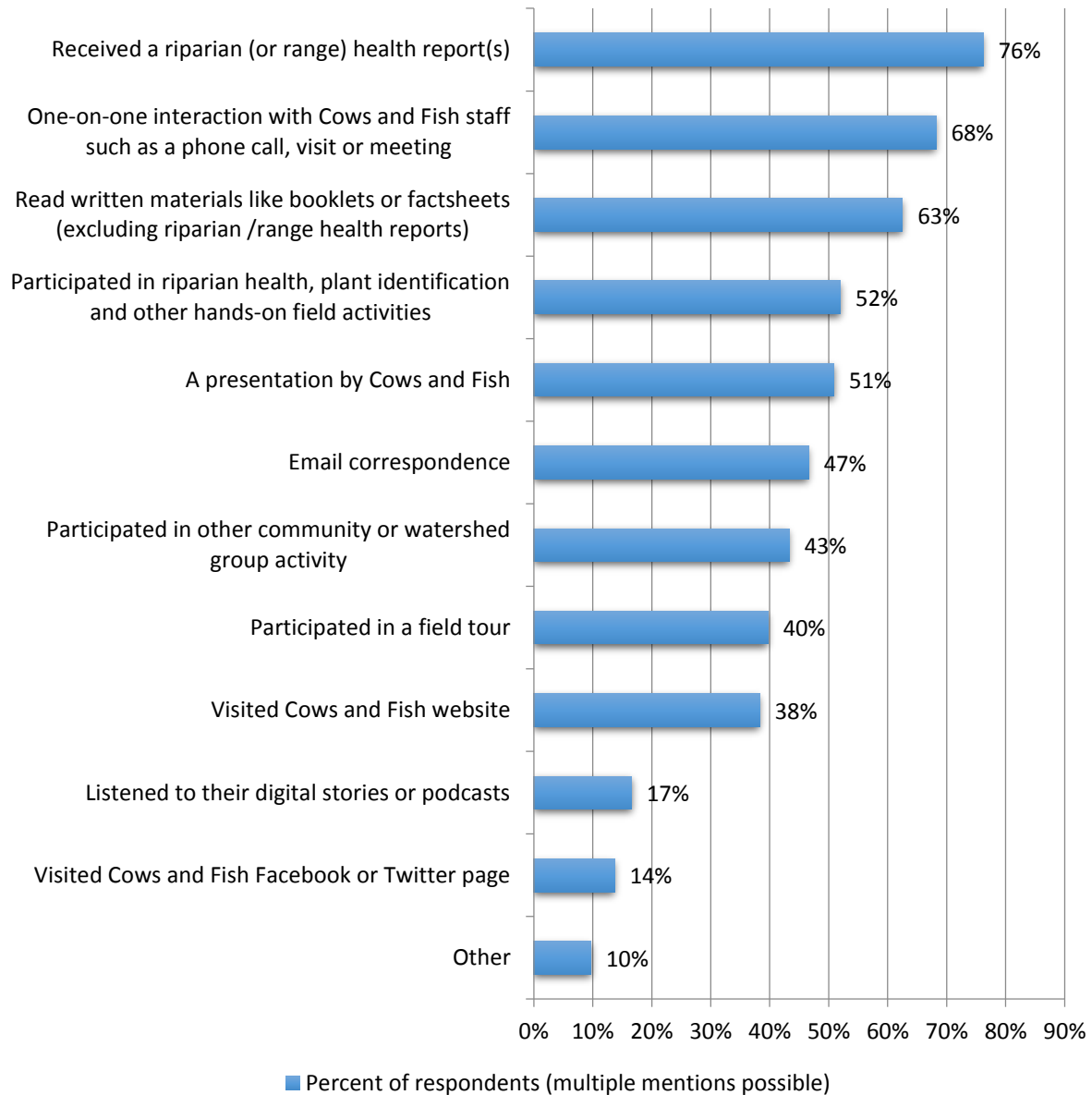
Unfortunately comparable data are not available from the 2004 report as there was no breakdown provided for amount of contact by type of interaction with Cows and Fish.

Respondents were asked about the types of interaction they have had with Cows and Fish (Figure 10). The most frequent forms of interaction include receiving riparian (or range) health reports (76%), one on one interactions (68%) and reading written materials (63%). The least frequently mentioned forms of interaction included visiting Cows and Fish social media sites (14%) and listening to digital stories and podcasts (17%).





Figure 10 Types of Interaction with Cows and Fish (n=276)



Note: percentages refer to the 'percent of respondents' who indicated this type of contact. For example, out of 276 people who responded to this question, 76%, or 210, indicated they received a riparian (or range) health report.



It is interesting to note that all survey participants should have received riparian (or range) health report as it was through this process that their contact information was included in the database used to administer the survey. However, only 76% indicated a riparian (or range) health report was a form of interaction. Length of time since last contact with Cows and Fish appears to play a role in recalling whether or not a riparian (or range) health report was received, but does not completely explain why some do not recall receiving the report. About 2 in 10 respondents whose most recent contact was since 2011 also did not recall receiving a riparian (or range) health report. There is no explanation within the survey data for the failure of some respondents to not recall they had a riparian (or range) health report.

**Table 5 Recall Receiving a Riparian (or range) Health Report by Year of Most Recent Contact (n=276)**

| Received a riparian (or range) health report(s) | Year of most recent contact with Cows and Fish |                        |                        |                        |                       |
|---|--|------------------------|------------------------|------------------------|-----------------------|
|   | Prior to 2000<br>(n=6)                         | 2000 to 2005<br>(n=12) | 2006 to 2010<br>(n=20) | 2011 to 2015<br>(n=65) | After 2015<br>(n=108) |
| Yes   | 55%  | 60%                    | 71%                    | 78%                    | 81%                   |

Results show that landowners and other stakeholders are interacting with Cows and Fish across multiple touch points (Table 6). Hence it is important for Cows and Fish to ensure materials and communication are covered across both online and offline platforms. This sentiment was echoed qualitatively. Although newer tools in the online realm such as the website, podcasts, Facebook and Twitter did not have high levels of interaction, they were perceived as putting Cows and Fish in the right direction and would work to engage the younger population.

It is evident landowners and other stakeholders rely on multiple methods of interaction with Cows and Fish. More than three quarters (77%) of survey participants indicated they engaged in at least three types of interaction with Cows and Fish. Among those who have had interactions with Cows and Fish, the modal value for types of interactions is 5 and the average is 5.2 (i.e. on average individuals had five types of interactions with Cows and Fish based on the variables shown in Figure 10 above). Individuals representing non-government organizations use the widest variety of interaction methods (and relative to landowners are significantly more likely to interact with each method, the only exception being receipt of riparian health reports).

The most frequent method of interaction for individuals representing NGOs is reading written materials like booklets or factsheets (94%). Landowners (not associated with a group) are most likely to rely on riparian (or range) health reports (74%) and one-on-one interactions (67%). The most frequently mentioned methods of interaction with Cows and Fish among individuals employed with government departments are email (82%) and reading written materials (82%). Respondents representing or belonging to local riparian, water or watershed groups follow the same pattern as landowners not associated with a group, relying most on riparian health reports and one-on-one interactions with Cows and Fish staff.



**Table 6 Method of Interaction by Role in Relation to Cows and Fish (n=264)**

| <b>Method of Interaction with Cows and Fish</b>  | <b>Relationship of respondent with Cows and Fish</b>          |   |  |   |
|--|---|---|--|---|
|  | <b>local<br/>riparian or<br/>watershed<br/>group<br/>n=37</b> | <b>government<br/>department<br/>or agency<br/>n=34</b> | <b>non-<br/>government<br/>organization<br/>n=17</b> | <b>landowners<br/>(not<br/>associated<br/>with group)<br/>n=177</b> |
| Received a riparian (or range) health report(s)  | 81%   | 79%   | 88%  | 74%   |
| One-on-one interaction with Cows and Fish staff such as a phone call, visit or meeting | 75%   | 68%   | 88%  | 67%   |
| Read written materials like booklets or factsheets                                     | 58%   | 82%   | 94%  | 57%   |
| Participated in riparian health, plant identification / hands-on field activities      | 64%   | 77%   | 82%  | 41%   |
| A presentation by Cows and Fish  | 67%   | 74%   | 88%  | 40%   |
| Email correspondence   | 58%   | 82%   | 82%  | 36%   |
| Participated in other community or watershed group activity                            | 72%   | 47%   | 71%  | 35%   |
| Participated in a field tour   | 53%   | 50%   | 59%  | 33%   |
| Visited Cows and Fish website  | 39%   | 68%   | 71%  | 29%   |
| Listened to digital stories or podcasts  | 25%   | 24%   | 47%  | 10%   |
| Visited Cows and Fish social media   | 14%   | 35%   | 47%  | 7%  |
| Other  | 14%   | 9%  | 35%  | 6%  |

Note: n=264 respondents who answered both questions



## 2.2 Impact of Cows and Fish on Knowledge and Land Management Practices

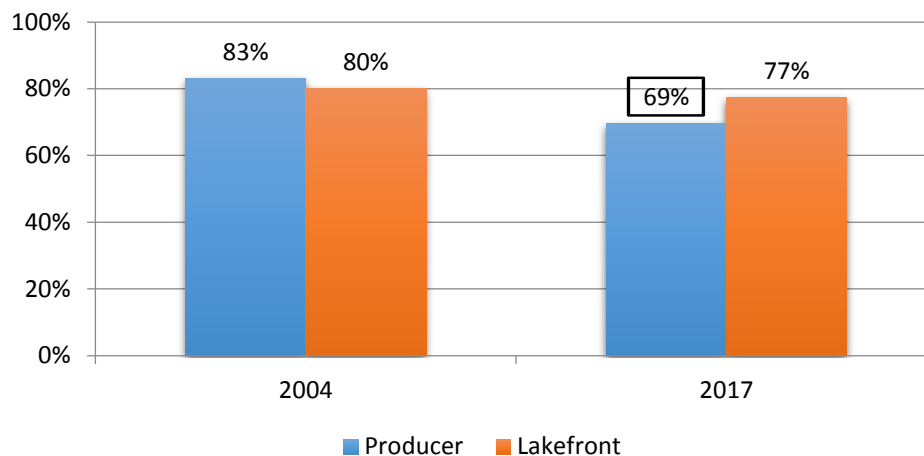
Questions related to changes in knowledge levels and land management practice change related to riparian area management were asked of landowners, including those who identified as agricultural producers (crop, mixed, livestock), lakefront owners (seasonal and permanent), acreage owners and others (golf course, conference centre, tourism, etc.). Since the questions reference specific practice changes on their land, it was determined that the responses would be more focused and relevant if only landowners were included in 2017.

Almost 80% of the sample (242/303) can be classified as landowners. Among the landowners 84% are agricultural producers, 11% are lakefront owners, and 9% are classified as acreage and other.

### **Q. HAVE YOU LEARNED NEW INFORMATION OR INCREASED YOUR KNOWLEDGE AS A RESULT OF INTERACTING WITH COWS AND FISH?**

Survey participants were asked in 2004 and 2017 if they had increased their knowledge as a result of interactions with Cows and Fish. In both years the vast majority of landowners indicated they had increased their knowledge. In 2017, 69% of agricultural producers and 77% of lakefront owners indicated they had increased their knowledge. For lakefront owners this figure does not represent a significant<sup>2</sup> change from 2004 results while among producers results are significantly lower relative to 2004 (shown in figure 11).

**Figure 11 Have you learned new information or increased your knowledge as a result of interacting with Cows and Fish? [% Yes] (Producer: 2004; n=144, 2017; n=199, Lakefront: 2004; n=45, 2017; n=22)**



 Statistically significant difference from 2004 result ( $p \leq 0.05$ )

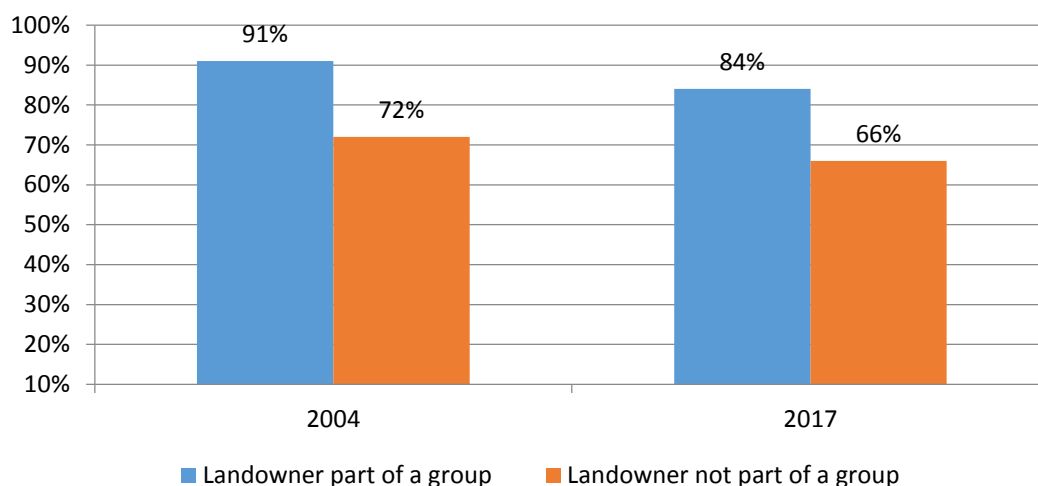
Consistent with 2004 findings, landowners who are part of a local watershed group are more likely to state that they learned new information or increased their knowledge as a result of interacting

<sup>2</sup> The term 'significant' when used in statistics does not imply importance or magnitude, as is the more common meaning. Rather, a statistically significant difference means the values between the groups being compared are different from one another, and not as a result of chance (or error).



with Cows and Fish than landowners not in a group (84% vs. 66% respectively). Changes in these results are not significant between time periods.

**Figure 12 Have you learned new information or increased your knowledge as a result of interacting with Cows and Fish? [% Yes] (Landowner part of a group: 2004; n=93, 2017; n=33, Landowner not part of a group: 2004; n=78, 2017; n=174)**



In 2004 respondents were asked, if in the past few years they had ‘very little contact’, ‘a moderate amount of contact’ or a lot of frequent and/or in-depth contact’. Unfortunately comparing qualitative categories as were used in 2004 with quantitative categories used in 2017 does not offer an accurate comparison. For example, it is unknown if a respondent considers 20 contacts a moderate amount or a frequent amount. Although the question format is changed, the positive relationship between amount of contact and whether respondents reported learning new information or increasing their knowledge as a result of interacting with staff remain evident.

**Table 7 Have you learned new information or increased your knowledge as a result of interacting with Cows and Fish? (1-2 contacts: n=56, 3-10 contacts; n=131, 11+ contacts; n=42)**

| 2017 Results   | 1-2<br>Contacts | 3 - 10<br>Contacts | 11+<br>Contacts |
|--|-----------------|--------------------|-----------------|
| Yes, learned new information/increased knowledge     | 48%             | 61%                | 88%             |
| No, did not learn new information/increase knowledge | 52%             | 39%                | 12%             |

**Table 8 Have you learned any new information or raised your awareness about riparian areas as a direct result of your contact with Cows and Fish staff? (Very little contact; n=79, Moderate contact; n=98, Frequent/in-depth contact; n=22)**

| 2004 Results   | Very little<br>contact | Moderate<br>amount of<br>contact | Frequent/<br>In-depth<br>contact |
|--|------------------------|----------------------------------|----------------------------------|
| Yes, learned new information/increased awareness     | 70%                    | 89%                              | 100%                             |
| No, did not learn new information/increase awareness | 30%                    | 11%                              | 0%                               |



Those indicating they have experienced an increase in their knowledge as a result of interacting with Cows and Fish were asked to provide examples. Comment themes are provided in Table 9. Since respondents could offer more than one example, the percentages total more than 100%.<sup>3</sup>

Most of the respondents who commented (86%) referred generally to an increased level of knowledge related to the benefits of riparian health. Following are examples of these comments:

*"Everything regarding riparian health, beavers, westslope cutthroat Trout, stream morphology and how systems work, etc." (producer)*

*"Gained knowledge of field inspection purpose and gained information pertaining to our personal property in regards to livestock and creek banks." (producer)*

*"I have increased my awareness of the health of my shoreline, as well as a more broad understanding of the issues." (lakefront owner)*

*"Learned that wetlands benefit more than just waterfowl but benefit a huge chain of life by providing a place to be and thrive." (acreage owner)*

The second largest theme area pertained to specifics of plant identification, soil analysis and understanding of plant species (18% of respondents).

*"What invasive plants get established because of over grazing certain areas. Also the value in keeping riparian areas fenced off or limited use." (producer)*

*"They identified the plants in a fenced off area and recommended livestock practices to increase the density of the plants I want." (producer)*

**Table 9 Areas of Increased Knowledge (160 respondents, 210 comments)**

| Have you learned new information or increased your knowledge as a result of interacting with Cows and Fish? | Percent of Respondents |
|---|------------------------|
| Increased knowledge/awareness of the benefits of riparian health  | 86%                    |
| Plant ID/Soil analysis/Importance of plant species  | 18%                    |
| Importance of beaver management/Beaver behaviour  | 8%                     |
| Importance of weed control/ ID of invasive species  | 6%                     |
| Overall a better understanding riparian areas   | 4%                     |
| Keeping shoreline natural/identified environmental concerns   | 4%                     |
| How pasture management can positively affect riparian health  | 3%                     |
| Other   | 3%                     |

<sup>3</sup> Comments have been coded into theme categories to aid with the analysis. In Table 3 for example, there were 160 respondents who provided a total of 210 comments. The percentages apply to the number of respondents. Therefore 86% of the 160 (=137) respondents commented on increased knowledge/ awareness of the benefits of riparian health.





**Q. HAVE YOU CHANGED ANY OF YOUR MANAGEMENT PRACTICES AS A DIRECT RESULT OF YOUR CONTACT WITH COWS AND FISH?**

Overall, 63% of all landowners indicated they made a practice change as a direct result of contact with Cows and Fish.

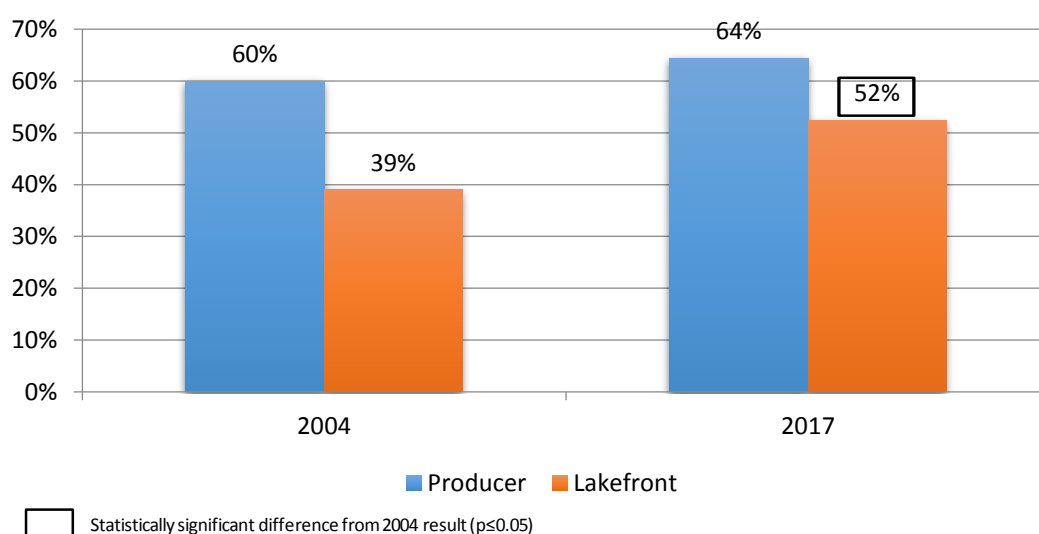
It is important to note that landowners were not asked about the state of riparian health on their land as part of this survey. In fact the population who participated in this survey would have had a diversity of riparian health results. According to riparian health assessment reports (Table 10) conducted between 1996 and 2015 (provided by Cows and Fish), almost 1 in 3 properties evaluated were 'healthy' (27.6%).

**Table 10 Alberta Summary of Riparian Health 1996 - 2015 (n=2,497)**

| Health Category           | Percentage | Number of assessments |
|---------------------------|------------|-----------------------|
| Healthy                   | 27.6%      | 688                   |
| Healthy but with Problems | 49.5%      | 1237                  |
| Unhealthy                 | 22.9%      | 572                   |

Comparing agricultural producers to lakefront owners, almost two-thirds (64%) of agricultural producers and just over half (52%) of lakefront owners indicated they have changed their management practices as a result of contact with Cows and Fish. Both numbers show an increase since 2004 (although the percentage difference for producers is not statistically significant).

**Figure 13 Made a practice change as a direct result of contact with Cows and Fish [% Yes] (Producer: 2004; n=144, 2017; n=194, Lakefront: 2004; n=45, 2017; n=21)**



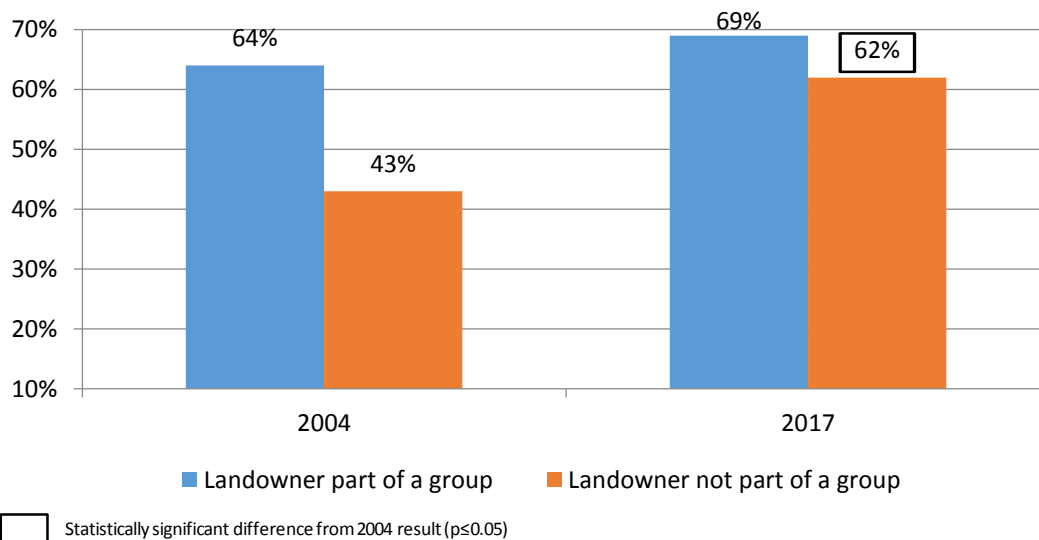




In 2017 no significant differences exist between landowners in a group and landowners not in a group in relation to the percent making a practice change as a result of contact with Cows and Fish. (69% of landowners who are also local group representatives stated they made a practice change, while among landowners not part of a group this figure is 62%).

Since 2004 there has been an increase for both types of landowners, however the percentage increase for landowners who are not part of a group is the only statistically significant increase.

**Figure 14 Made a practice change as a direct result of contact with Cows and Fish [% Yes] (Landowner part of a group: 2004; n=89, 2017; n=32, Landowner not part of a group: 2004; n=76, 2017; n=176)**



As with 2004 results, there is a positive relationship between the amount of contact and whether respondents reported practice change as a direct result of contact with staff.

**Table 11 Made a practice change as a direct result of contact with Cows and Fish (1-2 contacts: n=54, 3-10 contacts; n=133, 11+ contacts; n=41)**

|                                    | 1-2<br>Contacts | 3 - 10<br>Contacts | 11+<br>Contacts |
|------------------------------------|-----------------|--------------------|-----------------|
| <b>2017 Results</b>                |                 |                    |                 |
| Yes, made a practice change        | 37%             | 75%                | 98%             |
| No, did not make a practice change | 63%             | 25%                | 2%              |

**Table 12 Made a practice change as a direct result of contact with Cows and Fish (Very little contact; n=76, Moderate contact; n=95, Frequent/in-depth contact; n=22)**

|                                    | Very little<br>contact | Moderate<br>amount<br>of contact | Frequent/<br>In-depth<br>contact |
|------------------------------------|------------------------|----------------------------------|----------------------------------|
| <b>2004 Results</b>                |                        |                                  |                                  |
| Yes, made a practice change        | 42%                    | 62%                              | 91%                              |
| No, did not make a practice change | 58%                    | 38%                              | 9%                               |



The most prevalent comment themes related to practice change were in relation to fencing (42%), introduction of off-site watering systems (31%) and changing grazing practices (27%). Often these themes were combined into a single comment, illustrating how these practices work together.

