Date: 13 May 2020

The WAter Incident Database

Discovery report

national water safety forum

About the report

This report focuses on the WAter Incident Database (WAID) discovery. It was written by dxw digital on behalf of the National Water Safety Forum (the Forum). The National Water Safety Forum engaged dxw at the start of the year, the discovery began at the end of February and completed mid April.

This report starts with an executive summary, followed by seven sections. An introduction can be found in section one, and section two sets out the ‘as-is’ state. Section three summarises the research findings and draws conclusions. We consider the ‘to-be’ state for uses in a short section (four), and section five of the report sets out the discovery recommendation, and recommended way forward. We provide further recommendations in section six, and the report ends with a short section (seven) to conclude. The report is accompanied by eleven appendices.

Thank you

We would like to thank Forum members, WAID users and stakeholders for their valuable input to the discovery. The discovery took place in an uncertain and challenging time, and the continued dedication by interested parties is noticeable and appreciated by the project team. Everyone's contributions informed the recommendations that have been made.

Contents page

Appendices and images

No	Appendix	Report section
A1	Discovery inception	1.2. Methodology
A2	WAID user & stakeholder analysis	3. Research findings and conclusions
A3	Findings from research interviews	3. Research findings and conclusions
A4	User data flows	Sections 1 - 3
A5	Technical discovery	Sections 1 - 3
A6	One pager on open data	3. Research findings and conclusions
A7	Service design write-up	3. Research findings and conclusions
A8	Survey findings	3. Research findings and conclusions
A9	Desk research	3. Research findings and conclusions
A10	User needs	3. Research findings and conclusions
A11	Further recommendations mapping	6. Further recommendations

No	Image	Report section
1	As-is visual of WAID	2. The ‘as-is’ state
2	Example of the current WAID user experience	2.2. Experience of a WAID user
3	Suggested scope for alpha	4.1. The future of WAID
4	Example of a future user experience	5.2. Suggested scope for alpha
5	Draft delivery timeline	5.3. Draft delivery timeline

Executive summary

This report is about the WAID discovery, which was commissioned by the National Water Safety Forum and delivered by dxw at the beginning of 2020. Discovery is a starting phase for a project, largely focussed on research collection and analysis. The WAID discovery focussed on water incident information.

The motivation for undertaking the discovery

No single organisation has the sole responsibility for the response to and prevention of water related incidents, but it is the collective aim of the Forum to realise a future without drowning, and to reduce water related incidents and harm in the UK. Organisations involved in responding to, and preventing water related incidents, extend outside the Forum members. Access to information about water related incidents is imperative to the Forum and other responsible organisations.

The Forum dedicates time and effort to collating a picture of fatal incidents and sharing this information with interested parties. But water incidents include both fatal and non-fatal, and there is no complete national picture of all the incidents occurring across the UK. The picture is instead fragmented.

The current approach for managing information about non-fatal incidents is manual, retrospective, and the multi organisational nature to managing incidents leads to potential inaccuracies in the dataset.

The Forum doesn't have the technology, processes or standards needed to fully enable the good work they do. Despite this, the Forum does successfully work towards its aim of realising a future without drowning. Improvements to how water incident information is managed, have potential to further strengthen the work of the Forum and allow collaboration to happen with greater ease.

What we did

The discovery took place over six weeks. We started by shaping the discovery scope in collaboration with Forum members. We then gathered the views of users and stakeholders with an interest in water safety. We gained insights through activities including workshops, interviews and an online survey. We analysed our findings, held an ideation session, researched open data with subject matter experts, and learned about the current version of WAID.

Throughout the research we explored how water incident information is currently used, and considered what works well and what may be improved, in order to design what a future approach may look like.

What we found

We found that the individual organisations that use water incident information, have a diversity of goals, ranging from promotion of sport, commercial activity, through to increasing efficiency of search and rescue operations. However they all have the same overarching goal: **to keep people safe, in and around water.**

Water incident information is valued and important. Our research explored the uses for water incident information, which included:

- Shaping water safety strategies, education and community campaigns
- Informing prevention work and identify high risk sites
- Building a granular picture of UK fatalities
- Reporting to Government, gaining support of MPs and Local Authorities
- Supporting trade associations

Research also indicated the challenges users face when using water incident information, these included:

- Time and effort taken to contribute data to WAID
- Manual processes for aggregating incident data

- Annual publication of data hampers preventative strategies and in-year analysis
- Data only includes fatalities, which limits the risk analysis that could be done with a UK wide dataset including non-fatal, near-miss and rescue data
- Data is not accessible for analysis throughout the year in a format needed by users
- Data is collected by organisations that attend incidents via their own systems and processes, none of which are currently integrated
- Current technical set up for the WAID database is outdated, uses proprietary software and could not be upgraded to accommodate future expansion
- There are questions about the quality and completeness of the data

Discovery recommendation

The research undertaken during discovery was used to form a recommended way forward. This discovery recommends that a new service for managing water incident information is designed and introduced. At the heart of a new service is a collaborative process for the organisations involved in collecting incident information.Technology should enable this to happen.

The success of a future service should be determined by the quality of data, and the ability of its users to access it promptly, so that targeted preventative work can take place sooner.

A future service should make improvements for users, such as:

- An easier way for new and existing users to contribute data
- Creation of one incident record, that does not rely on manual process
- Reduce the burden on administrations team, freeing them up for proactive investigation
- Allow for more collaboration to assess narratives

- Allow for more frequent updates to dataset
- Provide a platform for analysis throughout the year
- Allow data to be shared openly
- Introduce a service that is flexible and can expand to incorporate more data in the future

The next step suggested for the Forum is to agree and test the discovery recommendation. We strongly recommend this happens before introducing a new service to users.

1. Introduction

1.1. About dxw digital

dxw work with the public and third sectors to research, design, build and operate services that make life better for people. We also help organisations to develop their strategy and grow their own digital capability. It is our mission to create public services that improve people's lives, and transform organisations that work for the public good. Our multidisciplinary teams know how to meet users' needs and how to take advantage of new technologies in creative and innovative ways.

1.2. Methodology

Project background

We entered discovery understanding that the problem to be addressed was primarily related to the WAter Incident Database. We learnt that WAID was the database used by National Water Safety Forum members, to manage data about fatal drownings in the UK.

We heard that the current WAID technology was no longer fit for its intended purpose, it was becoming increasingly out of date and difficult to manage, it was overly resource intensive to use, with limited flexibility and is costly to maintain.

Time and effort had already been spent by the Forum to understand how the database could be improved and a new database taxonomy had been developed but not yet implemented. The Forum sought to further understand the problem before doing any development to the existing database.

We soon observed that the problem to be addressed expanded beyond the database, to be more broadly about the management and use of water incident information. However WAID remained a core part of the wider problem. We worked with Forum members to design a discovery around this.

The discovery process

dxw undertook a user-focussed discovery to explore the problem and identify a recommendation in response.

Discovery is a starting phase for a project and largely focussed on research collection and analysis. A discovery is when you learn about a problem to be addressed, and the people or users involved in this. It helps to de-risk future phases of project delivery. A user centred discovery defines the best way to proceed and identify a scope for the project, in a manner that reflects the needs and goals of the people involved.

The discovery was delivered by a multidisciplinary team. The team was made up of a User Researcher to design and deliver the user research, a Technical Architect and Developer to steer and inform our technical understanding, two Service Designers to take research insights and facilitate collaborative design sessions, a Designer to help visualise the findings, and a Project Lead to lead the team and be accountable for overall project delivery.

Discovery started with an inception attended by Forum members (see appendix one for inception write-up). We worked with Forum members to scope the discovery. We agreed that discovery should focus on improving the status of fatal data primarily, and where possible explore how non-fatal data may be captured and used in the future.

Future vision

- During inception Forum members articulated a shared vision for water incident information: to have a joined-up and collaborative approach to

recording water related incidents, that results in a single, open record and “one version of the truth” and contributes to the Forum's role in preventing water related incidents.
- Forum members also identified goals for the future of WAID, see appendix one for these.

Discovery goal

- After inception the team settled on a discovery goal and planned research around this. The goal for the discovery was: to explore how the water incident database could be improved for users - so that data capture is more efficient, reliable, complete and open.

Over six weeks we conducted qualitative research interviews, and designed and issued a survey. We observed WAID users as well as doing research on the technology. We held a collaborative design session with the project team, followed by one with Forum members.

Analysis of research was an ongoing process throughout discovery. Once we had completed the research collection, we dedicated time to shaping the discovery recommendation. The project ended with a discovery show and tell for Forum members.

2. The ‘as-is’ state

In this section we explore the current WAter Incident Database, from a technical perspective and the experience of a WAID user.

We heard a lot of positive comments about WAID and how it is used now.

“‘18-29 males most at risk of drowning - this insight was pulled from WAID data. This led us to develop key messages for this group.”

"As far as I'm concerned WAID is the best information to inform our preventative work.”

“We have identified some of our main campaigns via WAID data. We use the data to report to media.”

We also heard about some shortcomings:

“If the person doesn't die immediately they aren't joined up.”

“I don't have access to the info ROSPA has, so I can't see if there's a matching incident already.”

“WAID data isn't relevant - we don't deal with drownings.”

It is not easy for WAID users to add their data to the system. Several stakeholders have built systems around WAID so that they can still contribute (RNLI and MCA).

"Everyone is building their own little system to address the problem of WAID."

Onboarding of new contributors is not easy due to barriers to inputting directly into WAID and the additional strain on WAID admin resources that would be required to

manually add data from more contributors. WAID does not directly integrate with any systems the stakeholders are using. Additionally, it is agreed by all the users that modelling and analysis of the data would be improved by the addition of non-fatal incidents. The inclusion of non-fatal data would allow comparisons to be made with fatal incidents, and recommendations for preventative measures to be informed by that evidence. Some potential contributors have little or no fatal incident data but do collect non-fatal data that is currently not included in WAID. If they are to contribute, the process must be relatively easy as many smaller charities do not have resources to dedicate to WAID data entry.

This diagram shows the current WAID data flow. There are workarounds in place (RNLI, MCA and CRT) to enable data flow back and forth but the stakeholders with non-fatal data and some with fatal data are not contributing in the current state.

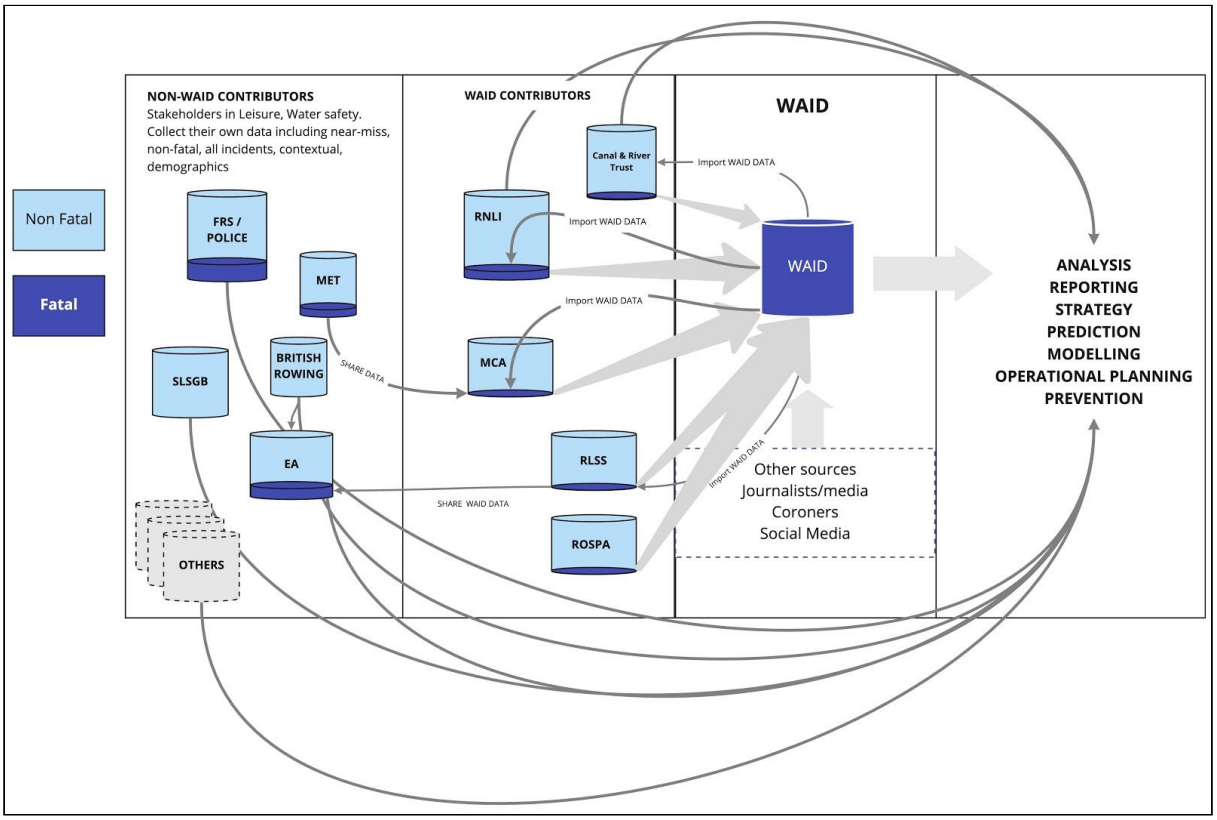


Image 1 - as-is visual of WAID

2.1. About the WAter Incident Database

WAID or WAter Incident Database is the name given to a database used by the Forum to hold information about fatal water related incidents. WAID is managed by Forum members collectively who sit on dedicated working groups. It is hosted by ROSPA and supported by a third party.

