



# Freshwater Ecosystems of New Zealand (FENZ) Development Recommendations

EOS Ecology Report No. 12082-DEP01-01 | July 2013

AQUATIC RESEARCH &  
SCIENCE COMMUNICATION  
CONSULTANTS





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## REPORT

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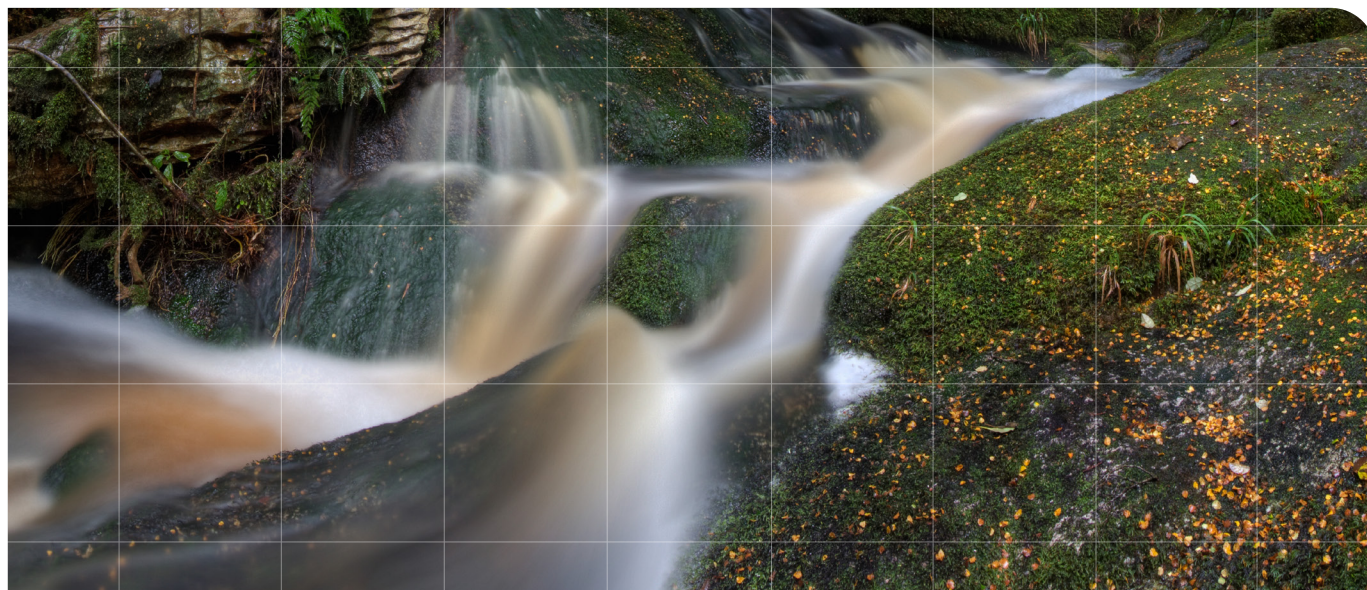


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## 1 INTRODUCTION

EOS Ecology were engaged by the Department of Conservation (DOC) to help them understand if their proprietary software package Freshwater Ecosystems of New Zealand (FENZ) is fulfilling its potential with the freshwater sector user.

DOC defines FENZ as a geo-database that provides an independent, national representation of the biodiversity values and pressures on New Zealand's rivers, lakes and wetlands. It is the result of several years work by central and local government agencies and Crown Research Institutes, led by DOC. The software consists of a large set of spatial data layers and supporting information on New Zealand's rivers, lakes and wetlands. It contains data gathered from a wide variety of sources and can be used to objectively map and quantify various aspects of New Zealand's freshwater. FENZ is designed as a support tool to provide a background context for informed decision making. Various parts of FENZ are already being used both by DOC and by other agencies in the management of freshwater resources.

DOC are concerned that FENZ is not realising its full potential within the freshwater sector. The objectives of this project are to provide DOC with an understanding of who their current FENZ user are, find out about their current interactions, uses and personal thoughts about FENZ, and from this understanding develop a set of recommended actions to improve the performance/uptake of FENZ.

The areas of specific interest for this project are specifically the onscreen interface and user guide. However, it may also extend to the concept of general marketing/advertising.

## 2 METHODS

EOS Ecology engaged Concentrate, as experienced technology marketing consultants, to conduct the initial market research to find out what a user and non-user's perception of FENZ really is. The results from this market research informed the recommendations developed by EOS Ecology.

Two pieces of market research were conducted:

1. **A series of in-depth, one-on-one interviews** with the existing FENZ user (see Appendix 6.1 for the interview question framework). Twelve people were interviewed about their FENZ experiences. These contacts were mainly provided by DOC, with a small number being provided by EOS Ecology. The interviews were conducted by phone and lasted 20–30 minutes each.

As the contacts for the first phase of the research were all current users of FENZ, it was considered appropriate to conduct a second phase of research to try and reach people within the freshwater science/planning industries who had less awareness of FENZ.

2. **A Survey Monkey online survey** ([www.surveymonkey.com](http://www.surveymonkey.com)) as conducted of a broader range of stakeholders and the current user/non-user across the freshwater science community (see Appendix 6.2 for the online survey questions). Approximately 400–500 invitees were directly contacted via a variety of email lists, databases and online forums provided by DOC, New Zealand Freshwater Sciences Society and EOS Ecology.

The online survey had a broader range of questions than required for the immediate outcomes of this project. This information could have broader implications for FENZ, and hopefully there will be some useful feedback within this data for future development of the product.

### 3 RESULTS

Following is the summary of the perception of FENZ from the respondents of both surveys (see Appendix 6.3 for a summary of one-on-one interview results, and Appendix 6.4 for a summary of online survey results). There were 83 respondents for the online survey from approximately 400–500 invitees who were directly contacted via a variety of email lists and databases. 15–25% is considered a normal response rate for unsolicited online surveys.

It is important to remember that the responses are purely the personal perception of the interviewee, and are not necessarily accurate statements in relation to the product and its capabilities. However, this project is really based around the concept of perception vs reality, and how we can communicate better with current and potential user the true capabilities and usefulness of FENZ.

#### 3.1 Understanding the Current FENZ User

The one-on-one interviewees were from the following areas of the sector: Ngai Tahu, Auckland Regional Council, Massey University, Ministry for the Environment (2x), Environment Southland, Environment Waikato (2x), Environment Canterbury (formally), Greater Wellington Regional Council, Environmental Consultant, Student. Figure 1 shows how the online survey had participants from a broader range of the sector.

The interviewees held the following positions: Regional Advisor (Ecology), Associate Professor (Ecology), Analyst, Aquatic Oncologist, Consultant, Freshwater Oncologist, Environmental Scientist, PHD Student. The online survey respondents consisted mainly of scientists, although there was a wide spread of other positions represented (Figure 2).

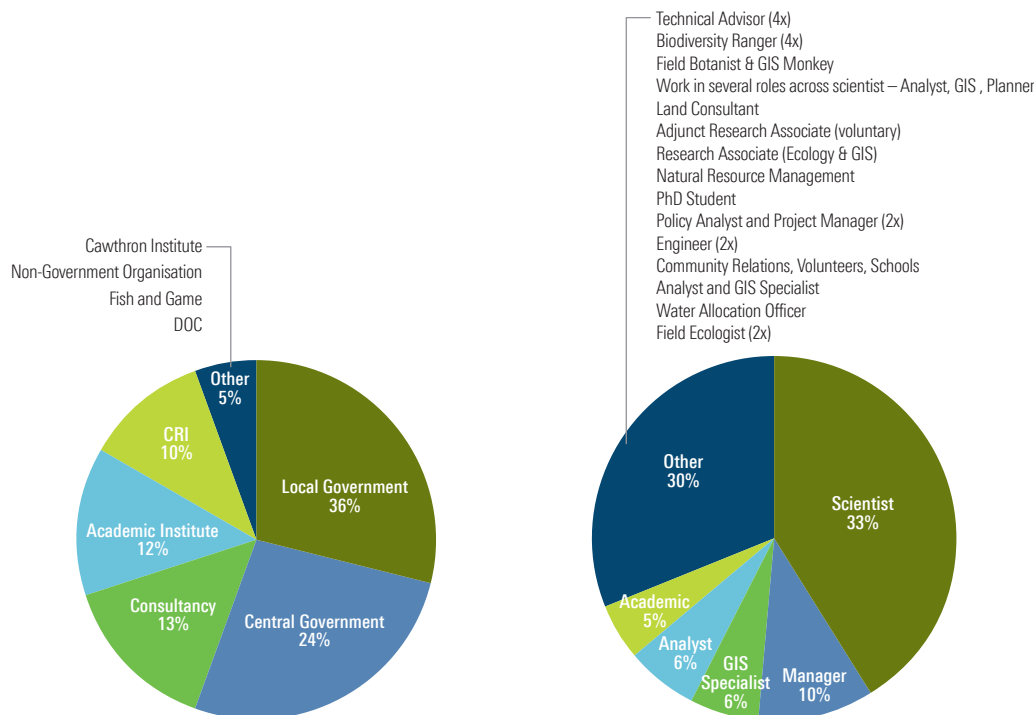


FIGURE 1 Pie graph of the online survey results to the question "What type of organisation do you work for?".

FIGURE 2 Pie graph of the online survey results to the question "What is your role there?".



### 3.2 Customers' Key Business Issues

To understand the FENZ user better it is important to know the business challenges they face, both internally and externally. There were two main business issues mentioned in the one-on-one interviews:

#### Lack of Funding

- » *"There is real pressure here on keeping expenditure down so rates are not impacted (the mayor has promised to keep them below 3%)."*
- » *"Funding is the single biggest issue. Government funding has changed so we have to seek more external funding, which is hard in ecology as there are not always commercial outcomes (cf. engineering)."*

#### Access to Relevant Data

- » *"Getting access to data (PhD student). I was lucky I was working so closely with DOC when I started."*
- » *"Having that up-to-date information to support the decisions we need to make – in some cases it's available and some it's not."*

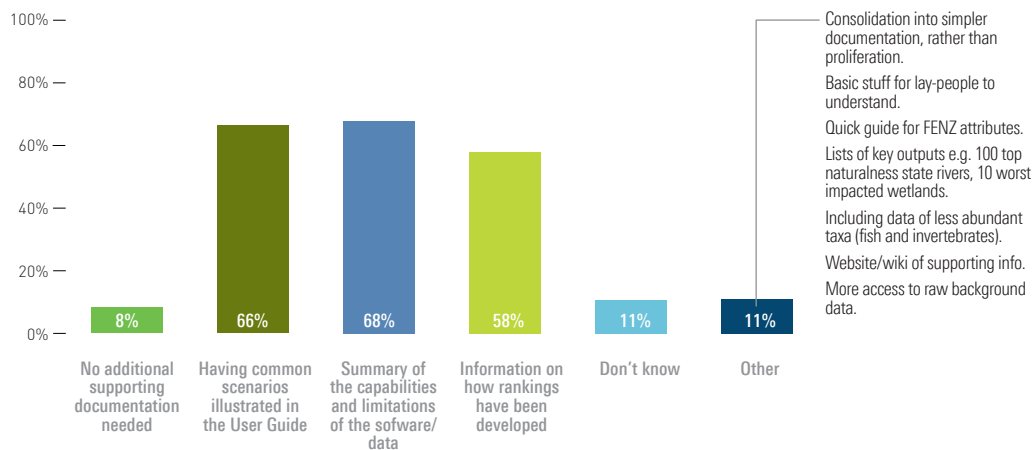
### 3.3 Current Supporting Documentation and Marketing Material Effectiveness

We asked respondents what their thoughts on the existing supporting documentation supplied with the software, and in broader terms their general awareness of FENZ and its capabilities (which translates to the effectiveness of the marketing of the product). With the existing User Guide there were mixed responses which correlated directly to their existing GIS software skills and their ability to work out the capabilities of the software for themselves. This also seemed to translate to the general awareness of the existence of FENZ and its usefulness – the GIS-skilled tended to know more about it than others in the sector.

#### User Guide only Useful to those Already GIS Capable

- » *"Used the user guide – not very useful... Not intuitive, no step-by-step guide. If you're not familiar with GIS it wouldn't be helpful at all."*
- » *"A lot of people don't have much GIS skill so it can be quite time consuming to get your head around it. So worked examples and a step by step guide would help a lot here so they don't get scared off."*
- » *"It's not really a user guide. Doesn't tell you how to use it just what is in it."*
- » *"Lack of a good user manual – especially needing some worked examples or case studies. Just so people could see that they were using it properly."*
- » *"When I was using it there was not very good documentation about what some of the variables were."*
- » *"I think user guide is pretty good, what's missing though is how you can use FENZ and apply it to your area. I like the different tables and fields."*
- » *"I occasionally look into the supporting documentation really just to clarify or understand how they have come up with a pressure predictor or something like that. Easy to find the information I am after in the documentation."*
- » *"I don't use the user guide. Easy to get the information I need."*

The online survey asked about which areas need improving in the current User Guide. 68% of respondents wanted to see a better summary of the capabilities and limitations of the software/data, 66% wanted to see some common user scenarios illustrated, and 58% wanted more information on how rankings have been developed (Figure 3).



**FIGURE 3** The online survey asked respondents what would help improve the existing User Guide. The top responses expressed a desire for a summary of the capabilities and limitations of the software, illustrations of common user scenarios and clarification on how the rankings are developed.

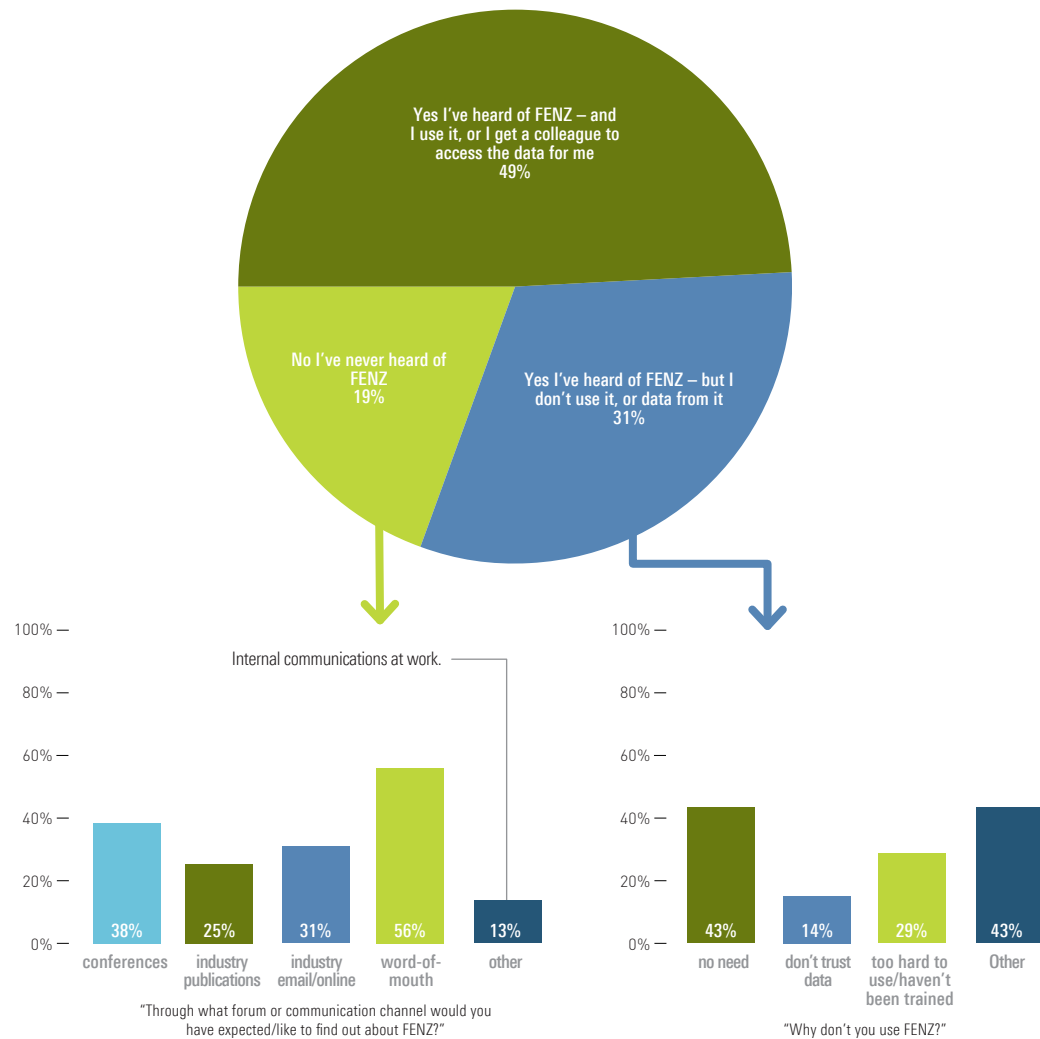
### General Awareness of Product and what it's Capable of

There is an average to above average awareness of the existence of FENZ within the sector. However, understanding of its capabilities is limited by the expertise of the individual user i.e., the current and potential user don't know what the possibilities are with FENZ.