*"Fenced off springs, better salt distribution for controlling grazing management of cattle in riparian areas." (producer)*

*"My wife and I have fenced our land along the river to protect steep slopes from erosion due to cattle attempting to access water. We now use alternate water from a spring that is collected in a coulee and flows by gravity to a watering station." (producer)*

*"All creeks, sloughs, dugouts and wetlands have been fenced off from livestock; approximately 85 acres of our 800 acre farm. Portable solar powered water pumping system has been purchased to pump water from dugouts so cattle never have to step into water to drink. I graze our cattle with more respect for the land and the ecosystem in general; if the ecosystem is not healthy then our farm is not healthy. I no longer trap beavers. Diverse tree plantings have been put in place to increase biodiversity, water quality and quantity for our farms benefit as well as for those downstream. I obtain and hand out Cows & Fish pamphlets to pass onto others as I believe that the difference that they are making needs to be shared with as many as possible." (producer)*

*"Information given by Cows and Fish regarding riparian effect on ground aquifer health did motivate me to facilitate beaver reintroduction on my acreage." (acreage owner)*

*"I view my whole property as 'riparian' not just to the high water mark. Closer to the water is more critical. All grass has been reseeded with fescues, 500 square feet of grass has been eliminated and replaced the deep rooted shrubs (dogwood, native rose). A two foot high land push-up created by ice movement has been left intact on our beach." (lakefront owner)*

**Table 13 Changed Management Practices (144 respondents, 216 comments)**

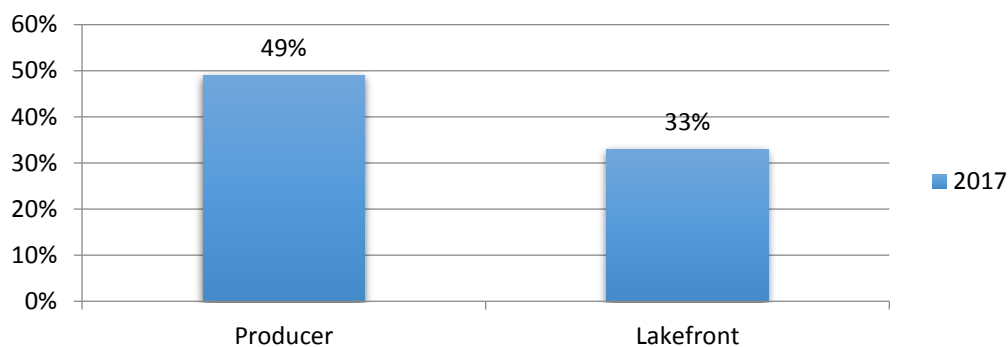
| Have you changed any of your management practices as a direct result of your contact with Cows and Fish? | Percent of Respondents |
|--|------------------------|
| Fencing off areas to control livestock   | 42%                    |
| Installed off-site watering systems/removed cattle access from streams                                   | 31%                    |
| Changed grazing practices  | 27%                    |
| Follow environmental best practices/ more aware of the importance of protection                          | 13%                    |
| Plant species management   | 10%                    |
| Planting trees and shrubs/ grasses and seeds   | 9%                     |
| Help others with riparian area management  | 4%                     |
| Improved creek/waterway crossings  | 3%                     |
| Changed winter feed practices to avoid water/stream contamination  | 2%                     |
| Used the Riparian Health Assessment  | 1%                     |
| Improving shore  | 1%                     |
| Other  | 6%                     |



**Q. DID INTERACTING WITH COWS AND FISH RESULT IN YOU IMPLEMENTING A PRACTICE CHANGE SOONER THAN YOU WOULD HAVE OTHERWISE?**

Overall, one in two (48% of 146) landowners who indicated they made a practice change as a result of contacting Cows and Fish indicated they made practice changes sooner than they would have otherwise. When broken out by landowner type, 49% of producers implemented their changes sooner, compared with 33% of lakefront owners (a non significant difference). [Acreage owners had too few cases to report (n=3) for this question].

**Figure 15 Implemented Changes Sooner as a Result of Cows and Fish (Producer; n=129, Lakefront; n=12)**



No statistically significant differences exist between landowners in a group and landowners not in a group on this measure (52% of landowners who are also local group representatives stated they implemented a practice change sooner compared to 46% among landowners who are not part of a group). This question was not asked in 2004.

**Q. CAN YOU TELL US HOW MUCH SOONER THESE CHANGES OCCURRED AS A RESULT OF YOUR CONTACT WITH COWS AND FISH, THAN WHAT YOU MIGHT HAVE OTHERWISE PLANNED?**

Approximately one-third (34%) of the respondents who indicated they made changes sooner said changes were made immediately. Although the question asked about the impact on timelines, many respondents chose to mention what the practice change was, rather than specify a timeline impact.

*"Immediately, upon understanding the damage done to Mosquito Creek by previous management we developed new watering systems for cattle and allowed the Creek to heal." (producer)*

*"We took immediate action of fencing a section of creek to compare with the same creek up and down stream." (producer)*

*"It is hard to say exactly how much sooner but we realized we needed to change and Cows and Fish really made that happen sooner than we would have on our own." (producer)*

*"I might never have done it if I hadn't learned it was a better practice" (lakefront owner)*

*"The following year we began measures to remediate the imbalance of invasive plants. We likely would never have attended to this." (acreage owner)*

*"The help they gave with resources gave us the opportunity to implement the changes much sooner than had they not been involved...maybe 10 years sooner." (producer)*



## Cows and Fish

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*"Use of fescue grass or the elimination of grass cover, would probably never have occurred."  
(lakefront owner)*

**Table 14 How Much Sooner were Changes Made (70 respondents made 80 comments)**

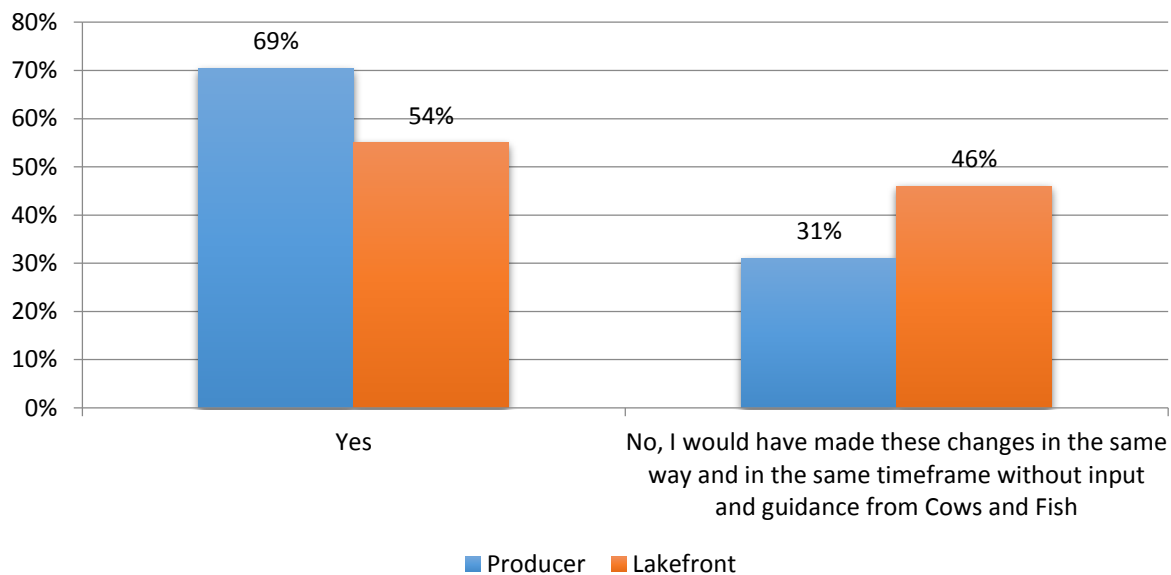
| Can you tell us how much sooner these changes occurred as a result of your contact with Cows and Fish, than what you might have otherwise planned? | Percent of Respondents |
|--|------------------------|
| Immediate changes/ sooner than if on our own   | 34%                    |
| Yes, several years (more than 2 years sooner)  | 13%                    |
| Yes, a few years (one to two years sooner)   | 4%                     |
| Yes, about a year sooner   | 6%                     |
| <b>References to what was done sooner, but no timeframe:</b>   |                        |
| Fenced off areas/Changed fence location sooner   | 11%                    |
| Helped with Riparian Health Assessment/Study/C&F info, tools, knowledge, advice  | 11%                    |
| Funding helped make changes sooner   | 10%                    |
| Changed /Controlling grazing program   | 6%                     |
| Helped accelerate plant species/weed management  | 4%                     |
| Trees and shrubs planting/grass and plants seeded  | 4%                     |
| Off-site watering systems/feeding system   | 3%                     |
| Other  | 7%                     |



**Q. DID YOUR INTERACTION WITH COWS AND FISH RESULT IN YOU IMPLEMENTING A PRACTICE CHANGE DIFFERENTLY THAN YOU WOULD HAVE OTHERWISE?**

Among the landowners who indicated they made a practice change, 68% (n=95) indicated they made the change differently than they would have had they not been in contact with Cows and Fish.

**Figure 16 Did Cows and Fish Interaction Result in the Changes Being Made Differently? (Producer; n=124, Lakefront; n=11)**



Sixty-four percent of landowners not part of a group indicated they made the practice change differently than had they not contacted Cows and Fish. By contrast, 70% of landowners who are part of a group indicated they made the practice change differently than had they not contacted Cows and Fish. This difference is not statistically significant.

Most of the comments about these changes were in relation to fencing practices (32%) and receiving advice from Cows and Fish related to best practices and techniques (28%). In relation to fencing, landowners mentioned they fenced off larger areas, used permanent fencing and generally implemented fencing plans that they would not have thought of on their own.

*"Left a larger zone fenced off, trying different grazing to control weeds while grasses recover." (producer)*

*"Less cutting of trees and shrubs along shoreline and creek areas" (lakefront owner)*

*"Today, not only myself but many of my neighbours have adopted a different position towards riparian reintroduction. They enjoy the beauty of the landscape having a broader biodiversity" (acreage owner)*

*"Yes. the fence was erected to prevent cattle from watering in the river." (producer)*

*"I would likely have never fenced area or restricted livestock access." (producer)*



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*"Technical oversight and training as well as connections through Cows and Fish such as staff or other producers has led to better solutions and new ideas." (producer)*

*"The setback from the river is larger due to interaction with Cows and Fish." (producer)*

*"I'm sure that protection and restoration of the riparian area would not have been initiated if it were not for the results of survey." (producer)*

*"Cows and Fish have supplied a list of valuable tools that can be efficiently and effectively used such as what plants to be planting in areas where weak banks are occurring." (producer)*

*"For the most part, we probably won't have undertaken any of the projects on our own and relied on the way it was always done." (producer)*

**Table 15 Changes Made Resulting from Contact with Cows and Fish that would not have been Made Otherwise (n=90 respondents provided 117 comments)**

| Did your interaction with Cows and Fish result in you implementing a practice change differently than you would have otherwise? | Percent of Respondents |
|---|------------------------|
| Fencing (e.g. permanent fencing, areas not thought of, larger zone fenced)  | 32%                    |
| Received advice on techniques, best practices, new knowledge  | 28%                    |
| Changed grazing strategy (more sustainable grazing, focus on riparian)  | 12%                    |
| Motivated us to remedy issues more quickly  | 10%                    |
| Riparian health assessment provided guidance/direction needed for change  | 9%                     |
| Changed watering systems (e.g. dugout not river, timing)  | 8%                     |
| Trees and shrubs planting/grass and plants seeded   | 6%                     |
| Planting strategies (e.g. tree selection, cattails as filters)  | 5%                     |
| Followed environmental practices/more aware of importance of protecting riparian areas  | 4%                     |
| Directed us to funding sources  | 4%                     |
| I offer advice/Help others with management  | 3%                     |
| Other   | 1%                     |



**Q. HOW LONG AFTER YOUR INTERACTION WITH COWS AND FISH DID YOU TAKE ACTION TO IMPLEMENT PRACTICE CHANGES TO IMPROVE RIPARIAN HEALTH?**

Almost two-thirds (65%) of landowners took action to implement practice change within a year of contacting Cows and Fish.

**Figure 17 Time to Take Action after Initial Contact with Cows and Fish (n=144)**

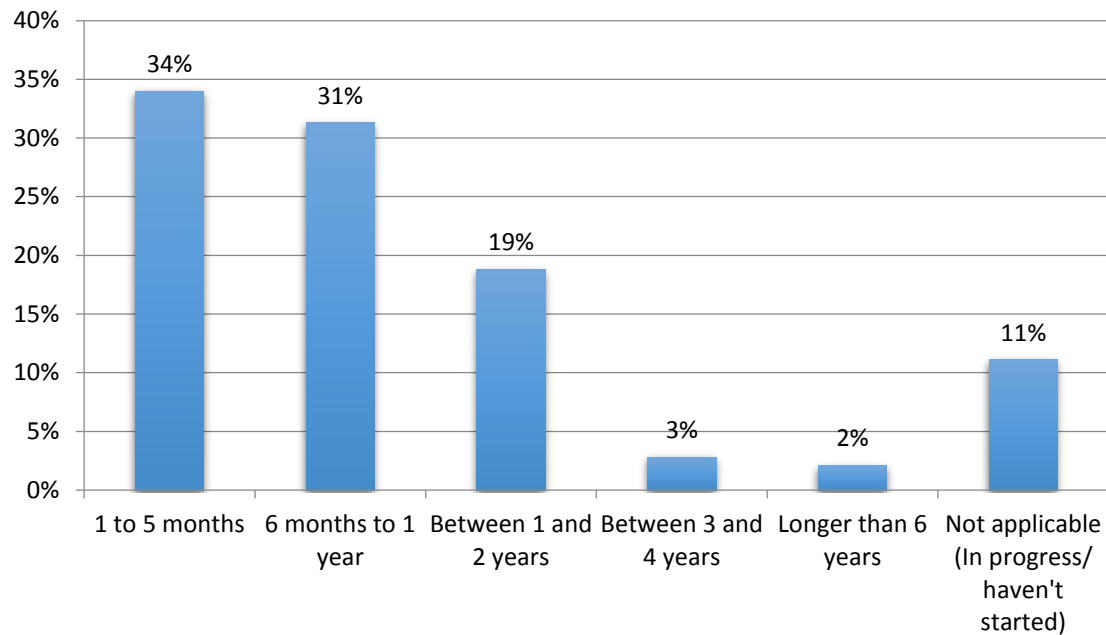


Table 16 shows that 65% of landowners acting on their own implemented the changes within a year while 70% of landowners who are part of a group implemented the changes within a year. The differences between the two groups are not statistically significant.

**Table 16 Comparison of Landowners on their own and part of a group (n=144)**

|                                     | Time to Take Action after Initial Contact with Cows and Fish |                    |                       |                       |                     |                 |
|-------------------------------------|--|--------------------|-----------------------|-----------------------|---------------------|-----------------|
|                                     | 1 to 5 months  | 6 months to 1 year | Between 1 and 2 years | Between 3 and 4 years | Longer than 4 years | Haven't started |
| <b>Part of group or independent</b> |  |                    |                       |                       |                     |                 |
| Landowner not part of group (n=108) | 31%  | 34%                | 18%                   | 3%                    | 3%                  | 12%             |
| Landowner part of group (n=23)      | 44%  | 26%                | 17%                   | 4%                    | 0%                  | 9%              |





Table 17 shows that 65% of producers implemented the changes within a year. By contrast 42% of lakefront owners have not started yet.

**Table 17 Comparison of timelines by landowner type (n=146)**

| Land management role | Time to Take Action after Initial Contact with Cows and Fish |                    |                       |                       |                     |                 |
|----------------------|--|--------------------|-----------------------|-----------------------|---------------------|-----------------|
|                      | 1 to 5 months  | 6 months to 1 year | Between 1 and 2 years | Between 3 and 4 years | Longer than 4 years | Haven't started |
| Producer (n=127)     | 32%  | 33%                | 20%                   | 3%                    | 2%                  | 10%             |
| Lakefront (n=12)     | 25%  | 8%                 | 8%                    | 0%                    | 17%                 | 42%             |

#### **Q. WHAT MOTIVATED YOU TO MAKE THE CHANGE?**

Landowners were asked to choose the three most important motivating factors behind their land management practice change (Figure 18). Over half chose a sense of responsibility to manage the area for health (55%), while half (50%) indicated this was due to a greater awareness of management impact or land use on riparian health or function.

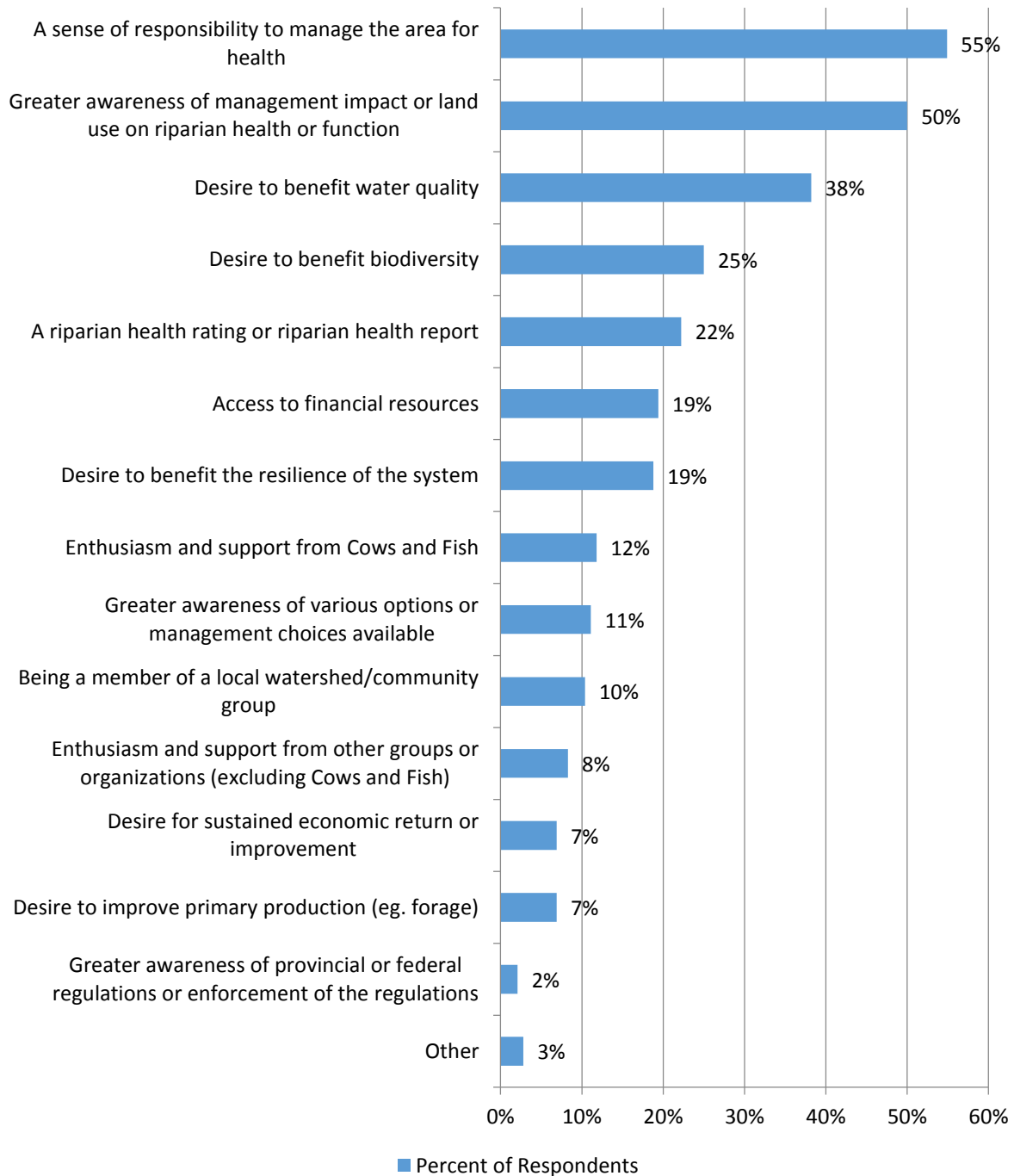
Benefiting water quality (38%) and desire to benefit biodiversity (28%) are also strong motivators for change. Almost one-quarter (22%) of respondents were motivated by the riparian health results.

Also of note is that very few respondents were motivated by the economic returns and very few by the need to meet some regulatory requirement – rather they are focussed on health & function of the riparian area in the top several categories.

The motivational factors did not differ significantly by the time in which action was taken, indicating that these motivations are what Cows and Fish need to be most conscious of in terms of the drivers of change.



Figure 18 What motivated you to make the change? (n=144)



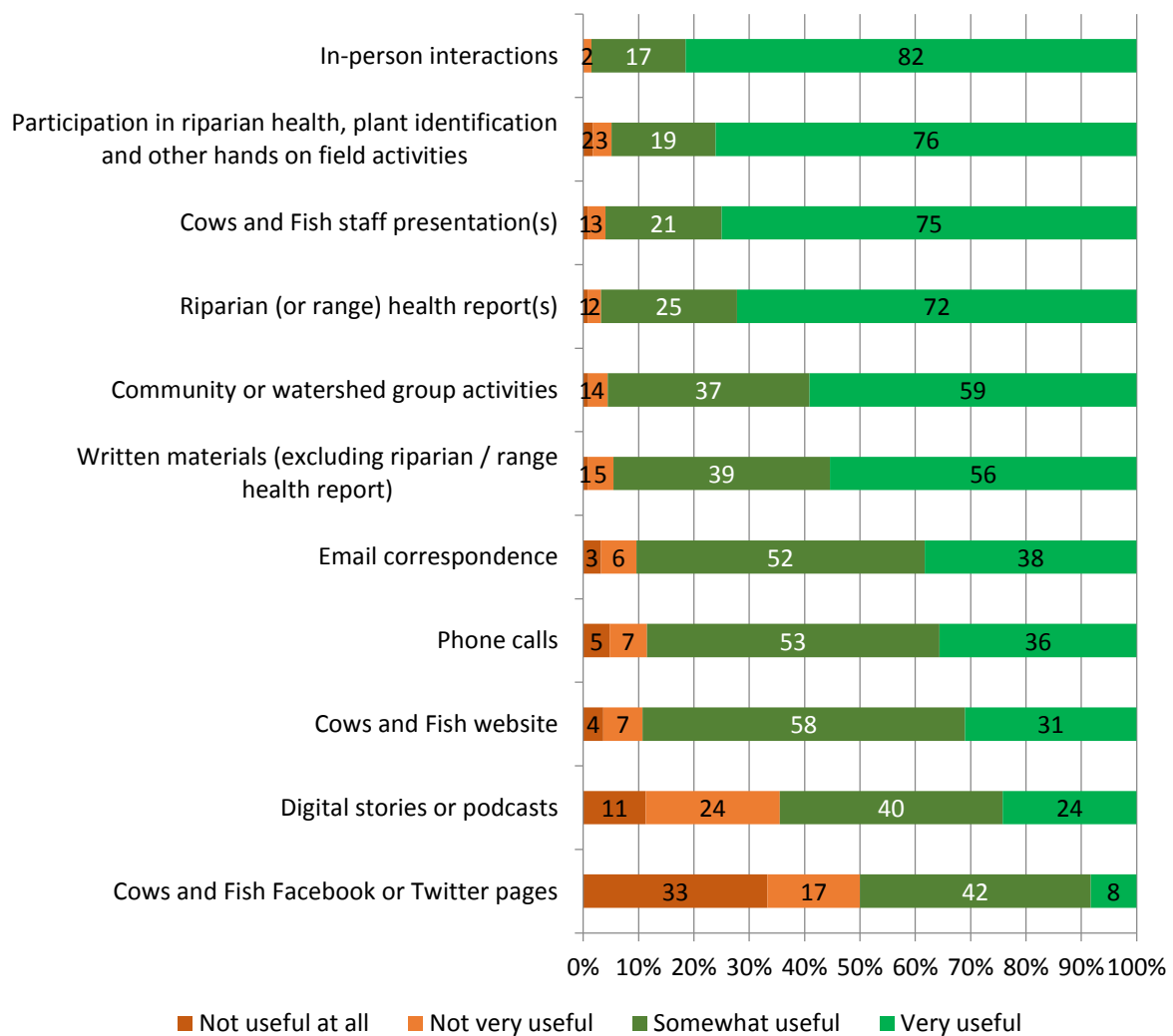


**Q. PLEASE RATE WHICH TYPES OF CONTACT WITH COWS AND FISH WERE MOST USEFUL TO YOU IN MAKING A DECISION TO CHANGE YOUR MANAGEMENT PRACTICES OR LAND USE CHANGES CONCERNING RIPARIAN AREAS?**

Landowners were asked to rate which types of contact with Cows and Fish were most useful to them in either making a decision to change their management practices or with land use changes concerning riparian areas. In-person interactions (82%), hands-on field activities, like plant identification (76%) and Cows and Fish staff presentations (75%), were all rated as very useful and topped the list. The three lowest rated items were all non-personal communication methods (Twitter, website, digital stories).

Ratings here do not differ with respect to whether or not landowners are part of a group or not.

**Figure 19 Usefulness in making a decision to make practice changes (n varies by statement – base = 144)**





**Q. WHAT OTHER APPROACHES, IF ANY, SHOULD COWS AND FISH USE TO RELAY THEIR INFORMATION TO YOU?**

Just less than one in three respondents (27%) indicated the current communication methods work well and a further 22% could not identify any improvements. Most respondents simply reinforced the methods currently in use are the right methods, especially in person visits and email. There were few suggestions beyond the methods currently employed.

*"I think they are doing well in this area. There are just not enough staff." (producer)*

*"The interaction we had was very good. Do they revisit places that they evaluated to see if there are any changes?" (lakefront owner)*

*"It is currently more than sufficient." (producer)*

*"Because of this survey I just followed them on Facebook and looked at the website for the first time. Now I will check out the podcasts and other videos and events." (producer)*

*"I am overwhelmed by what they have already done and can't think of any other ways to improve." (producer)*

*"Personal contact is the best" (producer)*

*"More specifics on how to remediate the problems that were identified." (acreage owner)*

*"Ongoing health assessments are important to follow changes to the areas. Sometimes environment conditions must be taken into account such as drought or excessive rain and run-off." (producer)*

*"Face to face meeting to explain what we are doing right and what more we could be doing. Including any specific ideas and with those any financial support that could help get some projects done." (producer)*

**Table 18 Other methods Cows and Fish should use to relay information (139 respondents made 148 comments)**

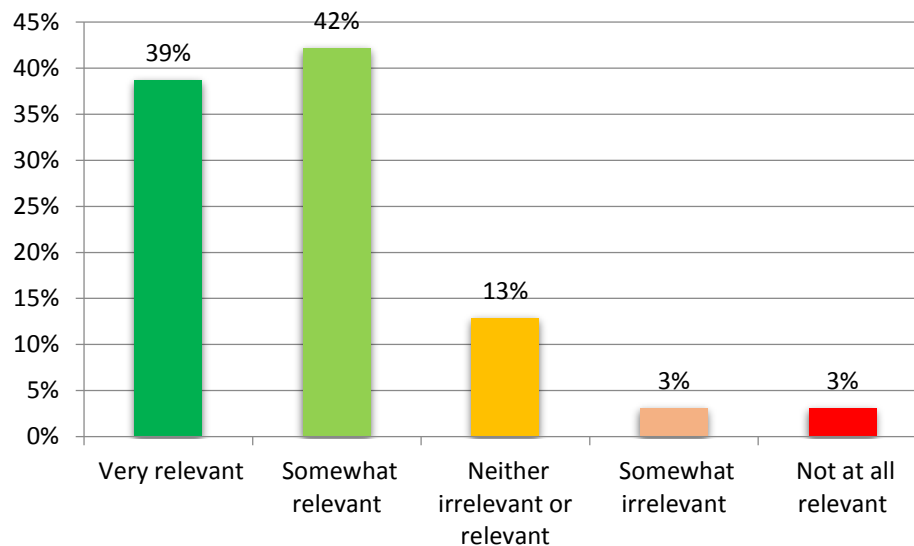
| Other Communication Methods                             | Percent of Respondents |
|---|------------------------|
| Satisfied/happy with current way information is relayed | 27%                    |
| In person meetings/visits                               | 14%                    |
| Email   | 13%                    |
| Mail/Flyers/Brochures                                   | 5%                     |
| Social Media (Twitter, Facebook, website)               | 4%                     |
| More publicity/Newspapers/Magazines                     | 4%                     |
| Hold information sessions/workshops                     | 4%                     |
| Telephone contact                                       | 3%                     |
| Other   | 9%                     |
| Can't think of anything/ no ideas                       | 22%                    |



## Q. HOW RELEVANT IS COWS AND FISH TO YOU?

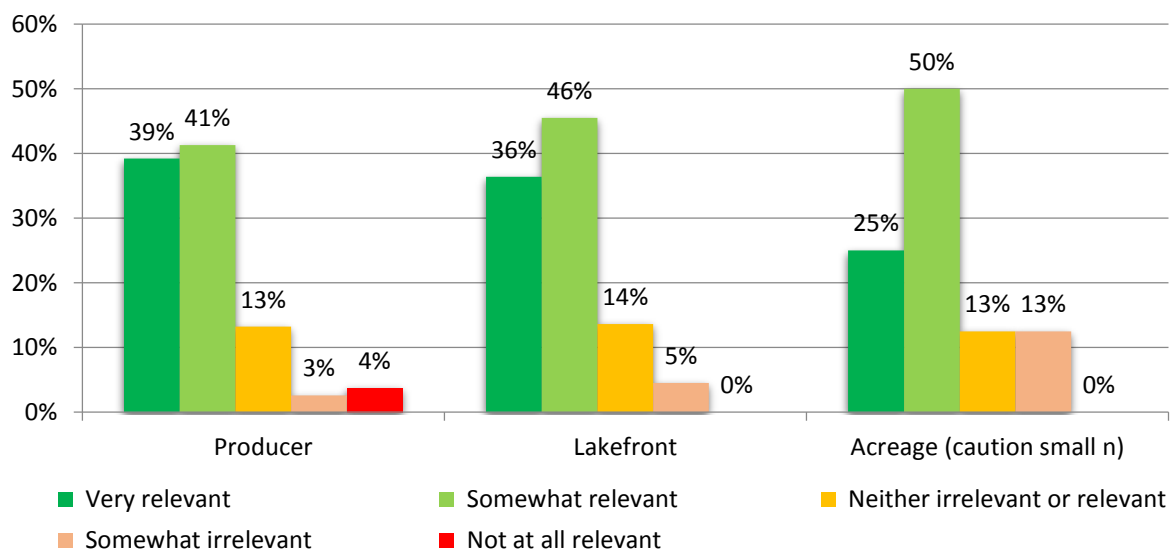
Landowners were asked how relevant Cows and Fish is to them. Over 80% rated Cows and Fish as relevant (somewhat relevant plus very relevant).