The first version of WAID was built by a sole trader in 2008. Co-op Web then took over the development. The last time development took place on WAID was around five years ago, and the system no longer receives regular maintenance.

Our research indicated that the database design is overly complicated for the functionality that the system provides.

The system uses a first version of a taxonomy. By “taxonomy” we mean the structure of the data held in WAID, and the way in which it’s categorised. A second version of the taxonomy has been designed and tested but not yet implemented.

Appendix five provides detailed information about WAID drawn from technical discovery work undertaken.

2.2. Experience of a WAID user

Users encounter barriers when contributing data to, and extracting data from WAID. Users of the WAID data require it throughout the year. The wait for the official release means that data is no longer current and yearly strategy documents can’t be released until after April.

Accessing the data to run reports for analysis is not possible (without either requesting and adding to the admin burden of WAID admins or soliciting the help of a WAID superuser who can run reports from within WAID). Users would value the

ability to access the data year round and for the data to be more current so that they don't have to schedule their activities around the publication of the annual data.

At the start of discovery the team visited ROSPA. ROSPA are a Forum member and host WAID. The main admin user for WAID is a ROSPA member of staff. When visiting the organisation we observed this person using WAID, where they did an annual procedure to collate and assure incident information held in WAID, called match and merge. The experience of this person helps to frame what the current experience for WAID users is like. A sketch of their experience is shown on the next page:

Image 2 - example of the current WAID user experience

3. Research findings and conclusions

This section summarises at a high-level, the findings from the user research, technical research and the collaborative design sessions. Appendices two-ten provide a full write up of the research and findings. These research findings are the body of evidence we've used to form the overarching discovery recommendation. Where applicable the findings have been mapped to the further recommendations.

The main themes that emerged from the research are seen below. A colour code is used throughout the report and appendices.

Technology
Location
Non-fatal data
Coroners
Standardisation
Collaboration / sharing data
Timeliness
Terminology / taxonomy
Causal / contextual data
Data reliability
Self Harm
Money
Investigation

3.1. Findings from interviews, desk research and the survey

Presence of a shared aim

- A wide range of stakeholders have differing aims and reasons to support water safety, but they all share the same overarching goal: keeping people safe in and around water.

The purpose of WAID

- WAID is seen as the definitive dataset for water fatalities UK wide. It is acknowledged that it may not be perfect but it's the best there is right now.

The limitations of WAID

Timeliness

- WAID data would be more useful if current figures were available throughout the year. The current version of WAID has few automated processes, requiring manual data cleansing, uploading and verification. Stakeholders would benefit from direct access to WAID to mine the data to support their needs to analyse the data when they require it.
- **Recommendations:** relates to automated data collection and open data recommendations.

Data gaps

Non-fatal data

- Stakeholders collect their own data (mostly non-fatal) which they use for

shaping prevention strategies and water safety campaigns. They are aware that they would benefit from a complete picture of data across the UK.

- **Recommendations:** relates to non fatal data, and prevention and safety recommendations.

Weaknesses in learning about incidents

Causal/contextual data

- The narrative and contextual elements of the data captured are subject to a lot of variation depending on who has written them. Being textual makes them difficult to analyse. Examples of incidents exist where the lack of knowledge about the casualties has led to education campaigns being targeted to the wrong audiences.
- **Recommendations:** R6

Limited data sharing

Collaboration/ sharing data

- There are parties investigating and searching for the same information about incidents: journalists, coroners, Police, MAIB and public activists but there is little sharing of data.
- **Recommendations:** relates to people and organisations recommendations and recommendation R15.

- Many organisations involved in water safety do not have the resources to dedicate to contributing data to WAID.
- **Recommendations:** relates to open data recommendations.

3.2. Areas of concern identified from research

Self-harm and Flooding

- It is anticipated that two areas will likely see an increase in incidents: self-harm and flooding. There is already an upward trend in water related self-harm incidents and due to climate change we are seeing an increase in flooding which is anticipated to worsen in future.

Flooding

- Currently there are few fatalities from flooding but a lack of national data on the non-fatal flooding incidents means it's difficult to predict how to safeguard people in a flooding event. Flooding is usually attended by Fire Services but RNLI and RLSS assist in some locations. Coordinating intelligence on incidents is required to create effective prevention strategies.
- **Recommendations:** relates to non fata data, and prevention and safety recommendations.

Self harm

- Self-harm incidents have increased recently and may further increase due to the financial and social instability resulting from the Covid-19 situation. Analysis of near-miss data is particularly important in the development of preventative activity and could identify emerging ‘hotspot locations’ early. There is evidence that interventions work and the majority of people who are ‘interrupted’ do not go on to end their life. With this in mind, the coordination and sharing of near-miss and fatal suicide data with the relevant organisations could save lives. The sharing of the data must be handled carefully as reporting of suicides is known to result in ‘copycat’ incidents.
- **Recommendations:** relates to people and organisations recommendations and recommendation R15.

3.3. Technical research findings

The current version of WAID

- WAID was developed in 2008, we found that the system no longer receives regular maintenance, and the current WAID supplier last worked on it around five years ago. The system was largely designed and built by one person, meaning it is now difficult for a team to iterate on it.
- Iteration of WAID is difficult as significant up front design led to an overly complex technical design for the functionality the system provides. There are components of WAID that have never been used.
- WAID has proprietary components which are licensed on a yearly, per-developer basis. The costs associated with this approach might prevent a larger development team from working on the system. Some proprietary components are now outdated.
- **Recommendations:** overarching discovery recommendation and further

recommendations.

Endeavours to improve the status quo

- A team supporting WAID undertook a project to rewrite the taxonomy currently used by WAID. A test took place, but the work was not progressed beyond a proof of concept.
- **Recommendations:** overarching discovery recommendation and further recommendations.

The WAID taxonomy

- Taxonomy is the term used to describe the structure of the data held in WAID, and the way in which it's categorised. WAID uses a first version of the taxonomy.
- A second version of the taxonomy has been created but not yet implemented. We also looked at version two of the taxonomy. Taxonomy two was designed in 2010, after WAID had collected five years of data.
- Taxonomy one doesn't include contextual information and this is contained in the incident narrative, making analysis difficult. Taxonomy two is designed to provide a richer, more granular view of an incident, and has had a lot of work put into it. It allows the collection of multiple dates, times, and locations, so a timeline of the incident can be built up. Taxonomy two shouldn't be the first priority for change when thinking about building a new system, but it seems to be a sensible starting point.
- **Recommendations:** relates to language and terminology, incident record recommendations.

Opening up WAID data

- The only data that WAID currently releases is a spreadsheet of aggregated statistics, once a year. But WAID provides a wider, richer and very useful set of data. How can more people be given access to the data that WAID holds?
- We've found that where data is made open, people will find uses for it that you never anticipated. In an ideal world, we'd release the full raw data set. But this brings privacy issues around potentially releasing sensitive information about individuals – living or dead. So one thing we wanted to understand was how we can address that risk.
- There is an opportunity to learn from other open data sets of a similar nature to inform how privacy and access control could be approached.
- **Recommendation:** relates to open data recommendations.

Road accident data (Stats19)

- Stats19 is a database of the accidents reported to the police which happened on public roads, and the vehicles and casualties. The data set is published by the Department for Transport (DfT) under an Open Government Licence. The full, raw data set is published, with a small number of fields redacted for privacy. Unredacted data is available to some researchers under a licence. Under-reporting (of which there may be multiple reasons) is a problem in this example, and may lead to incorrect prioritisation of road safety policies. This is something for Forum members to consider with an expanded data set in the future which incorporates non-fatal incidents.

3.4. Findings from service design work

We adopted a light-touch service design contribution to this discovery, as agreed in the original project proposal. Whereas the user and technical research focused largely on the status quo, the service design work takes a slightly different approach, and uses the research findings to inform a focus upon the future status.

Service design findings have been posed as questions which could be explored in a future phase of delivery. Some of these questions have already gone to inform the alpha scope for the future service and the discovery recommendations.

Learning from best practice

The discovery team organised a Lightning Demo workshop (see appendix 7 for write up). The workshop allowed us to draw on lessons learned and inspiration from other organisations and sectors. This helps inform the design of a future water incident service, and make sure it is based on best practice and initiatives that are proven to work elsewhere.

Design considerations for a future service drawn from Lightning Demos:

- How could a future service make use of relevant data standards? Such as ICD10 and MAIT.
- What are the pros and cons of buying versus building the reporting tool for example, costs, configurability and accessibility? When designing a new service use lessons learned from off the shelf products and services such as incident logging apps, like the Log Incident that's being used by the Canals and Rivers Trust.
- What are the options for Location IDs? Which involve licensing, which are most useful and could the service convert between different systems e.g. What 3 Words and Longitude and Latitude?

- How can WAID data outputs feed into analysis tools, such as Microsoft Power BI that's already being used by some WAID stakeholders? What is the basic minimum analysis that should be provided within the WAID service?
- Could WAID use strategies and technologies for crowdsourcing incident data from social media? Where could relevant data be found and how to determine veracity.
- How could WAID use simple online reporting forms? Such as those in use by Police for reporting incidents.

Collaborative design

A collaborative design session was held with Forum members to imagine what a future service might look like and generate ideas for possible solutions that could be incorporated in an alpha (see appendix 7 for write up)

Participants worked together to storyboard two water incident scenarios, thinking about how tools, processes and data could be improved for a future service. The scenarios were based upon those initially discussed during discovery inception.

Ideas generated from the workshop have been used to inform a view of the future experience or users, and inform the discovery recommendations and create user needs.

The combination of these four activities (user research, technical discovery, service design, and collaborative design) gave us a detailed understanding of the user needs and goals, the technical landscape and its challenges. These activities allowed us to explore what the future might look like for the Forum. This led to the development of our recommendations which are user-centred, practical, and based on addressing the basics first: sharing (fatal) data between contributors in a way that impacts less on limited resources. Exploring the more complex future goals of adding non-fatal and more open data also means that our recommendation is to design a system with the flexibility and scalability to add those elements in future iterations.

4. The ‘to-be’ state for users

In this short section we explain a to-be future state for a WAID user.

When improving existing services or designing new ones, we must think about how the users’ experience and journey using a service may alter. The alpha scope and user needs (see appendix ten) start to explore how the experience for users may change and improve in the future.

Thinking about what we observed during our visit to ROSPA and of the WAID admin user, we’ve considered how a user's experience may evolve. The sketch below sets out a future user journey for a future service. It is not final, and the design and validation of such a journey would be a core activity in an alpha.

The sketch shows a future experience for users. The first picture shows data contributors collaboratively creating a single incident record, and the second a Service Owner assuring the record and identifying data gaps. The third picture shows the Service Owner again, deciding what information about the incident can be shared with a wider group of people. The final picture shows how water incident information is made open and accessible, in multiple formats and made available to members of the public.

Image 4 - example of a future user experience

5. Discovery recommendation and way forward

This section sets out the discovery recommendation that has been drawn from the research undertaken over the course of the discovery. The recommendation is presented from an overarching position. We suggest a scope for the next phase of delivery and provide a detailed explanation about how automation may be approached as part of this. A draft delivery timeline and options to be considered for a future service are provided.