- » "You need knowledge to use it at the moment. Compared to other tools"
- » "Be nice to make it clearer and more straightforward and better defined."
- » "Because there is a lot of data and its complex, I guess I don't use it to its full potential."
- » "I think they have significantly undersold FENZ. It is an awesome piece of work, pulling together a whole lot of disparate datasets, but people don't realise that."
- » "People don't know about it and it is a cool resource – they are experts in their field."
- » "We probably could use FENZ more in our biodiversity team – but don't know that much about it."
- » "FENZ seems to have a low public profile– in a recent Envirolink project to create a web directory of decision support tools it was not mentioned by any regional councils as a tool that should be included."
- » "There is a general lack of knowledge about FENZ across the sector. From my work, it needs uptake with other organisations, which will be better achieved by greater advertisement of the product than by general word of mouth."

The online survey asked whether they had heard of FENZ – 80% of respondents had, but 31% of the 80% don't use it or data from it (Figure 4). If they work within the freshwater sector this would indicate they aren't fully aware of the data it can provide. Of the 31% of respondents who had heard of FENZ but don't use it, 43% don't use it as they haven't needed to, 29% don't use it as they thought it was too hard to use, and 14% don't trust the data.

Those that hadn't heard of it at all were asked where they would expect to receive marketing communications about FENZ, as shown in Figure 4.



**FIGURE 4** Online survey respondents were asked if they had heard of FENZ. Those that had heard of it but didn't use it were asked why they didn't use it. Those that had never heard of it were asked in what forums they would have expected to hear of it.

### 3.4 Current Training

Respondents were asked whether they had undertaken any training on FENZ. Those who have done the current training seminars have found them valuable, but struggled with making them completely relevant to their own situation.

- » “Did training course in Auckland. Went pretty well.”
- » “Went to the introduction workshop – but it was more what it could do rather than how to use it.”
- » “I have had one training session with John Lethwick and I was really impressed with what is FENZ. ...There was little opportunity during (or for the weeks after) the course to have a good play with the product. The pace of the course with respect to the hands on use of the produce was too fast for me.”

- » *“To be honest I still struggle to explain how the predictions and rankings have been developed and how to use the tool correctly even though I’ve been to a couple training sessions, although I’m first to admit I’m not the sharpest knife in the draw.”*
- » *My use is patchy, often with a long gap between training and when I need to use it.”*

As it is not software used on a daily, or even weekly basis by most, the ability to easily access user guide and training information in the users own timeframe should be considered. However workshops are still a valuable and preferred resource for the user. Figure 5 shows the respondents preferred ways of receiving training.

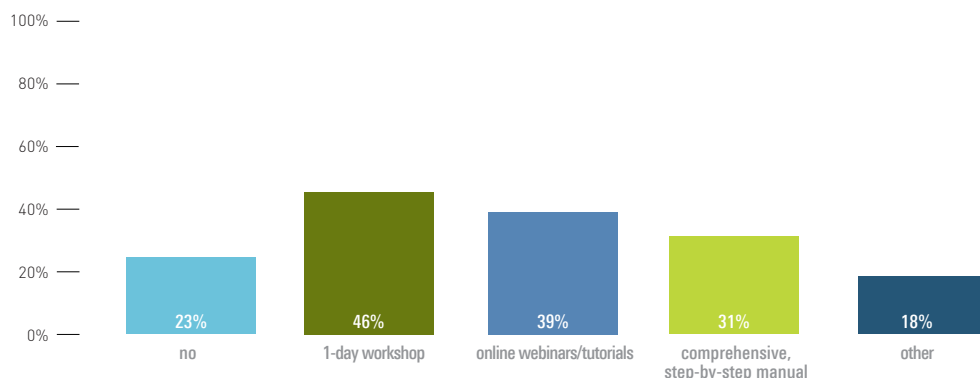


FIGURE 5 Online survey respondents were asked “Would you be interested in FENZ training opportunities?”.

### 3.5 Overall Product Strengths

It was important to get a broader overview of the value the current user found in FENZ. These observations are outside the original remit of this project and its specific interest in the communication materials, but these insights are useful for future marketing material as they provide the starting point for developing the value propositions of the product i.e., what’s important to the user.

The respondents identified the following strengths:

#### Brings a Diverse Range of Data Together

- » *“It is the availability of such useful data, I have it all in one place.”*
- » *“I think that they have pulled in a lot of information from various sources so lots of different models are actually sitting behind it so that is quite a big strength.”*
- » *“Good theoretical bases, helps fills in the gaps when you don’t have data for a specific site. Especially sites where it’s not possible to go to the site and get a sample.”*
- » *“Condenses and collates a lot of information but it’s also its undoing.”*
- » *“Use it more for the underlying data – research and management applications.”*
- » *“Underlying data has been very valuable.”*
- » *“Holds a hell of a lot of data all in one place which is very handy since you don’t have to look up different sources to find it all.”*
- » *“References/sources are very good and very handy to have. So all the meta data is there and accessible.”*

### Easy to Use if you have GIS Skills

- » *“Anyone who knows GIS can use it.”*
- » *“Very familiar with GIS so quite easy to use.”*
- » *“As long as you can use GIS it’s fine. Not difficult to use.”*
- » *“But from that training I wouldn’t have been able to use it myself because I lacked the GIS skill. So I knew what to ask it and do basic stuff but not to its full capacity.”*
- » *“They don’t use it because they don’t know how. Myself and the guy that does use it, we have the technical capacity to. We have the scientific understanding to know.”*
- » *“I have never really used it, because I haven’t been able to develop the GIS skills.”*
- » *“I am familiar with GIS systems.”*

### Relatively Easy to Navigate around the System

- » *“I don’t have any issues with the usability at all, I find it straightforward to use.”*
- » *“I don’t believe the system needs to be dumbed down. Most people who need to use it can get technical help (e.g. in Councils, Universities) if they need it to extract the information. I would like to see any investment made in improving the data, not the platform itself.”*
- » *“Software is easy to use.”*

### Rankings and Classifications Useful

- » *“The ranking is the main benefits – it gives a government view, an authoritative view of the value of a catchment, that is useful.”*
- » *“Classifications are useful – gives you indication of environmental distance and how similar different classes are to each other which REC doesn’t do.”*
- » *“You can see a site based on type. FENZ is good as it can show an area that might not look that impacted from other sources but shows that biodiversity aspect of it.”*
- » *“Backed by papers.”*
- » *“Papers are very valuable.”*
- » *“Underpinned by published papers.”*
- » *“It’s more scientifically rigorous with having the resources and papers there to refer to and see how they got the data.”*

## 3.6 Overall Product Weaknesses

The flipside of knowing FENZ current strengths is recognising its current weak points. Again, many of these areas are outside the original remit of this project, but if these weaknesses cannot be fixed in and of themselves, due to technical or budget constraints, then the purpose of any new marketing material will be to mitigate the perception of these issues for the prospective FENZ user.

The respondents identified the following weaknesses:

### Complex and Difficult to Use

- » *“You need knowledge to use it at the moment. Compared to other tools e.g. NIWA’s online tools, it isn’t prescriptive enough, you can do anything.”*
- » *“There is room for a more simplified version that helps the user more.”*

- » *"It can be quite a complicated and detailed system based on a bunch of different models which isn't necessarily easy for some people to understand. So we have to dig in quite a bit to get the point – it's not immediately obvious."*
- » *"To simplify it would mean introducing limitations, but would be worth it. Something like that would make the data available to a wider group e.g. students."*
- » *"Consultants don't have a great deal of need for the information on a broad scale. Smaller firms might not have the resources to have GIS."*
- » *"It would be better to make it easier to find specific aspects of a section."*
- » *"Need to explain the differences in what the layers are and how it can be used."*
- » *"You can produce some pretty maps but you have to rely on certain experts to explain some of that underlying data. Be nice to make it clearer and more straightforward and better defined."*
- » *"I don't interact with the front end anymore. GIS people extract the data for me."*
- » *"A lot of people don't have much GIS skill so it can be quite time consuming to get your head around it. So worked examples and a step by step guide would help a lot here so they don't get scared off. People at councils wanted to use it but they couldn't because of the complexity."*
- » *"If they could make some things about the system a lot simpler it would save more time on my behalf. It's very useful for the amount of data but at the same time, it's a weakness too."*

### **Outdated and Inaccurate Data**

- » *"Keeping the underlying data sets and data models up to date with the latest."*
- » *"There's a bit of a problem with the lakes and wetlands system. Not as accurate in its prioritisation aspect."*
- » *"Certain areas I wouldn't really trust just from firsthand experience on the ground. The samples didn't back the models at all."*
- » *"Not sure how much validation has gone into some of the sites."*
- » *"Some of the accuracy could be better – water layers."*
- » *"Not 'ground-truthed' so no follow-up surveys – freshwater fish and invertebrates. Some of the models are based on inaccurate data."*
- » *"The underwater/groundwater element of FENZ is quite unrealistic and out-dated. So no-one really wants to use it especially the Canterbury plains for example."*
- » *"Network layers aren't that accurate. A system that represented the conditions more accurately. Example headwater streams aren't mapped that well. The data/source that has been used for this needs to be better."*

### **Lack of Clarity/Understanding of Ranking, Classifications and Model**

- » *"The ranking is the main value, but you can't understand why they are ranked that way, you just have to trust it. More explanation of that would be useful."*
- » *"Being a model it allows the data to be more easily attacked as no one is sure around the value/rating of the information."*
- » *"People are wary of models as they don't want to rely on that data to verify their findings."*
- » *"It uses slightly different classifications from what some councils use so it's difficult to match up."*



- » *“Explaining where individual data sets came from or how it came about.”*
- » *“We don’t know how it fits in the RMA context. If something comes up as high priority, it doesn’t necessarily mean high value.”*

### **Delivery Method for Software**

- » *“Online would be a lot easier, it could be a portal site that people can add to so it gets richer.”*
- » *“The disk is not an effective mechanism, there is no version control and no way people can feedback their findings (e.g. a wetland study in their area), into the central system. That information is lost to the wider user group.”*
- » *“It needs to be easier to access, it has to be online instead of being based on a DVD.”*
- » *“Make it available online or make it a cloud-based system so you can access it from anywhere.”*
- » *“Online access would make quite a difference. For example, at the Council we have a GIS system that can be viewed through Adobe Flex (I think). Staff and the public can access maps and overlay various information on to them. It’s pretty handy.”*

### **General Lack of Awareness of Product within Sector**

- » *“I think they have significantly undersold FENZ. It is an awesome piece of work, pulling together a whole lot of disparate datasets, but people don’t realise that.”*
- » *“It’s a CD and handbook that just aren’t that visible. People don’t know about it and it is a cool resource – they are experts in their field.”*
- » *“Communication has been poor regarding the system and how it could benefit the right people in the councils.”*
- » *“Also with communication – tell everyone through email, discussion groups or even go to the Freshwater Science Conference where a lot of potential users will be at.”*
- » *“Some people might not realise the potential of it.”*

### **Confusion with REC & other Products?**

- » *“I am unclear between the difference between FENZ and REC. There are clear advantages of FENZ that people are not aware of.”*
- » *“MfE doesn’t really push it so there’s no incentive for Councils to pick it up over other systems like REC.”*

## **3.7 Overall Impact of Product**

After assessing all the responses to do with the overall capability of the product and the value it provides the user, the most common positive impact that FENZ is thought to provide is:

### **Improves Quality of Work and Time**

- » *“Provides confidence in my recommendations. I would recommend it to others.”*
- » *“It doesn’t necessarily save time but more that it improves quality of work.”*
- » *“It gave me the information I needed to do my research, I couldn’t have done it without it.”*
- » *“I would recommend it to others.”*
- » *“It streamlined everything and made it more straight forward.”*
- » *“Positive impact – it had a big impact of conservation work that is being done.”*

- » “Definitely saves time by having it all there in one place.”
- » “Provides a good start to your research and helps group together rivers & streams.”
- » “Improves time and quality of work.”
- » “Definitely saves time.”

## 4 CONCLUSIONS

There is no doubt that those who have the skill, and have taken the trouble to learn how to use FENZ can see the worth in the application. It adds valuable credibility and depth to their work:

- » Usage of the database was strong amongst those organisations who been properly introduced to it and had the skills to use it.
- » Those with the technical skills to use the database perceived considerable value, while those without the skills had little ability to access it themselves (as they had no real support or help at hand). Indeed DOCs own website states.

*“FENZ requires specialist GIS knowledge for its technical operation and biodiversity knowledge for understanding the content. Because of FENZ’s complexity, DOC is providing advice, briefings and training (where possible) to ensure users understand its strengths, limitations and appropriate applications.”*

[www.doc.govt.nz/conservation/land-and-freshwater/freshwater/freshwater-ecosystems-of-new-zealand/](http://www.doc.govt.nz/conservation/land-and-freshwater/freshwater/freshwater-ecosystems-of-new-zealand/)

As developers of this software you are fully aware of its complexity. Without changing the software itself there are going to be insurmountable limitations to the number of people who are capable of using it appropriately.

- » FENZ’s value proposition to the user was greater confidence in the work they could deliver (e.g. reports on a project), and efficiency gains in terms of reduced time to research a site.
- » The online survey returned a large number of specific suggestions for strengthening FENZ, which DOC can review and prioritise e.g. there was specific need for improved accuracy, clearer ranking rationale within the system, improved user-documentation and an online delivery method.
- » Implementing a marketing/communications plan for FENZ would ensure that the product is more widely acknowledged and this would increase usership. However a product management role for FENZ would need to be established as a way to assess and manage these suggestions, as well as gather new requirements from the user community. As the product is currently distributed for free, this is probably not a realistic option.
- » The online survey showed clear evidence of confidence in, and demand for, a product like FENZ. Given the time and effort gone into developing the database, there has not been a corresponding focus on informing and helping the potential user access it:

*“There is a general lack of knowledge about FENZ across the sector. From my work, it needs uptake with other organisations, which will be better achieved by greater advertisement of the product than by general word of mouth.”*

We now need to use these positive value propositions in general marketing material for the product to lure in a broader audience – and inform those who already use it in a ‘lite’ way that there are more functions/information available to them. We can ‘sell’ the software to a broader audience who do not have GIS skills to use it themselves, with a view to them encouraging their internal GIS specialists to

drive it for them and mine the data they require. This means that the end-user of the data can become an advocate for FENZ within their own organisation. It is with this recommendation in mind that a User Guide update that included case study scenarios, and simple explanations of the capabilities of the software and its classifications and rankings, would prove invaluable. Even though the skilled GIS user has no problem with the software and the current User Guide, a simplified one would help explain to the non-skilled user what the possibilities are, and encourage them to advocate for the adoption of FENZ by their technical team.