**Figure 20 How relevant is Cows and Fish to You? (n=225)**



Total relevancy (very/somewhat relevant) is significantly higher among landowners who are part of a group (97% vs. 77% among landowners not part of a group).

**Figure 21 Relevance of Cows and Fish by Landowner Group (Producer; n=189, Lakefront; n=22, Acreage; n=8)**





Among respondents who indicated they have increased their level of knowledge in relation to riparian area management as a result of interactions with Cows and Fish, 94% indicated Cows and Fish is relevant to them. For the ten respondents who indicated they increased their knowledge but do not consider Cows and Fish relevant to them, most of the comments indicated they would have made the changes with or without the information provided by Cows and Fish.

**Figure 22 Relevance of Cows and Fish among those Indicating they have Increased their Knowledge as a Result of Interacting with Cows and Fish (n=157)**

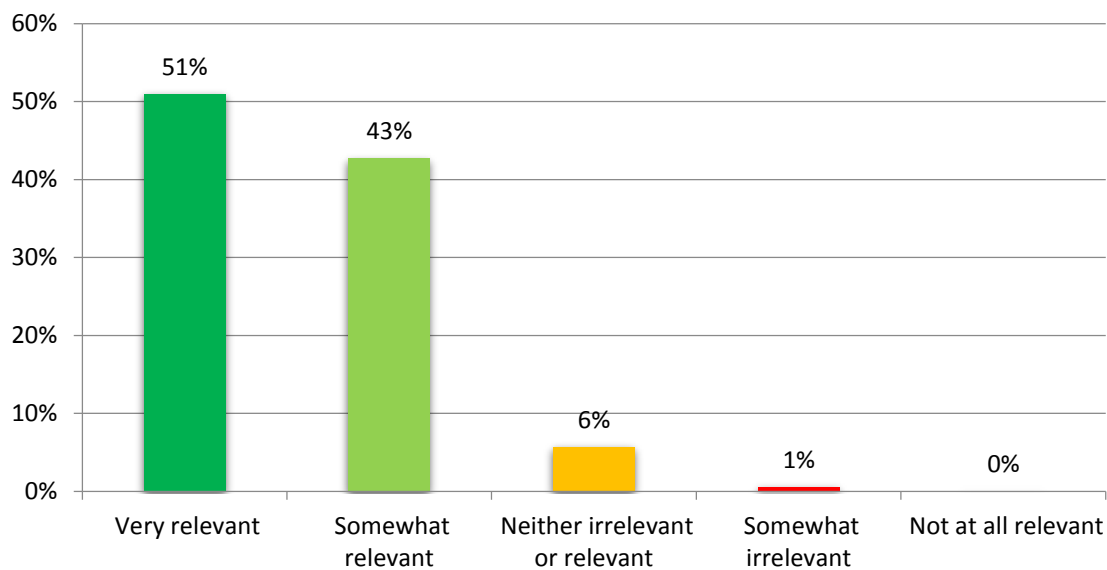


Figure 23 shows relevancy is very high among landowners who have implemented a land management practice change (94%). There were only nine landowners who made practices changes who rated Cows and Fish as being not relevant to them. The commentary from these few respondents suggests that because producers are already good stewards of the land they would have made the changes anyway.



**Figure 23 Relevance of Cows and Fish among those who have made a practice change (Changed mgmt practices; n=140, Implemented a change sooner; n=67; Implemented a change differently; n=93)**

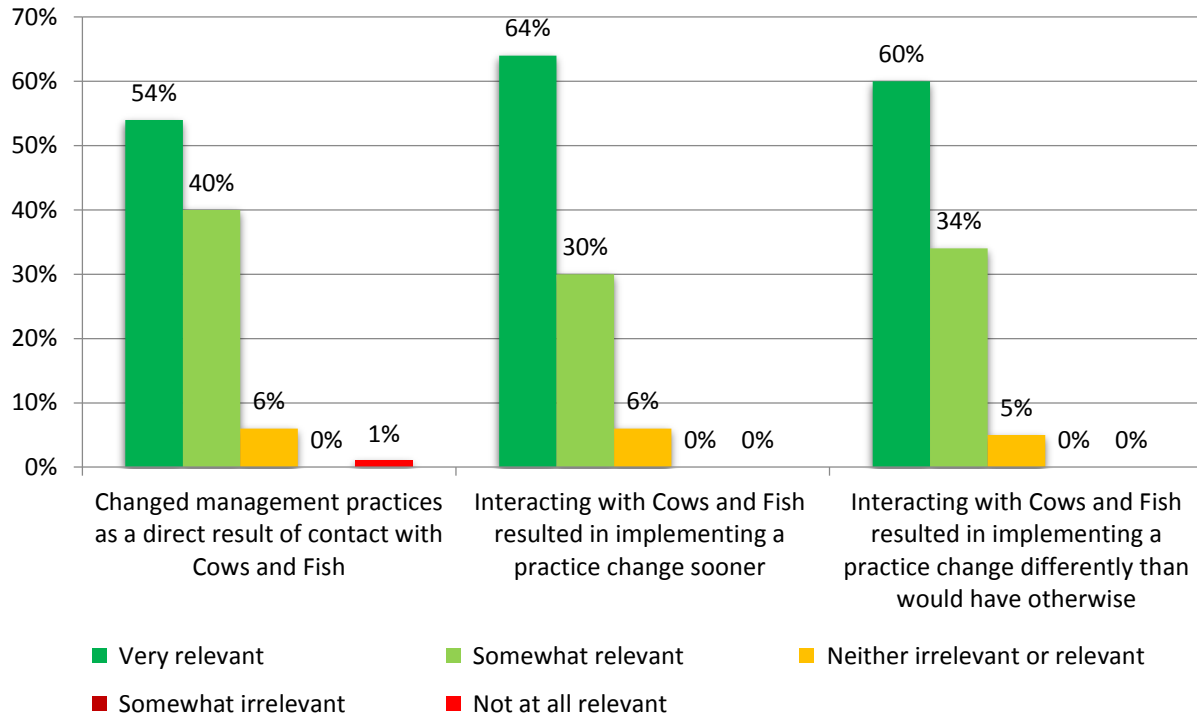


Table 19 illustrates there is a relationship between the year of most recent contact and the perceived relevance of Cows and Fish. Two-thirds of respondents who provided a rating of neutral, somewhat irrelevant or not at all relevant had their most recent contact prior to 2000. By contrast, 90% of those who have been in contact with Cows and Fish after 2015 gave a rating of very or somewhat relevant. It is important to keep in mind the number of people providing a rating of not at all relevant and somewhat irrelevant is very small (n=14).

**Table 19 Year of most recent contact by perceived relevance of Cows and Fish (n=224)**

| Year of most recent contact | Relevance of Cows and Fish to Respondent |                   |                                |                     |                     |
|-----------------------------|--|-------------------|--------------------------------|---------------------|---------------------|
|                             | Very relevant                            | Somewhat relevant | Neither irrelevant or relevant | Somewhat irrelevant | Not at all relevant |
| Prior 2000                  | 11%                                      | 22%               | 33%                            | 11%                 | 22%                 |
| 2000 to 2005                | 37%                                      | 37%               | 21%                            | 5%                  | 0%                  |
| 2006 to 2010                | 20%                                      | 48%               | 16%                            | 4%                  | 12%                 |
| 2011 to 2015                | 31%                                      | 50%               | 13%                            | 6%                  | 0%                  |
| After 2015                  | 52%                                      | 39%               | 8%                             | 0%                  | 2%                  |

Respondents were asked to explain the reasoning behind their relevancy ratings for Cows and Fish. For those who feel Cows and Fish is relevant, the most prevalent responses related to providing information and education to increase awareness of riparian management practices (23%),





conducting riparian assessments (20%) and protection of watershed systems and water quality (20%).

*"When looking at developing a holistic management framework for this ranch, having Cows and Fish provide the 3rd party verification of work being done here as well as knowing firsthand the environmental conditions of our riparian areas makes a huge difference. I have confidence in knowing that they are there to assist me when I have either questions or problems. I also have confidence in their answers and solutions to problems as they make the effort to come out to our ranches to know exactly what is happening here." (producer)*

*"I value the expertise on riparian management." (producer)*

*"Very few organizations if any take the time to educate land owners on the benefit of bio system diversification, aquifer quality, water filtration. The Cows and Fish is such an organization." (acreage owner)*

*"I value our water systems and the benefits of good riparian health. They are a great resource to draw upon." (producer)*

*"Water quality and quantity is the driver of life. The work Cows and Fish is doing with land owners is crucial for both to be ameliorated." (producer)*

*"With a growing public concern about environmental health, Cows and Fish is very important in relaying a message that livestock can be sustainable near water ways when managed correctly" (producer)*

*"They are helping save our lake from people that don't care." (lakefront owner)*

*"If I hadn't heard about the importance of riparian health, our farm could not have developed the ecosystem health that it now enjoys. Decisions are made on keeping these areas healthy." (producer)*

Few perceived Cows and Fish as not being relevant or felt indifferent (7 not relevant, 7 somewhat irrelevant and 29 neutral). Thirty-five of the 43 responses were from producers. Reasons provided for neutral and negative responses were similar. The most frequent themes included a lack of interaction (4%), a perception they are already good land stewards therefore Cows and Fish is not needed (4%) and a lack of information about what Cows and Fish does.

*"The riparian areas we have are in good shape with present management." (producer)*

*"Too much interference in my private business." (producer)*

*"With no interaction it is hard to find relevance." (producer)*



Table 20 Reason for rating of relevance (n=225)

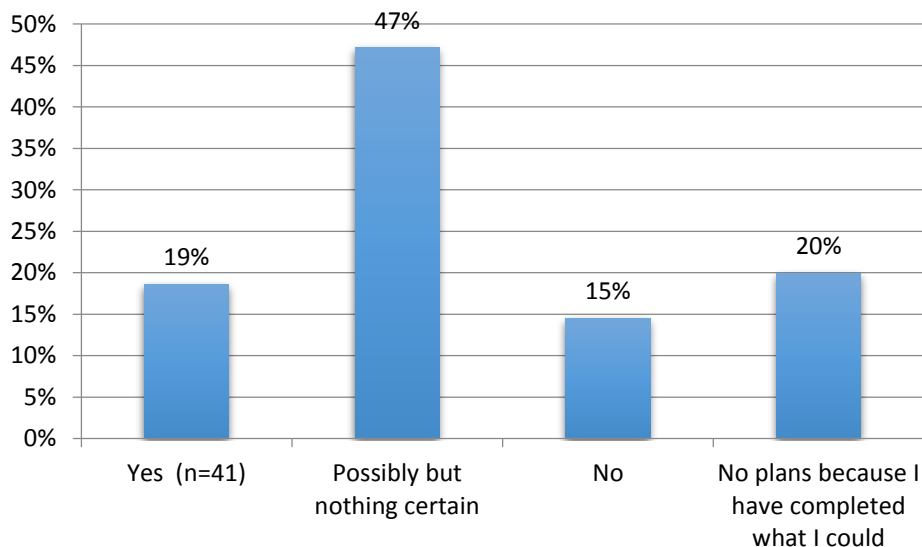
| Reason for Relevance or Non-relevance  | Percent of Respondents |
|--|------------------------|
| <b>Very and Somewhat Relevant:</b>   |                        |
| Provide information/education and increase awareness                           | 23%                    |
| Conduct riparian assessments and provide advice and reports                    | 20%                    |
| Protection of watershed systems / water quality                                | 20%                    |
| I own a riparian area/I live/work along or near a riparian area                | 11%                    |
| Grazing practices / Range health management                                    | 8%                     |
| I care about the environment   | 6%                     |
| Encourage change/ advocates  | 5%                     |
| Habitat/wildlife health management   | 3%                     |
| Provide awards/grants  | 1%                     |
| <b>Neutral and Not Relevant:</b>   |                        |
| Not much recent interaction with Cows and Fish                                 | 4%                     |
| We are already good land stewards/ do not see the need                         | 4%                     |
| Do not know much about Cows and Fish/ minimal information                      | 2%                     |
| Do not own land near streams, rivers, lakes/ cattle do not interact with water | 1%                     |
| Cows and Fish never responded to my inquiry                                    | 1%                     |
| Other  | 3%                     |



**Q. DO YOU HAVE ANY PLANS FOR CHANGES TO YOUR PRACTICES IN RELATION TO RIPARIAN AREA MANAGEMENT IN THE FUTURE AS A DIRECT RESULT OF YOUR CONTACT WITH COWS AND FISH STAFF?**

Around one in five (19%) landowners indicated they have plans for changes to their practices in relation to riparian area management in the future. These results do not differ significantly between landowners who are part of a group and landowners who are not part of a group (22% among landowners who are part of a group vs. 19% among landowners not part of a group).

**Figure 24 Plans to implement changes to practices (n=221)**



Among those who have previously made a practice change (n=140), 25% indicated they plan to make further changes, 50% indicated they might possibly make further changes, and 25% have no plans for changes (for the most part because the changes have already been made). Among those who have not made any practices changes (n=79), only 5% indicated they plan to make changes in the future, although 40% indicated they possibly will make changes, although remain uncertain.

Importantly there are a large number of respondents (n=103) who indicated they might possibly make practice changes in relation to riparian area management in the future. There was no follow-up question asking what would motivate them to make the changes; however, as shown earlier for those who have made changes, the main motivators included a sense of responsibility to manage the area for riparian health; having a greater awareness of management impact on land use related to riparian health or function; and, a desire to benefit water quality.

More frequent contacts with the land owners and focusing on the key motivators in the messaging could improve the likelihood of moving those who are considering change to actually making the change.



Table 21 illustrates the relationship between the year of most recent contact and plans for practice change in relation to riparian area management in the future. Those who contacted Cows and Fish after 2015 are most likely to be planning future change. The further back the most recent contact, the more likely the practice changes are to have already been implemented with no future plans in place.

**Table 21 Plans for future change by year of most recent contact (n=221)**

| Plans for future change                        | Prior to 2000 | 2000 to 2005 | 2006 to 2010 | 2011 to 2015 | After 2015 |
|--|---------------|--------------|--------------|--------------|------------|
| Yes  | 11%           | 6%           | 13%          | 17%          | 24%        |
| Possibly but nothing certain                   |               | 50%          | 38%          | 47%          | 52%        |
| No   | 44%           | 17%          | 25%          | 15%          | 9%         |
| No plans because I have completed what I could | 44%           | 28%          | 25%          | 21%          | 15%        |
| Total  | 100%          | 100%         | 100%         | 100%         | 100%       |

Table 22 provides the common themes for those who indicated they plan changes in the future. Off-stream watering and further fencing were the main areas of change. All but four (2 lakefront, 1 acreage, 1 other) of the respondents to this question are producers, therefore breakdowns by landowner type are not possible.

**Table 22 Proposed changes in the future to practices (41 respondents provided 62 comments)**

| Do you have any plans for changes to your practices in relation to riparian area management in the future as a direct result of your contact with Cows and Fish staff? | Percent of Respondents |
|--|------------------------|
| Provision of off-stream watering systems   | 29%                    |
| Fencing off more areas (to protect river/lake)   | 27%                    |
| Removal of invasive plant species/ replanting to control invasive species  | 15%                    |
| Trees and shrubs planting/grass and plants seeded/ shoreline protection  | 15%                    |
| Would like more assessments/Monitoring/ More C&F info, knowledge, updates  | 15%                    |
| Controlling grazing program, pastures to protect water   | 12%                    |
| Depends on funding/ Need funding to do more  | 7%                     |
| I will offer advice/help others with management  | 5%                     |
| Riparian management is an ongoing process  | 5%                     |
| Beaver management  | 2%                     |
| Other  | 7%                     |



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Examples of proposed changes in the future to practices are as follows:

*“Removal of an old shed and replant with native species.” (lakefront owner)*

*“Better management of fencing and fresh water supply for cows (e.g. solar pumps)” (lakefront owner/producer)*

*“More off-stream watering sites as well as changing some of the ways and timing of how we use some of the fields for the cattle. I do have a couple of fencing projects planned that will change how the cattle interact with some of the riparian areas, mostly the river.” (producer)*

*“I will continue to work on removing invasive species and at the same time plant trees that are native to the area.” (producer)*

*“I have planted willows along the creek, but the scope of the problem along the Clearwater is such that it will require a significant investment and likely government support.” (producer)*



## 2.3 Assessment of Cows and Fish

All survey participants (n=303) were asked questions in relation to an assessment of Cows and Fish in terms of desirable characteristics of Cows and Fish staff, reputation and awareness of Cows and Fish and performance attributes of staff. As noted earlier, landowners comprise 80% of the sample. Most landowners surveyed are producers (n=204, 84% of landowners), 26 are lakefront owners (11% of landowners), 13 (5% of landowners) are acreage owners, and 9 (4% of respondents) are other.

Sixty-one respondents (20%) are not landowners, and are representatives of a community or watershed stewardship group (n=7), municipal staff (17), provincial or federal staff (n=15), agricultural fieldman or rural extension staff (n=4), a member of a conservation group or environmental organization (n=15) or other (n=2). It should be noted that there are 41 respondents who identified as being a representative of a community or watershed stewardship group, most of whom are landowners (n=36).

Individual group sizes for respondents who are not landowners are too small for analysis. Therefore their responses have been grouped in this section as 'non-landowners' with a total n=61.

As a reminder, all questions in this section pertain to the quantitative on-line survey. The in-depth interviews are discussed in Section 3.

### 2.3.1 The most important characteristics that Cows and Fish should consistently demonstrate

**Q. PLEASE SELECT THE THREE MOST IMPORTANT CHARACTERISTICS THAT COWS AND FISH STAFF SHOULD CONSISTENTLY DEMONSTRATE TO HELP OTHERS ADOPT NEW SUSTAINABLE RIPARIAN MANAGEMENT PRACTICES.**

All survey respondents believe that Cows and Fish should demonstrate they are knowledgeable about riparian area management and that they understand the practicalities of living and working near riparian areas. These characteristics were also the top ranked in 2004 highlighting the need for consistently high performance on these areas.

Depending on the desired outcome, there are some differences with respect to demonstrating credibility and motivation ability. Credibility is considered more important when helping others learn or raise their awareness about riparian areas while the ability to motivate is considered more important when helping others adopt new sustainable riparian management practices.

Characteristics of being unbiased, enthusiastic, and reliable were rated important by 20% or fewer respondents. This is not to suggest these characteristics are unimportant, rather they are of less importance relative to the other attributes measured.



**Figure 25 Characteristics for Cows and Fish to demonstrate for helping others adopt new sustainable riparian management practices and for helping others learn/raising awareness about riparian areas (n=280)**

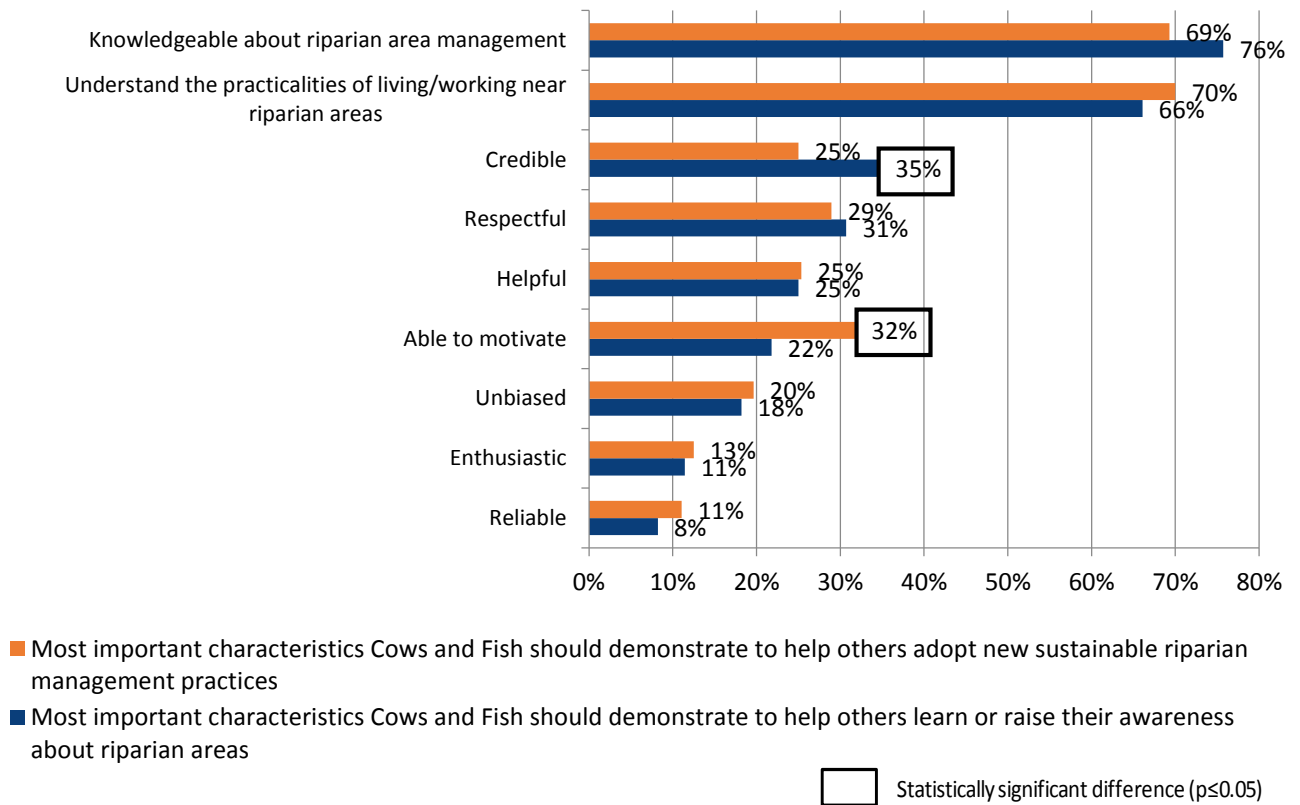


Table 23 compares the results of the importance attributes for learning and raising awareness about riparian areas between producers (n=183), lakefront owners (n=24) and non-landowners (n=57). Acreage and other landowners were not included due to insufficient sample size (n=9).

Comparing producers, lakefront owners and non-landowners reveals the same top-two items of importance in relation to what Cows and Fish should do to help others learn and raise awareness about riparian areas. However, there are differences in the weighting associated with each in terms of importance with 81% of non-landowners identifying being knowledgeable about riparian area management as the top item, compared with 72% for producers and 79% for lakefront owners.

Lakefront owners place lower importance on Cows and Fish being able to motivate (8%) compared with non-landowners (28%) and producers (22%). Producers place significantly higher importance on being respectful (35%) than lakefront owners. Being helpful was rated significantly higher in importance for producers (28%) than non-landowners (14%).

Compared to landowners who are not part of a group, NGO representatives deem credibility more important for Cows and Fish when it comes to helping others learn or raise their awareness about riparian areas (63% vs. 29% respectively). Meanwhile, on this same measure, landowners who are part of a group are more likely to deem helpfulness as important compared to NGO and government representatives (31% vs. 11% and 14% respectively).





**Table 23 Importance of characteristics to help others learn or raise awareness by landowner and non-landowner**

| <b>Importance of characteristics to help others learn or raise their awareness about riparian areas.</b> | <b>Producer (P)</b> | <b>Lakefront (L)</b> | <b>Non land owner (NLO)</b> |
|--|---------------------|----------------------|-----------------------------|
| Knowledgeable about riparian area management   | 72%                 | 79%                  | 81%                         |
| Understand the practicalities of living and working near riparian areas                                  | 66%                 | 79%                  | 68%                         |
| Enthusiastic   | 12%                 | 13%                  | 12%                         |
| Able to motivate   | 22%                 | 8% <sup>P/NLO</sup>  | 28%                         |
| Unbiased   | 18%                 | 25%                  | 18%                         |
| Credible   | 30%                 | 42%                  | 40%                         |
| Reliable   | 6%                  | 8%                   | 11%                         |
| Respectful   | 35% <sup>L</sup>    | 13%                  | 26%                         |
| Helpful  | 28% <sup>NLO</sup>  | 25%                  | 14%                         |
| Other  | 6%                  | 8%                   | 2%                          |

<sup>P/L/NLO</sup> = denotes which group's figures differ significantly from at  $p \leq 0.05$

Table 24 compares the results of the importance attributes to help others adopt new sustainable riparian management practices between producers (n=183), lakefront owners (n=24) and non-landowners (n=57). Acreage and other landowners were not included due to insufficient sample size (n=9).