5.1. Overarching recommendation

Discovery showed there to be a dominance placed on the database (WAID) itself. From the start of discovery we heard about limitations posed by the current version of WAID, and aspirations for a better version.

Our recommendation for the future of WAID is to exchange the notion of a new database for one of a new service:

> **Design a service for managing water incident information, centred around a collaborative process, geared towards the creation of a single incident record.**

Our recommendation requires changes to be made to existing technology and ways of working.

A single incident record

We suggested that central to a future service is the introduction of a single incident record. We recommend that information contained in a single incident record is split into minimum information and further information. A single record should be designed to allow updates when needed.

A minimum record may be determined by the information needed to share an incident with Forum members and other interested parties. We recommend finding a balance between the information needed to provide confidence to Forum members that a single incident has happened, with the urgency to disseminate this information so preventative activity can take place.

During discovery we observed a significant focus on the database taxonomy. We recommend that in the future, the database taxonomy is considered to be: **the structure of a single incident record.** Record structure is something that should be determined by the collaborative process.

A collaborative process

We believe that the collaborative component to the creation of a single incident record is essential.

We recommend introducing a new collaborative incident record creation ‘workflow’ or **process,** for the parties responsible for contributing data to a record, starting with the parties responsible for contributing the minimum set of data.

We’ve assumed that the success of this approach would see record creation move from a largely retrospective activity, moving closer to real-time record creation. The value of this would be having data readily available, leaving organisations more time to focus on prevention.

5.2. Testing our recommendations

Alpha is a phase of project delivery that may take place after completing discovery. It is a test phase, when you test the discovery recommendation before building or implementing a real service. The user needs identified in discovery underpin the design of prototypes and will evolve throughout alpha as prototypes are tested.

Alpha is not mandatory and does not result in the build (i.e. a beta) of a service or introduction of a new way of working. However it does result in a proven and focused idea to take forward, and crucially helps to increase delivery success, and reduces risk of the overall project.

In alpha you understand how users and stakeholders would interact with a new technology/service/process/policy. You think about how a future service may integrate with existing processes and systems. You explore what is technically feasible. Research should take place in alpha, ideally picking up where you left off in discovery.

Our alpha diagram helps to explain how the discovery recommendation may be tested. An alpha phase of delivery would define the approach further, before confirming the design of a new service.

The suggested scope for a water incident service alpha is to test a collaborative process and creation of a single incident record.

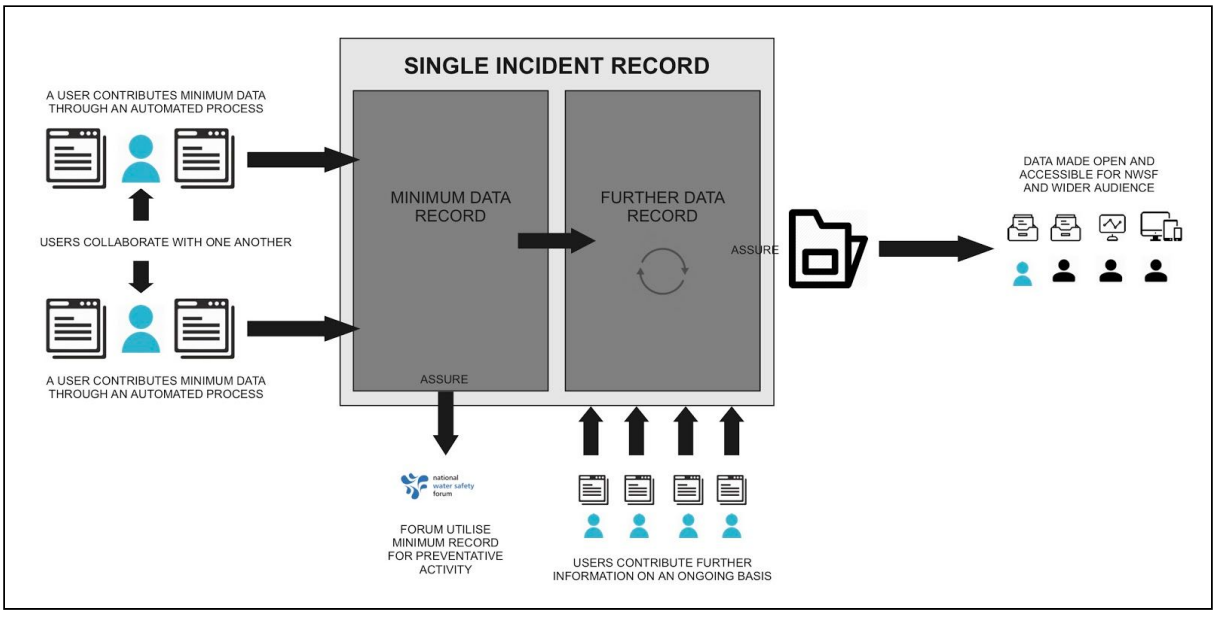


Image 3 - suggested scope for alpha

Please note the scope shown in the diagram above is an example of what an alpha may look like, however an inception at the start of alpha should validate this.

5.3. Achieving automation

The guidance provided in this section is preliminary and should be subject to what is found out during an alpha phase.

In the alpha diagram it is indicated where automation may be required. By automation we mean: reducing current manual processes, in exchange for automated ones where it is possible to do so.

Examples of current manual WAID processes and how automation may be achieved:

1. Getting data into WAID - automation may be achieved by exposing RESTful APIs which allow data to be pushed into the service. This would allow data contributors to provide data more frequently and flexibly.
2. Identifying when two data contributors are talking about the same incident (i.e. matching) - automation may be achieved by utilising the minimum incident record data, avoiding the manual work of having to match incidents.

These two examples of automation differ. Example one is about enabling contributors to automate their processes, and example two is about automation that happens inside WAID. However, example two is needed to make example one work well.

Before establishing the exact approach to automation, the service should be considered more broadly as to how people and organisations work together to create a single record.

> **The future service requires both collaboration between people as well as technical automation to be viable.**

It's helpful to consider automation and collaboration as connected concepts:

- Automation: refers to the future service's underlying technology and what this will achieve. Technical automation can be achieved in various ways to reflect the differences (in terms of technology, process and capacity) between the individual organisations using the service.
- Collaboration: concerns the people, organisations and users of the service. A collaborative process is required to ensure that technical automation can work. A process involving people should again take into account the differences between individual parties.

APIs (Application Programming Interface) can be designed so that information can be pushed into a service. It would be the decision of the organisations themselves

(and the Service Owner of a future service) about what and when to push. The push of information may happen from a diverse set of things. This diversity can stay, as existing systems and technologies will communicate through a common language - and this is directed by the API and its design.

When considering automation of processes as part of an alpha it will be important to answer the question: how do users of the further service get their data into the API? This discovery did not set out to explore the other technologies used by the organisations that use WAID, but in light of the discovery recommendation this is now something that would need to happen as part of a next phase of delivery. We suggest a series of sub projects, specific to each organisation's circumstance would need to take place to establish how this would work.

5.4. Draft delivery timeline

To help understand when the delivery of a future water incident service would happen we provide a draft delivery timeline. During the alpha inception project stakeholders should review, discuss and confirm the finalised scope and timeline before commencing.

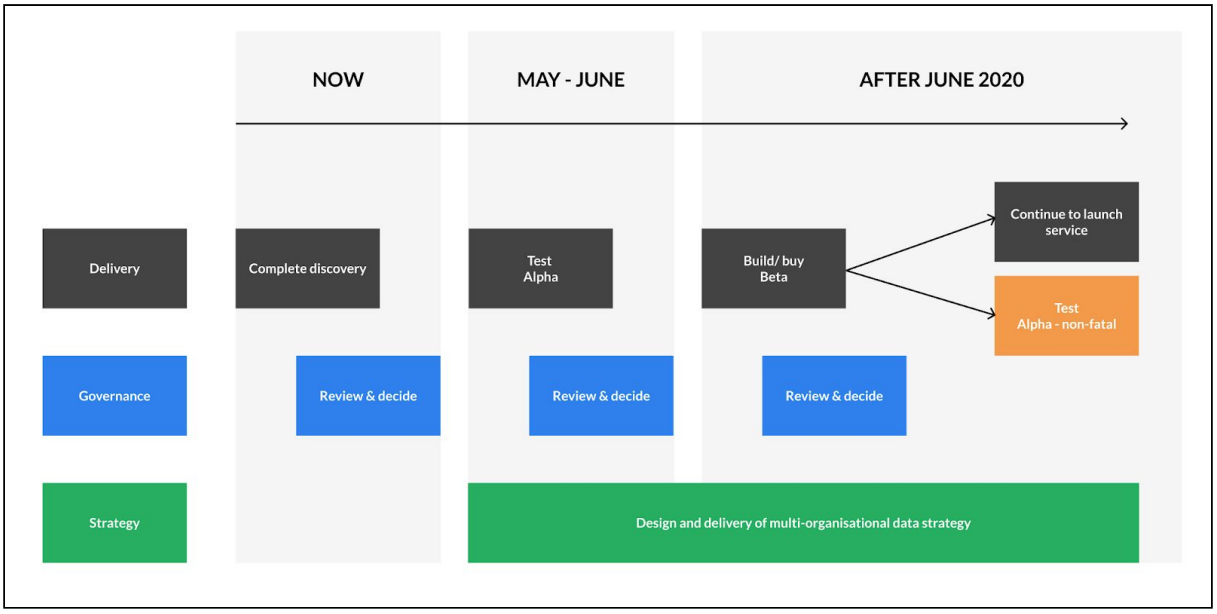


Image 5 - draft delivery timeline

5.5. Options for a new service

After completing the alpha a decision should be taken by project stakeholders about how to progress. There are multiple ways to approach the build of a new service. Each option will have strengths and weaknesses, and some may be viable now, and others in the future. We suggest four options to explore further:

1. Continue using the current database and implement taxonomy two
2. Build a new service
3. Buy an an off-the-shelf product or service
4. Integrate the WAID dataset within another service

Option 1:

- We're aware the Forum has undertaken work regarding option one already, and cost benefit analysis indicated that this is not a financially viable option.

Option 4:

- Discovery research has indicated that water incident information may be captured and aggregated by organisations that sit outside the Forum. The information captured may cover a similar topic, but the exact dataset may differ between the Forum and other organisations. We heard from the Forum how past attempts to explore such overlaps had not resulted in new ways of working.
- It may be an area for the Forum to monitor. To see where relationships beyond the Forum may be leveraged to strengthen its purpose, especially when thinking about non-fatal data.

Option 2 and 3:

- This leaves option two and three. Either option may be suitable for a future water incident service. We recommend that a decision regarding the way forward does not happen until an alpha has been completed.

6. Further recommendations

In agreement with project stakeholders further recommendations have been written using the SMART framework, which we've interpreted as follows:

- Specific description
- Measurable: alignment to Forum goals for WAID identified in inception
- Achieved
- Relevant and reasonable
- Timeframe

The 'achievable' component of the framework has not been completed yet and we suggest that this should be decided by the Forum when reviewing and agreeing the recommendations, and assigning an owner.

Under the 'timeframe' component of the framework, a high or medium priority for some recommendations is suggested. It is indicated which recommendations may form part of an alpha phase. Many of the high priority recommendations are suggested to be explored during alpha.

The recommendations have also been structured around the main research themes and mapped to user needs where applicable. Please see appendix eleven for a complete view of the recommendation mapping.