There is room for improvement in the overall awareness of the FENZ within the sector. Part of marketing the product more effectively and making it seem more appealing is to simplify the high level communications about the product so the prospective end-user understand the power of the software and what it can deliver for them.

## 5 RECOMMENDATIONS

### 5.1 Product Delivery

In the future software ideally will just be downloadable from the internet. This is the easiest way for the potential user to access it. Internal IT departments will continue to prove problematic with the installation of external software, but if all the technical information is available online for them to assess this could allay some fears and help with installation process, and hence user uptake.

The use of Dropbox is better than disk delivery, but clear instructions need to be posted online within the FENZ marketing space which is easy to find and implement. If there is the requirement for them to rely on an individual to get back to them this is another barrier to uptake.

As developers of this software you are fully aware of the complexity of it. This is going to be the single largest barrier to increasing the number of people using it. If funding were to allow, then considering the change to an online platform with a point-and-click user interface that allows people who are not GIS skilled to still retrieve the data they need would be an ideal long-term outcome.

Currently the FENZ information page on the DOC website is hidden under the freshwater conservation sub-navigation. It would seem appropriate for this page to also be accessible via the 'About DOC' or the 'Publications' sections of the website navigation – as the FENZ outputs are relevant to more than just the conservation sector. It's current location is difficult to find unless you are using a URL to get straight there, and it's current location within the website navigation gives the perception that the conservation field is all FENZ is useful for.

In the future having FENZ as a web-based application would provide many advantages for both DOC and the user. For DOC it opens up the possibilities of having more of a 'cloud' set up for the data and means the software is always as current as possible, and there would be no issues with version control. This gives user confidence in the relevance of the data they are retrieving, and the possibility to add to the data set if DOC wanted to make this function available. Obviously this is a broad-reaching solution that would involve a serious commitment to changing platforms for the software etc., therefore is mooted only as a possibility – the gold-plated solution.

## 5.2 FENZ Brand

All successful products have a clearly defined, consistent public face (i.e., a brand). This includes a logo, colour palette, graphics palette and general look and feel which is used consistently across all marketing materials and the software itself. This provides a solid platform for all materials to be built around, and something that the product owns, so it wouldn't be confused with other products. The development of a unique brand allows a product to have its own personality which encompasses all its positive values and attributes so it becomes something its customers want to be aligned with. Without a doubt FENZ needs to develop its own brand that can still comfortably fit within the DOC stable (as DOC ownership is the basis of its credibility), but stands on its own two feet in the public arena as well.

There is also the possibility that a renaming project could be appropriate if DOC wanted to approach this as a fresh start for FENZ. This would include renaming the product so it wasn't so similar to others on the market (especially FWENZ). A more unique moniker could be developed along with an appropriate brand.

## 5.3 Supporting Documentation

The User Guide needs to be simplified and developed with a clear hierarchy that allows for a number of ways for people to get to their desired end result. It will need to allow the non-GIS user to ascertain the type of information that is available through the product, and what their possible outputs could be, while still having technical step-by-step instructions for those actually using the software. The development of a series of specific scenarios and instructions on how to achieve the desired results allow people to see what is possible, and learn processes that can be cross applied to similar scenarios.

Explanations of the classification and rating systems needs to be assessed and reworded in plain english. This would include their context within existing systems policies, and any other practical applications that the user may commonly require. It should also discuss how FENZ can be used in conjunction with other common products available in this category.

The graphic design and layout of the User Guide needs to redone including a robust navigation and hierarchy system so specific information can be found easily. The use of screen shots of the actual interface should be used within the manual where appropriate, as well as the final outputs.

The delivery of the User Guide should be as a PDF with live bookmarks so people can navigate using the contents list easily to the section/scenario type they require. Ideally it would also be available online as an interactive website.

## 5.4 Interface Design

The software splash screen interface design needs to be redone so it is far simpler, incorporates the FENZ brand, and if necessary has links to other 'marketing' pages which explain more about the product and its possibilities, and link to the User Guide, online forums and any other pages which may be useful.

If the software delivery platform were ever to be changed/developed brand elements would ideally be incorporated into the look and feel of the new interface as well.

## 5.5 Training Resources

Due to the fact that this is software not often utilised on a daily, or even weekly basis it is important that training materials are available when operators need it. While workshops are great for getting across a breadth of information and forming strong bonds within the sector, webinars or web-based tutorials would allow the user to access specific instructions/hints/tips at the time when they really need it. They would also reinforce the information gained from the workshops.

The addition of a more comprehensive User Guide, as discussed in Section 5.3, would also alleviate time-sensitive situations.

There is scope for workshops to be split into different levels of technical content. It may be appropriate to develop a 2hr-half day workshop that is for the non-GIS experts so they can be introduced to the possibilities of FENZ, and then advocate internally for adoption of the software by their technical departments. This level of workshop would not require highly technical staff to run it, and would therefore alleviate pressure on the technical experts.

Developing an online forum for FENZ could be a great way for the existing expert user to share their knowledge and help solve issues for the new user. This could be incorporated with the online User Guide & web tutorials.

## 5.6 Marketing Plan

There is scope for the general awareness of FENZ to be raised within the sector. Having a communications strategy in place would help this, and with DOC having such a high profile/credibility within the industry they are positively placed to take full advantage of their existing communication channels to this end.

'Advertising' on websites, in online industry forums, at conferences and even internally would be an easy way to make steps in this direction. A planned approach would mean that messages are consistent across all media. To raise awareness you need to consider FENZ a 'product' that needs selling, even though there is no charge to download and use it.

Materials need to answer the following questions for the prospective user:

- » **What does this software do?** Including commonly used outputs, limitations, how the classifications work, how it works with other products currently in the market, how it relates to current policy etc.
- » **Why should I use it?** This would include positive business benefits including the fact that it's free, provides time efficiencies and data reliability. Also useful would be a list of organisations who already use FENZ to their advantage.
- » **Where can I get it?** Provide the URL where you can access the software, and where IT/GIS departments can go to assess specs, technical expertise required etc., if relevant.

## 6 APPENDICES

### 6.1 One-on-one Interview – Question Framework

QUESTION AREA	THEMES
Confirm their role	Understand their function and place in the organisation.
How and when did your organisation engage with DOC and the FENZ system?	<p>Understand how they became aware of FENZ, how and when the services came to be used and who was involved in the decision making chain.</p> <p>Prompts for the questioner :</p> <ul style="list-style-type: none"> <li>» Did you get any training?</li> <li>» How did you receive FENZ?</li> <li>» Was the “user guide” useful?</li> <li>» Was the geo-database logical and easy to navigate?</li> <li>» Did/do you understand the best uses of FENZ and limitations?</li> </ul>
<p>What areas of the FENZ system do you use? i.e., rivers and streams, lakes and wetlands</p> <p>*If they have stopped using the system go to questions at the end of the question sheet.</p>	<p>Capture the words/terms they use to describe the FENZ system and its features. Compare this with the terms DOC uses.</p> <p>Explore the application of the FENZ system to determine what problem it is helping address.</p> <p>Prompts for the questioner :</p> <ul style="list-style-type: none"> <li>» What do you use this decision support tool for? Mapping/classifying, prioritisation, ranking, predictions</li> <li>» Was the supporting documentation useful?</li> <li>» Gauge level of use – power/daily use to infrequent.</li> <li>» What do you use FENZ for most? Least?</li> <li>» Does it help provide confidence in their research and policy recommendations?</li> </ul>
What other products similar to the FENZ system are you familiar with or have used in the past?	<p>What other systems have they used, how do they compare with FENZ?</p> <ul style="list-style-type: none"> <li>» Capture names.</li> <li>» What were they using prior to FENZ?</li> </ul>
What other resources do you use for your research?	<p>If they are not using FENZ what tools/sources of data are they using to solve the same problem?</p> <p>What other systems do they use and for what services, how they compare.</p>
What are the strengths of FENZ and what it offers you?	Explore the technical advantages and business benefits they perceive. i.e. time saving, cost saving, direct link to sources?



What are the weaknesses of FENZ and its offering?	<p>Understand any technical and business issues they perceive. Particular focus on usability. Find out if it's too complicated or missing anything. What is the initial learning curve?</p> <p>What level of initial and ongoing support did you get? How do they find the user interface? What could be improved? Does it affect how much you use it?</p> <p>What are the gaps in information with FENZ?</p>
What impact has FENZ had on your organisation?	Summarise the overall benefit to the organisation and capture the words they use to describe it.
What are the key issues for your organisation in regards to freshwater management and conservation?	Get a picture of relevant trends in their sector. What are the drivers behind water management and protecting freshwater ecosystems?
What are the main challenges of your job role?	Explore what issues they perceive as important day to day.

### If they stopped using or not using the FENZ system

Why did you stop using the FENZ system?	<p>Build a picture of why they stopped using it? Too complicated, have a better system, doesn't meet their needs? Did it have any impact on their organisation?</p> <p>What are the weaknesses and strengths?</p> <p>If you stopped using FENZ is someone else using now in your organisation instead? Who?</p> <p>Did you find any of the supporting documentation useful?</p>
What could be improved or changed to the system to make you use it?	See if there is anything that could be done to increase uptake.
What other products similar to the FENZ system are you familiar with or have used in the past?	<p>What other systems have they used, how do they compare with FENZ?</p> <p>» Capture names.</p> <p>» What were they using prior to FENZ?</p>
What other resources do you use for your research?	<p>If they are not using FENZ what tools/sources of data are they using to solve the same problem?</p> <p>What other systems do they use and for what services, how they compare.</p>
What are the key issues for your organisation overall?	Get a picture of relevant trends in their sector. What are the drivers behind water management and protecting freshwater ecosystems?
What are the main challenges of your job role?	Explore what issues they perceive as important day to day.

## 6.2 Online Survey – Questions

### CORE QUESTIONS

CORE 1) What type of organisation do you work for?

- » Local Government
- » Consultancy
- » Academic Institute
- » Central Government Department
- » Crown Research Institute
- » Other (please specify)

CORE 2) What is your role there?

- » Scientist
- » GIS Specialist
- » Analyst
- » Planner
- » Manager
- » Academic
- » Other (please specify)

CORE 3) As part of your job, what types of freshwater do you work in? (select all that apply)

- » Rivers and streams
- » Lakes
- » Inland wetlands
- » Coastal wetlands
- » Springs
- » Karst systems
- » Ephemeral wetlands
- » Other/s (please specify)

CORE 4) Have you heard of the Freshwater Ecosystems of New Zealand (FENZ) geo-database?

- » YES – and I use it, or I get a colleague to access the data for me [go to question A1]
- » YES – but I don't use it, or data from it [go to question B1]
- » NO – never heard of it [go to question C1]

## PART A – ‘YES I USE IT’ QUESTIONS

A 1) What software do you (or colleague on your behalf) use FENZ in?

- » Full version of ESRI ArcGIS/ArcView
- » ESRI ArcReader
- » Don't know
- » Other (please specify)

A 2) How often do you (or colleague on your behalf) use FENZ?

- » Daily
- » Weekly
- » Monthly
- » Occasionally – 1–10 times a year

A 3) Is FENZ easy to use?

- » YES – extremely, I have no trouble doing what I need to do
- » YES – OK, but I find some parts challenging
- » NO – I struggle with it regularly
- » NO – that's why I have someone else use it on my behalf
- » Don't know – never tried - I have someone else use it for me

A 4) Thinking about the supporting documentation currently supplied with FENZ, what additional information would be useful? (select any that apply)

- » No additional supporting documentation needed
- » Having common scenarios illustrated in the User Guide
- » Summary of the capabilities and limitations of the software/data
- » Information on how rankings have been developed
- » Don't know
- » Other (specify)

A 5) What ecosystems do you use FENZs for? (select all that apply)

- » Inland Wetlands
- » Rivers
- » Lakes

A 6) What outputs do you use FENZ for? (select all that apply)

- » Mapping
- » Classifying
- » Ranking
- » Predictions
- » General location/site information
- » Other (please specify)

A 7) Thinking about FENZ, rank each of the following areas of its performance from 0 to 5  
(0 = don't use, 1 = poor, 5 = excellent)

- » Overall performance
- » Completeness and accuracy of data sets
- » Mapping
- » Classifying
- » Ranking
- » Predictions
- » Look/usability of the interface

A 8) Do you think there are any gaps in FENZ? If so, what is the highest priority to improve or include?  
Rank 1 to 5 (1 = low priority, 5 = high priority).

- » NO – there are no gaps from my perspective
- » YES – Estuaries
- » YES – Coastal wetlands
- » YES – Springs
- » YES – Karst systems
- » YES – Emphemeral wetlands
- » YES – Other/s (specify)

[all go to question CORE 5]

## PART B - 'YES BUT DON'T USE IT' QUESTIONS

B 1) Have you used FENZ in the past, or tried it but didn't continue to use it?

- » YES [go to question B1a]
- » NO [go to question B1c]

B 1a) Why don't you use FENZ? (select all that apply)

- » Haven't needed to [go to question B1b]
- » Not relevant to my work anymore [go to question CORE 5]
- » I don't trust the data [go to question B1b]
- » My organisation doesn't use it [go to question CORE 5]
- » I'm not allowed to due to company IT issues/policy [go to question CORE 5]
- » Do not have the software [go to question B1b]
- » Too hard to use/haven't been trained [go to question B1b]
- » The other tools/products are sufficient for my purpose [go to question B1b]
- » The other tools/products are easier to use [go to question B1b]
- » Other (specify) [go to question B1b]

B 1b) Thinking about your experience with FENZ, would improving any of the following areas lead to you try using it again? (select all that apply)

- » Overall performance
- » Completeness and accuracy of data sets
- » Mapping
- » Classifying
- » Ranking
- » Predictions
- » Look/usability of the interface
- » User Guide with worked examples etc.
- » Making software easier to access
- » Making training easier to access
- » Don't know
- » Other (specify)

[all go to question CORE 5]

B 1c) Why haven't you tried FENZ? (select all that apply)

- » Not relevant to my work
- » Have heard it's not reliable/difficult to use
- » My organisation doesn't allow us to use it
- » Do not have/couldn't access the software
- » My existing tools/products are sufficient
- » Other (specify)

[all go to question CORE 5]

## PART C - 'NO NEVER HEARD OF IT' QUESTIONS

C 1) FENZ is a geo-database developed by Department of Conservation to provide an independent, national representation of the biodiversity values and pressures on New Zealand's rivers, lakes and wetlands. Given that you've never heard of FENZ, through what forum or communication channel would you have expected/like to find out about it?