Comparing producers, lakefront owners and non-landowners reveals the same top-two items of importance in relation what Cows and Fish should do to help others adopt new sustainable riparian management. As with learning, there are differences in the weighting associated with each in terms of importance with 77% of non-landowners identifying being knowledgeable about riparian area management as the top item, compared with 69% for producers and 58% for lakefront owners. Understanding the practicalities of living and working near riparian areas is rated as significantly more important by lakefront owners (88%) compared to 72% for producers and 61% for non-landowners.



**Table 24 Importance of characteristics to help others learn or raise awareness by landowner and non-landowner**

| <b>Importance of characteristics to help others adopt new sustainable riparian management practices.</b> | <b>Producer (P)</b> | <b>Lakefront (L)</b> | <b>Non land owner (NLO)</b> |
|--|---------------------|----------------------|-----------------------------|
| Knowledgeable about riparian area management   | 69%                 | 58%                  | 77%                         |
| Understand the practicalities of living and working near riparian areas                                  | 72%                 | 88% <sup>P/NLO</sup> | 61%                         |
| Enthusiastic   | 13%                 | 4%                   | 12%                         |
| Able to motivate   | 32%                 | 29%                  | 35%                         |
| Unbiased   | 16%                 | 21%                  | 28%                         |
| Credible   | 25%                 | 38%                  | 18%                         |
| Reliable   | 11%                 | 17%                  | 11%                         |
| Respectful   | 28%                 | 21%                  | 32%                         |
| Helpful  | 26%                 | 21%                  | 23%                         |
| Other  | 4%                  | 4%                   | 4%                          |

<sup>P/L/NLO</sup> = denotes which groups figures differ significantly from at  $p \leq 0.05$

Table 25 shows the ranking in 2004 and 2017 of the most important characteristics for learning and raising awareness about riparian areas. Ranks are shown here due to a change in question structure inhibiting comparison of the actual percentages. In 2004 the question allowed for up to 2 responses, in 2017 the question allowed for up to 3.

**Table 25 Historical comparisons – most important characteristics to learn/create awareness**

| <b>Most important characteristics to learn/create awareness [RANKS]</b> | <b>2004</b> | <b>2017</b> |
|---|-------------|-------------|
| Knowledgeable about riparian area management                            | 2           | 1           |
| Understand the practicalities of living/working near riparian areas     | 1           | 2           |
| Credible  | 5           | 3           |
| Respectful  | 7           | 4           |
| Helpful   | 4           | 5           |
| Able to motivate  | 3           | 6           |
| Unbiased  | 8           | 7           |
| Enthusiastic  | 6           | 8           |
| Reliable  | 9           | 9           |



Table 26 shows the ranking in 2004 and 2017 of the most important characteristics for helping others adopt new sustainable riparian management practices.

**Table 26 Historical comparisons – most important characteristics to promote practice change**

| <b>Most important characteristics to promote practice change<br/>[RANKS]</b> | <b>2004</b> | <b>2017</b> |
|--|-------------|-------------|
| Understand the practicalities of living/working near riparian areas          | 1           | 1           |
| Knowledgeable about riparian area management                                 | 2           | 2           |
| Able to motivate   | 3           | 3           |
| Respectful   | 8           | 4           |
| Helpful  | 4           | 5=          |
| Credible   | 5           | 5=          |
| Unbiased   | 7           | 7           |
| Enthusiastic   | 6           | 8           |
| Reliable   | 9           | 9           |

### 2.3.2. Rating of Attributes of Cows and Fish Staff

Cows and Fish staff are rated very highly on their knowledge of riparian area management (in total 94% agree that Cows and Fish staff are knowledgeable in this area) and their knowledge around the practicalities of living/working near riparian areas (87% total agreement).

To an extent, being perceived as knowledgeable can be assumed to help raise credibility, and 2017 results show that Cows and Fish also perform well on this characteristic (90% agree Cows and Fish staff are credible). In addition, being perceived as respectful also helps to highlight that Cows and Fish understand the practicalities of living/working near riparian areas and performance is also currently strong on this attribute (90% agree that Cows and Fish staff are respectful).

Figure 26 provides the ratings and comparisons between 2004 and 2017. Nine of the ten items rated are higher in 2017 than 2004 (although only one value is statistically significant).

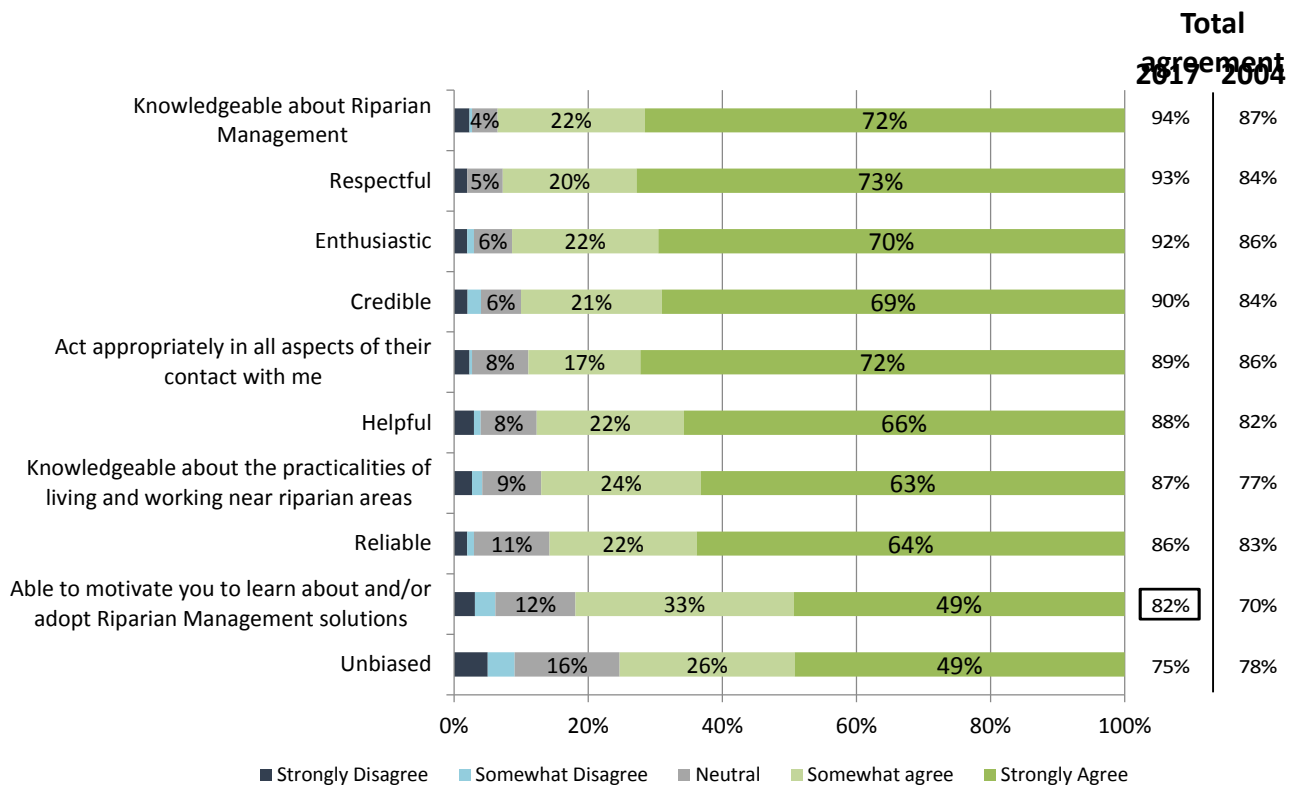


# Cows and Fish

Alberta Riparian habitat Management Society



Figure 26 Ratings of Cows and Fish (Variable bases - valid responses: 2004; n=188-205, 2017; n=237-264)



82% Statistically significant difference from 2004 result ( $p \leq 0.05$ )



Table 27 shows the level of agreement (somewhat and strongly agree) for each of the attributes broken down by producers, lakefront owners, non-landowners and all respondents. Although there are differences between the groups, it is important to note that all groups provide a very positive rating of Cows and Fish on all attributes.

Relative to producers, non-landowners are more likely to agree that Cows and Fish are knowledgeable about the practicalities of living and working near riparian areas (96% vs. 84% respectively). In addition, non-landowners are the most likely to agree that Cows and Fish are unbiased (85% vs. 74% among producers and 63% among lakefront owners).

While there is no stated reason for these differences within the survey results, representatives from NGO's, agencies and government (who make up most of the non-landowner group) have the most interaction with Cows and Fish and likely see the work they do in riparian area management as complimentary to the work that Cows and Fish perform.

**Table 27 Ratings of Cows and Fish by different groups (total agreement)**

| Attribute of Cows and Fish   | Percent agree and strongly agree |               |                      |                 |
|--|----------------------------------|---------------|----------------------|-----------------|
|  | Producer (P)                     | Lakefront (L) | Non land owner (NLO) | All Respondents |
| knowledgeable about riparian management  | 92%                              | 95%           | 98%                  | 94%             |
| are respectful   | 92%                              | 95%           | 94%                  | 93%             |
| are enthusiastic   | 91%                              | 95%           | 96%                  | 92%             |
| act appropriately in all aspects of their contact with me                            | 87%                              | 86%           | 94%                  | 89%             |
| are helpful  | 88%                              | 81%           | 91%                  | 88%             |
| are knowledgeable about the practicalities of living and working near riparian areas | 84%                              | 86%           | 96% <sup>P</sup>     | 87%             |
| are reliable   | 85%                              | 89%           | 91%                  | 86%             |
| are able to motivate you to learn about and/or adopt riparian management solutions   | 82%                              | 77%           | 87%                  | 82%             |
| are unbiased   | 74%                              | 63%           | 85% <sup>P/L</sup>   | 75%             |

<sup>P/L/NLO</sup> = denotes which groups figures differ significantly from at  $p \leq 0.05$

The results from 2004 are generally very similar to the 2017 results when broken down by role, with non-landowners providing more positive ratings on all measures than both lakefront owners and producers (Table 28). It is important to exercise caution when looking at the differences between lakefront owners and the other groups as 2004 and 2017 samples are small for this group in both years.

It is interesting to note that in 2004, 66% of producers and 73% of non-landowners agreed that Cows and Fish are able to motivate landowners to learn about and/or adopt riparian management solutions; whereas in 2017 this result was much higher with 82% of producers and 87% of non-landowners agreeing with this statement.



**Table 28 Comparison of Cows and Fish Attribute Ratings between 2004 and 2017**

| Attribute of Cows and Fish   | Percent agree or strongly agree |      |           |      |               |      |
|--|---------------------------------|------|-----------|------|---------------|------|
|  | Producer                        |      | Lakefront |      | Non-landowner |      |
|  | 2004                            | 2017 | 2004      | 2017 | 2004          | 2017 |
| knowledgeable about riparian management  | 86%                             | 92%  | 84%       | 95%  | 95%           | 98%  |
| are respectful   | 92%                             | 92%  | 76%       | 95%  | 95%           | 94%  |
| are enthusiastic   | 85%                             | 91%  | 87%       | 95%  | 96%           | 96%  |
| act appropriately in all aspects of their contact with me                            | 84%                             | 87%  | 85%       | 86%  | 96%           | 94%  |
| are helpful  | 80%                             | 88%  | 77%       | 81%  | 95%           | 91%  |
| are knowledgeable about the practicalities of living and working near riparian areas | 77%                             | 84%  | 72%       | 86%  | 95%           | 96%  |
| are reliable   | 83%                             | 85%  | 79%       | 89%  | 86%           | 91%  |
| are able to motivate you to learn about and/or adopt riparian management solutions   | 66%                             | 82%  | 72%       | 77%  | 73%           | 87%  |
| are unbiased   | 77%                             | 74%  | 80%       | 63%  | 81%           | 85%  |

Table 29 shows the strength of the ratings by the same groups by only examining the percentages associated with strongly agree.

Non-landowners again provided the highest overall ratings on the attributes, while producers tended to provide lower percentages of strong agreement.

Relative to producers, non land owners are significantly more likely to agree that Cows and Fish are;

- Knowledgeable about riparian management (89% vs.67% respectively)
- Enthusiastic (80% vs. 65% respectively)
- Reliable (74% vs. 60% respectively)
- Are able to motivate you to learn about and/or adopt riparian management solutions (63% vs. 46% respectively)

Producers are least likely to agree that Cows and Fish are knowledgeable about the practicalities of living and working near riparian areas (56% vs. 76% among lakefront owners and 83% among non-landowners). There is no explanation offered in the survey as to why producers have a lower rating of 'strong agreement' on this attribute than the other groups.



**Table 29 Ratings towards Cows and Fish by different groups (strongly agree)**

| Attribute of Cows and Fish   | Percent strongly agree |               |                      |                 |
|--|------------------------|---------------|----------------------|-----------------|
|  | Producer (P)           | Lakefront (L) | Non land owner (NLO) | All Respondents |
| are respectful   | 69%                    | 80%           | 80%                  | 73%             |
| act appropriately in all aspects of their contact with me                            | 69%                    | 67%           | 80%                  | 72%             |
| knowledgeable about riparian management  | 67%                    | 76%           | 89% <sup>P</sup>     | 72%             |
| are enthusiastic   | 65%                    | 75%           | 80% <sup>P</sup>     | 70%             |
| are helpful  | 63%                    | 57%           | 70%                  | 66%             |
| are reliable   | 60%                    | 67%           | 74% <sup>P</sup>     | 64%             |
| are knowledgeable about the practicalities of living and working near riparian areas | 56% <sup>L/NLO</sup>   | 76%           | 83%                  | 63%             |
| are able to motivate you to learn about and/or adopt riparian management solutions   | 46%                    | 46%           | 63% <sup>P</sup>     | 49%             |
| are unbiased   | 46%                    | 53%           | 57%                  | 49%             |

<sup>P/L/NLO</sup> = denotes which groups figures differ significantly from at  $p \leq 0.05$

There are also some differences with how groups interact with Cows and Fish. Relative to landowners, NGO representatives are significantly more likely to strongly agree that Cows and Fish are:

- Knowledgeable about riparian management (95% vs. 67% among landowners not part of a group and 66% among landowners part of a group)
- Knowledgeable about the practicalities of living and working near riparian areas (90% vs. 56% among landowners not part of a group and 63% among landowners part of a group)
- Reliable (84% vs. 62% among landowners not part of a group and 58% among landowners part of a group)
- Respectful (95% vs. 73% among landowners not part of a group and 68% among landowners part of a group)
- Act appropriately in all aspects of their contact (94% vs. 72% among landowners not part of a group and 63% among landowners part of a group)





Although not directly comparable to 2004 results due to a change in survey wording, a similar pattern has emerged in 2017 whereby ratings towards Cows and Fish become more positive with increased contact. As seen earlier, non-landowners provided the highest ratings and they also had the greatest number of contacts. Therefore it is possible that it is not just the number of contacts that affects the ratings, but also the nature of the contact and relationship between the respondent and Cows and Fish.

**Table 30 Ratings towards Cows and Fish by amount of contact (2017)**

| <b>2017 Results</b>  | <b>1-2<br/>Contacts</b> | <b>3 - 10<br/>Contacts</b> | <b>11+<br/>Contacts</b> |
|--|-------------------------|----------------------------|-------------------------|
| credible   | 89%                     | 87%                        | 98%                     |
| knowledgeable about riparian management  | 90%                     | 93%                        | 98%                     |
| are enthusiastic   | 89%                     | 91%                        | 98%                     |
| are helpful  | 81%                     | 87%                        | 97%                     |
| act appropriately in all aspects of their contact with me                            | 83%                     | 88%                        | 97%                     |
| are respectful   | 92%                     | 91%                        | 97%                     |
| are knowledgeable about the practicalities of living and working near riparian areas | 82%                     | 85%                        | 95%                     |
| are reliable   | 85%                     | 83%                        | 95%                     |
| are able to motivate you to learn about and/or adopt riparian management solutions   | 77%                     | 79%                        | 94%                     |
| are unbiased   | 74%                     | 69%                        | 89%                     |

**Table 31 Ratings towards Cows and Fish by frequency of contact (2004)**

| <b>2004 Results</b>  | <b>Very little<br/>contact</b> | <b>Moderate<br/>amount<br/>of contact</b> | <b>Frequent/<br/>In-depth<br/>contact</b> |
|--|--------------------------------|---|---|
| credible   | 75%                            | 88%                                       | 100%                                      |
| knowledgeable about riparian management  | 81%                            | 89%                                       | 96%                                       |
| are enthusiastic   | 77%                            | 89%                                       | 100%                                      |
| are helpful  | 73%                            | 84%                                       | 100%                                      |
| act appropriately in all aspects of their contact with me                            |                                |   |   |
| are respectful   | 78%                            | 85%                                       | 100%                                      |
| are knowledgeable about the practicalities of living and working near riparian areas | 68%                            | 82%                                       | 91%                                       |
| are reliable   | 75%                            | 86%                                       | 96%                                       |
| are able to motivate you to learn about and/or adopt riparian management solutions   | 59%                            | 71%                                       | 95%                                       |
| are unbiased   | 70%                            | 81%                                       | 91%                                       |



### 2.3.3 Benefits of Cows and Fish to other agencies and organizations

Representatives of government, agencies and organizations involved in riparian area management were asked two open-ended questions in relation to the benefits of Cows and Fish. Only respondents to the online survey who identified in the following categories were asked these questions:

- Community or Watershed Stewardship Group Representative
- Agricultural Fieldman /rural extension staff
- Municipality staff
- Provincial or federal staff
- Member of a conservation/environmental organization

Based on the above criteria, 101 respondents were eligible to answer these two questions; however, just over half chose to respond (n=59).

#### **Q. HOW HAS COWS AND FISH BENEFITED YOUR AGENCY OR ORGANIZATION IN REACHING ITS GOALS AND TARGETS?**

Those who feel Cows and Fish has benefited their agency or organization in reaching its goals and targets were asked to provide examples. Comment themes are provided in Table 32. Since respondents could offer more than one example, the percentages total more than 100%. Of the 101 representatives of government, agencies and organizations in the survey, 56 provided comments. All the comments were positive, although it should be noted the question did solicit a positive response (i.e. asking for benefits). It should not be concluded that the 44 representatives of government, agencies and organizations who did not answer the questions do not see the benefit of Cows and Fish as the reason for their non-response is unknown.

**Table 32 Benefits provided by Cows and Fish (n=56 respondents provided 81 comments)**

| How has Cows and Fish benefited your agency or organization in reaching its goals and targets? | Percent of Respondents |
|--|------------------------|
| Provided excellent information/education/resources   | 57%                    |
| Riparian health assessments are valuable/ helped to address issues                             | 45%                    |
| Excellent collaborative effort to promote practice change/environmental management             | 25%                    |
| Helped implement riparian enhancement/protection projects                                      | 23%                    |
| Workshops are valuable   | 7%                     |

When asked how Cows and Fish has benefited their agency or organization in reaching its goals and targets, over half (57%) stated this was due to the provision of excellent information, education and resources.

*"They have helped to deliver education/outreach targets, by providing presentations and also field based activities." (member of conservation/environmental organization)*

*"Providing valuable information and reports over the years to help inform in creating policies and strategies." (municipal staff)*



*"Staff from my organization have also attended training led by Cows and Fish to further develop internal knowledge on riparian health and how to complete thorough assessments." (member of conservation/environmental organization)*

*"Providing excellent publications regarding riparian health/ management." (provincial or federal staff)*

Just under half (45%) felt they had benefited from valuable riparian health assessments, which were also seen to help address issues.

*"Providing riparian health assessments to producers so we can then identify BMPs and projects to implement." (agricultural fieldman /rural extension staff)*

*"My organization has worked with Cows and Fish on numerous occasions including performing riparian health assessments for our Riparian Program. This has helped us determine the success of our program." (member of conservation/environmental organization)*

*"Conducting detailed riparian assessments on important watersheds." (provincial or federal staff)*

#### **Q. WHAT ATTRIBUTES HAS COWS AND FISH BROUGHT TO YOUR INTERACTIONS WHICH FACILITATE YOUR AGENCY'S/ORGANIZATION'S GOALS AND TARGETS?**

When asked what attributes Cows and Fish has provided in facilitating agency/organisation goals or targets, most of the comments (74%) refer to Cows and Fish providing knowledge/information/tools and understanding. Note this question was completed by stakeholders (government, municipal, NGO, community groups as described above).

**Table 33 Attributes provided by Cows and Fish to facilitate agency/organizational goals and target (59 respondents provided 80 comments)**

| What attributes has Cows and Fish brought to your interactions which facilitate your agency's/organization's goals and targets? | Percent of Respondents |
|---|------------------------|
| Providing knowledge, information, tools, understanding  | 74%                    |
| Good reputation/credibility/professionalism   | 23%                    |
| Knowledgeable staff   | 14%                    |
| Strong science-based expertise  | 19%                    |
| Quality reports   | 7%                     |

*"Our goals are to have more landowners involved with riparian stewardship on their property. Cows and Fish have provided knowledge and resources for us to present to landowners to make them feel more comfortable with our riparian project." (member of conservation/environmental organization)*

*"Diverse use of resources that reach or target landowners on the ground with practical solutions and options for riparian management." (agricultural fieldman /rural extension staff)*



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*"Expertise and knowledge about riparian assessment and management from both pragmatic and scientific perspectives." (member of conservation/ environmental organization)*

The second most prevalent comments related to the reputation and credibility of Cows and Fish (23%).

*"They have brought scientific credibility through program advice and direct data collection and analysis." (municipal staff)*

*"Cows and Fish has a great reputation among landowners and stewardship groups and our affiliation with them has brought social credibility to our program." (municipal staff)*

Provision of these benefits and attributes works to promote the knowledge created by Cows and Fish and their depth of understanding in the area of riparian management.

As seen previously, Cows and Fish staff perform well across these attributes, particularly around being knowledgeable on riparian management. Meanwhile, from a personality perspective the organization displays strong performance on respectfulness, enthusiasm, helpfulness and credibility.

#### 2.3.4 Awareness and reputation of Cows and Fish

All survey participants (n=303) were asked how they would rate the awareness of Cows and Fish programs among landowners and land managers in their area.

##### **Q. GENERALLY, HOW WOULD YOU RATE THE AWARENESS OF COWS AND FISH PROGRAMS AMONG LANDOWNERS AND LAND MANAGERS IN YOUR AREA?**

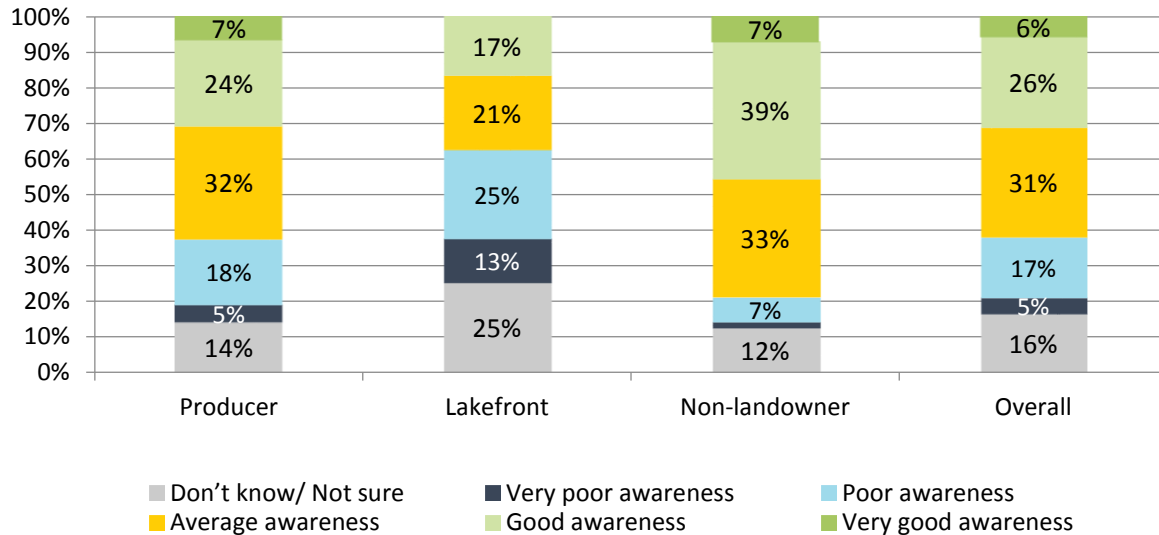
Overall, about one-third (32%) of respondents rated awareness among landowners and land managers in their area as good or very good with a further 31% providing an average rating. Almost one-quarter (22%) of respondents rated awareness as poor or very poor.

Non-landowners (who include municipal staff, government employees, NGOs and community groups) offered a significantly more positive rating of awareness than producers (46% very good/good vs. 31% among producers). Bearing in mind these ratings are based on the respondent's perception of awareness, there does appear to be opportunities to increase awareness of Cows and Fish especially among lakefront owners.

Comparing landowner groups, there are no significant differences with respect to awareness ratings. Among landowners who are part of a group, 38% feel awareness is very good/good while among landowners who are not part of a group this figure is 26%.