> **We advise that the further recommendations are managed with a degree of flexibility and regularly iterated based on what is found during alpha, to ensure they align to, and compliment the delivery of a future service.**

No.	Recommendation	User needs	Meaningful relevant and reasonable	Timeframe
Standardisation				
R1	Design and implement a multi-organisation data strategy For example: what is the dataset now and in the future? How data is captured? How data is used and shared?	U4.5 U4.6	• Remove barriers, empower organisations and strengthen actions • Greater trust and confidence • Openness	High priority Consider exploring as part of alpha in data strategy inception
Automate data collection				
R2	Enable frequent data collection and ingestion, enabling frequent publication	U1.2 U2.3 U3.1 U2.8 U3.9	• Real-time data • Strengthened ability to forecast • Eliminate waste, increase automation • Autonomy	High priority Consider exploring as part of alpha
R3	Automate collection of fatal incident data to improve the timeliness of information for users			High priority Consider exploring as part of alpha
R4	Explore automation of non-fatal incident data to improve the timeliness of information for users			Medium priority Explore later in a non-fatal alpha
R5	Replace manual intervention with automation and collaboration			High priority Consider exploring as part of alpha
Open data				
R6	Make accurate management information accessible for analysis		• Behaviour change • Collection, intelligence, sharing • Greater measurement • Risk management • Openness	High priority Consider exploring as part of alpha
R7	Define and test use of an open data spectrum for water incident information			Medium priority Explore as part of alpha in data strategy inception
R8	Assess unintended consequences of open data,			Medium priority

	(for example in relation to suicide prevention) Explore in relation to open data and risk assessment			Explore as part of alpha in data strategy inception
Technology				
R9	Delay the final decision about technologies for the future water incident service until there is confidence in the workflow, gained via undertaking an alpha	U1.1 U1.5 U2.1 U2.2 U2.3 U3.1 U4.5	● Flexible and extensible ● Simple and accessible	In progress
R10	Align to standards and best practice to guide service design and delivery			High priority Consider exploring as part of alpha
Incident records				
R11	Define a collaborative incident record creation process, that allows for evolution to the incident record structure Start with a subset of taxonomy two during an alpha to test this	U5	● Flexible and extensible ● Simple and accessible ● Collaboration and knowledge sharing ● Openness	High priority Consider exploring as part of alpha
R12	Identify and prioritise a subset of the existing taxonomy two to test Testing part of the taxonomy in alpha as the record structure would help us learn more about how it works in practice			High priority Consider exploring as part of alpha
R13	Introduce a single and shared record structure to aid standardisation of data capture			High priority Consider exploring as part of alpha
R14	Define data required for a single incident record Both minimum data and further data requirements			High priority Consider exploring as part of alpha

R15	Implement version control for single incident record			TBC
People and organisations				
R16	Test a collaborative incident record creation process	U1.5 U2.1 U2.7 U3.5 U4.5 U4.6	• Simple and accessible • Accurate data • Openness	High priority Recommended scope for alpha
R17	Test single incident record			High priority Consider exploring as part of alpha
R18	Provide training for users of new service			Medium priority
R19	Identify a Service Owner(s) for new service			High priority Consider exploring as part of alpha
Prevention and safety				
R20	Identify and utilise new sources of insight and evidence to strengthen preventative action	U2.6 U3.8 U4.1 U4.2 U4.3	• Proactive prevention	Medium priority
R21	Enable data sharing, in order to strengthen and coordinate preventative activity Consider how data might be used and by whom, to help identify trends and mitigate a potential increase in incidents			High priority Consider exploring as part of alpha in data strategy inception
Non fatal data				
R22	Define a national source of non-fatal water incident data A national source of non-fatal water incident data could strengthen preventative work, and raise awareness for this work	U2.6 U3.8 U4.1 U4.2 U4.3	• New datasets	Later Explore in a future non-fatal alpha
Language and technology				

R23	Clarity and agreement on consistent terms and definitions used when recording incidents	U5	• Simple and accessible • Collaboration and knowledge sharing	High priority Consider exploring as part of alpha
Location				
R24	Explore supporting alternative systems such as What3Words (whilst continuing to use Lat/Long)	U2.4 U3.6 U2.5 U3.2 U4.4	• Proactive prevention • Simple and accessible	Later
R25	Consider automation of Lat/Long verification (to UK)			Later
R26	Introduce the new granular location types in record structure			High priority Consider exploring as part of alpha
Coroners				
R27	Identify and invite a coroner to take part in a data strategy inception during an alpha	U1.2	• Remove barriers, empower organisations and strengthen actions. • Greater trust and confidence	High priority Consider exploing as part alpha in data strategy inception
R28	Engage with Coroners to establish how we might automate final outcomes from inquests			Medium priority Explore as part of data strategy work
R29	Engage with Procurator Fiscal in Scotland to test ideas of data sharing and feasibility			Medium priority Explore as part of data strategy work
R30	Engage with Coroners to discuss information sharing and how they might benefit			Medium priority Explore as part of data strategy work

7. Concluding thoughts

This discovery validated the National Water Safety Forums goals for managing water incident information in the future.

The research undertaken throughout discovery strongly aligns to what we heard at the start, from Forum members heavily involved in the existing WAter Incident Database.

Learnings from the discovery have gone to inform an evidenced based future vision for collection and distribution of water incident information, by designing a new water incident service.

Our discovery has shown the imperative nature of preventative activity. But what we've also learnt, is that without readily available and accurate information preventative work can not always happen as immediately or with the impact that's hoped for.

The sooner the insights of a water incident are bought together and shared, the sooner preventative action can happen - leading to a greater chance of preventing future incidents from occurring, contributing towards a future without drowning.

Updates to existing technologies used by the Forum are an essential part of achieving this vision, as are changes to how Forum members and WAID users work with one another.

WAID discovery report appendices

WAID A1: discovery inception

Contents

About appendix one

The appendix sets out what we did during the discovery inception workshop and the outputs from this. It is relevant section 1.2. (Methodology) of the main discovery report.

Discovery inception

dxw start discovery with an inception. This is when we bring together key stakeholders to discuss the discovery before planning the discovery in more detail.

An inception helps to create the foundation to form a discovery plan and design the discovery research.

The workshop took place on 27 February to kick-off the discovery. The workshop was facilitated by dxw team members.

The inception workshop generated a wealth of information to get us started. We continued to build our understanding throughout discovery, of what we'd initiated in discovery.

Participants

The inception was attended by 14 stakeholders. Most participants were members of the National Water Safety Forum, joined by a couple of WAID stakeholders. Here is a list of the people who attended and the organisation the represented:

- Kate Skinner MCA
- Alison MCA
- Kirsten Pointer MCA
- Debs Cummings RNLI
- Lee Heard RLSS
- Matt Harrison RNLI
- George Rawlinson NWSF
- Gareth Morrison RNLI
- Dave Ansell South Wales FRS
- Russell Robson Environment Agency
- Rachael Brogan ROSPA
- Michael Wright Greenstreet
- Nicolas Greenhill Co-ob Web
- Richard Edwards REAC Consultancy Ltd

Workshop aims and format

The aims of the inception were:

- to identify users and understand their needs
- understand the existing system and process
- identify the problem we're aiming to address
- develop a vision and goals for the discovery

We achieved those aims by undertaking the following activities:

1. Exploring the discovery context
    - as a group we created a WAID timeline, considering past, current and future events. Events were the key moments for the Forum and in particular focusing on WAID.

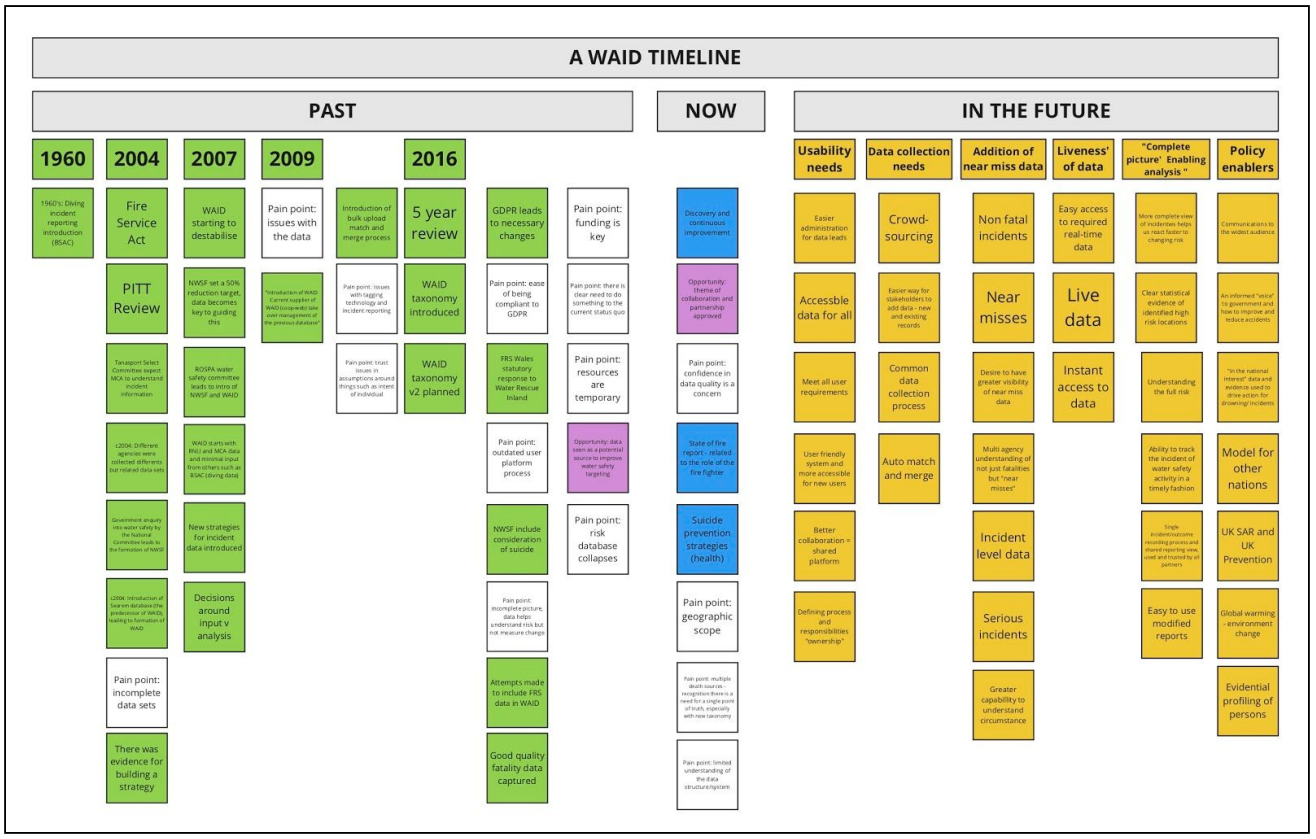
2. WAID stakeholders and users and their needs
    - each participant created a user profile. The profile explained their role, contribution to the Forum, use of WAID information, the challenges they experience and opportunities they identified.
3. Incident mapping
    - in two groups we identified a scenario to map - one inland incident and one coastal incident. The purpose was to understand what happened, who was involved and what information was collected throughout the process.
4. Validating the problem for the discovery to explore
    - a discussion about the problem the discovery would explore and seek to address.
5. Discovery roadmapping
    - a roadmap is a strategic plan intended to achieve a particular goal. A roadmap helps to define the scope for a piece of work, and tells you what you need to focus on first. It will help to give you a degree of consensus about what you want to deliver. A good roadmap should be a plan that your team can unite behind.
    - to create a roadmap stakeholders come together and collaborate.
    - a roadmapping session is structured around a prepared set of questions. Questions can differ depending who is involved and the context. Some example questions are here.
    - the roadmap evolves as the project progresses, and it can be helpful to have an owner for the roadmap.

The next sections set out the outputs from each activity.

Discovery outputs

1. Exploring the discovery context

The timeline below shows the events plotted by workshop participants. The timeline was a place to start the discussion off, rather than a finished product. The timeline does not feature in the main discovery report, but what we learnt informed it.



2. Users, stakeholders and needs

By creating profiles for each participant we started to understand who WAID stakeholders and users were, and learn about their needs.

Here are profiles we created:

Organisation: Fire and Rescue

Mission	Contributing to water safety	Role on NWSF
To save life, protect property and environment.	Education Response	Developing education and information packages.

Users role: Key partner in understanding water related incidents.

Responsibilities	Do you collect, contribute of use of water related incident information?	Challenges about the use of the data
Exploring if first data can contribute to WAID.	Fire collect minimal data via National Incident Recording System. Different fire services may collect different data. Data is used to develop integrated risk management plan = a statutory duty for all fire services.	Inconsistencies in reporting and recording,
Improving the use of water related incident information	**Who else users/may benefit from using this information**	
Collect "the cause of the cause data". Improved taxonomy and consistency.	Operational staff Prevention and education staff R&D department (equipment platform)	

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Organisation: South Wales Fire and Rescue. Water Safety Wales

Mission	Contributing to water safety	Role on NWSF
Fire - to save lives through emergency response. Prevention is a clear goal to reduce emergency incidents. Water Safety Wales - to bring collaboration and consistency between partner organisations across Wales.	As a statutory duty to respond to water rescues inland the FRS are now looking at prevention activities	I represent my organisations on Water Safety Wales

Users role: (1) Head of Water Safety, (2) Chair of Water Safety Wales

Responsibilities	Do you collect, contribute of use of water related incident information?	Challenges about the use of the data
1 - To develop and deliver prevention through education and engagement. 2 - To facilitate Water Safety Wales meetings.	Yes An an FRS we collate information on all our emergency responses. We use information to determine risk and look at ways to engage with target groups.	National data is only available from fatalities. How we collect and share data is different in different organisations.
Improving the use of water related incident information		**Who else users/may benefit from using this information**
Clear profiling of near miss and rescue data. Clear profiling/understanding of circumstances. Information to direct strategies.		Senior management for increase in how/what we accomplish. Strategy direction

Organisation: Coop Web

Mission	Contributing to water safety	Role on NWSF
n/a	Technical	Hold an understanding of the technical aspects of the data, helping to report on the data and work on data integrity.