- » Conferences
- » Industry publications/journals
- » Industry email notification/online forums
- » Word of mouth
- » Other/s (specify)

## CORE QUESTIONS

CORE 5) Do you (or colleague on your behalf) use any other freshwater spatial (GIS) tools/products/software? (select all that apply)

- » NO [go to question CORE 6]
- » YES – REC (River Environment Classification)
- » YES – FWENZ (Freshwater Environments New Zealand)
- » YES – CLUES (Catchment Land Use for Environmental Sustainability)
- » YES – Fish IBI (Fish Index of Biotic Integrity)
- » YES – NZFFD (New Zealand Freshwater Fish Database)
- » YES – FBIS (Freshwater Biodata Information System)
- » YES – Other/s (specify)



CORE 5a) What do you (or colleague on your behalf) use other freshwater spatial (GIS) tools/products/software for? (select all that apply)

- » Mapping
- » Classifying
- » Ranking
- » Prioritisation
- » Site information
- » Environmental data
- » Other/s (specify)

CORE 6) Do you (or colleague on your behalf) use any GIS software? (select all that apply)

- » NO [go to question CORE 7]
- » YES – ESRI (ArcGIS/ArcView/ArcReader)
- » YES – Manifold
- » YES – QGIS
- » YES – Intergraph
- » YES – MapInfo
- » YES – Small World
- » YES – Other/s (specify)

CORE 6a) How often do you (or colleague on your behalf), or your colleague using it on your behalf, use freshwater spatial (GIS) tools/products/software, or GIS software?

- » Daily
- » Weekly
- » Monthly
- » 1–10 times a year

CORE 7) How do you prefer your software to be delivered?

- » Supplied on disk/USB drive for installation on your hard drive
- » Available online for download for installation to your hard drive (i.e., from website, dropbox or similar)
- » Web-based application (i.e., use a web browser to access and use online, not from your hard drive)
- » Other (specify)

CORE 8) Would you use tools/products/software more often if it was available online?

- » YES
- » NO
- » Don't know
- » Doesn't make any difference

CORE 9) Would you like to receive FENZ updates with user-tips, correction notices, and training opportunity notices?

- » YES [enter email]
- » NO [go to question CORE 10]

CORE 9a) How/where would you like to receive FENZ updates?

- » Email newsletters
- » Posted on FENZ page of DoC website
- » Social media i.e., Facebook, Twitter
- » Other (specify)

CORE 10) Would you be interested in FENZ training opportunities?

- » NO [go to question CORE 11]
- » YES – 1 day workshop
- » YES – online webinars
- » YES – comprehensive, step-by-step manual

CORE 11) Would you or your organisation be keen to contribute to the future development of FENZ (e.g., supplying ground truthed data)?

- » Yes [enter email]
- » No

CORE 12) Any other comments:

- » (specify)

## 6.3 One-on-one Interview – Outcomes Summary Results

### Approach

#### Why?

Understanding the customer experience to determine actions for improvement

#### Companies interviewed

Ngai Tahu, Auckland Regional Council, Massey University, Ministry for the Environment (2x), Environment Southland, Environment Waikato (2x), Environment Canterbury (formally), Greater Wellington Regional Council, Environmental Consultant, Student.

#### Roles

Regional Advisor – Ecology, Associate Professor – Ecology, Analyst, Aquatic Oncologist, Consultant, Freshwater Oncologist, Environmental Scientist, PhD Student.

#### Naming

Primarily used 'FENZ' product name (a couple used 'FWENZ')

### Key Business Issues

#### Lack of funding

- » *There is real pressure here on keeping expenditure down so rates are not impacted (the mayor has promised to keep them below 3%).*
- » *Funding is the single biggest issue. Government funding has changed so we have to seek more external funding, which is hard in ecology as there are not always commercial outcomes (cf. engineering).*

#### Access to relevant data

- » *Getting access to data (PhD student). I was lucky I was working so closely with DOC when I started.*
- » *Having that up to date information to support the decisions we need to make – in some cases it's available and some it's not.*

### When is FENZ used

#### Typically Used Regularly

- » *"I use it regularly in my job role."*
- » *"Use it several times a month."*
- » *"I use it fortnightly on average, but that goes up and down depending on teaching."*
- » *"Use the system twice a month."*
- » *"Using it as ongoing council work."*
- » *"Only use when analysing data for papers - tends to be every few months but use the REC layers quite often."*
- » *"Would use it every couple of weeks."*

## Areas of FENZ System Used

### Broad Range

- » *"The full range of functionality, particularly the underlying pressure layers and the land use information. We are mainly focussed on rivers and stream, haven't used the wetlands information."*
- » *"Use all areas from one time to another."*

### Rivers and Streams

- » *"All the stream stuff. Stream network from whole of New Zealand."*
- » *"Only deal with rivers and streams – use the variables that have been associated with that REC classification layer."*
- » *"Rivers for fish prediction and sub-catchment for prioritising."*
- » *"Mainly use the rivers component but others in the council would use other areas."*
- » *"I use the rivers and streams aspect of it. I use the classifications part."*

### Predictor Modelling

- » *"I find the predictor models and pressure models more useful for the work that I do rather than the biological predictions that it comes up with."*
- » *"And I use a lot the pressures and predictor bits but not necessarily the actual predictions of fish and that kind of thing."*
- » *"Use the fish prediction aspect. Good for consent applications, can use the modelling."*

### Catchments

- » *"Use the layer that shows priority catchment that compliments existing land. Think it's useful for current advocacy work."*
- » *"I use it every few months, mainly for catchment reports."*
- » *"I tend to use the catchments (planning units etc.)."*

## What is FENZ used for

### Background Context and Modelling

- » *"Used it for assessment of effect. Provides a nice background context."*
- » *"I'll primary use the FENZ system and other resources to help back up the theory."*
- » *"Use it sporadically depending on what type of work and projects I'm doing."*
- » *"I was working quite closely with John Leathwick from NIWA and I was doing some modelling stuff with him and he had used it a lot."*

## FENZ initial engagement

### Attended an Early Seminar or Workshop

- » *"I went to the original seminar in Auckland. No training at all."*
- » *"My first real sight of it was when DOC gave a bunch of workshops/presentations so I went along to one of those."*
- » *"Did training course in Auckland. Went pretty well."*
- » *"Went to the introduction workshop – but it was more what it could do rather than how to use it."*

### Or Received no DOC Training

- » *“I didn’t have any training, but didn’t really need it as I am familiar with GIS systems. I am really comfortable with FENZ.”*
- » *“Had a phone meeting/general chat with the developers for about 20 minutes.”*
- » *“Didn’t receive any training but already quite familiar with GIS.”*
- » *“Originally from the Ministry for the Environment. Got exposed to it there and got the training there.”*

### The FENZ User Guide

#### Mixed Reactions (depending on skills of the user)

- » *“It’s not really a user guide. Doesn’t tell you how to use it just what is in it.”*
- » *“Lack of a good user manual – especially needing some worked examples or case studies. Just so people could see that they were using it properly.”*
- » *“When I was using it there was not very good documentation about what some of the variables were.”*
- » *“I think user guide is pretty good, what’s missing though is how you can use FENZ and apply it to your area. I like the different tables and fields.”*
- » *“I occasionally look into the supporting documentation really just to clarify or understand how they have come up with a pressure predictor or something like that. Easy to find the information I am after in the documentation.”*
- » *“I don’t use the user guide. Easy to get the information I need.”*

### Other Data Sources and Products

#### FENZ just part of the puzzle

- » *“I normally pull in quite a lot of other things, like I might pull in land cover information from another source etc. and pull it all in.”*
- » *“We have the Fish IBI (index of biotic integrity) here developed by Mike Joy. It’s a bit like FENZ but for our area.”*
- » *“We also have data from our Environmental Monitoring Sites.”*
- » *“Land Resource Inventory – not sure who produces that but it is available through the Massey GIS.”*
- » *“Council SOE monitoring data and freshwater database.”*
- » *“I use the major data sets, they are all free. None are that good, but all free to use.”*
- » *“The Waikato Regional Council has developed a similar region specific version (Rivers Significant Natural Areas (SNA)), based on the FENZ data.”*

#### NIWA Freshwater Fish database

- » *“I use other databases like the Freshwater Fish Database from NIWA. FENZ is just part of a puzzle.”*
- » *“I use NIWA’s fresh water fish database.”*
- » *“NIWA Freshwater Fish Database. It doesn’t cover everywhere and everything so it works well with FENZ.”*
- » *“NIWA Freshwater Fish Database.”*

#### NIWA River Environment Classification

- » *“REC – River Environment Classification (NIWA/MFE). The underlying variables are much more general than FENZ.”*
- » *“REC would be the closest thing in terms of classifying streams and rivers but we don’t tend to use those classifications, we use the underlying data. It’s not as broad in scope as FENZ.”*



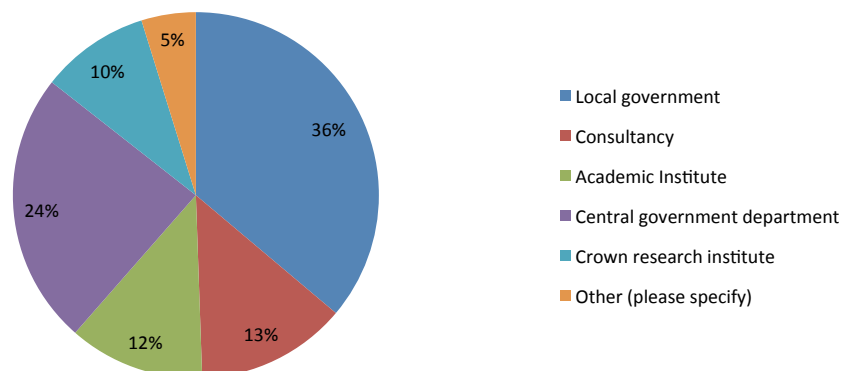
## 6.4 Online Survey – Summary Results

CORE 1) What type of organisation do you work for?

What type of organisation do you work for?		
Answer Options	Response Percent	Response Count
Local government	36.1%	30
Consultancy	13.3%	11
Academic Institute	12.0%	10
Central government department	24.1%	20
Crown research institute	9.6%	8
Other (please specify)	4.8%	4
<i>answered question</i>		<b>83</b>
<i>skipped question</i>		<b>0</b>

Number	Response Date	Other (please specify)	Categories
1	May 27, 2013 6:01 AM	Cawthron Institute	
2	May 26, 2013 8:18 PM	NGO	
3	May 25, 2013 2:36 AM	Fish and Game	
4	May 21, 2013 9:13 PM	DOC	

### What type of organisation do you work for?

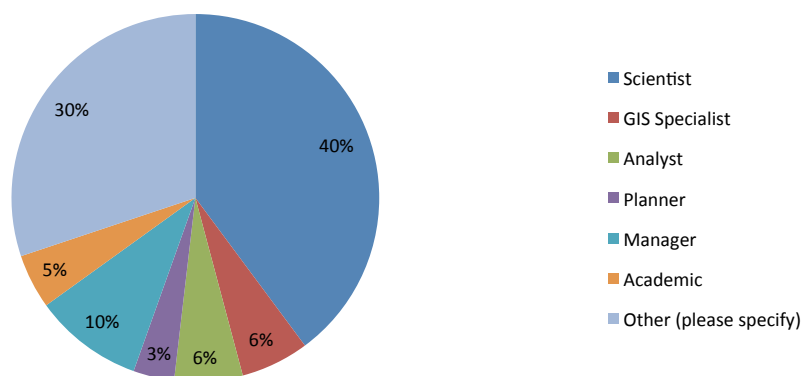


CORE 2) What is your role there?

What is your role there?		
Answer Options	Response Percent	Response Count
Scientist	39.8%	33
GIS Specialist	6.0%	5
Analyst	6.0%	5
Planner	3.6%	3
Manager	9.6%	8
Academic	4.8%	4
Other (please specify)	30.1%	25
<b>answered question</b>		<b>83</b>
<b>skipped question</b>		<b>0</b>

Number	Response Date	Other (please specify)	Categories
1	Jun 5, 2013 1:36 AM	Technical advisor	
2	May 31, 2013 4:17 AM	Advisor	
3	May 30, 2013 4:22 AM	biodiversity ranger	
4	May 30, 2013 2:43 AM	Field botanist & GIS monkey	
5	May 27, 2013 11:41 PM	Work in several roles across scientist. analyst	
6	May 27, 2013 9:25 PM	Land Consultant	
7	May 27, 2013 2:21 AM	Technical Advisor	
8	May 26, 2013 9:23 PM	adjunct research associate (voluntary)	
9	May 26, 2013 9:20 PM	Research Associate (Ecology & GIS)	
10	May 26, 2013 8:18 PM	Natural resource management	
11	May 23, 2013 9:12 PM	Technical Advisor	
12	May 23, 2013 9:50 AM	PhD Student	
13	May 23, 2013 4:44 AM	Policy Analyst and Project Manager	
14	May 23, 2013 2:47 AM	Engineer	
15	May 22, 2013 11:18 PM	Engineer	
16	May 22, 2013 8:09 PM	project manager	
17	May 22, 2013 3:31 AM	biodiversity ranger	
18	May 22, 2013 2:54 AM	field worker	
19	May 22, 2013 12:53 AM	Policy	
20	May 21, 2013 11:31 PM	Community Relations, volunteers, schools	
21	May 21, 2013 10:59 PM	Analyst and GIS specialist	
22	May 21, 2013 9:36 PM	Water Allocation Officer	
23	May 21, 2013 9:13 PM	Ranger	
24	May 21, 2013 9:12 PM	Field ecologist	
25	May 21, 2013 8:52 PM	Biodiversity threats ranger	

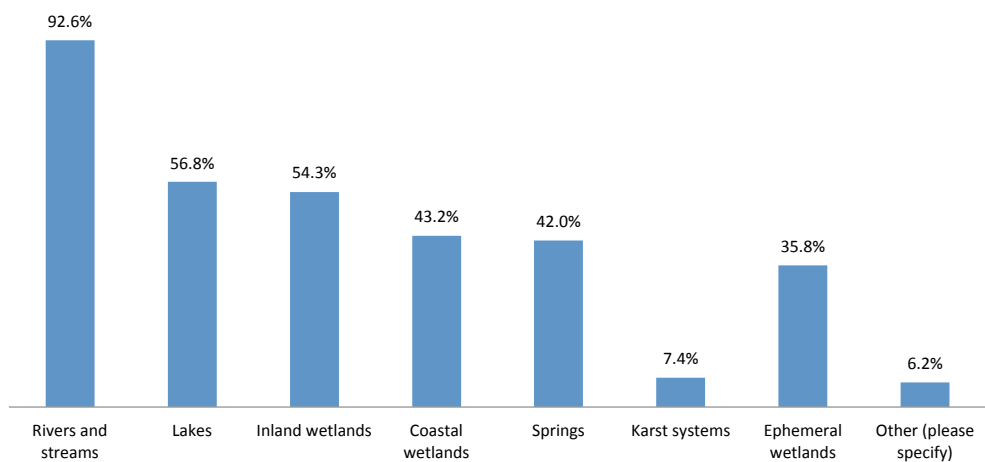
### What is your role there?