**Figure 27 Rating of awareness of Cows and Fish programs among landowners/land managers in their area – Total and by group (Total; n=282, Producer; n=185, Lakefront; n= 24, Non-landowner; n=57)**



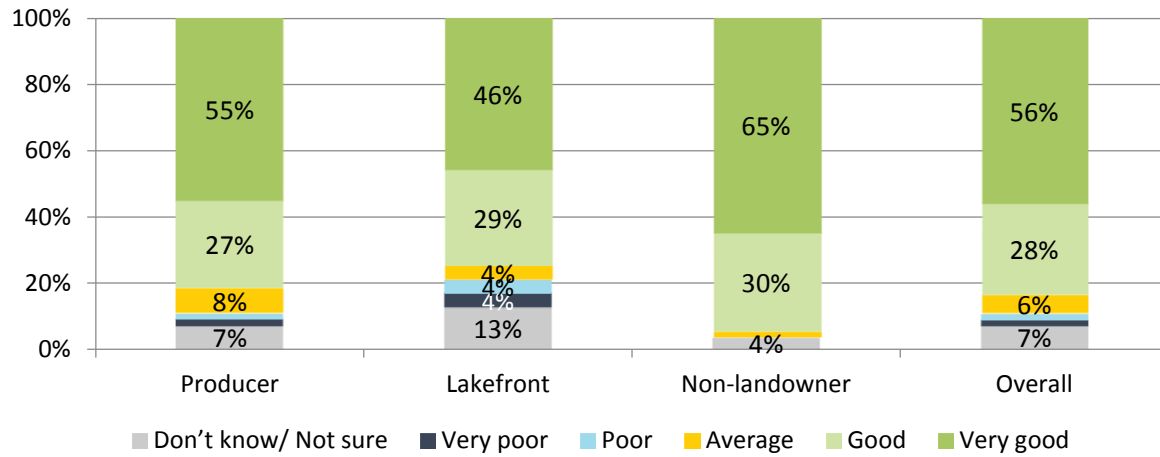
**Q. IN YOUR OPINION HOW WOULD YOU RATE COWS AND FISH’S REPUTATION TO FOSTER A BETTER UNDERSTANDING OF MANAGEMENT PRACTICES IN RELATION TO RIPARIAN AREAS AND ECOSYSTEM HEALTH AND PRODUCTIVITY?**

Ratings of Cows and Fish’s reputation to foster a better understanding of management practices in relation to riparian areas and ecosystem health are high overall with 84% of respondents providing a good or very good rating. Non-landowners (who include municipal staff, government employees, NGOs and community groups) provided the most positive rating with 95% rating Cows and Fish’s reputation as good or very good (significantly higher relative to lakefront owners and producers).

Across specific groups, NGO representatives provided the most positive rating (very good or good 100% vs. 97% among government representatives, 80% among landowners who are not part of a group and 80% among landowners who are part of a group). Although there are differences, all ratings are very positive.



Figure 28 Rating of Cows and Fish's reputation to foster a better understanding of management practices in relation to riparian areas and ecosystem health and productivity – Total and by group (Total; n=282, Producer; n=185, Lakefront; n=24, Non-landowner; n=57)







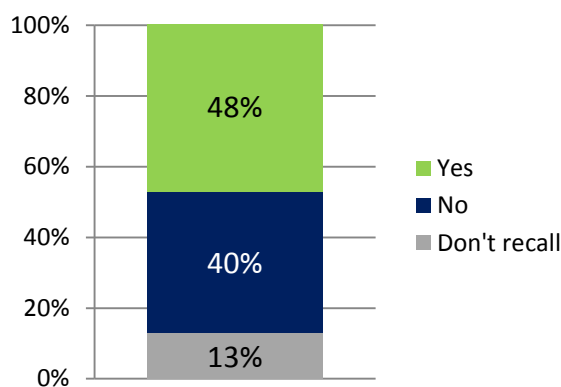
## 2.4 Cows and Fish Website

All respondents to the online survey were asked about the Cows and Fish website.

### Q. HAVE YOU VISITED THE COWS AND FISH WEBSITE?

Just under one in two (48%) survey participants have visited the Cows and Fish website while 40% have not, and a further 13% are unsure. Compared to landowners (either part of a group or not), website visitation is higher among representatives of government departments/agencies or NGOs working on riparian issues.

**Figure 29 Visitation of Cows and Fish Website (n=278)**



**Table 34 Visited Cows and Fish Website by role in interacting with Cows and Fish**

| Visited website? | Belong to or represent a local group representing riparian, water or watershed issues [LG] | Represent a government department or agency working on riparian, water or watershed issues [GD] | Represent a non-government organization working on riparian issues [NGO] | Landowner interested in riparian area health or management [LO] | Total |
|------------------|--|---|--|---|-------|
| Yes              | 45%  | 74% <sup>L G/LO</sup>   | 84% <sup>LG/LO</sup>   | 39%   | 48%   |
| No               | 40%  | 23% <sup>LG/LO</sup>  | 11% <sup>LG/LO</sup>   | 46%   | 40%   |
| Don't recall     | 16%  | 3%  | 5%   | 16%   | 13%   |
| Base             | 38   | 35  | 18   | 148   | 278   |

<sup>P/L/NLO</sup> = denotes which groups figures differ significantly from at  $p \leq 0.05$



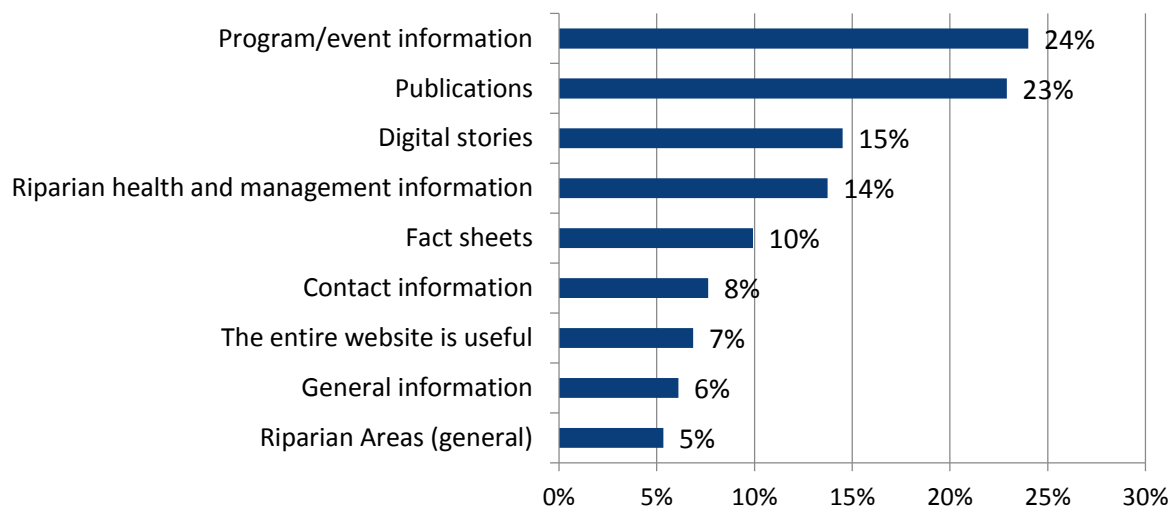


#### WHICH PARTS OF THE WEBSITE DID YOU FIND MOST USEFUL?

The most useful parts of the website are the publications and program and event information (the word cloud to the right illustrates the highest frequency of comments by largest size of text). With this in mind Cows and Fish need to ensure these features are kept up to date and are easily accessible on the website for all to see and navigate.



Figure 30 Most useful parts of the Cows and Fish website (n=131)



#### WAS THERE ANYTHING YOU WERE LOOKING FOR THAT YOU COULD NOT FIND OR YOU FEEL COULD BE IMPROVED? (N=131)

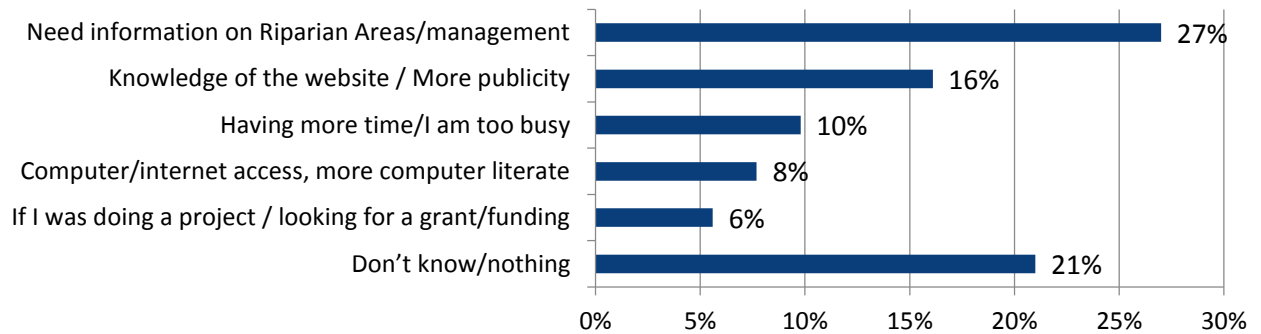
For the most part however, few could pinpoint something on the website they struggled to find or identify something requiring improvement. Over eight in ten (82%) could not identify an issue here and among those that could, results were largely fragmented. The most common comment made here was 'more information/media around Riparian Areas (cited by 8%).



**Q. WHAT WOULD MOTIVATE YOU TO VISIT THE COWS AND FISH WEBSITE?**

For landowners and stakeholders who haven't visited the website, they would be motivated predominantly by circumstance (e.g. needing information on riparian areas/management) however there is a chance to engage more with these groups as the site can fall off the radar for some.

**Figure 31 Motivations for visiting the Cows and Fish website (n=143)**





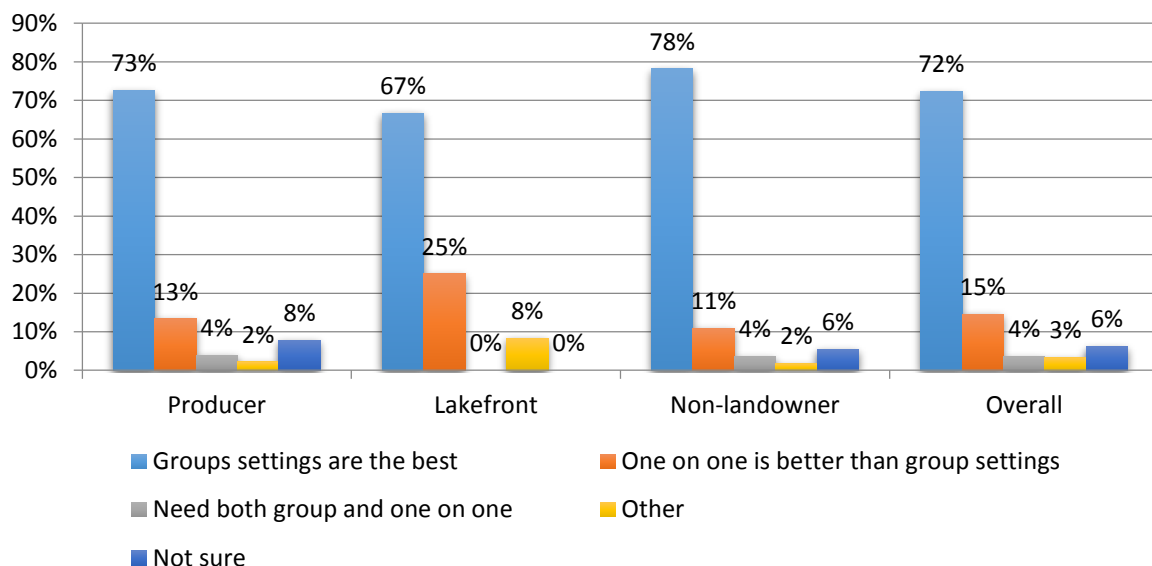
## 2.5 Cows and Fish Program Delivery Methods, Tools and Interactions

All online survey respondents were asked about Cows and Fish program delivery methods. These questions were asked as open-ended questions.

**Q. COWS AND FISH AIMS TO USE A LOCAL COMMUNITY-BASED APPROACH TO DELIVER ITS PROGRAMS. DO YOU FEEL THAT LEARNING AND PRACTICE CHANGE IS ENHANCED IN A GROUP SETTING? (FOR EXAMPLE, THIS MIGHT BE LEARNING AND WORKING WITH YOUR NEIGHBOURS AT A FIELD DAY, OR ATTENDING A WORKSHOP IN YOUR COMMUNITY).**

The majority of comments indicated that group settings will work well and are the best at enhancing learning. Overall 72% of survey respondents support group settings. Fifteen percent indicated one-on-one are best while a small percentage (4%) felt a mix of both is needed.

**Figure 32 Learning and practice change enhanced through group setting (overall n=279, producers n=179, lakefront n=24, non-landowner n=55)**



*"Yes, working in a group is always better. Not only do folks learn from the teachers, they learn from each other." (community or watershed stewardship group representative)*

*"Yes, I think it is. Rural communities are typically tight knit and so this process helps to get everyone to the table in a comfortable setting." (community or watershed stewardship group representative)*

*"Yes - we also utilize this approach as it fosters sharing and innovation." (agricultural fieldman /rural extension staff)*

*"Yes - but it is becoming harder and harder to facilitate, at least in this part of the province [Red Deer County]. 'Community' is becoming too fluid...people don't know their neighbours (because they keep moving in and out of the community, or they don't get involved in their community, etc.)." (agricultural fieldman /rural extension staff)*



*"Yes, I believe that hosting workshops and field days is a great way to educate the problem. The only issue with doing things this way is getting people to attend these workshops. I think that having producer stories and a field day showcasing what producers have done in the area and show how easy it is and the benefits is a good way to get people interested in participating."*  
(agricultural fieldman /rural extension staff)

*"Groups are always useful. Target landowners for group work including those who have adopted positive practices."* (producer)

*"I have never thought of it, but in a group setting more questions and answers come to the surface."* (lakefront owner)

*"Yes learning is enhanced in a group session. We have had two presentations on our property and a neighbour further north up the Nose Creek watershed valley also had one. It was very interesting and all attendees liked the event including the free hamburgers... we would be willing to host again."* (producer)

*"No, as each farm and ranch practices are different and need to be looked at on an individual basis. There is not one model for all."* (producer)

*"No. I think agricultural people are secretive. They don't want to admit if they have any issues, and not show their problems in front of their neighbours for fear of being judged poorly."*  
(producer)

*"It can be. There are those who would also do well in a one on one setting as well. This way individual specific approaches can be used to tailor make a plan of action."* (producer)

*"I am not a landowner so I can't really comment. However, I would think some landowners might be more comfortable working one-on-one, whereas others might prefer groups."*  
(provincial or federal staff)

**Q. THINKING OF THE TYPES OF INTERACTIONS YOU HAVE HAD WITH COWS AND FISH, OR THE TOOLS YOU MIGHT HAVE USED PLEASE PROVIDE FEEDBACK ON WHAT IMPROVEMENTS YOU WOULD LIKE TO SEE.**

Over one-half of survey participants indicated no improvements are needed. Although the remaining comments are relatively fragmented among those able to identify an improvement area, there are two underlying themes; the need for follow-up with landowners and the need for improved communications. For landowners who have implemented changes they are inviting Cows and Fish back to evaluate the impact of the changes. Since the survey results cannot be linked to the individual respondent for reasons of anonymity, the best approach would be for Cows and Fish to reach out directly to all survey respondents who agreed to future contact and ask if they would like to be visited.



**Table 35 Improvements to tools or interactions with Cows and Fish (266 respondents made 288 comments)**

| Improvements to the tools or interactions with Cows and Fish                                 | Percent of Respondents |
|--|------------------------|
| All is good/Can't think of anything  | 53%                    |
| More communication/updates/information   | 9%                     |
| More public education/More farmer education/More exposure/More collaboration                 | 7%                     |
| Offer more advice/help/funding for handling our issues or to make the changes                | 6%                     |
| More workshops, field trips/projects/initiatives   | 6%                     |
| More follow up   | 6%                     |
| Negative comments  | 6%                     |
| More contact/More person to person contact/on line contact/More staff available for contacts | 5%                     |
| More understanding of farming/More realistic in advice and solutions                         | 2%                     |



*"We have been very satisfied with their interaction and their respect for us and for our habitat."  
(producer)*

*"No I think the tools are very effective." (member of a conservation/environmental organization)*

Following are examples of comments related to communication and follow up:

*"We have not heard from Cows and Fish for many, many years. We know the program through one of its founding members from 20 years ago, and through presentations in local community venues.*

*The new publication has come out on the benefits of Beavers in the riparian area . . . and this has renewed our interest in Cows and Fish." (producer)*

*"Reach out to producers, particularly after a presentation to touch base and perhaps offer help with their specific goals and even just get some feed-back after there has been some time to process what was learned" (producer)*

*"More regular interaction and updates between our two organizations. Provide more specific support to producers that require it." (member of a conservation/environmental organization)*

*"Maps showing where all of the Cows and Fish projects have been. Stories with photos, or videos that talk about the demonstration or pilot projects from start to finish." (community or watershed stewardship group representative)*

*"Better communication with government agencies. Know the legislation and regulations that apply to governing water and riparian areas, so that when advising clients you can give them proper advice instead of misinformation. Involve government staff at the start, not at the*



*finish.” (provincial or federal staff)*

*“They are very busy so I really appreciated them helping me out. Because I was not a big organization or even a group, they did the survey by themselves, emailed and mailed me a report and there was no follow up. I didn't care if they followed up or not but if you are looking for results, following up with the individual will give better results because shortly after the survey, I did a couple of things and then let everything else slide.” (producer)*

*“Follow-up. See if the project is still working or if there is something else that could be done.” (producer)*

*“More staff with more time so more producers can be engaged. Stronger relationships with ASBs, ARAs and FAs.” (provincial or federal staff)*

*“More visible in our area [Etzikom, Alberta]. A visit by one of the cows and fish reps would be nice.” (producer)*

*“It would be great if there were more people on staff to allow for more capacity to work around the province.” (member of a conservation/environmental organization)*

At the close of the survey, participants were asked if they would like remain in contact with Cows and Fish and if so by which means. Almost 90% of respondents indicated they wish to be contacted by Cows and Fish. Most indicated email as their preferred method of contact.

**Table 36 Preferred method of communication from Cows and Fish (n= 270)**

| Preferred methods of communication (multi response) | Percent of Respondents |
|---|------------------------|
| <b>Net want to be contacted</b>                     | <b>87%</b>             |
| - Want to be contacted via email                    | 70%                    |
| - Want to be contacted via phone                    | 21%                    |
| - Want to be contacted via mail                     | 19%                    |
| Prefer not to be contacted                          | 13%                    |

Survey participants were also asked if they would like to receive a newsletter from Cows and Fish. Over 80% indicated they would like to receive a newsletter and most indicated email as the preferred method. Contact information has been provided under separate cover to Cows and Fish to maintain anonymity in relation to the survey results. Contact information was updated for all respondents who requested further contact.

**Table 37 Receipt of a Cows and Fish newsletter 1-2 times per year (n= 270)**

| Wish to receive a Cows and Fish Newsletter? | Percent of Comments |
|---|---------------------|
| <b>Total yes</b>                            | <b>84%</b>          |
| - Yes, by email                             | 66%                 |
| - Yes, by mail                              | 18%                 |
| <b>No</b>                                   | <b>16%</b>          |





## 2.6 Final Thoughts

All respondents were asked for additional thoughts on what Cows and Fish could do to help landowners and others improve riparian area management practices.

### **Q. DO YOU HAVE ANY ADDITIONAL THOUGHTS ON HOW COWS AND FISH CAN HELP LANDOWNERS AND OTHERS IMPROVE RIPARIAN AREA MANAGEMENT PRACTICES?**

Increasing awareness of what Cows and Fish does is seen as an important improvement (16%) along with more collaboration with other groups (10%) and providing more funding and incentives (9%). Over half of the comments referred to Cows and Fish doing a good job and the respondents were unable to offer further insight.

**Table 38 Additional thought on how Cows and Fish can help landowners and others improve riparian area management (270 respondents provided 293 comments)**

| Any Additional Comments                                | Percent of Respondents |
|--|------------------------|
| Make people more aware of C&F/More publicity/education | 16%                    |
| Doing a good job/Satisfied                             | 10%                    |
| More collaboration with other groups/government        | 10%                    |
| More funding/ incentives                               | 9%                     |
| More interaction/Presence/follow-up                    | 4%                     |
| More info available/advice given                       | 4%                     |
| More workshops/seminars/field tours/Guidance           | 3%                     |
| Broaden their scope                                    | 2%                     |
| Other  | 8%                     |
| No further comment                                     | 42%                    |



*"Just to keep us aware of the things which must be done to keep our waterways healthy."  
(lakefront owner)*

*"Having worked in the riparian field I know how challenging it is to convince 'some' producers and the general public to implement change. The public needs to place a higher value on our natural resources and when that happens, so will positive change. I think that more provincial and or federal funding is needed to help kick start projects that will benefit riparian areas. Once people see successes on a broader scale (without it costing them personally) they*





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*may value it more. And therein lies your challenge)." (member of a conservation /environmental organization)*

*"C&W website is a great resource. It should be promoted more, especially to the rural community." (producer)*

*"A better awareness of the compensation/benefit to retaining or improvement of riparian areas." (producer)*

*"Make landowners aware of any funding they can receive and help apply for it." (producer)*

*"Collaborative efforts with communities, neighbour-groups might help to enhance their profile and instigate new projects. Hands on." (producer)*

*"Partner with local agriculture associations on field days." (producer)*

*"From my perspective, they have gone beyond the "extra" mile. I think that if anything, they need a stronger set of "listeners" from the provincial government that will strive harder to understand how important this work is and find funding to support it." (producer)*

*"Stay involved and affiliated with local forage associations and commodity groups. It will lend credibility and build trust with landowners." (producer)*

*"I think we are reaching a point in where there needs to be more dollars/cents attached to good riparian (fish/wildlife habitat in general) management on private land. Tax incentives, cost neutral approaches to keeping cows out of sensitive portions of water bodies, etc." (producer)*

*"I depend on your advice."(producer)*

*"Continue to embrace technology and use one-on-one interaction to encourage uptake. The higher the uptake, the more refined the product or technique becomes and the cost of implementation drops." (producer)*

*"Just keep up the good work. One day it will all come together. I really like the solar cow watering system idea. Now if we could just figure out how to keep the creeks from washing the fences we put up to keep the cows out of the streams!" (producer)*



## Section 3 – Analysis of the In-Depth Interviews

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Section 3 analyses the results of the stakeholder interviews that were undertaken. Individuals were guaranteed that all their responses and quotable quotes remain anonymous, noted by major stakeholder types only.

### 3.1 Relationship with Cows and Fish

To understand the context with which the stakeholders interacted with Cows and Fish, all respondents were asked how they knew or worked with Cows and Fish. Almost all the organizations and individuals interviewed had extensive contact with Cows and Fish, some over many years. In some cases, this was for educational and outreach opportunities. Many respondents were directly involved on a wide range of projects being delivered on the ground and some had a half dozen projects (usually riparian health assessments) being undertaken. Some noted they called Cows and Fish regularly with technical questions around riparian issues even though they did not have projects in place.

*“We work with hundreds of organizations and Cows and Fish are one of the only reliable partners. They are very scientifically based.” (provincial government)*

*“A wide range of organizations, including municipal and provincial governments, Southern Alberta Land Trust Society (SALTS), Canadian Parks and Wilderness Society (CPAWS), Yellowstone to Yukon (Y2Y) and many others use Cows and Fish for advice on riparian issues.” (not for profit organization)*

*“Very high level of trust, higher than the highest. Most highly trusted for riparian information and on the ground activities and they have no vested interests.” (provincial government)*

Some organizations either hosted or attended training sessions undertaken by Cows and Fish, sat on advisory committees with Cows and Fish, or partnered with Cows and Fish on a wide range of riparian area health assessments.

*“Cows and Fish are a very important partner of ours.” (provincial government)*

*“We depend on them for delivery of parts of our program.” (provincial government)*

One respondent indicated that no one envisioned how Cows and Fish and the focus on riparian issues would mushroom at the grassroots level. Cows and Fish have supported the concept that individuals and small organizations can make a difference.

*“The work they have done for us has been great. They created the “Stepping Back from the Water” document which is used by all municipalities looking at riparian issues in their regions. This has been a very positive tool.” (provincial government)*



*"They are a fabulous organization. They are an incredible asset as a source on all that is riparian. We have been involved with them on a very diverse range of projects including the beaver re-introduction project, the Calgary Science School, and a range of other projects. Cows and Fish brings so much to the table including connections to landowners, reputation, funding, depth and breadth of information." (not for profit organization)*

### 3.2 Level of Trust with Cows and Fish

**Respondents were asked to gauge the trust that landowners and other stakeholders have with Cows and Fish.** All respondents that were interviewed stated that there is a very high level of trust by all stakeholder groups with Cows and Fish. They have a great reputation among all stakeholders and a reputation that is highly valued. Cows and Fish are not seen as pushing their values or biases (or anyone else's) on anybody, rather they wait to be invited by landowners, community organizations, municipal officials to get involved with riparian development issues.

*"They are trusted. They are not pushing an agenda on anyone. They work well with everyone. They are great to work with." (not for profit organization)*

*"They are so trusted. They will put you in touch with others who can do what is needed if they can't do it. They have a great network and are very in tune with what is going on in many sectors." (not for profit organization)*

Several respondents, while still very pleased with the work of Cows and Fish, indicated some growing concerns that while the farmers and ranchers valued and trusted the information and on the ground contact, were feeling that the level of trust was not as high as it used to be. In some counties there was now only limited exposure of Cows and Fish with farmers and ranchers. The feeling was that staff were getting overloaded and spread too thin. This was especially true outside of southern Alberta.

Another respondent felt the trust was high.

*"Even Off Highway Vehicle (OHV) groups are supportive of Cows and Fish. They have a partnership with Cows and Fish on building bridges and trails in the region." (non-government organization)*

In terms of a respondent with the provincial government, it was stated that Cows and Fish provides an extra level of assessment in habitat restoration and conservation. It has provided the ability to know that there is a tool out there (Cows and Fish) that the government can draw on, so there is not the need to create more regulations.

Cows and Fish staff speak and work across the province. They are a provincial independent organization. This makes them very convincing to others.

*"Trust them. This is a gold star group. They are doing work that feeds into our planning process. There is no other contractor out there who could do better. We will use them as a contractor or partner into the future." (provincial government)*

**Respondents were asked if they thought the return on investment from the work of Cows and Fish was valuable.** Respondents from all organizations that were interviewed believe they are getting a



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good to excellent return on investment from their relationship with Cows and Fish. This is not only in terms of a financial relationship but also the time and resources applied to any project or outreach activity.

*"The investment is not exorbitant on our part, but the resulting value that is seen in the community is incredibly high. Also, the word of mouth that is generated across the community or region because of Cows and Fish cannot be quantified." (provincial government)*

As one respondent indicated, it is essential to have independent, third party assessments. He felt that this really helps build trust. However, some organizations would like to move to the next (higher) level of return. They would like to see Cows and Fish provide more advice on management practices in the areas they are assessing. The existing feedback was seen as sometimes too generic.