Users role: n/a - current supplier of WAID

Responsibilities	Do you collect, contribute of use of water related incident information?	Challenges about the use of the data
Data integrity and reporting	Resolve	Narratives Inconsistencies Boundaries Reporting
Improving the use of water related incident information	**Who else users/may benefit from using this information**	
Not appropriate at this stage - don't wish to lead or bias the discovery	n/a	

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Organisation: RLSS UK

Mission	Contributing to water safety	Role on NWSF
To enhance communities so that everybody can enjoy the water safely, because every life is worth saving	Education, training, targeted campaigning, thought leadership, 95% of pool lifeguarding, beach and open water lifeguarding, commercial/vocational consultancy, behaviour change	Chair of the WAID coordination group, inputs fatality data, seat on NWSF, CEO contribution.

Users role: RLSS UK Charity Director, and Chair of WAID CG

Responsibilities	Do you collect, contribute of use of water related incident information?	Challenges about the use of the data
RLSS - oversee all operational delivery of our charity outputs contributing to the NWSF strategy.	We receive coroner and emergency service data. As well as analysing and inputting media data. Contribute to robust data (match and merge). Use data to inform strategy, intervention and approaches to behaviour change. Use data to inform local plans and approaches.	We have to make assumptions as collection doesn't help to understand circumstances. Data is not robust as collection is not robust. There is a wider picture that includes rescues and non-fatal. We cut it in different ways which challenges integrity.
Improving the use of water related incident information		**Who else users/may benefit from using this information**
Open data to empower stakeholders. Help organisations to design, test and prove interventions. Understand the circumstances behind successfully rescue and interventions to lead training and continuous improvements.		CEO, local teams, voluntary and local groups, comms and marketing experts

dxw digital

Organisation: RNLI

Mission	Contributing to water safety	Role on NWSF
To save everyone Prevent drowning via search, rescue, water safety in the UK, Ireland (and targeted intentionally) on or near water. Coast - primary focus, beyond via partnerships.	Using our brand reach, via partnership and education, to target interventions at high risk audiences/activities and locations e.g. lifeguards, messaging	Engaged member

Users role: Head of Data, Evidence and Insight

Responsibilities	Do you collect, contribute of use of water related incident information?	Challenges about the use of the data
Ensuring we have a timely flow of the right data at the right quality to inform our organisational decisions and strategy. Includes both research and statistics.	Yes to all 3	Assumptions Inconsistency Completeness/quality Timeliness Narrow scope e.g. fatalities only
Improving the use of water related incident information		**Who else users/may benefit from using this information**
Richer data (not just about taxonomy) also collection methods and ability to drive insights from unstructured sources		Everyone Local

dxw digital

Organisation: RNLI

Mission	Contributing to water safety	Role on NWSF
Save lives at sea, with an ambition to save everyone. Also, water safety activity around the coast and rivers (and flooding).	Lifeboat rescue, lifeguard supervision, education and prevention activity.	Practical

Users role: Insight Manager

Responsibilities	Do you collect, contribute of use of water related incident information?	Challenges about the use of the data
Ensuring the robustness of the data produced and using it to understand what is happening (context and results of our action).	Yes	Fatality only focus presents an incomplete picture of success/failure rates of interventions/activity
Improving the use of water related incident information	**Who else users/may benefit from using this information**	
Encompass all incidents, not just fatalities	Executive team, delivery departments	

dxw digital

Organisation: RNLI

Mission	Contributing to water safety	Role on NWSF
To "save everyone" Coast Rescue and Prevention - water safety	Lifeboats service - 238 stations and 5k volunteers. Lifeguards on beaches on a seasonal basis. Water safety (drowning prevention) programme.	Sitting member, strategy influence, strategy delivery, supporting goals and objectives.

Users role: Head of Water Safety

Responsibilities	Do you collect, contribute of use of water related incident information?	Challenges about the use of the data
Delivery of RNLI water safety plan - demographic, geography, activity. Partnership lead in lifesaving.	Collect, contribute, use to inform strategy and delivery.	Ease of access Time lag It doesn't cover Ireland Opportunity for errors Assumptions Inaccuracies
Improving the use of water related incident information	**Who else users/may benefit from using this information**	
Access to near misses Access of end product to anyone Include Ireland	Every lifeboard station and lifeguard beach Evidence and insights team Policy for influence	

dxw digital

Organisation: n/a
Richard Edwards

Mission	Contributing to water safety	Role on NWSF
n/a	n/a	n/a

Users role: previous project manager for WAID 2015-16

Responsibilities	Do you collect, contribute of use of water related incident information?	Challenges about the use of the data
Analysis of the future of WAID. 5 year review. Design of new taxonomy v2.		
Improving the use of water related incident information	**Who else users/may benefit from using this information**	

dxw digital

Organisation: MCA

Mission	Contributing to water safety	Role on NWSF
Saving lives, safer ships, cleaners seas.	Search and Rescue Drowning prevention. Data collection from coastguard incidents. Media campaigns for safety.	Key funder

Users role: Chair of Coastal Group, Member of WAID coordinating group and WAID development group

Responsibilities	Do you collect, contribute of use of water related incident information?	Challenges about the use of the data
Kate - QA for MCA fatality data. Upload, match and merge data in WAID. Respond to external data requests. Kirsten - Chair of Coastal Group. Drowning prevention and suicide policy and strategy lead.	Yes to all of these things.	2 different data sets - MCA data and WAID data. WAID is not as specific as MCA data. DIfferent taxonomies - v2 is much more detailed but v2 is not used in current WAID.
Improving the use of water related incident information	**Who else users/may benefit from using this information**	
Live data, live reports. Easily accessible by all users. Easy data entry for all. Non-fatal data.	Coastguard, Chief Executive, Aviation Teams, Radio medical advice, Nav safety	

dxw digital

Organisation: ROSPA

Mission	Contributing to water safety	Role on NWSF
Exchanging life - enhancing skills and knowledge to reduce serious accidental injuries.	Secretariat of the NWSF. Leading admin for WAID. Water safety advice pages. Policy work,	Head of Leisure Safety Forum secretariat

Users role: Leisure and Education support officer

Responsibilities	Do you collect, contribute of use of water related incident information?	Challenges about the use of the data
Manage policy enquiries., data research, water safety enquiries, collect data for WAID and manage updates.	Yes I collect day-to-day water fatality data and add to WAID. Collect info from police, coroners, others - to make incident record as solid and comprehensive as possible.	Info about water fatalities is not always easily updated. Media, police, coroners have restrictions on what they relaese due to GDPR.
Improving the use of water related incident information		**Who else users/may benefit from using this information**
Better collaboration with coroners and emergency services to share their data - will improve the quality of the incident data - therefore improving use.		Home Safety - in relation to drowning in the home.

dxw digital

Organisation: BSAC

Mission	Contributing to water safety	Role on NWSF
The governing sports body for underwater swimming, scuba and snorkel diving.	Compile, analyse and report annually on diving incidents www.bsac.com/incidents Promote safety advice and training.	Contribute to WAID. Chair of an AG. Deputy Chair of coordinating group. CEO member of CEO group in NWSF.

Users role: Safety and Development Manager

Responsibilities	Do you collect, contribute of use of water related incident information?	Challenges about the use of the data
Working on incident analysis. Promoting safety advice. Review training from safety viewpoint.	Yes	Ensuring accuracy and relevance
Improving the use of water related incident information	**Who else users/may benefit from using this information**	
More detail	Incidents advisor (volunteer) National diving committee (volunteers)	

dxw digital

Organisation: NWSF

Mission	Contributing to water safety
To reduce accidental drowning in the UK, self harm (water related), report to government (mainly through MCA/UK SAR). To advocate/influence improvements to water safety and drowning prevention.	Public National Drowning Prevention Strategy 2016. Promote collaborative water safety working. Using WAID report on progress, measuring progres. Advocate and influence stakeholders and drowning prevention. Advice ROSPA.

Users role: Chair of NWSF

Responsibilities	Do you collect, contribute of use of water related incident information?	Challenges about the use of the data
Ensure NWSF in properly governed and funded, its strategy and deliverables are achieved.	Yes Through WAID and other communication channels.	It's only "fatal" data - not the whole picture.
Improving the use of water related incident information	**Who else users/may benefit from using this information**	
Clear communication More accessible GIS/interaction/presentation To inform accident investigations For public messaging campaigns	Stakeholders General public Other nations and world health organisations	

dxw digital

Organisation: Environment Agency

Mission	Contributing to water safety	Role on NWSF
Environment regulation Management in the water environment	Public and operational safety. Navigation management. Flood safety. Search and recovery.	Member/contributor

Users role: Inland water safety lead

Responsibilities	Do you collect, contribute of use of water related incident information?	Challenges about the use of the data
Water safety comms lead. Site safety and guidance. Health and safety inspector. Link to NWSF.	Yes New database Airsweb - incomplete, more incident level. Use WAID for strategic reporting and with LDPF.	Completeness of data Lack of incident data Details could
Improving the use of water related incident information	**Who else users/may benefit from using this information**	
Wide source base Open source Easier integration	Asset owners Director level Fisheries	

dxw digital

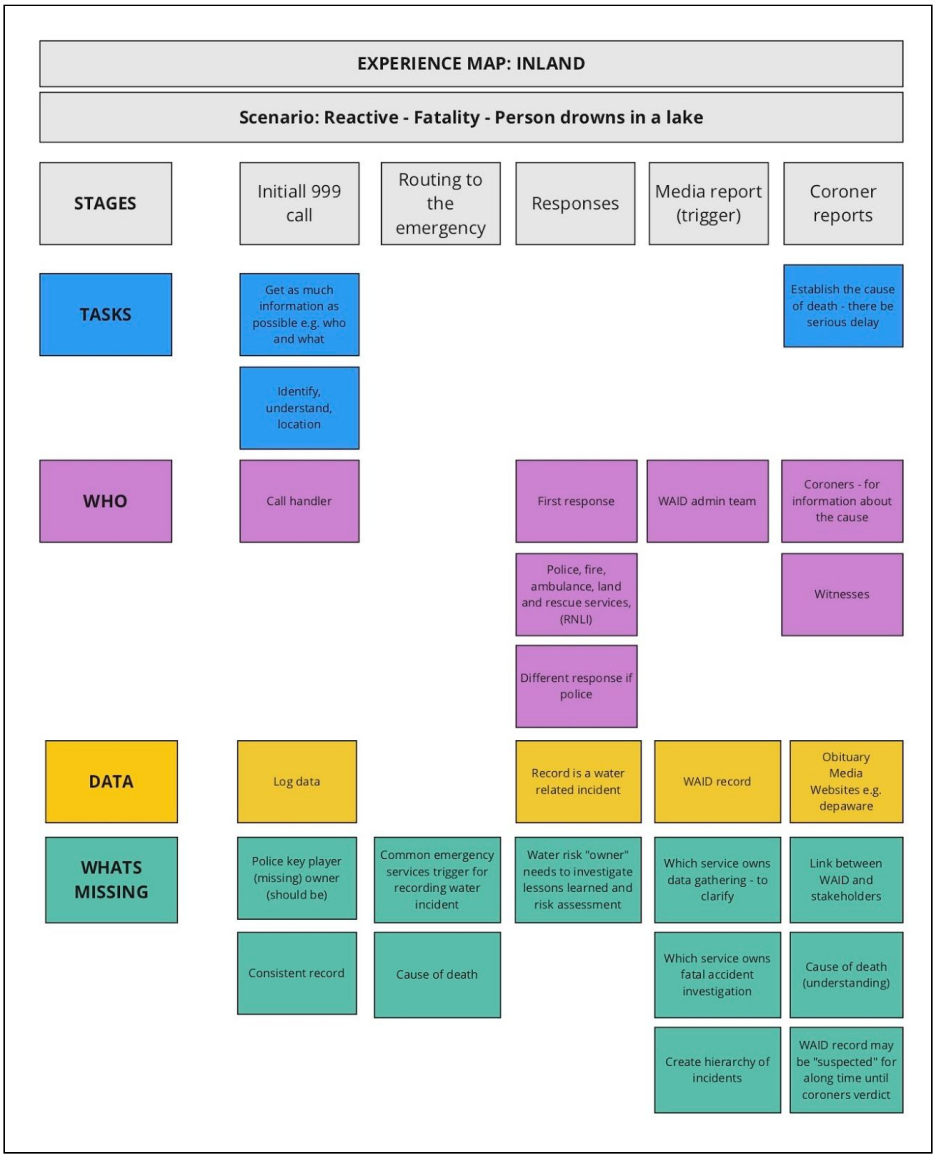
We began to notice the overlap between stakeholders and users - which is something we continued to explore in our research.