CORE 3) As part of your job, what types of freshwater do you work in? (select all that apply)

As part of your job, what types of freshwater do you work in? (select all that apply)		
Answer Options	Response Percent	Response Count
Rivers and streams	92.6%	75
Lakes	56.8%	46
Inland wetlands	54.3%	44
Coastal wetlands	43.2%	35
Springs	42.0%	34
Karst systems	7.4%	6
Ephemeral wetlands	35.8%	29
Other (please specify)	6.2%	5
<b>answered question</b>		<b>81</b>
<b>skipped question</b>		<b>2</b>

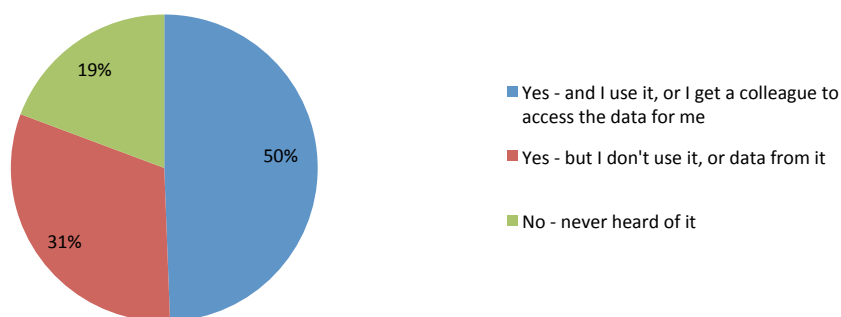
Number	Response Date	Other (please specify)	Categories
1	May 26, 2013 9:23 PM	micropaleontology lake sediments	
2	May 26, 2013 9:20 PM	Ephemeral streams	
3	May 23, 2013 4:44 AM	Permanent, intermittent and ephemeral streams	
4	May 23, 2013 2:47 AM	Water Races and Drains.	
5	May 21, 2013 9:36 PM	Groundwater	



CORE 4) Have you heard of the Freshwater Ecosystems of New Zealand (FENZ) geo-database?

Have you heard of the Freshwater Ecosystems of New Zealand (FENZ) geo-database?		
Answer Options	Response Percent	Response Count
Yes - and I use it, or I get a colleague to access the data for me	49.4%	41
Yes - but I don't use it, or data from it	31.3%	26
No - never heard of it	19.3%	16
	<b>answered question</b>	<b>83</b>
	<b>skipped question</b>	<b>0</b>

### Have you heard of the Freshwater Ecosystems of New Zealand (FENZ) geo-database?

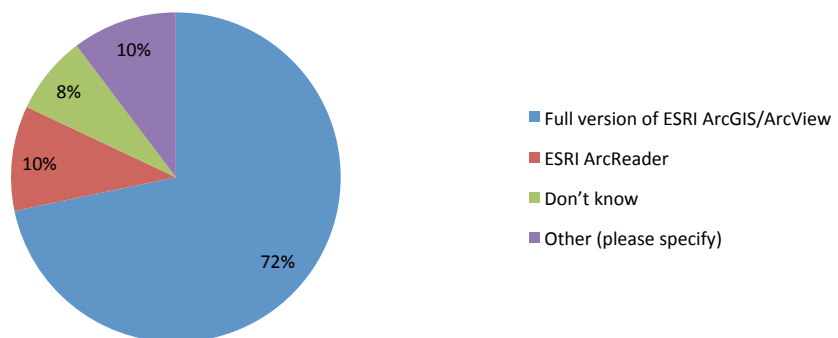


A 1) What software do you (or colleague on your behalf) use FENZ in?

What software do you (or colleague on your behalf) use FENZ in?		
Answer Options	Response Percent	Response Count
Full version of ESRI ArcGIS/ArcView	71.8%	28
ESRI ArcReader	10.3%	4
Don't know	7.7%	3
Other (please specify)	10.3%	4
<b>answered question</b>		<b>39</b>
<b>skipped question</b>		<b>44</b>

Number	Response Date	Other (please specify)	Categories
1	Jun 4, 2013 1:58 AM	R	
2	May 26, 2013 9:58 PM	R	
3	May 24, 2013 3:54 AM	Geomedia	
4	May 22, 2013 10:58 PM	Customised R scripts	

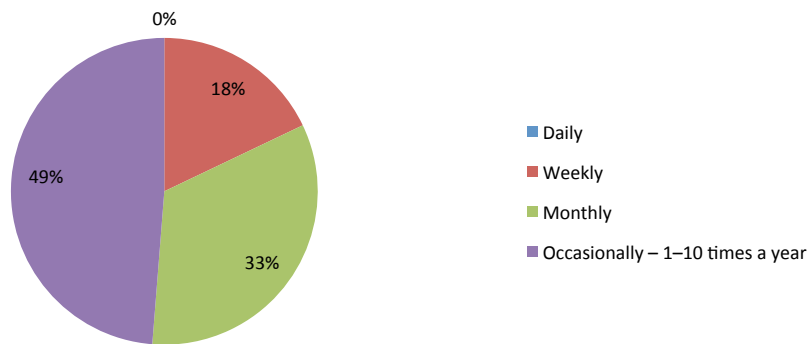
### What software do you (or colleague on your behalf) use FENZ in?



A 2) How often do you (or colleague on your behalf) use FENZ?

How often do you (or colleague on your behalf) use FENZ?		
Answer Options	Response Percent	Response Count
Daily	0.0%	0
Weekly	17.9%	7
Monthly	33.3%	13
Occasionally – 1–10 times a year	48.7%	19
<b>answered question</b>		<b>39</b>
<b>skipped question</b>		<b>44</b>

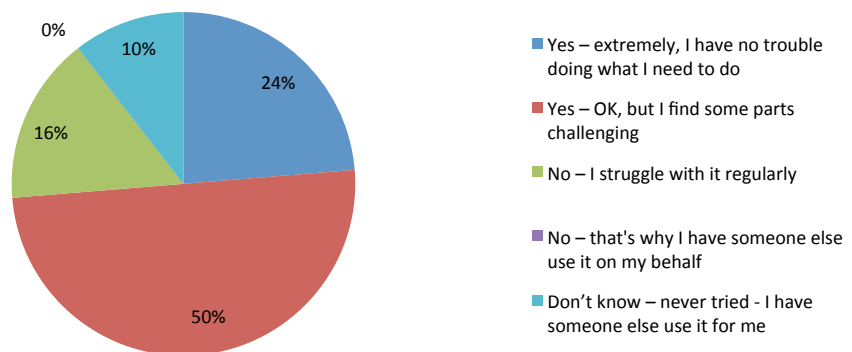
### How often do you (or colleague on your behalf) use FENZ?



## A 3) Is FENZ easy to use?

Is FENZ easy to use?		
Answer Options	Response Percent	Response Count
Yes – extremely, I have no trouble doing what I need to do	23.7%	9
Yes – OK, but I find some parts challenging	50.0%	19
No – I struggle with it regularly	15.8%	6
No – that's why I have someone else use it on my behalf	0.0%	0
Don't know – never tried - I have someone else use it for me	10.5%	4
<b>answered question</b>		<b>38</b>
<b>skipped question</b>		<b>45</b>

## Is FENZ easy to use?

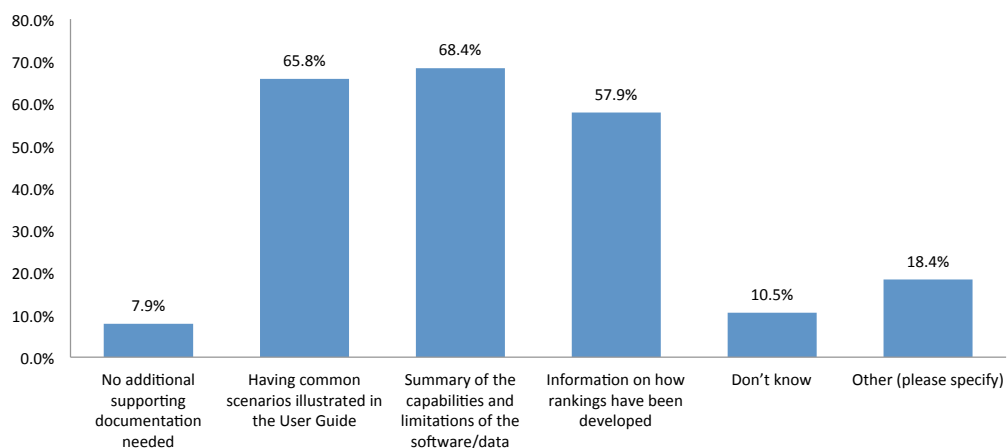


A 4) Thinking about the supporting documentation currently supplied with FENZ, what additional information would be useful? (select any that apply)

Thinking about the supporting documentation currently supplied with FENZ, what additional information would be useful?  
(select any that apply)

Answer Options	Response Percent	Response Count
No additional supporting documentation needed	7.9%	3
Having common scenarios illustrated in the User Guide	65.8%	25
Summary of the capabilities and limitations of the software/data	68.4%	26
Information on how rankings have been developed	57.9%	22
Don't know	10.5%	4
Other (please specify)	18.4%	7
<b>answered question</b>		<b>38</b>
<b>skipped question</b>		<b>45</b>

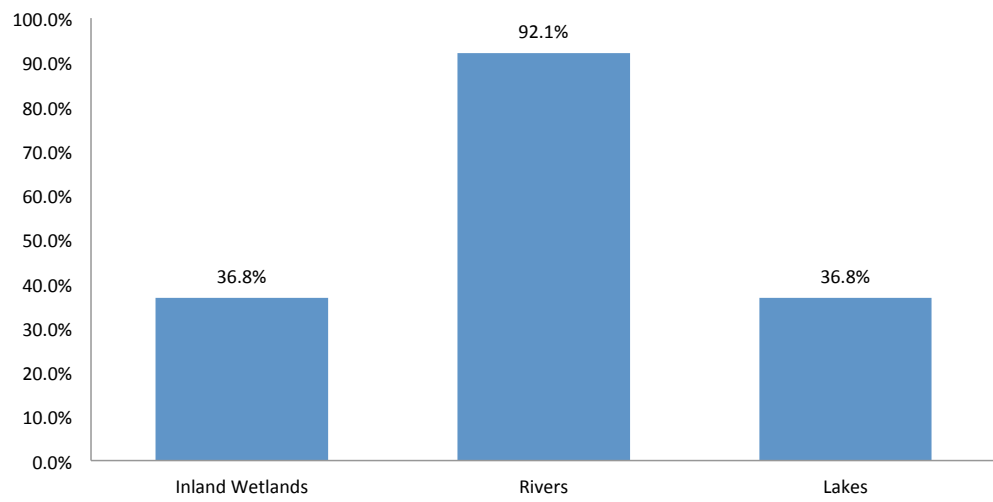
Number	Response Date	Other (please specify)	Categories
1	Jun 4, 2013 3:28 AM	Consolidation into simpler documentation, rather than proliferation.	
2	May 27, 2013 9:28 PM	Basic stuff for lay-people to understand	
3	May 27, 2013 3:29 AM	quick guide for FENZ attributes.	
4	May 27, 2013 2:25 AM	lists of key outputs e.g. 100 top naturalness state rivers, 10 worst impacted wetlands	
5	May 26, 2013 9:28 PM	Including data of less abundant taxa (fish and invertebrates)	
6	May 23, 2013 4:47 AM	website / wiki of supporting info	
7	May 23, 2013 1:45 AM	more access to raw background data	





A 5) What ecosystems do you use FENZs for? (select all that apply)

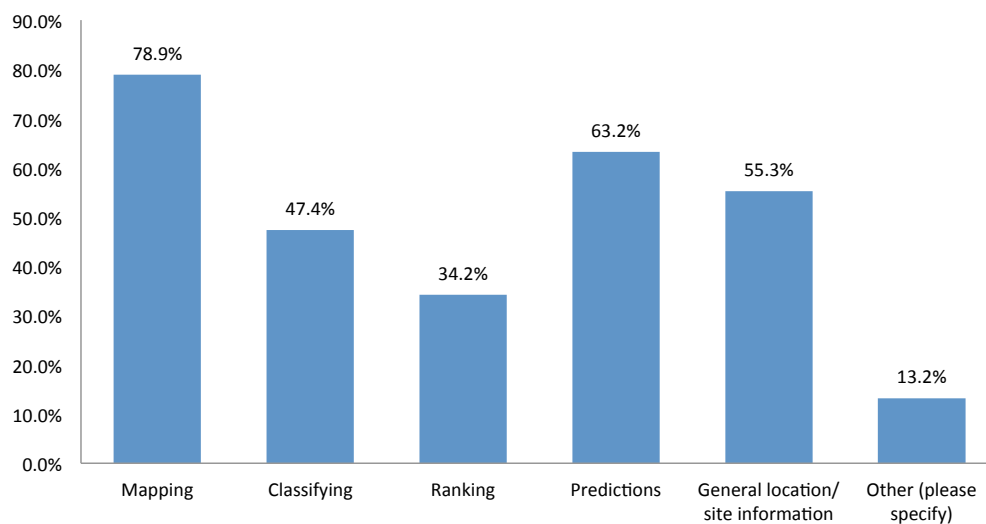
What ecosystems do you use FENZs for? (select all that apply)		
Answer Options	Response Percent	Response Count
Inland Wetlands	36.8%	14
Rivers	92.1%	35
Lakes	36.8%	14
<b>answered question</b>		<b>38</b>
<b>skipped question</b>		<b>45</b>



A 6) What outputs do you use FENZ for? (select all that apply)

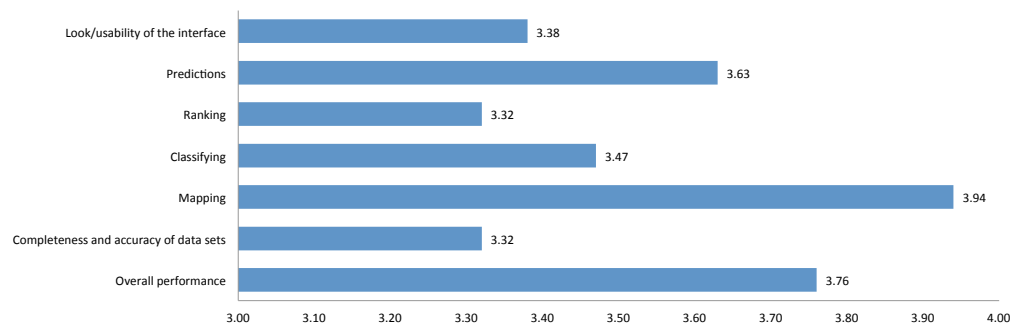
What outputs do you use FENZ for? (select all that apply)		
Answer Options	Response Percent	Response Count
Mapping	78.9%	30
Classifying	47.4%	18
Ranking	34.2%	13
Predictions	63.2%	24
General location/site information	55.3%	21
Other (please specify)	13.2%	5
<b>answered question</b>		<b>38</b>
<b>skipped question</b>		<b>45</b>

Number	Response Date	Other (please specify)	Categories
1	Jun 5, 2013 1:43 AM	Analysis of loss over time	
2	May 31, 2013 2:41 AM	Summary tables and graphs	
3	May 27, 2013 4:10 AM	Context for ecological research	
4	May 23, 2013 4:47 AM	Understanding current state and ecosystem value	
5	May 22, 2013 12:57 AM	It allows me to argue for certain policy/legal approaches that wouldn't be feasible without it	



- A 7) Thinking about FENZ, rank each of the following areas of its performance from 0 to 5  
(0 = don't use, 1 = poor, 5 = excellent)

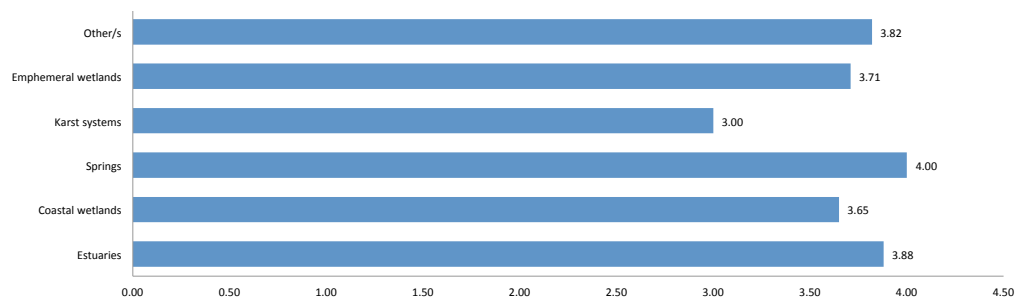
Thinking about FENZ, rank each of the following areas of its performance from 0 to 5								
Answer Options	Poor		Neutral		Excellent		Don't Use	Rating Average
Overall performance	0	4	7	20	6	0		3.76
Completeness and accuracy of data sets	0	5	16	15	1	0		3.32
Mapping	0	3	7	13	11	3		3.94
Classifying	1	3	10	13	3	6		3.47
Ranking	0	3	13	7	2	11		3.32
Predictions	0	4	7	18	3	4		3.63
Look/usability of the interface	1	5	10	13	3	5		3.38
								<b>answered question</b>
								<b>37</b>
								<b>skipped question</b>
								<b>46</b>



A 8) Do you think there are any gaps in FENZ? If so, what is the highest priority to improve or include?  
Rank 1 to 5 (1 = low priority, 5 = high priority).