*"Tell me how many cows, for how many days, in a particular area or field." (county government)*

Some of the stakeholders noted that Cows and Fish are struggling with successional realities. They are not alone in this as many of the organizations that were interviewed were also struggling with this issue as well. However, both have impacts on Cows and Fish. They pride themselves on having very low turnover. However, now they are seeing some of their senior staff and board members retiring or reducing their time commitments. Some interviewees are seeing their contacts in many of the stakeholder organizations also retiring. Some respondents felt that the networks Cows and Fish have built up over the years are changing or disappearing. Stakeholders felt that re-building their networks is going to be one of their big challenges in the ensuing years.

Another struggle identified by stakeholders is that Cows and Fish are dependent on government for funding through grants and other sources. Government is looking at multi-year funding which is helpful, however this is really for basic services only. Enhanced services will require Cows and Fish to search for funding. They will have to follow (or find) the money.

Several respondents indicated that Cows and Fish are overworked and under resourced.

*"Often when we call Cows and Fish to ask for advice, it costs us nothing as they have a grant and we can work together to make things work. It is a great relationship." (provincial government and non-government organization)*

As a result of their success, there is significant pressure for Cows and Fish to expand into other areas of work. Some projects have seen Cows and Fish deliver projects in the green areas of south-western Alberta (Eastern Slopes) as well as into urban areas such as Calgary and Lethbridge. Several respondents indicated that Cows and Fish needs to focus on what made them effective in the beginning: Awareness, Education and Management Response. This is critical as several respondents felt they were starting to lose ground with some of their long-term landowners and stakeholders. Cows and Fish were not seen as strong as in the past. This is not just because Cows and Fish are stretched with the workload they have but things such as the generational shift to younger landowners, a focus by governments and others on the value of riparian areas and other factors are seeing a dramatic shift in the landscape. They are having to re-build or develop new relationships. Building these relationships is time consuming. It does not happen over-night.



One respondent suggested there could be greater engagement between Cows and Fish and staff within the provincial government, in particular with the Grazing and Forestry departments. He was, however, still supportive of the newer initiatives with Cows and Fish within the green areas, especially the eastern slopes.

Another respondent indicated:

*"We are getting a high quality of work. However, the prices have gone up nearly double in the last few years. This has become a little hard to swallow." (provincial government)*

Many respondents indicated that Cows and Fish is an extremely valuable organization. They also indicate that there is going to be a lot more work in the future. If Cows and Fish decide to ramp up to do more, they will have to be sure the money ramps up as well.

*"New sources of money need to be identified that are more consistent and longer term. Every time a project is completed, the word of mouth spreads quickly and this entices other farmers and ranchers to look more closely at their riparian areas." (non-government organization)*

### 3.3 Tools Used by Cows and Fish

Cows and Fish have a number of standard tools that they use in their work. As a result, respondents were asked about each of the major tools and how effective these tools were in regard to the landowners and communities that Cows and Fish work with. More than one-half of interviewed stakeholders have had extensive experience with many of the "tools" that are used by Cows and Fish. This is particularly true of the tools that provide on the ground involvement.

**Presentations by staff** – The overall response by stakeholders to the presentations was that they are great. These were informative and effective for all stakeholders and landowners. All presenters from Cows and Fish were seen as experts in terms of riparian issues.

**Field tours** – The overall response by stakeholders was that the field tours were good or great. A few respondents felt that the various sessions were too short to provide the depth that they felt the landowners needed. One respondent indicated that two to four hours should really be two to four days to really become "burned into the brain".

**Riparian health, plant identification and other hands-on field activities** – All the stakeholders who had experienced these activities rated them as excellent. They felt these reports were very effective in communicating the issues and conditions on the ground. A few respondents felt that the various sessions were too short to provide the depth that they felt the landowners needed.

**Community or watershed group activities** – All stakeholders that were interviewed saw these group activities as excellent. As with the previous activity, a few respondents felt that the various sessions were too short to provide the depth that they felt the landowners needed.

**Riparian (or range) health report(s)** – Again all the stakeholders that had experienced or read a health report viewed them as excellent. Some respondents indicated these documents





had the right level of wording. The wording also “*acknowledges reality of the on the ground situations. The riparian health inventory scores were pretty high level*”. He was not sure if all of the landowners and the stakeholders understood what they really mean. One respondent suggested there needed to be more engagement with the regulators on the reports.

Written materials like booklets or factsheets (excluding riparian /range health reports) – Most stakeholders viewed the written materials as good. There were very positive responses to the booklets and fact sheets used by Cows and Fish.

Digital stories or podcasts – While many respondents had not seen the stories or podcasts, of those that had seen them, they viewed them as great. Everyone who had seen or heard them felt that Cows and Fish was moving in the right direction to engage the younger population by using digital media. At this point in time, these are greatly under exposed. It was felt that more people should be hearing or seeing these.

Cows and Fish website –Most respondents had seen the website and thought it was good. Some respondents felt that the website could use some updates and be more user friendly such as the logic in finding material.

Cows and Fish Facebook or Twitter page –Most respondents had not seen the Facebook or Twitter pages. However, they acknowledged that this was the right direction to be moving in to communicate with the younger generation. Two respondents suggested that it was probably time to have a specialist available to Cows and Fish to professionally build these pages as well as the other social media. They were suggesting part time support to ease in gently.

Concern was raised by some respondents that Cows and Fish should not move too far into the digital arena (the last three topics discussed previously). Their feeling was that the digital media doesn't result in “practice change” which is the real focus and success of Cows and Fish. There were also suggestions that many people under-estimate the use of the digital and social media by the existing ranchers and farmers. However, others suggested that if you are going to draw in the digital users, both young people, ranchers and farmers and many others, Cows and Fish need to further adopt tools from the digital age. However, the opposite viewpoint was that the landowners and recreationalists are becoming much quicker and more savvy with the digital media. As an example, as shown in Section 2, 70% of the online survey participants want to be contacted by email versus phone or mail. Cows and Fish needs to move on this much quicker as well.

*“It is too easy to be opinionated when using these Internet tools and forums. You can't rely on the outcomes.” (water basin council)*

Several respondents suggested that to offset the extensive driving to and from events and other activities etc., Cows and Fish staff need to develop a strategy(ies) to use some of the digital and social media as part of the delivery process for their programming and education outreach. This could reduce the face to face contact and help reduce the possibility of burnout from the travelling and long days out of town. A number of respondents were concerned that Cows and Fish might be getting close to a tipping point where the staff burn out from all the travel. This may be one way to reduce this problem.



### 3.4 Additional Tools Suggested by Organizations

Following the discussion regarding the existing tools used by Cows and Fish a question was asked if there were any other tools that Cows and Fish should look at in the future. Some respondents suggested that more in depth “farmer and rancher” direct consultation would really be good. The farmer and rancher could set up a contract with Cows and Fish to obtain advice over a set time-period with a specific number of hours to assist the individuals directly. These do not have to involve large contracts, but be paid directly by the farmers/ranchers themselves.

One respondent suggested that more interactive mapping would be very beneficial. Then users and recreationalists could map what they are seeing on the ground (wildlife, poachers, etc.). Such a tool could allow users to identify really good areas of riparian health (or really bad). There was also a suggestion that more education of regulators (forestry, agriculture and grazing) could be really helpful. He suggested there was a “new” BC protocol that could be very beneficial in such cases. He also suggested that digital elevation models (Lidar) could also be utilized.

Several respondents suggested that Cows and Fish also move even more into the technological age with equipment such as videography or drones that can be used to overfly areas and are much more efficient and cost effective.

*“The tools of Cows and Fish are very useful at a local level but are not helpful at a more regional level. If they were to use Videography at a minimum of a sub-regional level this would help our provincial planning work immensely.” (provincial government)*

To move into this regional and sub-regional planning will required the Board of Cows and Fish to determine if this is an area of work that they would want to move into given the issues of growth and moving into new types of work as discussed elsewhere in this report.

Another tool that was suggested would be to design “Kids Games” that could be used in the schools and at local and regional events in the province. This would be very beneficial in educating the upcoming generation. In fact, Cows and Fish have been developing several games, most of which are on their website. It is worthwhile to note that stakeholders cannot know everything that Cows and Fish are doing. A solution to this might be more communications and educational initiatives within Cows and Fish to make sure that not only the stakeholders but the public and landowners know that this is happening.

One respondent suggested that an Annual Report should be developed by Cows and Fish that could be used and distributed to a wide range of organizations and stakeholder groups to show and illustrate what they have been doing over the past year. It would be great to see what Cows and Fish have learned about behavioural change and the impact of the tools that they have used. How have they worked? This would be very useful and educational to many.

*“Another tool could be having a planner on board. If Cows and Fish had a planning component with that skill set, we as a funder could have them doing the planning as well. In our projects, this could have meant a significantly increased budget for Cows and Fish and taken the load off us.” (provincial government)*

There is a need for Cows and Fish to improve and increase their fund-raising activities. Processes for annual giving and large gifts would be useful to move ahead to help them fund some of the projects





that might be coming in their direction. Respondents did not have many specific suggestions but some further discussion of funding sources and ideas is discussed in Section 3.8.

### 3.5 Landowner Motivations to Make Management Changes

Cows and Fish wanted to better understand why landowners and community organizations made a management change. Respondents were asked this question. The overall feeling was that most landowners and community organizations are already motivated to do the right thing. They just don't know how to move forward and take the next step. Cows and Fish provides a bridge to work on riparian actions and these actions are effective in the local communities and with the landowners. They see the importance of doing it without additional incentives.

*"Cows and Fish is tapping into a passion that is already there. They are doing it in a way that is seen by all as very respectful." (provincial government)*

*"Most landowners see themselves as stewards of the land. They belong to a community of land stewards." (watershed council)*

There was a strong feeling amongst respondents that the landowners already have a strong conservation and environmental interest. It is not a financial motivation; however, money still was helpful to get some projects completed. This has further been supported amongst the landowners with the Social License to Operate concept which is common terminology these days. Landowners are buying into this concept as they see campaigns affecting others as to how they operate and how they let the public know what they are doing to be "sustainable" and support both the land and the animals in their operations.

*"There is growing interest in the agriculture industries proving their value to the public – their social value to operate. They are antibiotic free, hormone free. This will all help Cows and Fish move into the future." (non-government organizations)*

One respondent felt that the awareness on behalf of the farmers and ranchers is now there. And for the most part the money is also there. However, even with both in place, the ranchers and farmers are not "*pounding down my door*". Something else is missing but he is not sure what it is. One thought was that they may not want to take funding from particular funders as there may be perceived implications in future years.

Respondents reinforced the need for monitoring of the management changes that are made. Monitoring is very useful to demonstrate to the landowners that they have actually made or are making a beneficial change to the land. A few respondents indicated that some landowners, and others who have yet to make any changes need to be shown what benefits can accrue to the landowner not just for environmental, sustainability, or social responsibility but for financial and productivity gains.

### 3.6 Benefits to Stakeholder Organizations

Respondents were asked what were the major benefits that Cows and Fish made to the stakeholders and their organizations. The most common response was that Cows and Fish has the knowledge base and the experience around riparian area management and that this is known broadly across the



province and within specific sectors. They also have staff continuity with exceedingly low turnover over the years so knowledge is retained.

### ***Continue What Cows and Fish are Doing***

Respondents suggested that Cows and Fish continue what they are doing. The work has always been good quality work and needs to continue or expand. The key benefit is in the assistance in implementing projects on the ground. Actions such as revegetation plans and actions provide resources to the landowners to assist them in moving forward.

As identified by one respondent, it is interesting to see the “old” work (surveys, health reports) still being used today by the landowners. One respondent indicated that it is so important to show the community that the riparian zones are healthy – fish, wildlife, and water quality. In fact, it would be valuable if riparian management could somehow become a subject in the school curriculum.

*“Cows and Fish can help with the set-back requirements that the province is implementing. Cows and Fish can promote the application of the “Stepping Back” report but they will have to work with both the departments of Agriculture and Forestry on such an initiative. We should organize a meeting to see what can be done.” (provincial government)*

### ***Technology and Scientific Grounding***

Respondents indicated that the technical skills that Cows and Fish have built are fantastic. The experience that they bring to the table has allowed landowners to tap into the answer.

One respondent felt that Cows and Fish were able to integrate data across all the stakeholder organizations and jurisdictions. Partnerships and improved relationships across other organizations was achieved where Cows and Fish were active.

Cows and Fish brings credibility to other organizations work. A lot of data on riparian health is backed up with science. They are also not confrontational and are supportive in the way they work with all stakeholders.

### ***Grass Roots Stewardship***

Another respondent indicated that the grass roots stewardship motivates some. Also by defining a watershed this brings people together and as a result develop projects that support riparian development. It also helps new members in the community “meet the neighbours”, especially new recreational and acreage owners.

*“Cows and Fish help to get conversations going between landowners, other stakeholders, and various levels of government happenings. And the direct benefit is the resulting downstream benefits.” (not for profit organization)*

## **3.7 Improvements That Can Be Made by Cows and Fish**

The stakeholders interviewed were asked if there was anything that needed to be improved in the operations of Cows and Fish, now and into the future. Several stakeholders suggested improvements that could be made. In some cases, they were not sure if Cows and Fish were not



already doing some of these things but wanted to make sure that they got addressed. Following are the suggestions organized into several categories. There is no priority in the order presented.

### ***Coordinating Roles***

Cows and Fish might be able to play a greater coordinating role between government departments and agencies at all levels of government including federal, provincial, county and municipal levels.

One respondent suggested that Cows and Fish should belong to a number of volunteer organizations such as the Prairie Conservation Forum. In fact, they do belong to this organization, although the respondent did not realize that fact. Bringing their messages around riparian conservation and management would be very beneficial to such forums. Again, this is a gap that may need communications or educational initiatives to demonstrate what Cows and Fish are doing.

### **Recommendations and Outcomes from Cows and Fish**

There was a feeling by some respondents that many of the recommendations made by Cows and Fish in their Riparian Health reports were at a high level and did not meet the needs (understanding what to do) of the landowners on the ground who want to make management changes. However, the online survey results show that 72% of landowners rated the reports as very useful which is inconsistent with this finding. There were suggestions that Cows and Fish should work more directly with landowners to deliver on more detailed recommendations. This reflected a need that was expressed to be more specific in terms of the recommendations.

*“Help all of us in the industry to understand what are “ecosystem services”. Help the public as well. No one seems to know what it means but sense that there is value here. We must really understand what it means and what we need to do to achieve it if it is going to work.” (non-government organization)*

One respondent suggested that Cows and Fish need to provide some type of “Lessons Learned” fact sheets or similar materials that could be publically distributed.

*“What have they done to get cattle out of the water, what techniques work well, how is off stream watering working, how are variable width setbacks working? Spreading and sharing this kind of information would be very helpful and could be included in an annual report or monthly blog.” (non-government organization)*

### **Training**

Cows and Fish have always invested in the development and training of their own staff. They also do some external training of stakeholders. To reduce the pressure on their own staff to deliver their programs on the ground, it may make sense to expand the “train the trainers” so those other organizations can deliver riparian programs themselves, rather than relying on Cows and Fish.



One respondent suggested that training sessions be run each year, particularly in the spring when the new crops and cattle are happening. While it is a very busy time for both farmers and ranchers, if a set of training sessions were offered at different times and location, Cows and Fish may be able to get landowners out, especially the newer landowners.

Train the trainers sessions would be useful coupled with online modules. Do the online first and then have hands on sessions.

Cows and Fish could develop a train the trainers program to take to municipalities for their staff so they could go out themselves and do the assessments. This might reduce the workload of Cows and Fish and cut down on costs. It should be noted that Cows and Fish do offer a Riparian Health Certificate on an annual basis. It may be that more information and communications on such courses needs to be made available. This training should include developing and implementing riparian assessment and monitoring.

*"The bottom line is to reduce the crazy hours that the Cows and Fish staff have been and will continue to do if things do not change. The number of hours will continue to grow as the ALUS (Alternative Land Use Services) program is going to continue to more counties and municipalities putting more pressure on Cows and Fish to deliver in the future." (municipal government)*

### **Staffing**

Cows and Fish have the science and the data collection "down pat". Several respondents had suggestions for additional skill sets that would be valuable within Cows and Fish.

- There was a question that they may need some more support staff in the offices to help manage the administrative side more effectively. Some respondents noted slow response times at certain times of year. There were also comments on slow turnaround on administrative materials such as contracts, proposals, and tracking and reporting on financials.
- There was seen to be a need of working with a technical writer so Cows and Fish can take the technical data and put into layman's terms.
- There was also seen to be a need to translate some of the graphics layouts into more current graphic formats including electronic formats.
- There could be consideration of hiring a land use planner who would provide a new set of skills that could expand on the work that Cows and Fish currently undertakes.

### **Funding**

Cows and Fish needs to find more stable funding if it is going to continue what it is doing, let alone expand or move into new areas. One of the programs suggested as a possibility by several respondents is the Alberta Government's "Growing Forward" program while another suggested that Cows and Fish might be able to apply for specific funding under the Carbon levy. Many landowners do not use the Growing Forward program as it is seen as too time consuming and not worth the energy. However, the suggestion was that Cows and Fish



could work out some arrangement with the Growing Forward program to fund selective projects. Another approach may be to have Cows and Fish help landowners write the proposals, get the funding and then help implement the projects and complete the ongoing monitoring. Again, a partnership would need to be developed so that both organizations could work together to get “more bang for the buck”.

To meet some of the directions for growth and development, there is probably going to be a need for additional staff and specialists to address these opportunities. More support is not likely to come from government, so Cows and Fish need to look to some of the foundations such as the Weston Foundation for any growth opportunities.

### 3.8 The Future

Respondents were asked what trends Cows and Fish should be monitoring going forward. Several trends were raised by the interviewer and respondents added others.

#### ***Climate Change***

As the various regions of Alberta are affected more and more by extreme climate events, both flooding and drought conditions, such events will have an effect on riparian areas. Riparian areas can increase water retention and conservation with very positive effects. With respect to a changing climate, Cows and Fish, with their expertise, will continue to see pressures growing to provide more and more services in managing riparian areas.

#### ***Generational Shift to Younger Farmers and Ranchers***

Respondents believe that many of those who are retiring want to leave a legacy to their family and indeed to the local communities. The generational shift is happening according to many of the respondents, particularly in southern Alberta. The general feeling is that the new, younger generation is coming to the land with a different perspective than their parents. They get it. They are using social media extensively and this is giving them a broader understanding and support for riparian management. They are more holistic and have a better grasp of water, wildlife habitat and grasslands. At the same time, there is also concern that some of the younger people are seeing that finances are not as available as in the past. There is greater pressure to use the land more extensively, even the marginal lands, which may create problems.

It was also suggested that Cows and Fish need to start working more directly with organizations such as 4H clubs and others. This would help build the next generation of users as a result. It was also recommended to watch for new organizations developing to meet the needs of migrant groups, youth groups and others. These might be the organizations to partner with to help deliver new riparian programs.

#### ***People Moving to Acreages or Recreational Properties***

While most respondents said that a great job was being done with producers, farmers and ranchers, there is a need to start consulting with the acreage owners and developers related





to riparian areas on their lands. The concern however, was because the acreages were much smaller, it might spread Cows and Fish too thin in terms of their own resources.

One respondent indicated that land ownership is constantly expanding and changing. Larger tracts are further subdivided. Transiency in this population is high with turnover every two or three years. The sense of community is going or gone depending on the area. Other methods must be developed to communicate with these new landowners that are both timely and cost effective.

Another respondent indicated that the younger generation has tasted an urban lifestyle that now can't be supported on the farm or ranch. They have significant expectations that cannot be met in the agricultural industry. They may try to get every dollar out of every piece of land. There are also no financial buffers for flooding, drought, hail and severe storms. All this may see additional pressure put on the available land. Riparian lands may be detrimentally affected.

The newer acreage owners want the country lifestyle but want the city look. They have fertilized green lawns right to edge of the water. They need to have the riparian and conservation understanding that Cows and Fish can provide. The challenge for Cows and Fish is to find cost effective ways to bring these people into forums or similar where they can get the information that they require to manage their smaller properties.

In addition to this, it was suggested by one respondent that Alberta has not been prepared for the explosion of users with motorized vehicles accessing the headwaters. Some respondents felt the government needs to move faster on controlling this but they were unsure what Cows and Fish could do (or should do) but be aware of the problem. Another issue was that municipalities are struggling financially so want to develop RV parks. As a result, there is an emerging trend of developing RV parks along creeks, rivers and lakes/reservoirs. This will need to be monitored closely and there could be a role here for Cows and Fish in educating how to do this especially when looking at prime riparian areas.

### ***Non-Agricultural Communities***

It was suggested that there is a need to begin talking with the non-agricultural communities about agriculture and the future. Landowner associations and other organizations that represent people in areas surrounding urban centres are a good target. While this may not be a role that Cows and Fish can take on directly, they may be able to partner with other organizations to roll such educational programs. As one respondent said,

*"Cows and Fish needs to have access out to a marketing guru to assist in getting the messages out to the larger numbers of urbanites coming onto the land base for a multitude of reasons." (Municipal Government)*

"Wilderburbs" was a term coined by one respondent. In this he was meaning the rural small property subdivisions where urbanites can have their rural or wilderness retreat. This could be an area that could use support and education from Cows and Fish according to several respondents. However, this could take all the resources that Cows and Fish has so any work



here has to be undertaken in a different way where the acreage owners can be brought together in larger discussion groups such as open houses.

*As a government agency we are targeting males between 20 and 30 years of age with money and toys. It may be timely to consider a broader or different set of stakeholders in their programs. One way may see Cows and Fish teaming up with “sister organizations” or creating new parallel organizations that can target some of these issues. Another thought is using “experts” in riparian assessment and have them as contractors available for training sessions, riparian assessments or similar to deal with the overload. (provincial government)*

### 3.9 Final Thoughts and “Words of Wisdom” to Cows and Fish

Some final thoughts and words of wisdom were provided by the respondents. Most of these are quotable quotes and are self-explanatory.

*“Cows and Fish are doing an amazing job with a lack of resources. I hope things will get better and better for them.” (watershed council)*

*“Don’t stray too far from your current work. We don’t want to see the current efforts diluted. No one else has the core body of expertise around riparian issue than Cows and Fish.” (provincial government)*

*“Cows and Fish are only “a” leader in riparian management; however, they are not THE only leader in riparian management.” (provincial government)*

*“They are on a fundraising treadmill. They (we) really need to find new ways to change the funding model. The carbon levy may be a new opportunity.” (watershed council)*

*“What does Cows and Fish do when they grow up? What business will they be in? Urban areas have big riparian issues. So do the rural areas. Cows and Fish only have so many resources so they need to do some serious strategic planning to decide what they want to do in the future.” (provincial government)*





## Appendices

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## Appendix 1 – Survey Instrument

### Section 1. Please tell us a bit about yourself ...

Q1. How would you describe your role in relation to land management? [Choose all that apply]

- ☐ Agricultural – Livestock
- ☐ Agricultural – Crop
- ☐ Agricultural – Mixed farming and ranching
- ☐ Acreage owner
- ☐ Lakefront owner – Seasonal
- ☐ Lakefront owner - Permanent
- ☐ Community or Watershed Stewardship Group Representative (speaking as community rep, not agricultural producer)
- ☐ Agricultural Fieldman /rural extension staff
- ☐ Municipality staff
- ☐ Provincial or federal staff
- ☐ Member of a conservation/environmental organization
- ☐ Other [Please specify] \_\_\_\_\_

Q2. How would you best describe your role in interacting with Cows and Fish?

1. You belong to or represent a **local group** representing riparian, water or watershed issues
2. You represent a **government department or agency** working on riparian, water or watershed issues
3. You represent a **non-government organization** working on riparian issues
4. You are **not part of any of these groups** (above) but a Landowner interested in riparian area health or management
5. Other [Please Specify] \_\_\_\_\_



## Section 2. Your involvement with Cows and Fish

Q3. When was your most recent contact with Cows and Fish?

Please specify the year \_\_\_\_\_

Q4. Approximately **HOW MANY** interactions have you had with Cows and Fish over the years? This might include phone calls, emails, meetings, workshop, presentations, receiving riparian health results, etc.

- ☐ Once or twice
- ☐ 3 - 5 contacts
- ☐ 6 - 10 contacts
- ☐ More than 10 contacts [please specify approximate number] \_\_\_\_\_

Q5. Please indicate **HOW** you have interacted with **Cows and Fish**. [Choose all that apply].

- ☐ A presentation by Cows and Fish
- ☐ One-on-one interaction with Cows and Fish staff such as a phone call, visit or meeting
- ☐ Participated in a field tour
- ☐ Participated in riparian health, plant identification and other hands-on field activities
- ☐ Participated in other community or watershed group activity
- ☐ Received a riparian (or range) health report(s)
- ☐ Read written materials like booklets or factsheets (excluding riparian /range health reports)
- ☐ Listened to their digital stories or podcasts
- ☐ Visited Cows and Fish website
- ☐ Visited Cows and Fish Facebook or Twitter page
- ☐ Email correspondence
- ☐ Other [please specify] \_\_\_\_\_

Q6. Have you learned **new** information or **increased** your knowledge as a result of interacting with Cows and Fish?

- ☐ Yes [Please provide examples]

- ☐ No



Q7. Have you changed any of your management practices as a direct result of your contact with Cows and Fish?

- ☐ Yes [Please briefly describe these changes. Whether these are major or minor changes, all are important]

- ☐ No [If you answered no, please skip Questions 8 through 13 and proceed to Question 14a}

Q8. Did interacting with Cows and Fish result in you implementing a practice change sooner than you would have otherwise?

- ☐ Yes [Can you tell us how much sooner these changes occurred as a result of your contact with Cows and Fish, than what you might have otherwise planned?]

- ☐ No  
☐ Not sure

Q9. Did your interaction with Cows and Fish result in you implementing a practice change differently than you would have otherwise?

- ☐ Yes [Please explain how]

- ☐ No, I would have made these changes in the same way and in the same timeframe without input and guidance from Cows and Fish

Q10. How long after your interaction with Cows and Fish did you take action to implement practice changes to improve riparian health?