Some of the people who attended the inception and created a profile also took part in a qualitative research interview. During these interviews we validated what we captured during the inception, refining and building on our understanding of the users.

3. Incident mapping

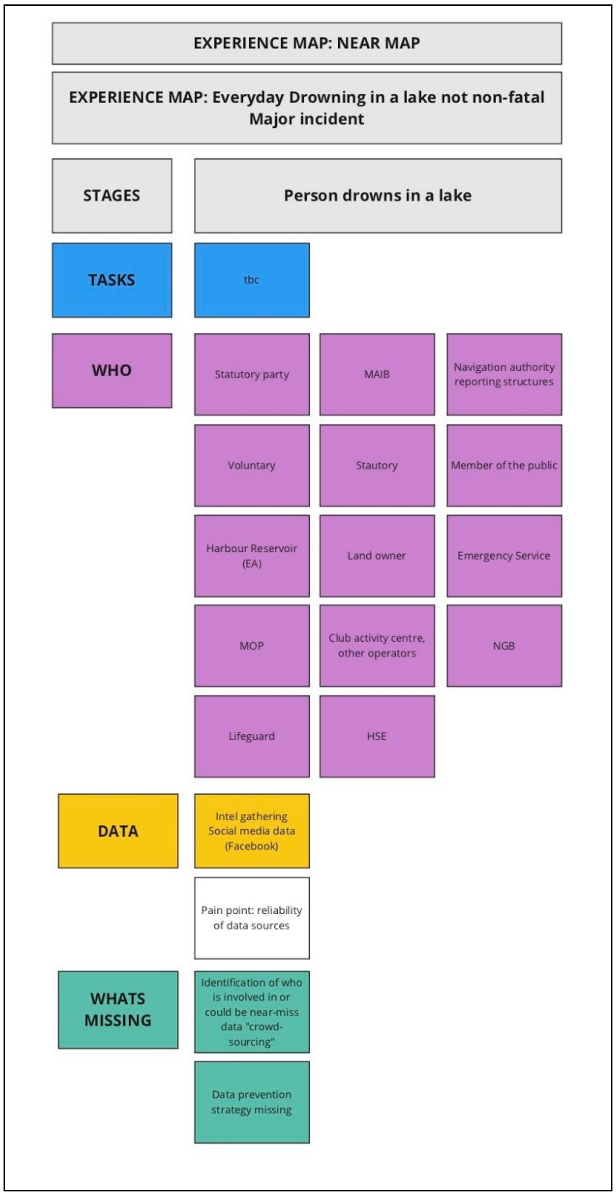
In two groups we mapped out two scenarios, which are shown below.

Inland water related incident:



Coastal water related incident:

We also began mapping a near miss incident:



The incidents created were the basis of a collaborative design session held in sprint two of the discovery, with project stakeholders and WAID users. See appendix seven for further information about the session.

4. Problem validation

We entered the inception understanding that the problem faced focussed around WAID. Prior to the inception the problem was described to the discovery team and summarised as follows:

> The Water Incident Database is no longer fit for its intended purpose. It's becoming increasingly out of date and difficult to manage. It is overly resource intensive to use, has limited flexibility and is costly to maintain.

A discussion about this during inception soon developed our understanding. The problem related to WAID, but expanded beyond the database itself, to be more broadly about water incident information.

Here are some key points about the discovery problem and the impact of this, drawn from the discussion:

- the problem involves the collection, use and management of water incident information, which is closely linked to current processes and technologies in place
- there is no standard approach to capturing the water incident information that's required to create a WAID record, and the information is disparate and hard to collate. This means the level of trust in the data is a problem
- current technology used to capture and manage this information poses challenges for its users, they can't always access everything they need, it doesn't enable collaboration, meaning users are working in silos
- there is limited continuity in some current WAID processes, and therefore risk.
- the problem impacts on the NWSF's ability to fulfil their purpose, meet their intended outcomes and enable effective action

5. Discovery roadmap

We started to create a roadmap for the WAID discovery during the workshop, by having a facilitated discussion with stakeholders.

The WAID roadmap focussed on:

1. Vision of the work
2. Motivations for discovery
3. Users and stakeholders to be involved in the discovery process
4. Goals of the work
5. Dependencies and risks to consider

We asked these questions in relation to each part of the roadmap:

1. Vision of the work
    - what is the shared vision for this piece of work? The vision should respond to the problem we've validated, and explain what you want to achieve in the future. There should be a single vision that takes into account the needs of all the primary stakeholders involved.
2. Motivations for discovery
    - why are we doing this piece of work? What is the motivation behind it and why is it happening now?
3. Users and stakeholders to be involved in the discovery process
    - identify existing users and future users. When thinking about stakeholders, we want to understand how different stakeholders may be involved in different ways. There may be an overlap between the users and stakeholders we identify.
4. Goals of the work
    - the goals are things you want to achieve, and achieving them will allow you to meet the identified vision. The discovery and research will be shaped around the goals identified.
5. Dependencies and risks to consider
    - are there any related projects underway or on the horizon that we should consider? Are there any known risks or challenges to be managed?

Vision

The discussion related to the vision of the work was refined afterwards and shaped into the following the overarching vision:

A joined-up and collaborative approach to recording water related incidents, that results in a single, open record and "one version of the truth" and contributes to the Forum's role in preventing water related incidents.

Goals

The discussion related to the goals was refined afterwards and shaped into the following set of goals:

For the users WAID

- Remove barriers, empower organisations and strengthen actions
- Greater trust and confidence
- Collaboration and knowledge sharing

- Autonomy

Ways of working and Forum culture

- Flexible and extensible
- Eliminate waste, increase automation
- Behaviour change
- Collection, intelligence, sharing
- Proactive prevention
- Simple and accessible

New approaches to data

- Accurate data
- Real-time data
- Greater measurement
- Strengthened ability to forecast
- Openness
- New datasets

Consider risk

- Risk management

Ways of working

The inception concluded with a short discussion about ways of working during the discovery. We discussed project roles and responsibilities, the approach to undertaking research, how we work in the open and share findings, and what the discovery outputs may look like.

WAID A2: stakeholder and user analysis

Contents

About appendix two

This appendix sets out our understanding of the wider group of stakeholders and the user groups we identified and interviewed. It is relevant to section 3 (research findings and conclusions) of the main discovery report.

Stakeholder and user groups

We identified over 50 stakeholders/interested parties, most of whom were users of WAID data and/or contributors (either directly or indirectly). These were drawn from the Inception workshop, interviews and input from ROSPA.

We engaged with as many as possible either by interview or online survey.

There are few direct users of the database. We categorised users into 4 groups according to their access and use of WAID

1. Direct users / administrators of WAID database
2. Contributors and users of WAID data
3. Users of WAID data
4. Potential future users/contributors

We spoke to participants from the following user groups and organisation types.

User Group	Total	Number of participants	Type of organisation
1 Direct users/administrators of WAID database	6	2	Charity (prevention)
		3	Charity (response)
		1	WAID supplier
2 Contributors and users of WAID data	5	2	Government (central)
		2	Charity (response)
		1	Charity (prevention)
3 Users of WAID data	7	1	Government (local)
		2	Subject matter expert
		1	Charity (prevention)
		2	Charity (response/rescue)
		1	Voluntary network
4 Potential future users/contributors	9	1	Leisure/National Governing Body
		1	Charity (response)
		1	Emergency / blue light services
		3	Government (central)
		1	Trade organisation
		2	Government (local)

Full list of stakeholders

Activity provider	BSAC
	Swim England
Charity - response	RNLI
	St John Ambulance
	RLSS UK
	Surf life saving GB
Charity - prevention	ROSPA
	Mental health charities e,g, Samaritans, Mind
Coroners	Coroners - England and Wales, NI
Emergency/blueli ght service	Fire Rescue Services
	Police NPCC (National Police Chief Council)
Government -central and local	ONS
	Met Office
	MAIB
	MCA
	Environment Agency
	Shipping minister
	Defra
	DfT
	Natural England
	Local Authorities
	LGA
	HSE
Government devolved - central and local	Department for Justice Northern Ireland
	Ireland IWS and Coastguard
	LGA COSLA
Health	NHS

	Public Health Authorities - England, Wales, Scotland
Land owners	Land owners with waterfront responsibilities e.g. National Trust
	National Parks Authority
Media	Media
National governing bodies - sports	British Rowing
	RYA
Public	Families
	Witnesses
	Members of the public
Recreation	Adventurous Experience
Search and Rescue	Independent lifeboats and water rescue organisations
	Voluntary SAR organisations
Swim	British Swimming Pool Federation
WAID contributors / Dbase admin access	RNLI
	MCA
	Canal and River Trust
Water bodies/orgs	Water companies
	Broads Authority
	Canal and River Trust
	STIU (Scotland)
	AINA
	TWSF - Port of London
	Harbour master/port authorities
Others - academics	Portsmouth University
Independent Consultants:	Greenstreet
	RE
	Customised mapping
Others - Misc	WAID suppliers - Coopweb
	Beach owners and operators
	Mineral Products Association

WAID A3: findings from research interviews

Contents

About appendix three

This appendix sets out the methodology behind the user research interviews and the detailed findings including the main themes and the key findings and recommendations related to them. It is relevant to section 3. (research findings and conclusions) of the main discovery report.

What we did

In-depth interviews were conducted with 27 participants from a range of organisations (see full breakdown in appendix 2).

Methodology

Our interviews were semi-structured, which means we ask a list of core questions but then adjust and ask further questions based on the responses of the participant. This allows for a certain amount of exploratory enquiry whilst ensuring the goals of the research are met.

We asked them about the vision and purpose of their organisations and:

Water-related incident data capture (for their own organisation)

- What information is being captured?
- How is it captured?
- What do they need it for?

Current WAID use

Potential WAID use

Research questions

We were guided by our overarching research questions

1. What are the goals of parties with an interest in water safety and what do they need to achieve them?
2. Can data about water related incidents be gathered more efficiently, accurately and in a more timely manner?
3. Is there a need for more data around water related incidents eg: non-fatal, causal?

The interviews were recorded, transcribed and analysed. Key insights were extracted and these were grouped into similar topics until themes emerged.

Motivation and goals

We wanted to understand what the motivation was for being involved in water safety, what people are trying to achieve and why.

We asked them about the goals and vision of their organisations and these varied widely from:

- Promoting a particular sport/leisure activity
- Leading on best safety practice
- Commercial interests (selling swimming pools/leisure memberships)
- Sharing knowledge Nationally/Internationally
- “Designing out drowning”

But the top level goal that unites them all can be described as: **to keep people safe, in and around water.**

WAID use now

There were a lot of positive comments about WAID and how it is used now. It’s also accepted that there is room for improvement and that it could meet their needs better.

> *“18-29 males most at risk of drowning - this insight was pulled from WAID data. This led us to e.g. develop key. messages for this group”*
>
> *"As far as I'm concerned WAID the best information to inform our preventative work”*
>
> *“We have identified some of our main campaigns via WAID data. We use the data to report to media”*

There are shortcomings:

> *“If the person doesn't die immediately they aren't joined up.”*
>
> *“I don't have access to the info ROSPA has, so I can't see if there's a matching incident already.”*
>
> *“WAID data isn't relevant - we don't deal with drownings.”*

Themes

A number of themes emerged and we explored those that were the most challenging (and

so represent opportunities for improvement):

- Technology
- Location
- Non-fatal data
- Investigation
- Collaboration / sharing data
- Coroners
- Suicide
- Standardised format
- Money
- Causal / Contextual data
- Terminology/Taxonomy
- Data reliability
- Timeliness
- Challenges

These are reported on below and where a key finding, evidence or recommendation is directly linked to that theme it is included.