Do you think there are any gaps in FENZ? If so, what is the highest priority to improve or include?									
Answer Options	Low priority		Neutral		High priority		There are no gaps from my perspective	Rating Average	Response Count
Estuaries	0	1	8	9	7	6		3.88	31
Coastal wetlands	1	0	10	7	5	6		3.65	29
Springs	0	2	8	4	12	4		4.00	30
Karst systems	2	5	12	1	4	5		3.00	29
Emphemeral wetlands	1	2	8	5	8	5		3.71	29
Other/s	0	0	6	1	4	4		3.82	15
(please specify)									9
								answered question	36
								skipped question	47

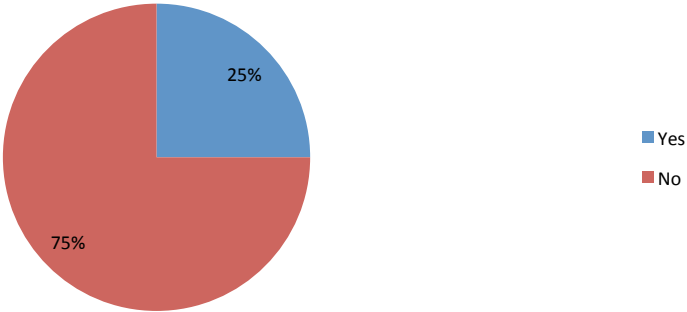
Number	Response Date	(please specify) Categories
1	Jun 4, 2013 3:28 AM	Further attributes of existing features, e.g. different nutrient concentrations (K, NOx, P), sediment etc for stream reaches
2	May 27, 2013 4:10 AM	Issue with accuracy of modelled lake depths - this is a limitation as a major lake feature
3	May 27, 2013 3:29 AM	Stream slopes need improvement
4	May 23, 2013 9:36 PM	There are missing values within the data, some values within the REC were originally 'user defined'. These were not properly originally defined then models have been built on this data, that is intrinsically incorrect. The other issue is that there appears to be a lack of information about how exactly certain variables are calculated without access to the attribute tables of those variates.
5	May 23, 2013 4:47 AM	Social, economic and cultural value of water. Also water infrastructure (major pipes, dams, irrigation) as it is all context to freshwater ecosystems and pressures
6	May 22, 2013 11:22 PM	Artificial systems (e.g., manmade lakes, stormwater wet ponds and wetlands)
7	May 22, 2013 9:02 PM	improved river mapping
8	May 22, 2013 12:57 AM	It seems to be weak in areas like species presence (e.g. for fw fish), fish passage barriers, etc. Without these it is more limited in its ability to predict value from work in waterbodies, or the value of waterbodies.
9	May 21, 2013 9:04 PM	accuracy in lowland streams



B 1) Have you used FENZ in the past, or tried it but didn't continue to use it?

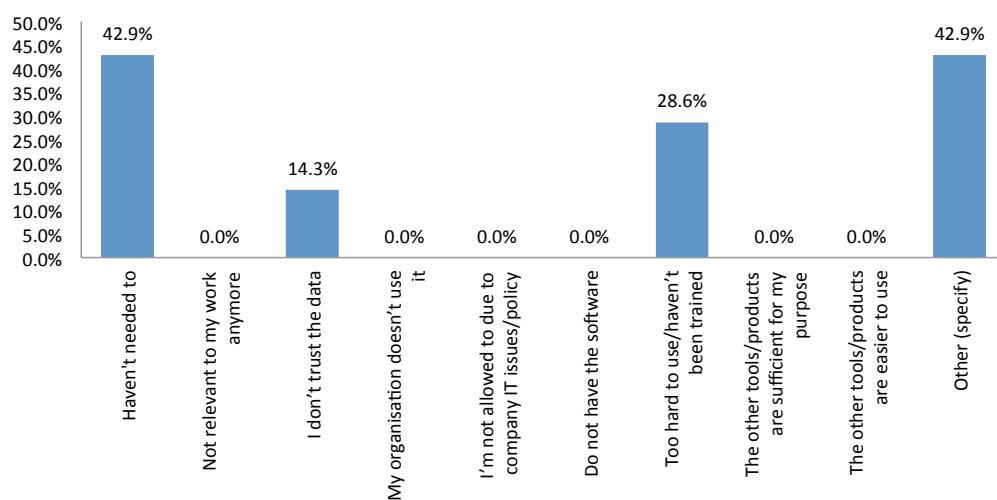
Have you used FENZ in the past, or tried it but didn't continue to use it?		
Answer Options	Response Percent	Response Count
Yes	25.0%	7
No	75.0%	21
answered question		28
skipped question		55

Have you used FENZ in the past, or tried it but didn't continue to use it?



B 1a) Why don't you use FENZ? (select all that apply)

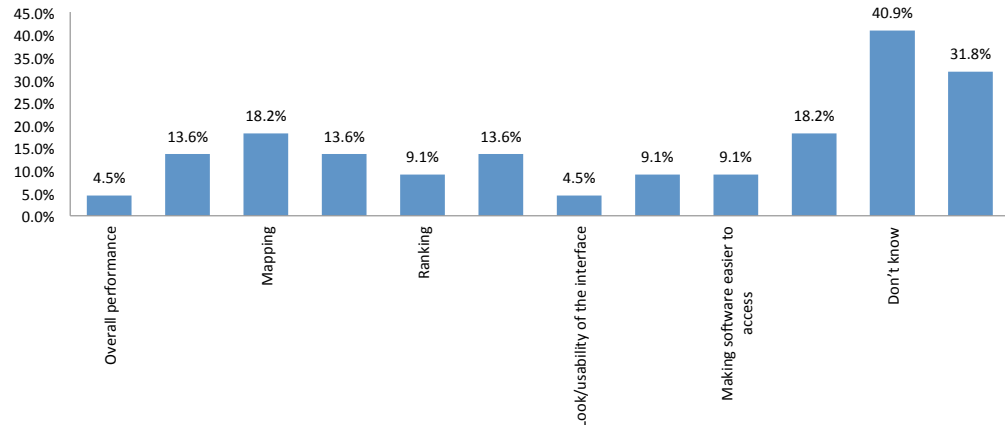
Why don't you use FENZ? (select all that apply)		
Answer Options	Response Percent	Response Count
Haven't needed to	42.9%	3
Not relevant to my work anymore	0.0%	0
I don't trust the data	14.3%	1
My organisation doesn't use it	0.0%	0
I'm not allowed to due to company IT issues/policy	0.0%	0
Do not have the software	0.0%	0
Too hard to use/haven't been trained	28.6%	2
The other tools/products are sufficient for my purpose	0.0%	0
The other tools/products are easier to use	0.0%	0
Other (specify)	42.9%	3
<b>answered question</b>		<b>7</b>
<b>skipped question</b>		<b>76</b>



B 1b) Thinking about your experience with FENZ, would improving any of the following areas lead to you try using it again? (select all that apply)

Thinking about your experience with FENZ, would improving any of the following areas lead to you try using it again? (select all that apply)		
Answer Options	Response Percent	Response Count
Overall performance	4.5%	1
Completeness and accuracy of data sets	13.6%	3
Mapping	18.2%	4
Classifying	13.6%	3
Ranking	9.1%	2
Predictions	13.6%	3
Look/usability of the interface	4.5%	1
User Guide with worked examples etc.	9.1%	2
Making software easier to access	9.1%	2
Making training easier to access	18.2%	4
Don't know	40.9%	9
Other (please specify)	31.8%	7
<b>answered question</b>		<b>22</b>
<b>skipped question</b>		<b>61</b>

Number	Response Date	Other (please specify)	Categories
1	Jun 4, 2013 3:29 AM	I WILL use it again. What a bizarre question. I do use it, have used it, will use it. Did you get a grownup to proofread this survey?	
2	May 27, 2013 3:31 AM	google earth kmz version	
3	May 24, 2013 8:35 AM	No public access	
4	May 22, 2013 11:24 PM	Just said I have NEVER used it so this question does not apply	
5	May 22, 2013 11:00 PM	I cant answer this as I have not used it before (as answered in the prev question)	
6	May 21, 2013 9:59 PM	Groundtruthing	
7	May 21, 2013 9:18 PM	I've never understood exactly what it is and what it can offer	

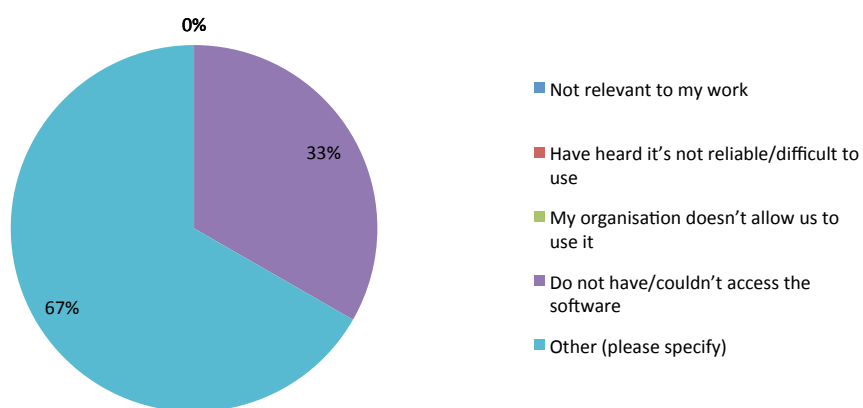


B 1c) Why haven't you tried FENZ? (select all that apply)

Why haven't you tried FENZ? (select all that apply)		
Answer Options	Response Percent	Response Count
Not relevant to my work	0.0%	0
Have heard it's not reliable/difficult to use	0.0%	0
My organisation doesn't allow us to use it	0.0%	0
Do not have/couldn't access the software	33.3%	1
Other (please specify)	66.7%	2
<b>answered question</b>		<b>3</b>
<b>skipped question</b>		<b>80</b>

Number	Response Date	Other (please specify)	Categories
1	May 31, 2013 4:34 AM	There has not been the need so far	
2	May 27, 2013 6:57 AM	Ignorance and forgetfulness	

### Why haven't you tried FENZ? (select all that apply)



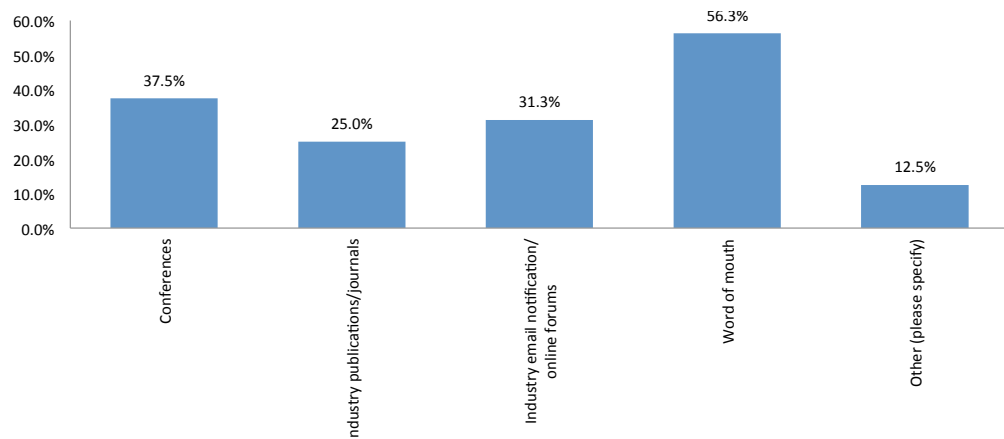


- C 1) FENZ is a geo-database developed by Department of Conservation to provide an independent, national representation of the biodiversity values and pressures on New Zealand's rivers, lakes and wetlands. Given that you've never heard of FENZ, through what forum or communication channel would you have expected/like to find out about it?

**FENZ is a geo-database developed by Department of Conservation to provide an independent, national representation of the biodiversity values and pressures on New Zealand's rivers, lakes and wetlands. Given that you've never heard of FENZ,**

Answer Options	Response Percent	Response Count
Conferences	37.5%	6
Industry publications/journals	25.0%	4
Industry email notification/online forums	31.3%	5
Word of mouth	56.3%	9
Other (please specify)	12.5%	2
<b>answered question</b>		<b>16</b>
<b>skipped question</b>		<b>67</b>

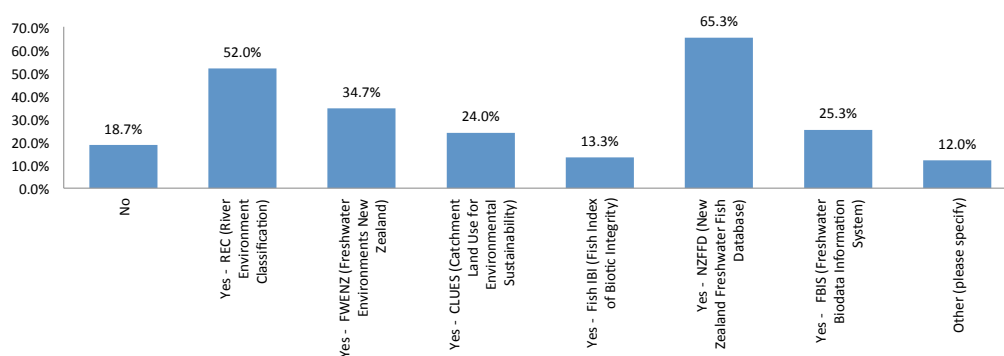
Number	Response Date	Other (please specify)	Categories
1	May 22, 2013 11:14 PM	Internal comms at work	
2	May 21, 2013 11:32 PM	Freshwater email list, the same way I heard about this survey	



CORE 5) Do you (or colleague on your behalf) use any other freshwater spatial (GIS) tools/products/software? (select all that apply)

Do you (or colleague on your behalf) use any other freshwater spatial (GIS) tools/products/software? (select all that apply)		
Answer Options	Response Percent	Response Count
No	18.7%	14
Yes - REC (River Environment Classification)	52.0%	39
Yes - FWENZ (Freshwater Environments New Zealand)	34.7%	26
Yes - CLUES (Catchment Land Use for Environmental Sustainability)	24.0%	18
Yes - Fish IBI (Fish Index of Biotic Integrity)	13.3%	10
Yes - NZFFD (New Zealand Freshwater Fish Database)	65.3%	49
Yes - FBIS (Freshwater Biodata Information System)	25.3%	19
Other (please specify)	12.0%	9
<b>answered question</b>		<b>75</b>
<b>skipped question</b>		<b>8</b>