- ☐ 1 to 5 months  
☐ 6 months to 1 year  
☐ between 1 and 2 years  
☐ between 3 and 4 years  
☐ between 5 and 6 years  
☐ longer than 6 years  
☐ not applicable



Q11. What motivated you to make the change? Please choose **the three most** important motivators **by checking three** of the following:

- ☐ A riparian health rating or riparian health report
- ☐ Access to financial resources
- ☐ Greater awareness of various options or management choices available
- ☐ Greater awareness of management impact or land use on riparian health or function
- ☐ Desire to improve primary production (e.g. forage)
- ☐ Desire to benefit water quality
- ☐ Desire to benefit biodiversity
- ☐ Desire to benefit the resilience of the system
- ☐ A sense of responsibility to manage the area for health
- ☐ Being a member of a local watershed/community group
- ☐ Desire for sustained economic return or improvement
- ☐ Enthusiasm and support from Cows and Fish
- ☐ Enthusiasm and support from other groups or organizations (excluding Cows and Fish)
- ☐ Greater awareness of provincial or federal regulations or enforcement of the regulations
- ☐ Other - please specify \_\_\_\_\_

Q12. Please rate which types of contact with Cows and Fish were most useful to you in making a decision to change your management practices or land use changes concerning riparian areas? If you did not have this type of contact please indicate N/A – not applicable.

| Usefulness in making a decision to change your management practices                        | Not useful at all<br>1 | Not very useful<br>2  | Somewhat useful<br>3  | Very useful<br>4      | Not Applicable<br>N/A |
|--|------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Cows and Fish staff presentation(s)  | <input type="radio"/>  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| In-person interactions   | <input type="radio"/>  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Participation in riparian health, plant identification and other hands on field activities | <input type="radio"/>  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Email correspondence   | <input type="radio"/>  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Community or watershed group activities  | <input type="radio"/>  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Written materials (excluding riparian / range health report)                               | <input type="radio"/>  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Digital stories or podcasts  | <input type="radio"/>  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Cows and Fish website  | <input type="radio"/>  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Cows and Fish Facebook or Twitter pages  | <input type="radio"/>  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Riparian (or range) health report(s)   | <input type="radio"/>  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Phone calls  | <input type="radio"/>  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Other (please specify) _____   | <input type="radio"/>  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |



Q13. What other approaches, if any, should Cows and Fish use to relay their information to you?

Q14a. How relevant is Cows and Fish to you?

- ☐ Very relevant
- ☐ Somewhat relevant
- ☐ Neither irrelevant or relevant
- ☐ Somewhat irrelevant
- ☐ Not at all relevant

Q14b. Please comment on why they are relevant or not relevant, depending on your previous answer (Q14a):

Q15. Do you have any plans for changes to your practices in relation to riparian area management in the future as a direct result of your contact with Cows and Fish staff?

- ☐ Yes [Please tell us about the changes you have planned]

- ☐ Possibly but nothing certain
- ☐ No plans because I have completed what I could
- ☐ No



Q16. Based on your personal experience with Cows and Fish staff, please provide a rating for each of the following. If not certain, please indicate 'do not know'.

|  | Strongly agree | Somewhat agree | Neutral | Somewhat disagree | Strongly disagree | Do not know |
|--|----------------|----------------|---------|-------------------|-------------------|-------------|
|  | 1              | 2              | 3       | 4                 | 5                 | D/K         |
| <b>Cows and Fish staff....</b>   |                |                |         |                   |                   |             |
| are knowledgeable about riparian management  | 0              | 0              | 0       | 0                 | 0                 | 0           |
| are knowledgeable about the practicalities of living and working near riparian areas | 0              | 0              | 0       | 0                 | 0                 | 0           |
| are enthusiastic   | 0              | 0              | 0       | 0                 | 0                 | 0           |
| are able to motivate you to learn about and/or adopt riparian management solutions   | 0              | 0              | 0       | 0                 | 0                 | 0           |
| are unbiased   | 0              | 0              | 0       | 0                 | 0                 | 0           |
| are reliable   | 0              | 0              | 0       | 0                 | 0                 | 0           |
| are respectful   | 0              | 0              | 0       | 0                 | 0                 | 0           |
| are helpful  | 0              | 0              | 0       | 0                 | 0                 | 0           |
| act appropriately in all aspects of their contact with me                            | 0              | 0              | 0       | 0                 | 0                 | 0           |
| are credible   | 0              | 0              | 0       | 0                 | 0                 | 0           |

Q17. In your opinion how would you rate Cows and Fish's reputation to foster a better understanding of management practices in relation to riparian areas and ecosystem health and productivity?

- ☐ Very good
- ☐ Good
- ☐ Average
- ☐ Poor
- ☐ Very poor
- ☐ Don't know/ not sure





Q18. Generally, how would you rate the awareness of Cows and Fish programs among landowners or land managers in your area?

- ☐ Very good awareness
- ☐ Good awareness
- ☐ Average awareness
- ☐ Poor awareness
- ☐ Very poor awareness
- ☐ Don't know/ not sure

Q19a. Please select **the three most important** characteristics that Cows and Fish should consistently demonstrate **to help others learn or raise their awareness about riparian areas.** Please select only your top three.

- ☐ Knowledgeable about riparian area management
- ☐ Understand the practicalities of living and working near riparian areas
- ☐ Enthusiastic
- ☐ Able to motivate
- ☐ Unbiased
- ☐ Credible
- ☐ Reliable
- ☐ Respectful
- ☐ Helpful
- ☐ Other (please specify) \_\_\_\_\_

Q19b. Please select **the three most important** characteristics that Cows and Fish staff should consistently demonstrate **to help others adopt new sustainable riparian management practices.** Please select only your top three.

- ☐ Knowledgeable about riparian area management
- ☐ Understand the practicalities of living and working near riparian areas
- ☐ Enthusiastic
- ☐ Able to motivate
- ☐ Unbiased
- ☐ Credible
- ☐ Reliable
- ☐ Respectful
- ☐ Helpful
- ☐ Other (please specify) \_\_\_\_\_



Q20. How has Cows and Fish benefited your agency or organization in reaching its goals and targets?

Q21. What attributes has Cows and Fish brought to your interactions which facilitate your agency's/organization's goals and targets?

## Section 4 Cows and Fish Website

Q22. Have you visited the Cows and Fish website?

- ☐ Yes {Please go to Question 23a}
- ☐ No {Please go to Question 24}
- ☐ Don't recall {Please go to Question 24}

Q23a. Which parts of the website did you find most useful?

Q23b. Was there anything you were looking for that you could not find or you feel could be improved?

Q24. What would motivate you to visit the Cows and Fish website?



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## Section 5. Final Thoughts

Cows and Fish aims to use a local community-based approach to deliver its programs. Do you feel that learning and practice change is enhanced in a group setting? (For example, this might be learning and working with your neighbours at a field day, or attending a workshop in your community).

Thinking of the types of interactions you have had with Cows and Fish, or the tools you might have used please provide feedback on what improvements you would like to see.

Do you have any additional thoughts on how Cows and Fish can help landowners and others improve riparian area management practices?



## Section 6 Keeping in Touch

**Note that the information you provide below will not be associated with your survey results when it is provided to Cows and Fish.**

How would you like Cows and Fish to stay in touch with you in the future? Indicated all relevant methods:

- ☐ A phone call from Cows and Fish staff [please provide the best phone number to reach you at] \_\_\_\_\_
- ☐ Email from Cows and Fish staff [please provide your email] \_\_\_\_\_
- ☐ By mail [please provide your mailing address] \_\_\_\_\_
- ☐ Prefer not to be contacted

Would you like to receive a newsletter from Cows and Fish? 1-2 times/yr

- ☐ By email
- ☐ By mail
- ☐ Do not want a newsletter

Cows and Fish is looking for riparian management stories. Do you have a story to share (including the challenges you may have faced)? Please record your name and contact information below if you want Cows and Fish to follow up with you:

Please fill in your preferred contact information (if not already provided above):

Name \_\_\_\_\_

Phone \_\_\_\_\_

Email \_\_\_\_\_

Address \_\_\_\_\_

Thank you so much for your time!



## Appendix 2 – In-depth Interview Instrument

- How would you describe your relationship with Cows and Fish?
- What is the level of trust among stakeholders and others involved with Cows and Fish?
- Do you think your organization is getting a good return on its investment with Cows and Fish?
- How are the various tools both new and old performing? What is working and not working?
  - Presentations by staff
  - Field tours
  - Riparian health, plant identification and other hands-on field activities
  - Community or watershed group activities
  - Riparian (or range) health report(s)
  - Written materials like booklets or factsheets (excluding riparian /range health reports)
  - Digital stories or podcasts Cows and Fish website
  - Cows and Fish Facebook or Twitter page
- What motivates landowners working with Cows and Fish to make a land management change?
- What benefits does the Cows and Fish program bring to the stakeholder communities and funders/supporters?
- How has Cows and Fish contributed to improving riparian areas and grazing or other management?
- Are there any weaknesses that Cows and Fish need to address?
- Beyond involvement with Cows and Fish, what other ways has your organization been involved in riparian area management and education made in recent years?
- Have demographic changes impacted riparian area management, such as a generational shift to younger family members running farms or more agricultural producers working off-farm or more people moving into rural areas onto acreages or recreational properties?
- Are there other trends you see that Cows and Fish should be aware of to position themselves better in the future?
- Any final thoughts that we have not discussed?
- Thank you for your time



### Appendix 3 - Comparison of Respondent Residence to Population

| City                 | non-response | completed | total n | population | sample |
|----------------------|--------------|-----------|---------|------------|--------|
| Calgary              | 85           | 43        | 128     | 10.9%      | 14.2%  |
| Pincher Creek        | 48           | 13        | 61      | 5.2%       | 4.3%   |
| Red Deer County      | 10           | 11        | 21      | 1.8%       | 3.6%   |
| Lethbridge           | 19           | 10        | 29      | 2.5%       | 3.3%   |
| Nanton               | 29           | 10        | 39      | 3.3%       | 3.3%   |
| Cochrane             | 16           | 8         | 24      | 2.0%       | 2.6%   |
| Red Deer             | 8            | 8         | 16      | 1.4%       | 2.6%   |
| Stavely              | 9            | 7         | 16      | 1.4%       | 2.3%   |
| Innisfail            | 4            | 6         | 10      | 0.9%       | 2.0%   |
| High River           | 31           | 5         | 36      | 3.1%       | 1.7%   |
| Rocky Mountain House | 16           | 5         | 21      | 1.8%       | 1.7%   |
| Sundre               | 11           | 5         | 16      | 1.4%       | 1.7%   |
| Gunn                 | 7            | 4         | 11      | 0.9%       | 1.3%   |
| Vermilion            | 3            | 4         | 7       | 0.6%       | 1.3%   |
| Airdrie              | 6            | 3         | 9       | 0.8%       | 1.0%   |
| Barrhead             | 10           | 3         | 13      | 1.1%       | 1.0%   |
| Beaverlodge          | 3            | 3         | 6       | 0.5%       | 1.0%   |
| Canmore              | 3            | 3         | 6       | 0.5%       | 1.0%   |
| Cardston             | 12           | 3         | 15      | 1.3%       | 1.0%   |
| Claresholm           | 11           | 3         | 14      | 1.2%       | 1.0%   |
| Colinton             | 0            | 3         | 3       | 0.3%       | 1.0%   |
| Coronation           | 5            | 3         | 8       | 0.7%       | 1.0%   |
| Edmonton             | 16           | 3         | 19      | 1.6%       | 1.0%   |
| Lundbreck            | 12           | 3         | 15      | 1.3%       | 1.0%   |
| Medicine Hat         | 5            | 3         | 8       | 0.7%       | 1.0%   |
| Peace River          | 3            | 3         | 6       | 0.5%       | 1.0%   |
| Ponoka               | 3            | 3         | 6       | 0.5%       | 1.0%   |
| Standard             | 6            | 3         | 9       | 0.8%       | 1.0%   |
| Wainwright           | 1            | 3         | 4       | 0.3%       | 1.0%   |
| Acme                 | 1            | 2         | 3       | 0.3%       | 0.7%   |
| Busby                | 0            | 2         | 2       | 0.2%       | 0.7%   |
| Camrose              | 4            | 2         | 6       | 0.5%       | 0.7%   |
| Caroline             | 3            | 2         | 5       | 0.4%       | 0.7%   |
| Coutts               | 0            | 2         | 2       | 0.2%       | 0.7%   |
| Didsbury             | 2            | 2         | 4       | 0.3%       | 0.7%   |
| Drayton Valley       | 2            | 2         | 4       | 0.3%       | 0.7%   |
| Duffield             | 0            | 2         | 2       | 0.2%       | 0.7%   |
| Eckville             | 14           | 2         | 16      | 1.4%       | 0.7%   |
| Enilda               | 0            | 2         | 2       | 0.2%       | 0.7%   |



# Cows and Fish

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|                |    |   |    |      |      |
|----------------|----|---|----|------|------|
| Fort Macleod   | 12 | 2 | 14 | 1.2% | 0.7% |
| Gleichen       | 1  | 2 | 3  | 0.3% | 0.7% |
| Grande Prairie | 0  | 2 | 2  | 0.2% | 0.7% |
| Granum         | 1  | 2 | 3  | 0.3% | 0.7% |
| High Prairie   | 6  | 2 | 8  | 0.7% | 0.7% |
| Kelsey         | 0  | 2 | 2  | 0.2% | 0.7% |
| Lac La Biche   | 18 | 2 | 20 | 1.7% | 0.7% |
| Mayerthorpe    | 6  | 2 | 8  | 0.7% | 0.7% |
| Milk River     | 11 | 2 | 13 | 1.1% | 0.7% |
| Okotoks        | 8  | 2 | 10 | 0.9% | 0.7% |
| Olds           | 2  | 2 | 4  | 0.3% | 0.7% |
| Threehills     | 4  | 2 | 6  | 0.5% | 0.7% |
| Tofield        | 3  | 2 | 5  | 0.4% | 0.7% |
| Turner Valley  | 5  | 2 | 7  | 0.6% | 0.7% |
| Warner         | 0  | 2 | 2  | 0.2% | 0.7% |
| Bassano        | 2  | 1 | 3  | 0.3% | 0.3% |
| Bellevue       | 0  | 1 | 1  | 0.1% | 0.3% |
| Bittern Lake   | 1  | 1 | 2  | 0.2% | 0.3% |
| Bonnyville     | 5  | 1 | 6  | 0.5% | 0.3% |
| Bragg Creek    | 0  | 1 | 1  | 0.1% | 0.3% |
| Calmar         | 0  | 1 | 1  | 0.1% | 0.3% |
| Cardson        | 0  | 1 | 1  | 0.1% | 0.3% |
| Cayley         | 3  | 1 | 4  | 0.3% | 0.3% |
| Clive          | 0  | 1 | 1  | 0.1% | 0.3% |
| Coaldale       | 0  | 1 | 1  | 0.1% | 0.3% |
| Cowley         | 2  | 1 | 3  | 0.3% | 0.3% |
| Crossfield     | 6  | 1 | 7  | 0.6% | 0.3% |
| Del Bonita     | 0  | 1 | 1  | 0.1% | 0.3% |
| Delburne       | 2  | 1 | 3  | 0.3% | 0.3% |
| Donalda        | 1  | 1 | 2  | 0.2% | 0.3% |
| Drumheller     | 9  | 1 | 10 | 0.9% | 0.3% |
| Duchess        | 1  | 1 | 2  | 0.2% | 0.3% |
| Edson          | 0  | 1 | 1  | 0.1% | 0.3% |
| Elnora         | 0  | 1 | 1  | 0.1% | 0.3% |
| Ferintosh      | 3  | 1 | 4  | 0.3% | 0.3% |
| Foremost       | 0  | 1 | 1  | 0.1% | 0.3% |
| Forestberg     | 0  | 1 | 1  | 0.1% | 0.3% |
| Galahad        | 2  | 1 | 3  | 0.3% | 0.3% |
| Hardisty       | 2  | 1 | 3  | 0.3% | 0.3% |
| High River,    | 0  | 1 | 1  | 0.1% | 0.3% |
| Hillspring     | 5  | 1 | 6  | 0.5% | 0.3% |
| Hythe          | 4  | 1 | 5  | 0.4% | 0.3% |
| Irma           | 12 | 1 | 13 | 1.1% | 0.3% |
| Killam         | 5  | 1 | 6  | 0.5% | 0.3% |
| Kitscoty       | 2  | 1 | 3  | 0.3% | 0.3% |





# Cows and Fish

Alberta Riparian habitat Management Society



|               |    |   |    |      |      |
|---------------|----|---|----|------|------|
| La Glace      | 0  | 1 | 1  | 0.1% | 0.3% |
| Lacombe       | 1  | 1 | 2  | 0.2% | 0.3% |
| Langley       | 1  | 1 | 2  | 0.2% | 0.3% |
| Lloydminster  | 0  | 1 | 1  | 0.1% | 0.3% |
| Marwayne      | 1  | 1 | 2  | 0.2% | 0.3% |
| Milk River    | 0  | 1 | 1  | 0.1% | 0.3% |
| Munson        | 1  | 1 | 2  | 0.2% | 0.3% |
| New Norway    | 7  | 1 | 8  | 0.7% | 0.3% |
| Onoway        | 6  | 1 | 7  | 0.6% | 0.3% |
| Penhold       | 0  | 1 | 1  | 0.1% | 0.3% |
| Plamondon     | 5  | 1 | 6  | 0.5% | 0.3% |
| Raymond       | 0  | 1 | 1  | 0.1% | 0.3% |
| Rockyford     | 10 | 1 | 11 | 0.9% | 0.3% |
| Rosebud       | 5  | 1 | 6  | 0.5% | 0.3% |
| Ryley         | 0  | 1 | 1  | 0.1% | 0.3% |
| Sherwood Park | 2  | 1 | 3  | 0.3% | 0.3% |
| Slave Lake    | 0  | 1 | 1  | 0.1% | 0.3% |
| Spruce View   | 0  | 1 | 1  | 0.1% | 0.3% |
| Stony Plain   | 2  | 1 | 3  | 0.3% | 0.3% |
| Strathmore    | 7  | 1 | 8  | 0.7% | 0.3% |
| Thorsby       | 0  | 1 | 1  | 0.1% | 0.3% |
| Tomahawk      | 0  | 1 | 1  | 0.1% | 0.3% |
| Turin         | 4  | 1 | 5  | 0.4% | 0.3% |
| Viking        | 0  | 1 | 1  | 0.1% | 0.3% |
| Vilna         | 7  | 1 | 8  | 0.7% | 0.3% |
| Westerose     | 0  | 1 | 1  | 0.1% | 0.3% |
| Whitecourt    | 1  | 1 | 2  | 0.2% | 0.3% |
| Alberta Beach | 1  | 0 | 1  | 0.1% | 0.0% |
| Aldersyde     | 1  | 0 | 1  | 0.1% | 0.0% |
| Alhambra      | 4  | 0 | 4  | 0.3% | 0.0% |
| Alliance      | 1  | 0 | 1  | 0.1% | 0.0% |
| Arrowwood     | 1  | 0 | 1  | 0.1% | 0.0% |
| Athabasca     | 1  | 0 | 1  | 0.1% | 0.0% |
| Banff         | 3  | 0 | 3  | 0.3% | 0.0% |
| Beiseker      | 1  | 0 | 1  | 0.1% | 0.0% |
| Benalto       | 1  | 0 | 1  | 0.1% | 0.0% |
| Bentley       | 1  | 0 | 1  | 0.1% | 0.0% |
| Bindloss      | 1  | 0 | 1  | 0.1% | 0.0% |
| Black Diamond | 4  | 0 | 4  | 0.3% | 0.0% |
| Blairmore     | 1  | 0 | 1  | 0.1% | 0.0% |
| Bow Island    | 2  | 0 | 2  | 0.2% | 0.0% |
| Bowden        | 9  | 0 | 9  | 0.8% | 0.0% |
| Boyle         | 1  | 0 | 1  | 0.1% | 0.0% |
| Brant         | 2  | 0 | 2  | 0.2% | 0.0% |
| Brocket       | 11 | 0 | 11 | 0.9% | 0.0% |



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|                   |   |   |   |      |      |
|-------------------|---|---|---|------|------|
| Carbon            | 1 | 0 | 1 | 0.1% | 0.0% |
| Carmangay         | 1 | 0 | 1 | 0.1% | 0.0% |
| Carseland         | 2 | 0 | 2 | 0.2% | 0.0% |
| Carstairs         | 7 | 0 | 7 | 0.6% | 0.0% |
| Cessford          | 1 | 0 | 1 | 0.1% | 0.0% |
| Champion          | 2 | 0 | 2 | 0.2% | 0.0% |
| Chauvin           | 2 | 0 | 2 | 0.2% | 0.0% |
| Clairmont         | 2 | 0 | 2 | 0.2% | 0.0% |
| Cluny             | 2 | 0 | 2 | 0.2% | 0.0% |
| Crowsnest Pass    | 1 | 0 | 1 | 0.1% | 0.0% |
| Delia             | 1 | 0 | 1 | 0.1% | 0.0% |
| Denwood           | 1 | 0 | 1 | 0.1% | 0.0% |
| Dewinton          | 3 | 0 | 3 | 0.3% | 0.0% |
| Driftpile         | 8 | 0 | 8 | 0.7% | 0.0% |
| East Coulee       | 1 | 0 | 1 | 0.1% | 0.0% |
| Edberg            | 2 | 0 | 2 | 0.2% | 0.0% |
| Edburg            | 1 | 0 | 1 | 0.1% | 0.0% |
| Edgerton          | 2 | 0 | 2 | 0.2% | 0.0% |
| Elk Point         | 1 | 0 | 1 | 0.1% | 0.0% |
| Elkwater          | 2 | 0 | 2 | 0.2% | 0.0% |
| Empress           | 2 | 0 | 2 | 0.2% | 0.0% |
| Evansburg         | 1 | 0 | 1 | 0.1% | 0.0% |
| Falher            | 1 | 0 | 1 | 0.1% | 0.0% |
| Faust             | 1 | 0 | 1 | 0.1% | 0.0% |
| Forestburg        | 3 | 0 | 3 | 0.3% | 0.0% |
| Fort McMurray     | 1 | 0 | 1 | 0.1% | 0.0% |
| Fort Saskatchewan | 1 | 0 | 1 | 0.1% | 0.0% |
| Fort Vermillion   | 1 | 0 | 1 | 0.1% | 0.0% |
| Glendon           | 6 | 0 | 6 | 0.5% | 0.0% |
| Glenwood          | 3 | 0 | 3 | 0.3% | 0.0% |
| Goodfare          | 2 | 0 | 2 | 0.2% | 0.0% |
| Gwynne            | 3 | 0 | 3 | 0.3% | 0.0% |
| Halkirk           | 1 | 0 | 1 | 0.1% | 0.0% |
| HighPrairie       | 1 | 0 | 1 | 0.1% | 0.0% |
| Hussar            | 2 | 0 | 2 | 0.2% | 0.0% |
| Huxley            | 1 | 0 | 1 | 0.1% | 0.0% |
| Iddesleigh        | 1 | 0 | 1 | 0.1% | 0.0% |
| Invermere         | 1 | 0 | 1 | 0.1% | 0.0% |
| Irvine            | 2 | 0 | 2 | 0.2% | 0.0% |
| Kinuso            | 1 | 0 | 1 | 0.1% | 0.0% |
| Kinuso            | 1 | 0 | 1 | 0.1% | 0.0% |
| Leslieville       | 3 | 0 | 3 | 0.3% | 0.0% |
| Linden            | 1 | 0 | 1 | 0.1% | 0.0% |
| Longview          | 9 | 0 | 9 | 0.8% | 0.0% |
| Lougheed          | 6 | 0 | 6 | 0.5% | 0.0% |



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|                 |    |    |    |      |      |
|-----------------|----|----|----|------|------|
| Magrath         | 2  | 0  | 2  | 0.2% | 0.0% |
| Manning         | 1  | 0  | 1  | 0.1% | 0.0% |
| Markerville     | 1  | 0  | 1  | 0.1% | 0.0% |
| Millarville     | 6  | 0  | 6  | 0.5% | 0.0% |
| Morinville      | 1  | 0  | 1  | 0.1% | 0.0% |
| Morley          | 1  | 0  | 1  | 0.1% | 0.0% |
| Mossleigh       | 1  | 0  | 1  | 0.1% | 0.0% |
| Mountain View   | 4  | 0  | 4  | 0.3% | 0.0% |
| Nampa           | 1  | 0  | 1  | 0.1% | 0.0% |
| Niton Junction  | 3  | 0  | 3  | 0.3% | 0.0% |
| Ohaton          | 4  | 0  | 4  | 0.3% | 0.0% |
| Paradise Valley | 1  | 0  | 1  | 0.1% | 0.0% |
| Parkland        | 1  | 0  | 1  | 0.1% | 0.0% |
| Picture Butte   | 2  | 0  | 2  | 0.2% | 0.0% |
| Pine Lake       | 1  | 0  | 1  | 0.1% | 0.0% |
| Priddis         | 1  | 0  | 1  | 0.1% | 0.0% |
| Provost         | 2  | 0  | 2  | 0.2% | 0.0% |
| Rimbey          | 3  | 0  | 3  | 0.3% | 0.0% |
| Robb            | 1  | 0  | 1  | 0.1% | 0.0% |
| Rosalind        | 6  | 0  | 6  | 0.5% | 0.0% |
| same            | 1  | 0  | 1  | 0.1% | 0.0% |
| Seba Beach      | 1  | 0  | 1  | 0.1% | 0.0% |
| Sedgewick       | 3  | 0  | 3  | 0.3% | 0.0% |
| Seven Persons   | 2  | 0  | 2  | 0.2% | 0.0% |
| Siksika         | 1  | 0  | 1  | 0.1% | 0.0% |
| Silver Valley   | 1  | 0  | 1  | 0.1% | 0.0% |
| St. Albert      | 3  | 0  | 3  | 0.3% | 0.0% |
| St. Paul        | 4  | 0  | 4  | 0.3% | 0.0% |
| St. Vincent     | 2  | 0  | 2  | 0.2% | 0.0% |
| Standoff        | 2  | 0  | 2  | 0.2% | 0.0% |
| Stettler        | 1  | 0  | 1  | 0.1% | 0.0% |
| Strome          | 2  | 0  | 2  | 0.2% | 0.0% |
| Sylvan Lake     | 1  | 0  | 1  | 0.1% | 0.0% |
| Toronto         | 1  | 0  | 1  | 0.1% | 0.0% |
| Trochu          | 1  | 0  | 1  | 0.1% | 0.0% |
| Twin Butte      | 4  | 0  | 4  | 0.3% | 0.0% |
| Vegreville      | 1  | 0  | 1  | 0.1% | 0.0% |
| Vulcan          | 1  | 0  | 1  | 0.1% | 0.0% |
| Walsh           | 2  | 0  | 2  | 0.2% | 0.0% |
| Waterton Lakes  | 2  | 0  | 2  | 0.2% | 0.0% |
| Westlock        | 4  | 0  | 4  | 0.3% | 0.0% |
| Wetaskiwin      | 1  | 0  | 1  | 0.1% | 0.0% |
| Wildwood        | 1  | 0  | 1  | 0.1% | 0.0% |
| Unknown         | 19 | 12 | 31 | 2.6% | 4.0% |