Technology

- There's a lot of manual input
- Data is not transferred directly from any contributors
- Bulk uploads of data are added annually, they're not automated
- Consolidation of duplicate incident records is a manual task
- There is no embedded CRM, data is sent to NWSF by email
- The cause cannot be updated in a record to show Coroner's verdict
- It's not easy for stakeholder admins to learn how to input data

Evidence:

"It needs to be automated more - it's time consuming and clunky."

Key findings:

- The current system has few automated processes, requiring manual data cleansing, uploading and verification.
- Many organisations involved in water safety do not have the resources to dedicate to contributing data to WAID.

Location

- Accurate location information is important but difficult to get.

- Locations are needed for entry into the water AND where casualty is found
- It's not just the location of the incident that's important, if the casualty travelled from somewhere to that location - efforts to prevent should be focused on where they came from (eg: North Wales / Liverpool)
- Lat Longs are not always correct
- GIS tools help to identify errors and hotspots

Evidence:

"When they know where a fatality has taken place, they can then track locations and identify hot-spots"

Key finding:

Certain landmarks attract vulnerable people (eg: the Golden Gate bridge). For every fatality, around 8 people are dissuaded by an intervention. And they rarely choose to end their life at a different location.

Draft recommendations (reflected in final set of discovery recommendations):

- Continue using Lat/Long, but explore supporting alternative systems such as What3Words.
- Consider automation of Lat/Long verification (to UK).
- Introduce the new granular location types in taxonomy 2.

Non-Fatal data

- Potential users of WAID include organisations that collect non-fatal data for their own purposes
- They don't add it to WAID as there is no place for it
- This data is valuable for risk assessment (sometimes to prove how safe an activity is).
- If data from near-misses can be compared against data with fatalities a lot can be learned about prevention.
- One example we were given was an incident where the throw line snapped on a life ring. It wasn't fatal but it surfaced that Personal Rescue Equipment does not have a manufacturing standard and this discovery led to actions being taken to introduce standards.

Evidence:

*"Need to know national figures for near-misses *the point being, what if they had not been there?"*

Key finding:

Stakeholders collect their own data (mostly non-fatal) which they use for shaping prevention strategies and water safety campaigns. They are aware that they would benefit from a complete picture of data across the UK.

Draft recommendations (reflected in final set of discovery recommendations):

We found that drownings are going down, partially as a result of preventative action. But a lack of non-fatal figures means there is no evidence to show the effectiveness of prevention and life saving activity nationally. A national source of non-fatal water incident data could strengthen preventative work further, whilst also raising awareness and recognition of the imperative nature of prevention activity. Further exploration and definition of a national non-fatal water incident data set is advised (scope for a second alpha).

Investigation

- Some of the info in WAID comes from press clippings. Journalists are carrying out some investigation.
- Coroners investigate if there is an inquest. They don't share their findings.
- Investigation at the scene of the incident - there is no structure to the narrative data
- There is no *mandate* for water incident investigations.
- Learnings from investigations should be shared more widely. Could investigation reports be added to WAID or case studies communicated by the Forum?

Evidence:

"*There is a real gap on accident investigation, unlike a road accident which is investigated on site, immediately."*

Key finding:

Examples of incidents exist where the lack of knowledge about the casualties has led to education campaigns being targeted to the wrong audiences.

Collaboration

- There is a desire for more collaboration between incident responders to share data
- Better data sharing would allow services to see the whole picture of the incident including interaction with other services.
- Stakeholders would like to be able to add to incident records created by others

Evidence:

“Lots of key orgs have lots of data, but it’s just not joined up enough”

Key finding:

- There are parties investigating and searching for the same information about incidents: journalists, Coroners, Police, MAIB and public activists but collaboration and data sharing is the exception.

Draft recommendations (reflected in final set of discovery recommendations):

- Introduce a new workflow (for fatal initially) that is organisation agnostic.
- Introduce a simple and accessible collaborative incident record creation and update approach. Test this with a small group of users initially (scope for alpha).
- When introducing a new service, explain and where required, train users to use the service appropriately. A simple and accessible service should limit the need to train users.
- Identify a service owner(s) for the new WAID service.

Coroners

- Coroners offices are reluctant to share information from inquests - unless an ‘interested party’
- Coroners do not investigate circumstances of drownings unless they are considered *violent, sudden or suspicious*
- Coroners offices vary in their approach to communicating
- It takes a long time to get the verdict/outcome
- It is challenging to match up the incident if there is no name.
- Procurator fiscals in Scotland perform the same service as coroners but they are joined up nationally.

Evidence:

"It's difficult to get information from Coroners.”

Draft recommendations (reflected in final set of discovery recommendations):

- Engage with Procurator Fiscal in Scotland to test idea of data sharing and feasibility.
- Engage with Coroners to establish how we might automate final outcomes from inquests.
- Engage with Coroners to discuss information sharing and how they might benefit.

Self-harm

- There has been an increase in self-harm fatalities in the past year and it is possible this will increase due to the strain of the Covid-19 situation and the resulting economic uncertainty.
- Charities have put into place well-being strategies to protect their volunteers and staff.
- Identifying hotspots and analysing (non-accidental) near-misses vs fatal incidents has enabled the modelling of survival likelihood based on factors such as height of drop into water, surveillance).
- Data availability must be handled carefully as it can result in 'copycat' incidents.

Key findings:

- Analysis of 'near miss' and fatal data has shown factors contributing to increased rescues: physical characteristics of the location, amount of surveillance and speed of response.
- There is no UK wide dataset that includes all successful interventions.
- Certain landmarks attract vulnerable people (eg: the Golden Gate bridge). For every fatality, around 8 people are dissuaded by an intervention. And they rarely choose to end their life at a different location.
- Most people who have been 'interrupted' have not gone on to end their life at a later date.
- Coordinated efforts are required to identify and reduce this risk.
- Reporting must be handled very carefully.

Evidence:

"On suicide by drowning, we had data on a location: how many people had survived jumping, how many had been 'talked down' and how many died. This non-fatal information informed tactics for prevention."

"Water related suicide - big strain on RNLI - but greater recognition does make it easier - so data may help - and subsequently feed into preventative work."

Standardisation

- None of the stakeholders share data in a standardised format
- There is a standard ICD10 which WHO uses - nobody in the UK uses it
- It would help data sharing if there was an agreed standard format
- Consistent terminology and definitions are required to have a consistent data set

Evidence:
“What's the definition of rescue? it's important to define what that looks like”

"The matter of getting water related accident data reported in a standard format by all inputters is massive, a huge challenge."

Draft recommendations (reflected in final set of discovery recommendations):

Understand what a multi-organisation data strategy may look like. Undertake an inception as part of an alpha.

- A data strategy may consider:
    - Dataset
    - Data capture (format/schema/taxonomy)
    - Data use (including sharing and openness)

Money

- Stakeholders that do not contribute funding to WAID feel they are not heard
- Non-contributing stakeholders don’t want to ask for everything they need from WAID - they’re conscious of their non funding status
- If the data is used to improve efficiency of operational resources it will save a lot of money
- How is WAID to be paid for?

Evidence:
“There are 1,001 things I'd like to have, but I need to manage my expectations, as a non monetary contributor.”

"This helps with the configuration of the rescue assets, to meet the demand and allow organisations to act more efficiently""This helps with the configuration of the rescue assets, to meet the demand and allow organisations to act more efficiently"

Causal and contextual data

- Causal data is collected by some but not all of the stakeholders.
- For WAID the causes are in a dropdown menu and this is not really working (in current taxonomy)
- Some causes are more identifiable than others (eg: equipment failure)
- Knowing more about what happened in the lead up to an incident would help

establish the cause but that data is not usually available (unless there is an investigation)
- The contextual data is valuable but difficult to analyse as it is freetext and quality varies

Evidence:
“Causal data isn’t working at the moment”

"We collect a text narrative for each incident which includes causal information but there's no structure to it, it's up to the individuals.”

"[Narratives] A rich data source that we don't really explore at the moment"

Terminology/Taxonomy

- A lot of work has gone into development of taxonomy 2 but it has not yet been implemented
- The new taxonomy is more granular
- Taxonomies can be problematic for data that does not easily conform
- If the taxonomy makes incident reporting to laborious, it will decrease or the records will be incomplete
- Terminology needs to be clearly defined and understood by all operatives (eg: what constitutes a ‘rescue’).

Evidence:
"That's fine having 70 questions but if they're not completed you'll end up with rubbish data".

“There seems to be a box for everything.”

“Most people said they just wanted a definition of what a certain term meant e.g. "major incident"

“Many of the data fields are not fully populated, there has to be a balance between time and effort and getting the data fields.”

Draft recommendations (reflected in final set of discovery recommendations):

- Starting with taxonomy two, build a service (and workflow for users) which allows for a regular or continual evolution of the taxonomy.
- We’ve learnt that taxonomy two is large, and would suggest it may take a long time to implement. We recommend identifying and prioritising a subset of the taxonomy

that could be incorporated into a test phase/alpha in order to learn.
- A shared taxonomy or the equivalent aids standardisation of data capture. We recommend leveraging existing standardisation and continuing to build upon this.
- Ensure elements of the taxonomy used in the future are used in line with the suggestion of a minimum incident record.

Data Reliability

- There are concerns about data reliability
- It is difficult to control, it depends on the operatives and how they report the information
- Most organisations don't have the resources to carry out a QA process (although some do)
- Once more contributors are added and other sources (eg: social media/public) this could present problems around reliability
- There is still a perceived value to data that may be inferred

Evidence:
"I've never quite understood how reliable WAID is, but what I've understood is that it's the best thing we have and lots of organisations feed information into it, although lots of other organisations don't."

"It would not be possible to have the human resource to check the data for accuracy due to the huge volume of incidents collated."

"It's better to have data that's tagged with 'we think...' than not have it. Because there's quite a lot that falls in there especially in the fatality area where we may never know. It would be brilliant to be able to filter out the inferred data and see what that does."

Timeliness

- The time-lag of the WAID reports available annually for the previous year cause problems for users of this data
- Organisations have built their own systems to work around this and provide in-year fatality data - because they need it for management reporting
- Some incidents can't be finalised until the Coroner verdict is received

Evidence:
"Sometimes you find they've got the information six months after an incident has happened"

"Because the data is so out of date it can't be used properly"

Draft recommendations (reflected in final set of discovery recommendations):

- Identify how to enable frequent data collection and ingestion, leading to more frequent publication.
- Automate collection of fatal incident data to improve the timeliness of information for users (scope for alpha).
- Explore automation of non-fatal incident data to improve the timeliness of information for users.
- Replace manual intervention with an automated data feed, consider Forum members technology capability i.e. spreadsheets or restful API.

Challenges

- There is no body or organisation that has a statutory duty to investigate drownings
- A lot of drownings are inland and bodies that represent inland waterways are not sufficiently involved
- Technology at Beaches is difficult (water, sand, no signal, glare)
- There is under-reporting eg: there are an estimated 15,500 pool rescues a year but only 200 reported.
- There is resistance to publicity around numbers of rescues - pool operators think it will be bad for business
- There are 3 or 4 national campaigns for drowning prevention by a few different orgs - leading to a unclear message when it comes to behavioural change
- Many of the organisations are charities with limited resources and a workforce of volunteers. It's difficult to enforce compliance to incident reporting standards with volunteers.

Evidence:
"The persuasive output and presentation of the data is a challenge."

"Because we don't employ the lifeguards, we find it challenging to get them to collect that data on a regular basis."

"Not enough people drown for the government to care."

Findings summary

The findings from this research led to the development of the Key findings (as presented in the Show and Tell session), recommendations, data flows and user needs, and informed our strategy for the next phase of design (Alpha).

WAID A4: user data flows

Contents

About appendix four

This appendix sets out the data flows for organisations; both WAID contributors and non-WAID contributors. It is relevant to sections 1 to 3 of the main discovery report.