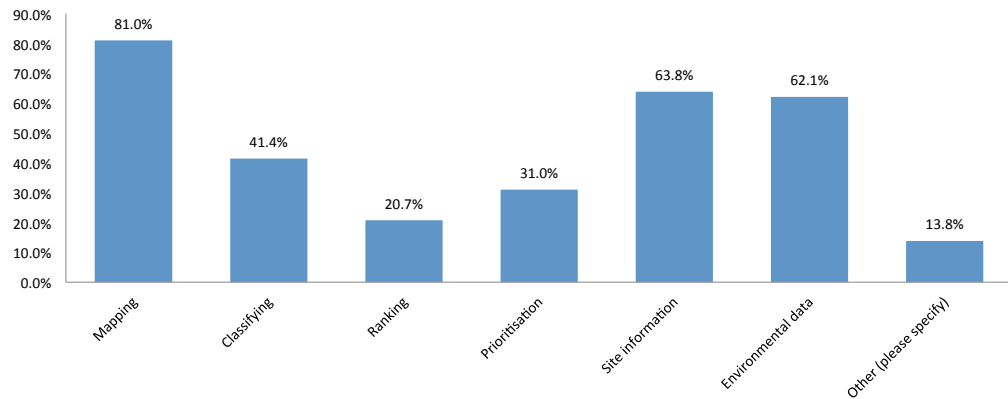
Number	Response Date	Other (please specify)	Categories
1	Jun 5, 2013 1:44 AM	my own field-derived vegetation maps in GIS	
2	May 27, 2013 9:29 PM	Still sometimes use WONI to reinforce issues	
3	May 24, 2013 8:14 PM	Regional Council data	
4	May 23, 2013 4:48 AM	Auckland Council data	
5	May 22, 2013 11:22 PM	im not sure what they use	
6	May 22, 2013 11:22 PM	CREAS	
7	May 22, 2013 12:58 AM	I probably use data derived from some of the above.	
8	May 21, 2013 9:49 PM	probably	
9	May 21, 2013 9:37 PM	NIWA webmodel	



CORE 5a) What do you (or colleague on your behalf) use other freshwater spatial (GIS) tools/products/software for? (select all that apply)

What do you (or colleague on your behalf) use other freshwater spatial (GIS) tools/products/software for? (select all that apply)		
Answer Options	Response Percent	Response Count
Mapping	81.0%	47
Classifying	41.4%	24
Ranking	20.7%	12
Prioritisation	31.0%	18
Site information	63.8%	37
Environmental data	62.1%	36
Other (please specify)	13.8%	8
<b>answered question</b>		<b>58</b>
<b>skipped question</b>		<b>25</b>

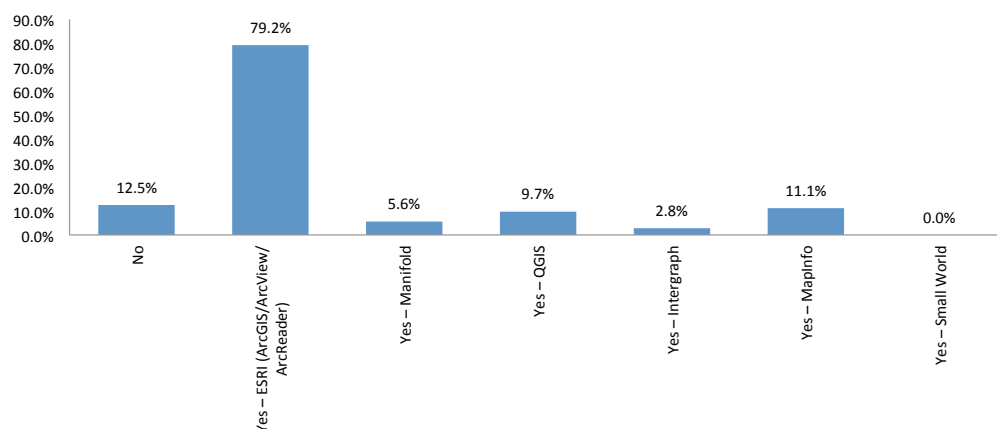
Number	Response Date	Other (please specify)	Categories
1	May 31, 2013 2:42 AM	Joining with other datasets	
2	May 30, 2013 4:24 AM	reporting of monitoring	
3	May 27, 2013 4:19 AM	Ecological distributions	
4	May 23, 2013 1:50 AM	fish data	
5	May 22, 2013 11:02 PM	Information on actual presence of biota at a site	
6	May 22, 2013 2:15 AM	Scenario testing	
7	May 22, 2013 12:59 AM	Policy/regulatory development (e.g. using classification or modelling systems in RMA work)	
8	May 21, 2013 10:00 PM	Making input to statutory planning processes	



CORE 6) Do you (or colleague on your behalf) use any GIS software? (select all that apply)

Do you (or colleague on your behalf) use any GIS software? (select all that apply)		
Answer Options	Response Percent	Response Count
No	12.5%	9
Yes - ESRI (ArcGIS/ArcView/ArcReader)	79.2%	57
Yes - Manifold	5.6%	4
Yes - QGIS	9.7%	7
Yes - Intergraph	2.8%	2
Yes - MapInfo	11.1%	8
Yes - Small World	0.0%	0
Yes - Other (please specify)		11
<i>answered question</i>		<b>72</b>
<i>skipped question</i>		<b>11</b>

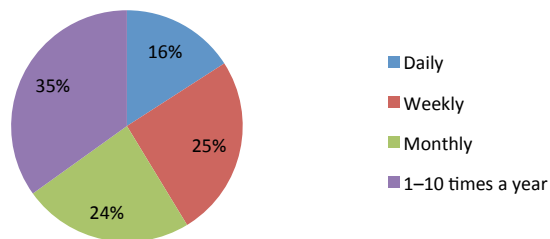
Number	Response Date	Yes - Other (please specify)	Categories
1	May 31, 2013 4:20 AM	GISmo	
2	May 30, 2013 4:24 AM	map toaster	
3	May 30, 2013 3:09 AM	Postgis, GMT	
4	May 27, 2013 3:32 AM	google earth	
5	May 23, 2013 9:37 PM	Google earth	
6	May 23, 2013 4:48 AM	Google maps, Google earth, our Auckland Council GIS viewer	
7	May 22, 2013 3:32 AM	DOC GIS	
8	May 22, 2013 2:15 AM	Yes - don't know what package	
9	May 22, 2013 12:59 AM	Not sure what they use.	
10	May 21, 2013 11:33 PM	Topomap	
11	May 21, 2013 8:54 PM	Arc map 10	



CORE 6a) How often do you (or colleague on your behalf), or your colleague using it on your behalf, use freshwater spatial (GIS) tools/products/software, or GIS software?

How often do you (or colleague on your behalf), or your colleague using it on your behalf, use freshwater spatial (GIS) tools/products/software, or GIS software?		
Answer Options	Response Percent	Response Count
Daily	15.9%	10
Weekly	25.4%	16
Monthly	23.8%	15
1–10 times a year	34.9%	22
<b>answered question</b>		<b>63</b>
<b>skipped question</b>		<b>20</b>

**How often do you (or colleague on your behalf), or your colleague using it on your behalf, use freshwater spatial (GIS) tools/products/software, or GIS software?**

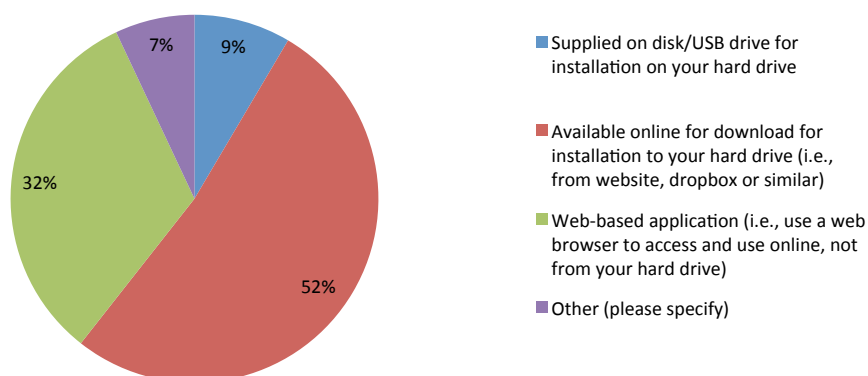


CORE 7) How do you prefer your software to be delivered?

How do you prefer your software to be delivered?		
Answer Options	Response Percent	Response Count
Supplied on disk/USB drive for installation on your hard drive	8.5%	6
Available online for download for installation to your hard drive	52.1%	37
Web-based application (i.e., use a web browser to access and	32.4%	23
Other (please specify)	7.0%	5
<b>answered question</b>		<b>71</b>
<b>skipped question</b>		<b>12</b>

Number	Response Date	Other (please specify)	Categories
1	May 28, 2013 9:14 PM	On DOC NATIS GIS server	
2	May 26, 2013 9:25 PM	by colleague	
3	May 22, 2013 1:00 AM	I like to be able to ring someone in DOC and get them to interrogate the thing for me and give me the answers.	
4	May 21, 2013 10:00 PM	Anything that works easily!	
5	May 21, 2013 8:55 PM	Geodata base	

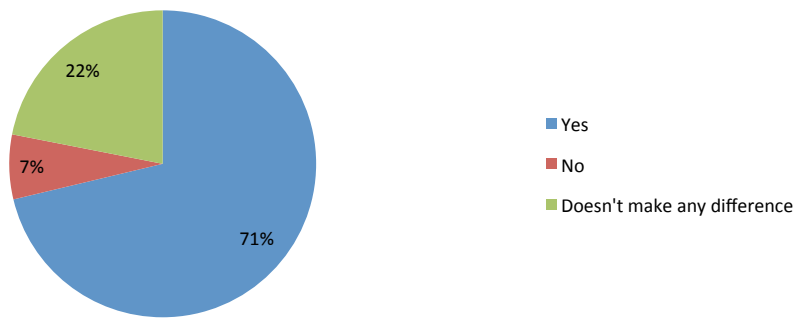
### How do you prefer your software to be delivered?



CORE 8) Would you use tools/products/software more often if it was available online?

Would you use tools/products/software more often if it was available online?		
Answer Options	Response Percent	Response Count
Yes	71.2%	52
No	6.8%	5
Doesn't make any difference	21.9%	16
answered question		73
skipped question		10

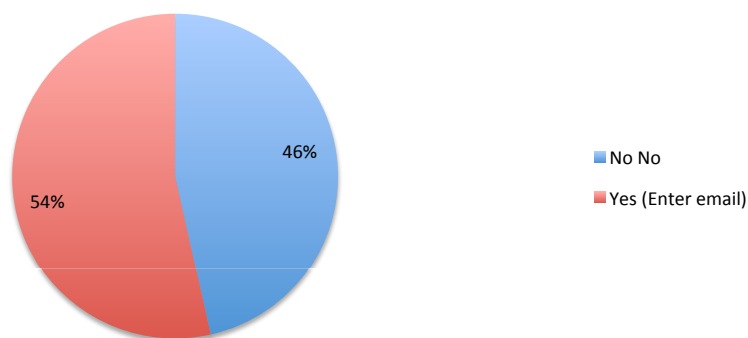
Would you use tools/products/software more often if it was available online?



CORE 9) Would you like to receive FENZ updates with user-tips, correction notices, and training opportunity notices?

Would you like to receive FENZ updates with user-tips, correction notices, and training opportunity notices?		
Answer Options	Response Percent	Response Count
No	46.5%	33
Yes (Enter	53.52%	38
	<b>answered question</b>	<b>71</b>
	<b>skipped question</b>	<b>12</b>

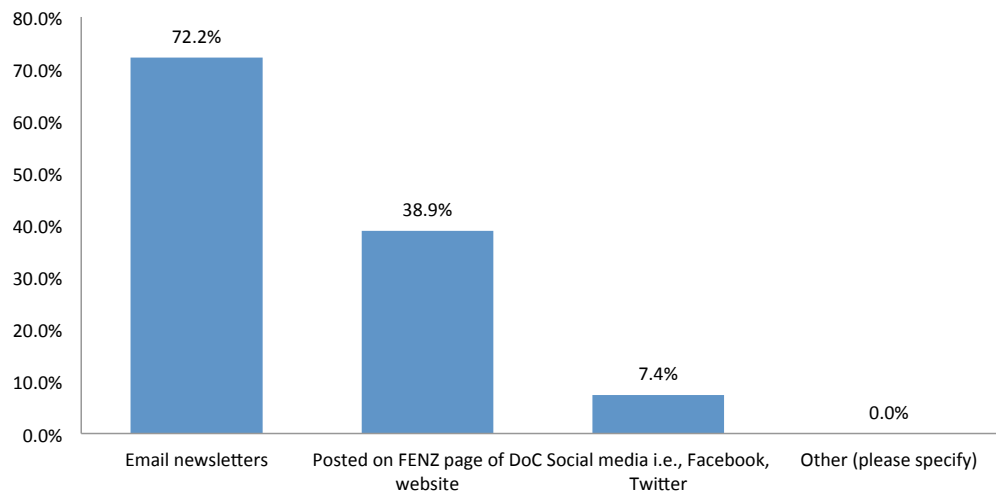
Number	Response Date	Yes (Enter email)	Categories
1	Jun 5, 2013 3:51 AM	richard.storey@niwa.co.nz	
2	Jun 5, 2013 1:46 AM	atownsend@doc.govt.nz	
3	May 31, 2013 2:43 AM	brent.king@mfe.govt.nz	
4	May 30, 2013 9:00 PM	summer.greenfield@gw.govt.nz	
5	May 30, 2013 2:48 AM	mark.parker@ecan.govt.nz	
6	May 29, 2013 1:35 PM	lanka115@student.otago.ac.nz	
7	May 28, 2013 3:42 AM	jeancharlesp@nrc.govt.nz	
8	May 27, 2013 9:30 PM	sbowie@doc.govt.nz	
9	May 27, 2013 7:00 AM	Not.yetanyway@lllhaveagoodlookatitfirst.nz	
10	May 27, 2013 3:33 AM	thomas@hbrc.govt.nz	
11	May 27, 2013 2:27 AM	sjaanbowies@clear.net.nz	
12	May 26, 2013 11:14 PM	manas.chakraborty@horizons.govt.nz	
13	May 26, 2013 9:14 PM	rebecca.bibby@beca.com	
14	May 24, 2013 8:16 PM	lochmoigh@xtra.co.nz	
15	May 24, 2013 8:38 AM	graynothe@niwa.co.nz	
16	May 24, 2013 3:56 AM	kevin.collier@wakatoregion.govt.nz	
17	May 23, 2013 9:15 PM	spatterson@doc.govt.nz	
18	May 23, 2013 9:53 AM	warma014@student.otago.ac.nz	
19	May 23, 2013 4:49 AM	brad.scarfe@aucklandcouncil.govt.nz	
20	May 23, 2013 1:52 AM	trevor.james@tasman.govt.nz	
21	May 23, 2013 1:46 AM	m.k.joy@massey.ac.nz	
22	May 22, 2013 11:27 PM	jenny.grimmett@cardno.co.nz	
23	May 22, 2013 11:27 PM	chris@aspiringenvironmental.co.nz	
24	May 22, 2013 11:26 PM	jdstark@paradise.net.nz	
25	May 22, 2013 11:23 PM	heather.holder-lunn@ccc.govt.nz	
26	May 22, 2013 11:23 PM	alex@eosecology.co.nz	
27	May 22, 2013 11:03 PM	shelley@eosecology.co.nz	
28	May 22, 2013 9:43 PM	andrewm@nrc.govt.nz	
29	May 22, 2013 9:03 PM	katie.collins@aucklandcouncil.govt.nz	
30	May 22, 2013 8:11 PM	wsullivan@doc.govt.nz	
31	May 22, 2013 10:03 AM	Paul.franklin@niwa.co.nz	
32	May 22, 2013 3:33 AM	hstengs@doc.govt.nz	
33	May 21, 2013 11:34 PM	upaul@doc.govt.nz	
34	May 21, 2013 11:03 PM	fiona@hbrc.govt.nz	
35	May 21, 2013 9:34 PM	dennis@gdc.govt.nz	
36	May 21, 2013 9:07 PM	sandy@hbrc.govt.nz	
37	May 21, 2013 8:55 PM	rchappell@doc.govt.nz	
38	May 21, 2013 8:55 PM	hwinterburn-chapman@doc.govt.nz	





CORE 9a) How/where would you like to receive FENZ updates?