## Appendix 4 - Group data tables

### Q. When was your most recent contact with Cows and Fish?

|              | Belong to or represent a local group representing riparian, water or watershed issues (A) | Govt. department or agency representative working on riparian issues (B) | NGO representative working on riparian issues (C) | Landowner interested in riparian area health or management (D) |
|--------------|---|--|---|--|
| Prior 2000   | 2%  | 0%   | 0%  | 5%   |
| 2000 to 2005 | 2%  | 2%   | 0%  | 10%  |
| 2006 to 2010 | 15%   | 5%   | 10%   | 14%  |
| 2011 to 2015 | 39%   | 34%  | 20%   | 29%  |
| After 2015   | 42%   | 59%D   | 70%AD   | 41%  |

Uppercase letters indicate significance at the 95% level ( $p \leq 0.05$ )

Local group representative n=41, Govt representative n=41, NGO representative n=20, Landowner n=184

### Q. Approximately HOW MANY interactions have you had with Cows and Fish over the years? This might include phone calls, emails, meetings, workshop, presentations, receiving riparian health results, etc.

|                       | Belong to or represent a local group representing riparian, water or watershed issues (A) | Govt. department or agency representative working on riparian issues (B) | NGO representative working on riparian issues (C) | Landowner interested in riparian area health or management (D) |
|-----------------------|---|--|---|--|
| 1 or 2                | 17%   | 22%  | 19%   | 31%  |
| 3 - 5 contacts        | 17%   | 15%  | 10%   | 33%ABC   |
| 6 - 10 contacts       | 39%BCD  | 17%  | 14%   | 23%  |
| 11 - 50 contacts      | 22%   | 31%D   | 42%D  | 11%  |
| More than 50 contacts | 5%  | 14%D   | 14%D  | 2%   |

Uppercase letters indicate significance at the 95% level ( $p \leq 0.05$ )

Local group representative n=41, Govt representative n=41, NGO representative n=21, Landowner n=185



**Q. Please indicate HOW you have interacted with Cows and Fish. [Choose all that apply].**

|   | Belong to or represent a local group representing riparian, water or watershed issues (A) | Govt. department or agency representative working on riparian issues (B) | NGO representative working on riparian issues (C) | Landowner interested in riparian area health or management (D) |
|---|---|--|---|--|
| A presentation by Cows and Fish   | 65%D  | 74%D   | 88%AD   | 40%  |
| One-on-one interaction with Cows and Fish staff such as a phone call, visit or meeting        | 73%   | 68%  | 88%D  | 67%  |
| Participated in a field tour  | 51%   | 50%  | 59%D  | 33%  |
| Participated in riparian health, plant identification and other hands-on field activities     | 65%D  | 76%D   | 82%D  | 41%  |
| Participated in other community or watershed group activity                                   | 73%BD   | 47%  | 71%D  | 34%  |
| Received a riparian (or range) health report(s)   | 78%   | 79%  | 88%   | 74%  |
| Read written materials like booklets or factsheets (excluding riparian /range health reports) | 59%B  | 82%D   | 94%AD   | 56%  |
| Listened to their digital stories or podcasts   | 24%   | 24%  | 47%D  | 10%  |
| Visited Cows and Fish website   | 38%B  | 68%D   | 71%AD   | 29%  |
| Visited Cows and Fish Facebook or Twitter page  | 14%B  | 35%D   | 47%AD   | 7%   |
| Email correspondence  | 57%BD   | 82%D   | 82%AD   | 36%  |
| Other   | 16%   | 9%   | 35%D  | 6%   |

Uppercase letters indicate significance at the 95% level ( $p \leq 0.05$ )

Local group representative n=37, Govt representative n=34, NGO representative n=17, Landowner n=177



***Q. Have you learned new information or increased your knowledge as a result of interacting with Cows and Fish?***

|     | Belong to or represent a local group representing riparian, water or watershed issues (A) | Landowner interested in riparian area health or management (B) |
|-----|---|--|
| Yes | 84%B  | 66%  |
| No  | 15%B  | 34%  |

Uppercase letters indicate significance at the 95% level ( $p \leq 0.05$ )

Local group representative n=33, Landowner n=174

***Q. Have you changed any of your management practices as a direct result of your contact with Cows and Fish?***

|     | Belong to or represent a local group representing riparian, water or watershed issues (A) | Landowner interested in riparian area health or management (B) |
|-----|---|--|
| Yes | 69%   | 62%  |
| No  | 31%   | 38%  |

Uppercase letters indicate significance at the 95% level ( $p \leq 0.05$ )

Local group representative n=32, Landowner n=176

***Q. Did interacting with Cows and Fish result in you implementing a practice change sooner than you would have otherwise?***

|          | Belong to or represent a local group representing riparian, water or watershed issues (A) | Landowner interested in riparian area health or management (B) |
|----------|---|--|
| Yes      | 52%   | 46%  |
| No       | 22%   | 24%  |
| Not sure | 26%   | 30%  |

Uppercase letters indicate significance at the 95% level ( $p \leq 0.05$ )

Local group representative n=23, Landowner n=110



**Q. How long after your interaction with Cows and Fish did you take action to implement practice changes to improve riparian health?**

|                                 | Belong to or represent a local group representing riparian, water or watershed issues (A) | Landowner interested in riparian area health or management (B) |
|---------------------------------|---|--|
| 1 to 5 months                   | 44%   | 31%  |
| 6 months to 1 year              | 26%   | 34%  |
| Between 1 and 2 years           | 17%   | 18%  |
| Between 3 and 4 years           | 4%  | 3%   |
| Longer than 6 years             | 0%  | 3%   |
| Not applicable/ haven't started | 9%  | 12%  |

Uppercase letters indicate significance at the 95% level ( $p \leq 0.05$ )

Local group representative n=23, Landowner n=108

**What motivated you to make the change? Please choose the three most important motivators by checking three of the following:**

|  | Belong to or represent a local group representing riparian, water or watershed issues (A) | Landowner interested in riparian area health or management (B) |
|--|---|--|
| A sense of responsibility to manage the area for health                                  | 61%   | 54%  |
| Greater awareness of management impact or land use on riparian health or function        | 30%   | 50%  |
| Desire to benefit water quality  | 26%   | 44%  |
| Desire to benefit biodiversity   | 26%   | 22%  |
| A riparian health rating or riparian health report                                       | 13%   | 23%  |
| Access to financial resources  | 26%   | 18%  |
| Desire to benefit the resilience of the system   | 17%   | 21%  |
| Greater awareness of various options or management choices available                     | 26%   | 8%   |
| Being a member of a local watershed/community group                                      | 30%B  | 6%   |
| Enthusiasm and support from Cows and Fish  | 17%   | 12%  |
| Desire to improve primary production (eg. forage)  | 13%   | 7%   |
| Desire for sustained economic return or improvement                                      | 4%  | 7%   |
| Enthusiasm and support from other groups or organizations (excluding Cows and Fish)      | 4%  | 9%   |
| Greater awareness of provincial or federal regulations or enforcement of the regulations | 0%  | 3%   |
| Other  | 4%  | 3%   |

Uppercase letters indicate significance at the 95% level ( $p \leq 0.05$ )

Local group representative n=23, Landowner n=108





**Q. Please rate which types of contact with Cows and Fish were most useful to you in making a decision to change your management practices or land use changes concerning riparian areas? If you did not have this type of contact please indicate N/A – not applicable.**

| <b>Cows and Fish staff presentation(s)</b> | Belong to or represent a local group representing riparian, water or watershed issues<br>(A) | Landowner interested in riparian area health or management<br>(B) |
|--|--|---|
| Not useful at all                          | 0%   | 1%  |
| Not very useful                            | 5%   | 1%  |
| Somewhat useful                            | 23%  | 23%   |
| Very useful                                | 73%  | 75%   |

Uppercase letters indicate significance at the 95% level ( $p \leq 0.05$ )

Local group representative n=22, Landowner n=89

| <b>In-person interactions</b> | Belong to or represent a local group representing riparian, water or watershed issues<br>(A) | Landowner interested in riparian area health or management<br>(B) |
|-------------------------------|--|---|
| Not useful at all             | 0%   | 0%  |
| Not very useful               | 0%   | 2%  |
| Somewhat useful               | 14%  | 18%   |
| Very useful                   | 86%  | 80%   |

Uppercase letters indicate significance at the 95% level ( $p \leq 0.05$ )

Local group representative n=22, Landowner n=100

| <b>Participation in riparian health, plant identification and other hands on field activities</b> | Belong to or represent a local group representing riparian, water or watershed issues<br>(A) | Landowner interested in riparian area health or management<br>(B) |
|---|--|---|
| Not useful at all   | 0%   | 2%  |
| Not very useful   | 5%   | 4%  |
| Somewhat useful   | 14%  | 22%   |
| Very useful   | 81%  | 72%   |

Uppercase letters indicate significance at the 95% level ( $p \leq 0.05$ )

Local group representative n=21, Landowner n=83



| <b>Email correspondence</b> | Belong to or represent a local group representing riparian, water or watershed issues<br>(A) | Landowner interested in riparian area health or management<br>(B) |
|-----------------------------|--|---|
| Not useful at all           | 0%   | 5%  |
| Not very useful             | 6%   | 8%  |
| Somewhat useful             | 50%  | 55%   |
| Very useful                 | 44%  | 33%   |

Uppercase letters indicate significance at the 95% level ( $p \leq 0.05$ )

Local group representative n=18, Landowner n=67

| <b>Community or watershed group activities</b> | Belong to or represent a local group representing riparian, water or watershed issues<br>(A) | Landowner interested in riparian area health or management<br>(B) |
|--|--|---|
| Not useful at all                              | 0%   | 1%  |
| Not very useful                                | 0%   | 4%  |
| Somewhat useful                                | 35%  | 39%   |
| Very useful                                    | 65%  | 56%   |

Uppercase letters indicate significance at the 95% level ( $p \leq 0.05$ )

Local group representative n=23, Landowner n=79

| <b>Written materials (excluding riparian / range health report)</b> | Belong to or represent a local group representing riparian, water or watershed issues<br>(A) | Landowner interested in riparian area health or management<br>(B) |
|---|--|---|
| Not useful at all   | 0%   | 1%  |
| Not very useful   | 0%   | 6%  |
| Somewhat useful   | 48%  | 40%   |
| Very useful   | 52%  | 52%   |

Uppercase letters indicate significance at the 95% level ( $p \leq 0.05$ )

Local group representative n=21, Landowner n=94

| <b>Digital stories or podcasts</b> | Belong to or represent a local group representing riparian, water or watershed issues<br>(A) | Landowner interested in riparian area health or management<br>(B) |
|------------------------------------|--|---|
| Not useful at all                  | 17%  | 13%   |
| Not very useful                    | 17%  | 25%   |
| Somewhat useful                    | 25%  | 43%   |
| Very useful                        | 42%  | 20%   |

Uppercase letters indicate significance at the 95% level ( $p \leq 0.05$ )

Local group representative n=12, Landowner n=40



| <b>Cows and Fish website</b> | Belong to or represent a local group representing riparian, water or watershed issues (A) | Landowner interested in riparian area health or management (B) |
|------------------------------|---|--|
| Not useful at all            | 0%  | 5%   |
| Not very useful              | 13%   | 7%   |
| Somewhat useful              | 73%   | 56%  |
| Very useful                  | 13%   | 33%  |

Uppercase letters indicate significance at the 95% level ( $p \leq 0.05$ )

Local group representative n=15, Landowner n=61

| <b>Riparian (or range) health report(s)</b> | Belong to or represent a local group representing riparian, water or watershed issues (A) | Landowner interested in riparian area health or management (B) |
|---|---|--|
| Not useful at all                           | 5%  | 0%   |
| Not very useful                             | 0%  | 3%   |
| Somewhat useful                             | 32%   | 23%  |
| Very useful                                 | 64%   | 74%  |

Uppercase letters indicate significance at the 95% level ( $p \leq 0.05$ )

Local group representative n=22, Landowner n=91

| <b>Phone calls</b> | Belong to or represent a local group representing riparian, water or watershed issues (A) | Landowner interested in riparian area health or management (B) |
|--------------------|---|--|
| Not useful at all  | 5%  | 5%   |
| Not very useful    | 0%  | 9%   |
| Somewhat useful    | 68%   | 50%  |
| Very useful        | 26%   | 36%  |

Uppercase letters indicate significance at the 95% level ( $p \leq 0.05$ )

Local group representative n=19, Landowner n=76



**Q. How relevant is Cows and Fish to you?**

|                                | Belong to or represent a local group representing riparian, water or watershed issues (A) | Landowner interested in riparian area health or management (B) |
|--------------------------------|---|--|
| Very relevant                  | 44%   | 38%  |
| Somewhat relevant              | 53%   | 39%  |
| Neither irrelevant or relevant | 3%  | 16%  |
| Somewhat irrelevant            | 0%  | 3%   |
| Not at all relevant            | 0%  | 4%   |

Uppercase letters indicate significance at the 95% level ( $p \leq 0.05$ )

Local group representative n=32, Landowner n=172

**Q. Do you have any plans for changes to your practices in relation to riparian area management in the future as a direct result of your contact with Cows and Fish staff?**

|  | Belong to or represent a local group representing riparian, water or watershed issues (A) | Landowner interested in riparian area health or management (B) |
|--|---|--|
| Yes  | 22%   | 19%  |
| Possibly but nothing certain                   | 56%   | 43%  |
| No   | 3%  | 17%  |
| No plans because I have completed what I could | 19%   | 21%  |

Uppercase letters indicate significance at the 95% level ( $p \leq 0.05$ )

Local group representative n=32, Landowner n=169



**Q. Based on your personal experience with Cows and Fish staff, please provide a rating for each of the following. If not certain, please indicate 'do not know'.**

| <b>are knowledgeable about riparian management</b> | Belong to or represent a local group representing riparian, water or watershed issues (A) | Govt. department or agency representative working on riparian issues (B) | NGO representative working on riparian issues (C) | Landowner interested in riparian area health or management (D) |
|--|---|--|---|--|
| Strongly agree                                     | 66%   | 91%AD  | 95%AD   | 67%  |
| Somewhat agree                                     | 29%   | 9%AD   | 5%A   | 24%  |
| Neutral  | 5%  | 0%   | 0%  | 4%   |
| Somewhat disagree                                  | 0%  | 0%   | 0%  | 1%   |
| Strongly disagree                                  | 0%  | 0%   | 0%  | 4%   |

Uppercase letters indicate significance at the 95% level ( $p \leq 0.05$ )

Local group representative n=38, Govt representative n=35, NGO representative n=19, Landowner n=159

| <b>are knowledgeable about the practicalities of living and working near riparian areas</b> | Belong to or represent a local group representing riparian, water or watershed issues (A) | Govt. department or agency representative working on riparian issues (B) | NGO representative working on riparian issues (C) | Landowner interested in riparian area health or management (D) |
|---|---|--|---|--|
| Strongly agree  | 63%   | 86%AD  | 90%AD   | 56%  |
| Somewhat agree  | 32%   | 11%A   | 11%   | 25%  |
| Neutral   | 5%  | 3%   | 0%  | 12%  |
| Somewhat disagree   | 0%  | 0%   | 0%  | 2%   |
| Strongly disagree   | 0%  | 0%   | 0%  | 5%   |

Uppercase letters indicate significance at the 95% level ( $p \leq 0.05$ )

Local group representative n=38, Govt representative n=35, NGO representative n=19, Landowner n=156

| <b>are enthusiastic</b> | Belong to or represent a local group representing riparian, water or watershed issues (A) | Govt. department or agency representative working on riparian issues (B) | NGO representative working on riparian issues (C) | Landowner interested in riparian area health or management (D) |
|-------------------------|---|--|---|--|
| Strongly agree          | 65%   | 81%  | 84%   | 68%  |
| Somewhat agree          | 30%   | 17%  | 16%   | 22%  |
| Neutral                 | 5%  | 3%   | 0%  | 6%   |
| Somewhat disagree       | 0%  | 0%   | 0%  | 1%   |
| Strongly disagree       | 0%  | 0%   | 0%  | 3%   |

Uppercase letters indicate significance at the 95% level ( $p \leq 0.05$ )

Local group representative n=37, Govt representative n=36, NGO representative n=19, Landowner n=159



| <i>are able to motivate you to learn about and/or adopt riparian management solutions</i> | Belong to or represent a local group representing riparian, water or watershed issues (A) | Govt. department or agency representative working on riparian issues (B) | NGO representative working on riparian issues (C) | Landowner interested in riparian area health or management (D) |
|---|---|--|---|--|
| Strongly agree  | 46%   | 63%  | 68%   | 45%  |
| Somewhat agree  | 41%   | 20%  | 32%   | 33%  |
| Neutral   | 11%   | 14%  | 0%  | 13%  |
| Somewhat disagree   | 3%  | 3%   | 0%  | 4%   |
| Strongly disagree   | 0%  | 0%   | 0%  | 5%   |

Uppercase letters indicate significance at the 95% level ( $p \leq .05$ )

Local group representative n=37, Govt representative n=35, NGO representative n=19, Landowner n=157

| <i>are unbiased</i> | Belong to or represent a local group representing riparian, water or watershed issues (A) | Govt. department or agency representative working on riparian issues (B) | NGO representative working on riparian issues (C) | Landowner interested in riparian area health or management (D) |
|---------------------|---|--|---|--|
| Strongly agree      | 42%   | 57%  | 63%   | 49%  |
| Somewhat agree      | 33%   | 29%  | 26%   | 21%  |
| Neutral             | 17%   | 9%   | 11%   | 18%  |
| Somewhat disagree   | 6%  | 6%   | 0%  | 4%   |
| Strongly disagree   | 3%  | 0%   | 0%  | 8%   |

Uppercase letters indicate significance at the 95% level ( $p \leq .05$ )

Local group representative n=36, Govt representative n=35, NGO representative n=19, Landowner n=136

| <i>are reliable</i> | Belong to or represent a local group representing riparian, water or watershed issues (A) | Govt. department or agency representative working on riparian issues (B) | NGO representative working on riparian issues (C) | Landowner interested in riparian area health or management (D) |
|---------------------|---|--|---|--|
| Strongly agree      | 58%   | 74%  | 84%AD   | 62%  |
| Somewhat agree      | 28%   | 17%  | 16%   | 21%  |
| Neutral             | 14%   | 9%   | 0%  | 12%  |
| Somewhat disagree   | 0%  | 0%   | 0%  | 1%   |
| Strongly disagree   | 0%  | 0%   | 0%  | 3%   |

Uppercase letters indicate significance at the 95% level ( $p \leq .05$ )

Local group representative n=36, Govt representative n=35, NGO representative n=19, Landowner n=146



| <i>are respectful</i> | Belong to or represent a local group representing riparian, water or watershed issues (A) | Govt. department or agency representative working on riparian issues (B) | NGO representative working on riparian issues (C) | Landowner interested in riparian area health or management (D) |
|-----------------------|---|--|---|--|
| Strongly agree        | 68%   | 80%  | 95%AD   | 73%  |
| Somewhat agree        | 30%   | 14%  | 5%A   | 18%  |
| Neutral               | 3%  | 6%   | 0%  | 6%   |
| Somewhat disagree     | 0%  | 0%   | 0%  | 0%   |
| Strongly disagree     | 0%  | 0%   | 0%  | 3%   |

Uppercase letters indicate significance at the 95% level ( $p \leq 0.05$ )

Local group representative n=37, Govt representative n=35, NGO representative n=19, Landowner n=157

| <i>are helpful</i> | Belong to or represent a local group representing riparian, water or watershed issues (A) | Govt. department or agency representative working on riparian issues (B) | NGO representative working on riparian issues (C) | Landowner interested in riparian area health or management (D) |
|--------------------|---|--|---|--|
| Strongly agree     | 61%   | 74%  | 79%   | 64%  |
| Somewhat agree     | 26%   | 23%  | 16%   | 21%  |
| Neutral            | 13%   | 3%   | 5%  | 9%   |
| Somewhat disagree  | 0%  | 0%   | 0%  | 2%   |
| Strongly disagree  | 0%  | 0%   | 0%  | 5%   |

Uppercase letters indicate significance at the 95% level ( $p \leq 0.05$ )

Local group representative n=38, Govt representative n=35, NGO representative n=19, Landowner n=156

| <i>act appropriately in all aspects of their contact with me</i> | Belong to or represent a local group representing riparian, water or watershed issues (A) | Govt. department or agency representative working on riparian issues (B) | NGO representative working on riparian issues (C) | Landowner interested in riparian area health or management (D) |
|--|---|--|---|--|
| Strongly agree   | 63%   | 74%  | 94%AD   | 72%  |
| Somewhat agree   | 24%   | 23%  | 5%  | 14%  |
| Neutral  | 13%   | 3%   | 0%  | 10%  |
| Somewhat disagree  | 0%  | 0%   | 0%  | 1%   |
| Strongly disagree  | 0%  | 0%   | 0%  | 4%   |

Uppercase letters indicate significance at the 95% level ( $p \leq 0.05$ )

Local group representative n=38, Govt representative n=35, NGO representative n=19, Landowner n=158





*are credible*

|                   | Belong to or represent a local group representing riparian, water or watershed issues (A) | Govt. department or agency representative working on riparian issues (B) | NGO representative working on riparian issues (C) | Landowner interested in riparian area health or management (D) |
|-------------------|---|--|---|--|
| Strongly agree    | 63%   | 83%  | 89%   | 66%  |
| Somewhat agree    | 29%   | 17%  | 11%   | 20%  |
| Neutral           | 8%  | 0%   | 0%  | 7%   |
| Somewhat disagree | 0%  | 0%   | 0%  | 3%   |
| Strongly disagree | 0%  | 0%   | 0%  | 4%   |

Uppercase letters indicate significance at the 95% level ( $p \leq 0.05$ )

Local group representative n=38, Govt representative n=35, NGO representative n=18, Landowner n=148

**Q. In your opinion how would you rate Cows and Fish's reputation to foster a better understanding of management practices in relation to riparian areas and ecosystem health and productivity?**

|                      | Belong to or represent a local group representing riparian, water or watershed issues (A) | Govt. department or agency representative working on riparian issues (B) | NGO representative working on riparian issues (C) | Landowner interested in riparian area health or management (D) |
|----------------------|---|--|---|--|
| Very good            | 53%   | 62%  | 90%ABD  | 52%  |
| Good                 | 28%   | 35%  | 11%   | 28%  |
| Average              | 13%   | 3%   | 0%  | 6%   |
| Poor                 | 3%  | 0%   | 0%  | 2%   |
| Very poor            | 3%  | 0%   | 0%  | 2%   |
| Don't know/ Not sure | 3%  | 0%   | 0%  | 11%  |

Uppercase letters indicate significance at the 95% level ( $p \leq 0.05$ )

Local group representative n=40, Govt representative n=37, NGO representative n=19, Landowner n=172

**Q. Generally, how would you rate the awareness of Cows and Fish programs among landowners or land managers in your area?**

|                      | Belong to or represent a local group representing riparian, water or watershed issues (A) | Govt. department or agency representative working on riparian issues (B) | NGO representative working on riparian issues (C) | Landowner interested in riparian area health or management (D) |
|----------------------|---|--|---|--|
| Very good awareness  | 8%  | 8%   | 11%   | 5%   |
| Good awareness       | 30%   | 38%  | 42%   | 21%BC  |
| Average awareness    | 40%   | 35%  | 47%D  | 25%  |
| Poor awareness       | 13%   | 5%   | 0%  | 22%  |
| Very poor awareness  | 5%  | 3%   | 0%  | 6%   |
| Don't know/ Not sure | 5%  | 11%  | 0%  | 22%  |

Uppercase letters indicate significance at the 95% level ( $p \leq 0.05$ )

Local group representative n=40, Govt representative n=37, NGO representative n=19, Landowner n=172



**Q. Please select the three most important characteristics that Cows and Fish should consistently demonstrate to help others learn or raise their awareness about riparian areas. Please select only your top three.**

|   | Belong to or represent a local group representing riparian, water or watershed issues (A) | Govt. department or agency representative working on riparian issues (B) | NGO representative working on riparian issues (C) | Landowner interested in riparian area health or management (D) |
|---|---|--|---|--|
| Knowledgeable about riparian area management                            | 74%   | 78%  | 79%   | 75%  |
| Understand the practicalities of living and working near riparian areas | 77%   | 76%  | 58%   | 63%  |
| Enthusiastic  | 10%   | 11%  | 5%  | 13%  |
| Able to motivate  | 18%   | 22%  | 26%   | 21%  |
| Unbiased  | 18%   | 24%  | 11%   | 18%  |
| Credible  | 38%   | 38%  | 63%D  | 29%  |
| Reliable  | 5%  | 11%  | 16%   | 8%   |
| Respectful  | 36%   | 24%  | 32%   | 31%  |
| Helpful   | 21%   | 14%D   | 11%D  | 31%  |
| Other   | 3%  | 3%   | 0%  | 6%   |

Uppercase letters indicate significance at the 95% level ( $p \leq 0.05$ )

Local group representative n=39, Govt representative n=37, NGO representative n=19, Landowner n=171

**Q. Please select the three most important characteristics that Cows and Fish staff should consistently demonstrate to help others adopt new sustainable riparian management practices. Please select only your top three.**

|   | Belong to or represent a local group representing riparian, water or watershed issues (A) | Govt. department or agency representative working on riparian issues (B) | NGO representative working on riparian issues (C) | Landowner interested in riparian area health or management (D) |
|---|---|--|---|--|
| Knowledgeable about riparian area management                            | 67%   | 76%  | 63%   | 69%  |
| Understand the practicalities of living and working near riparian areas | 74%   | 62%  | 79%   | 71%  |
| Enthusiastic  | 10%C  | 11%C   | 0%  | 14%C   |
| Able to motivate  | 28%   | 43%  | 26%   | 30%  |
| Unbiased  | 26%   | 27%  | 26%   | 15%  |
| Credible  | 28%   | 24%  | 21%   | 24%  |
| Reliable  | 13%   | 8%   | 21%   | 11%  |
| Respectful  | 36%   | 24%  | 37%   | 27%  |
| Helpful   | 15%D  | 19%  | 26%   | 30%  |
| Other   | 3%  | 5%   | 0%  | 4%   |

Uppercase letters indicate significance at the 95% level ( $p \leq 0.05$ )

Local group representative n=39, Govt representative n=37, NGO representative n=19, Landowner n=171