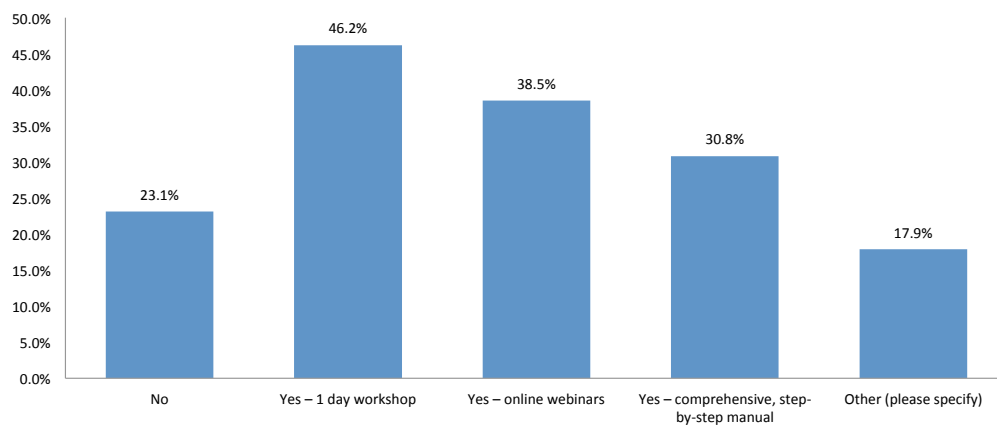
How/where would you like to receive FENZ updates?		
Answer Options	Response Percent	Response Count
Email newsletters	72.2%	39
Posted on FENZ page of DoC website	38.9%	21
Social media i.e., Facebook, Twitter	7.4%	4
Other (please specify)	0.0%	0
<b>answered question</b>		<b>54</b>
<b>skipped question</b>		<b>29</b>



## CORE 10) Would you be interested in FENZ training opportunities?

Would you be interested in FENZ training opportunities? (Select all that apply)		
Answer Options	Response Percent	Response Count
No	23.1%	9
Yes – 1 day workshop	46.2%	18
Yes – online webinars	38.5%	15
Yes – comprehensive, step-by-step manual	30.8%	12
Other (please specify)	17.9%	7
<b>answered question</b>		<b>39</b>
<b>skipped question</b>		<b>44</b>

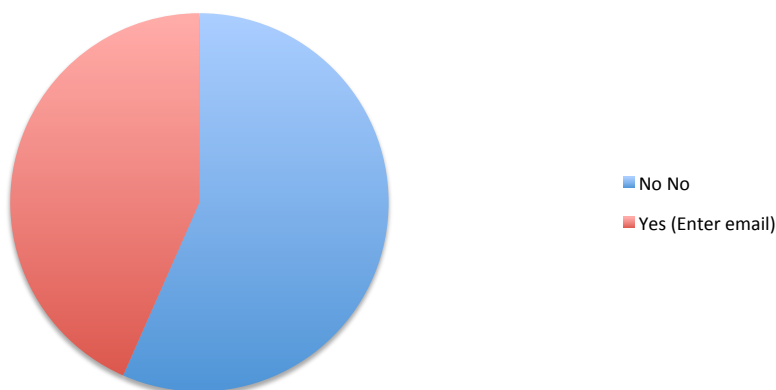
Number	Response Date	Other (please specify)	Categories
1	Jun 5, 2013 1:53 AM	update workshop to build on initial training run by Dave	
2	May 31, 2013 4:25 AM	not sure - need to know more about it	
3	May 30, 2013 3:10 AM	online tutorial - see the soon to be released Moodle site by ECO & WWF for training facilities in this domain.	
4	May 27, 2013 7:01 AM	Possibly	
5	May 27, 2013 6:24 AM	not personally but my colleague who does provide me with such info	
6	May 27, 2013 1:35 AM	More interested to know how we can solve the prediction inefficiency around some of the data starved native freshwater fish (e.g. koaro, shortjaw kokopu) and less abundant key macroinvertebrate species (e.g. Ameletopsis, Stenoperla).	
7	May 23, 2013 4:51 AM	already done 1 day workshop twice	



CORE 11) Would you or your organisation be keen to contribute to the future development of FENZ (e.g., supplying ground truthed data)?

Would you or your organisation be keen to contribute to the future development of FENZ (e.g., supplying ground truthed data)?		
Answer Options	Response Percent	Response Count
No	56.6%	30
Yes (Enter	43%	23
<b>answered question</b>		<b>53</b>
<b>skipped question</b>		<b>30</b>

Number	Response Date	Yes (Enter email)	Categories
1	Jun 5, 2013 3:52 AM	richard.storey@niwa.co.nz	
2	Jun 5, 2013 1:53 AM	atownsend@doc.govt.nz	
3	May 30, 2013 9:00 PM	summer.greenfield@gw.govt.nz	
4	May 30, 2013 3:36 AM	mark.parker@ecan.govt.nz	
5	May 28, 2013 3:44 AM	johnb@nrc.govt.nz	
6	May 27, 2013 3:34 AM	thomas@hbrc.govt.nz	
7	May 27, 2013 1:35 AM	manas.chakraborty@horizons.govt.nz	
8	May 26, 2013 9:59 PM	shannan.crow@niwa.co.nz	
9	May 24, 2013 3:56 AM	kevin.collier@waikatoregion.govt.nz	
10	May 23, 2013 9:38 PM	jpb69@uclive.ac.nz	
11	May 23, 2013 9:16 PM	spatterson@doc.govt.nz	
12	May 23, 2013 9:54 AM	warma014@student.otago.ac.nz	
13	May 23, 2013 4:51 AM	brad.scarfe@aucklandcouncil.govt.nz	
14	May 22, 2013 11:29 PM	jenny.grimmitt@cardno.co.nz	
15	May 22, 2013 11:29 PM	alex@eosecology.co.nz	
16	May 22, 2013 11:28 PM	chris@aspiringenvironmental.co.nz	
17	May 22, 2013 11:06 PM	shelley@eosecology.co.nz	
18	May 22, 2013 9:48 PM	andrewm@nrc.govt.nz	
19	May 22, 2013 8:11 PM	wsullivan@doc.govt.nz	
20	May 22, 2013 10:04 AM	Paul.franklin@niwa.co.nz	
21	May 22, 2013 1:05 AM	pwarren@doc.govt.nz	
22	May 21, 2013 11:04 PM	fiona@hbrc.govt.nz	
23	May 21, 2013 9:08 PM	sandy@hbrc.govt.nz	



CORE 12) Any other comments:

Any other comments:		
Answer Options	Response Count	
	24	
<i>answered question</i>		<b>24</b>
<i>skipped question</i>		<b>59</b>
Number	Response Date	Response Text
1	Jun 5, 2013 1:53 AM	My use is patchy, often with a long gap between training and when I need to use it. Some metadata around how and what the field values in the datasets are would be beneficial as I might be able to make more use of the data if I understood more about what the values mean. (For example, a recent exercise I undertook - with an high urgency and short notice, of course - was to compare past and present wetland extent, but it is not clear which values refer to wetland area in each data set (different headings are used). In the end I did my own recalculations of area to ensure that I was comparing apples with apples, but clearer metadata would mean
2	May 31, 2013 4:25 AM	We probably could use FENZ more in our biodiversity team - but don't know that much about it. We mainly manage on-the-ground conservation or enhancement projects.
3	May 30, 2013 3:36 AM	Hi, you may already know what we are up to here at ECan, but Philip Grove said I should fill out this survey and provide a background anyway. We are currently using the FENZ inland wetland layer as a start point for surveying the inland wetlands of the Canterbury Region. We select an area of interest, print out maps, visit the site, complete a vegetation map and then gather information to complete a significance, condition & threat assessment at a later date. Also after mapping the wetland we reshape a copy of the FENZ outline to more accurately reflect the wetland boundary. This ground truthed dataset is one of three wetland datasets we are working on (Coastal Wetlands (completed), Inland Wetlands (in progress) & Wetland Outlines (in progress)). They are stored in our ECan GIS and are available if required. Cheers Mark Parker mark.parker@ecan.govt.nz
4	May 27, 2013 11:45 PM	FENZ seems to have a low public profile - in a recent Envirolink project to create a web directory of decision support tools it was not mentioned by any regional councils as a tool that should be included.
5	May 27, 2013 9:33 PM	There is a general lack of knowledge about FENZ across the sector. From my work, it needs uptake with other organisations, which will be better achieved by greater advertisement of the product than by general word of mouth
6	May 27, 2013 7:01 AM	Apologies for pretty useless replies. I must have a look at what you have to offer!
7	May 27, 2013 6:24 AM	I use FENZ data as predictors of ecological responses. I find it very confusing and difficult to find the appropriate information. For example, I use the following documents: Leathwick et al. Freshwater Biol. 2011, FENZ user guide version one (2010), Leathwick et al. 2008 NIWA rpt,  'Environmental variables for the Freshwater Environments of New Zealand River Classification' - a draft document from 2004 for that I never found a final version. I would be very keen to see a single document, which explains what information is available (all the variables), how they were calculated to be aware of the strengths and limitations (or at least refer to another document that deals with that). One of the confusing things is, what spatial layer has the variable been built upon (i.e. LCDB 1 or 2 or 3?) as this is not always specified, hence I need to jump around different documents to find that information. Also very confusing, that the Need a point and click version for people not familiar enough to use ARCVIEW and key worked examples and limitations
8	May 27, 2013 2:28 AM	Last year in the NZFSS conference at Dunedin, I presented a poster on the applicability of FENZ for macroinvertebrates in the Manawatu-Wanganui Region. In my analysis I found, although the model performed satisfactorily for highly frequent (>70% of the times sampled) and frequently (>50% of the times sampled) observed taxa (e.g. Deleatidium spp., Elmidae, Aoteapsyche spp., Hydrobiosis spp, Archichauliodes sp., Potamopyrgus sp.), it was unable to predict some key invertebrate taxa (including some EPT taxa, e.g. Stenoperla sp., Zelandobius sp., Zephlebia sp.) at some of our near-pristine sites (e.g. Mangatainoka at Putara Reserve, Tamaki at Reserve) where these taxa occurred frequently but in lower abundance.
9	May 27, 2013 1:35 AM	27 (including 16 EPT taxa) out of 50 (including 23 EPT taxa) macroinvertebrate taxa recorded from our SoE monitoring sites, have been successfully predicted by the model. At almost 50% of the sites, five of the eight highly frequent taxa (observed >70% of the sampling events) had a high probability of occurrence (>0.7). 16 frequently captured taxa (observed between 50 to 69% of the sampling events) at almost 50% of the sites had probability of occurrence varied between 0.5 and 0.7.  However, the model was unable to predict 11 frequently captured taxa (including five EPT taxa) which were observed on more than 50% of the sampling occasions.  We believe that the model performs better for predicting the highly abundant taxa, but not for the less abundant frequent as well as rare taxa.  We will also be more interested to see the application of this model to predict the QMCI value (as we use QMCI, rather than MCI, for monitoring effects of resource consent activities) so that we can use this as baseline expectations for regulatory purpose. If the model could perform more accurately (in terms of predicting more

10	May 24, 2013 8:18 PM	I am self employed so probably too small to contribute to Q14. The spatial framework (REC) that rivers are done on needs work at a local scale. We are mapping all our permanent, intermittent and ephemeral rivers currently to get a true representation of the rivers. Being able to have some of the FENZ processes rerun based on our data and spatial framework would greatly increase the number of applications it could be used for.
11	May 23, 2013 4:51 AM	
12	May 23, 2013 1:58 AM	Having FENZ available for online use would make it much easier to access from my point of view - I have had difficulties getting the correct version of ArcReader onto my computer to run FENZ, because within my organisation, all programmes need to be approved and installed by our IT department.
13	May 23, 2013 1:56 AM	I have had one training session with John Lethwick and I was really impressed with what is in FENZ. For me there were two main barriers to my uptake:  1. There was little opportunity during (or for the weeks after) the course to have a good play with the product. The pace of the course with respect to the hands on use of the produce was too fast for me.  2. I am not able to have GIS as my DC
14	May 22, 2013 11:29 PM	I am in charge of a team of planners and one ecologist. We are always looking for more ways of learning about the environment and if there is an opportunity for us to also contribute to help others we can do that too.
15	May 22, 2013 11:29 PM	FENZ has great potential and needs to have the funds and expertise allocated for further development.
16	May 22, 2013 11:28 PM	Cheers Dave
17	May 22, 2013 11:25 PM	I think the answers to these questions could be answered more completely by the CCC Ecologist. I have answered no but expect you will get a yes from a more appropriate staff member.
18	May 22, 2013 11:06 PM	Supplying ground-truthed data would be dependent on the amount of time that it takes - as we are a commercial consultancy it is difficult to contribute a lot of time to a non paid project.
19	May 22, 2013 11:04 PM	I have not found FENZ classes useful for analyses related to river water quality. Most classes are either far too broad, so that large numbers of rivers end up in the same class, or too fine, so that they never appear.
20	May 22, 2013 9:48 PM	To be honest I still struggle to explain how the predictions and rankings have been developed and how to use the tool correctly even though I've been to a couple training sessions, although I'm first to admit I'm not the sharpest knife in the draw. I don't know anything about this and as a result some of the questions may have given you false answers
21	May 22, 2013 3:34 AM	In relation to question 21, my interest would be the way it is designed to deliver policy-relevant information. FENZ needs to be clearly owned by an agency that is committed to its future. FENZ needs to clearly replace some earlier systems, like REC, in terms of use in legislation/regulation/policy. FENZ should become the basis for adding more layers/data. We should be able to promote progressive population of it by individuals feeding data in (e.g. for fish passage barriers), in the way we have for things like weed and plant data. I haven't always agreed with the predictive uses made of it by John, in terms of whether they are answering the most important questions for freshwater management. But his work has shown the
22	May 22, 2013 1:05 AM	GDC is developing a water plan and requires means to identify freshwater values that include habitat, connectivity, natural character, ecological flow minimums etc so that allocatable volumes of water can be established. We have not yet agreed on the best methods of classifying or prioritising different values for different waterways. FENZ may be an important tool that we should use but currently do not.
23	May 21, 2013 9:38 PM	
24	May 21, 2013 9:15 PM	Bit hard to answer some of your questions constructively since I've never used FENZ, or needed to.



**EOS ECOLOGY | AQUATIC RESEARCH CONSULTANTS**

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