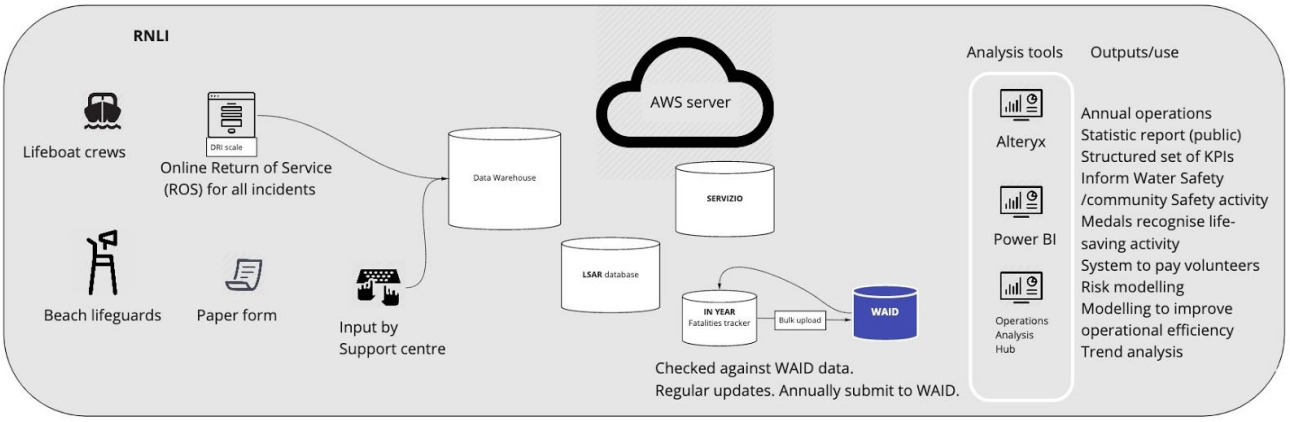
Introduction

During the course of the interviews we asked participants about their data collection and processes, how that did or didn't feed into WAID and what the outputs from their data collection were. Using their responses we sketched these data flows. We identified organisations that were helping others interact with WAID data (RLSS/EA and MCA/MPU).

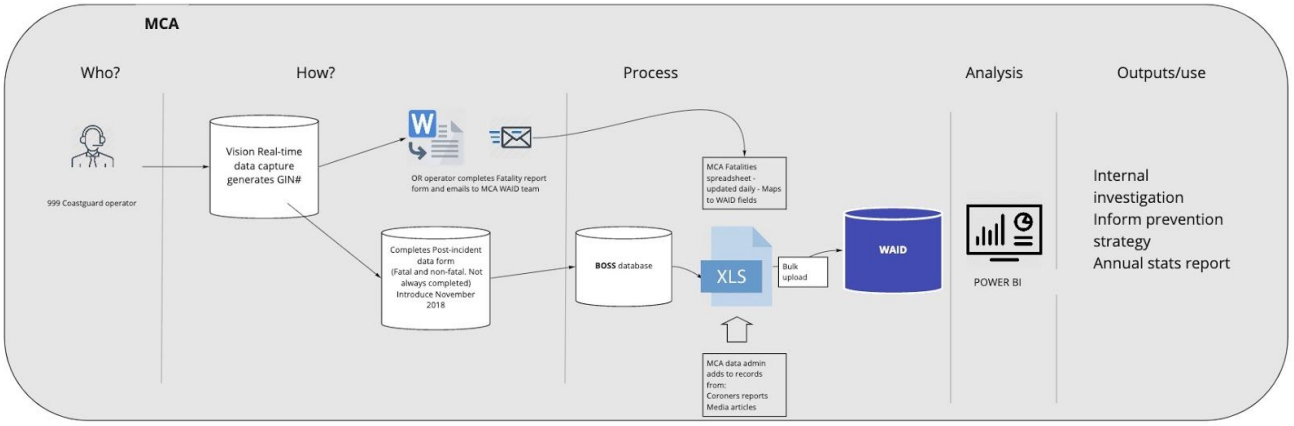
Please note: these may be incomplete (particularly in the case of RNLI who have a sophisticated data estate - the purpose was not to map out all of their processes but the areas pertaining to WAID (or that could potentially be included in WAID).

WAID Contributors

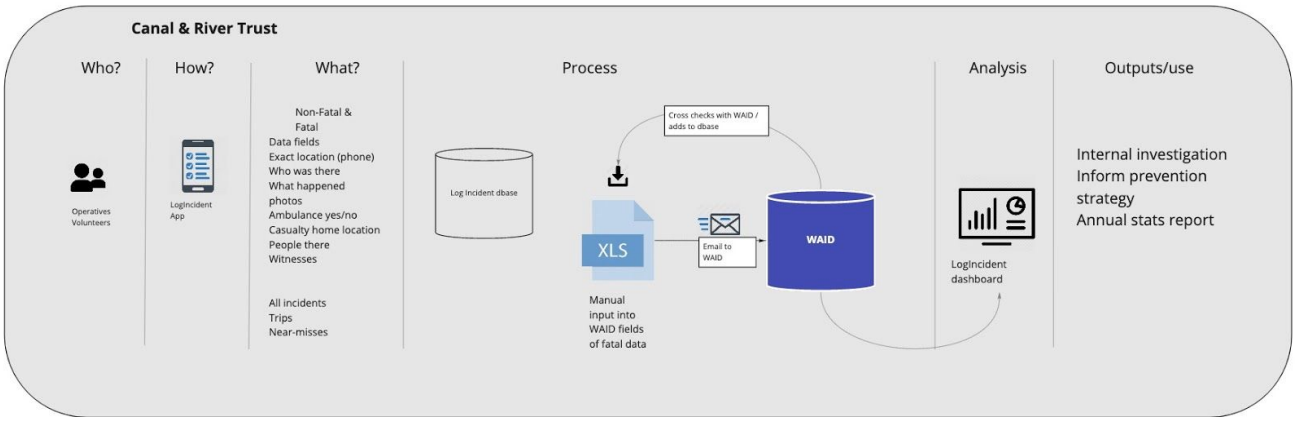
RNLI



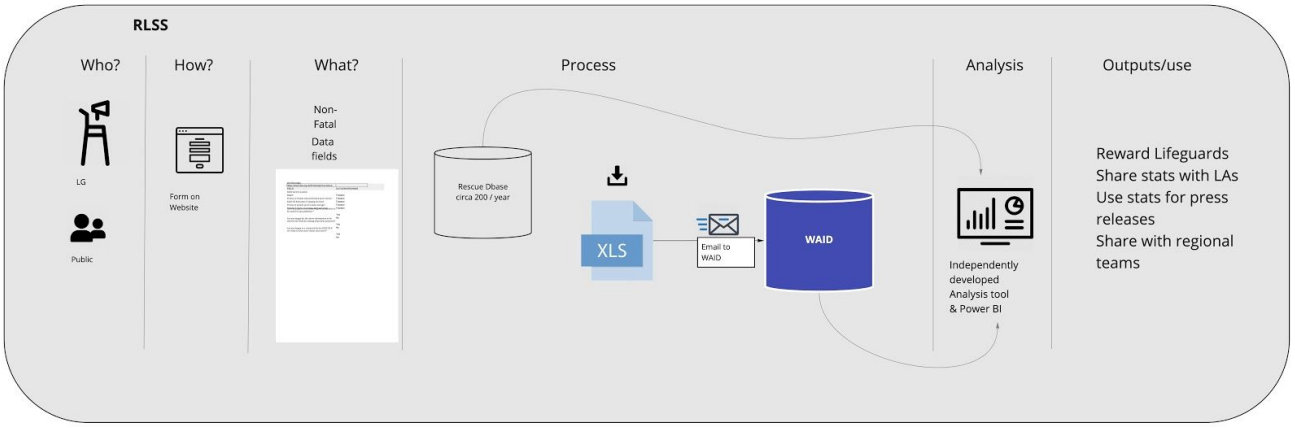
MCA



Canal and River Trust

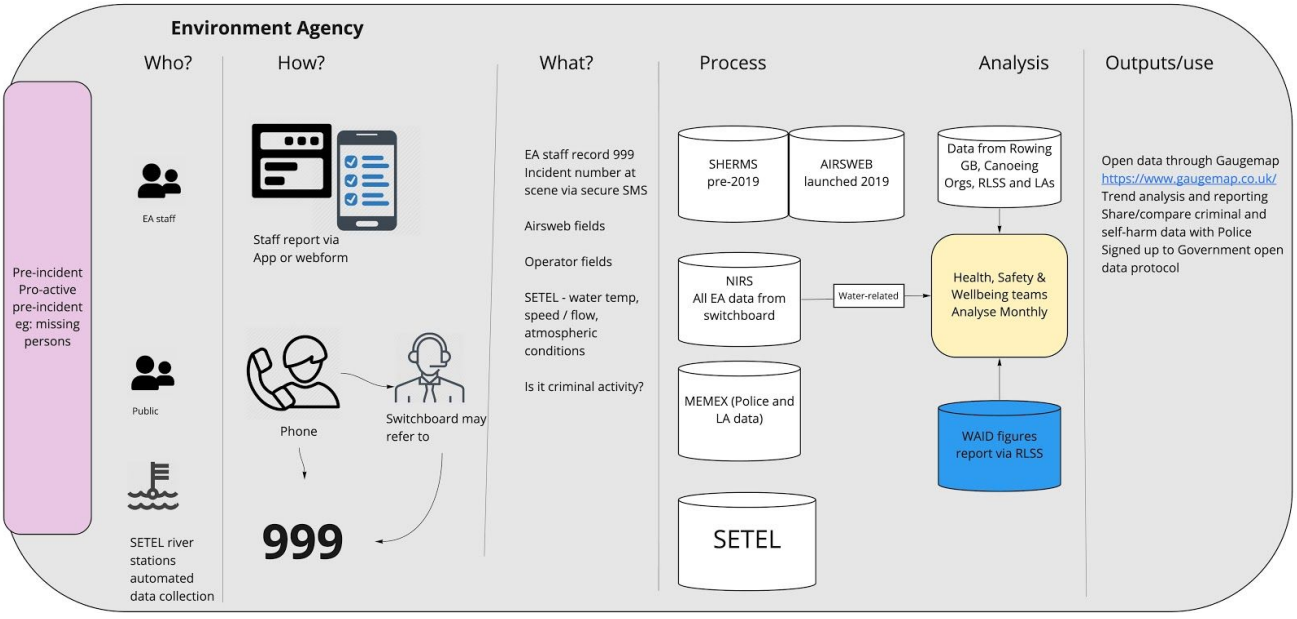


RLSS

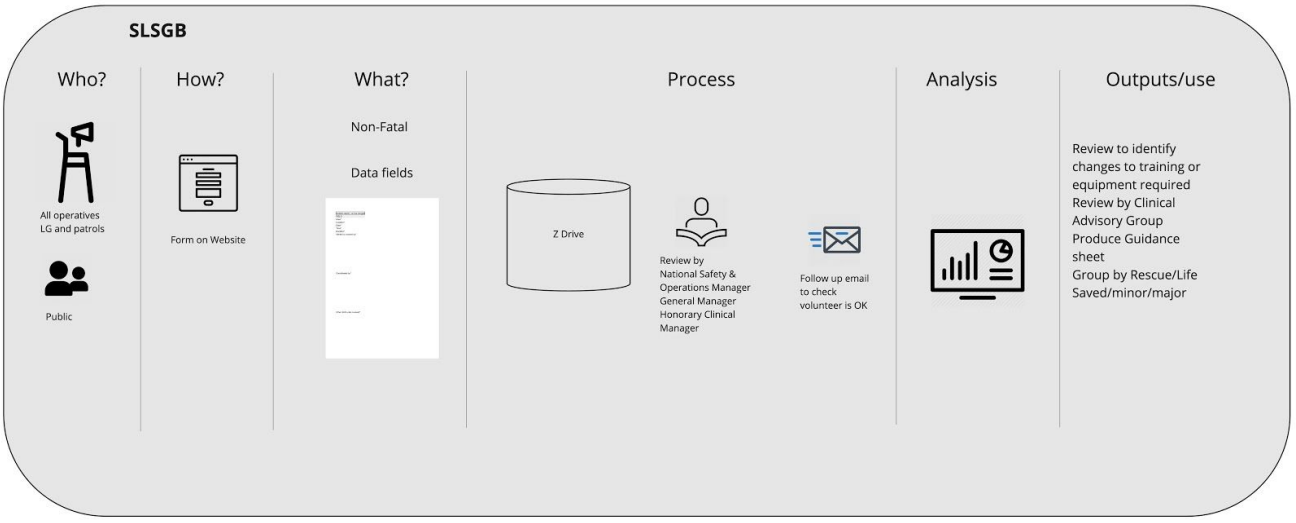


Non-contributors to WAID

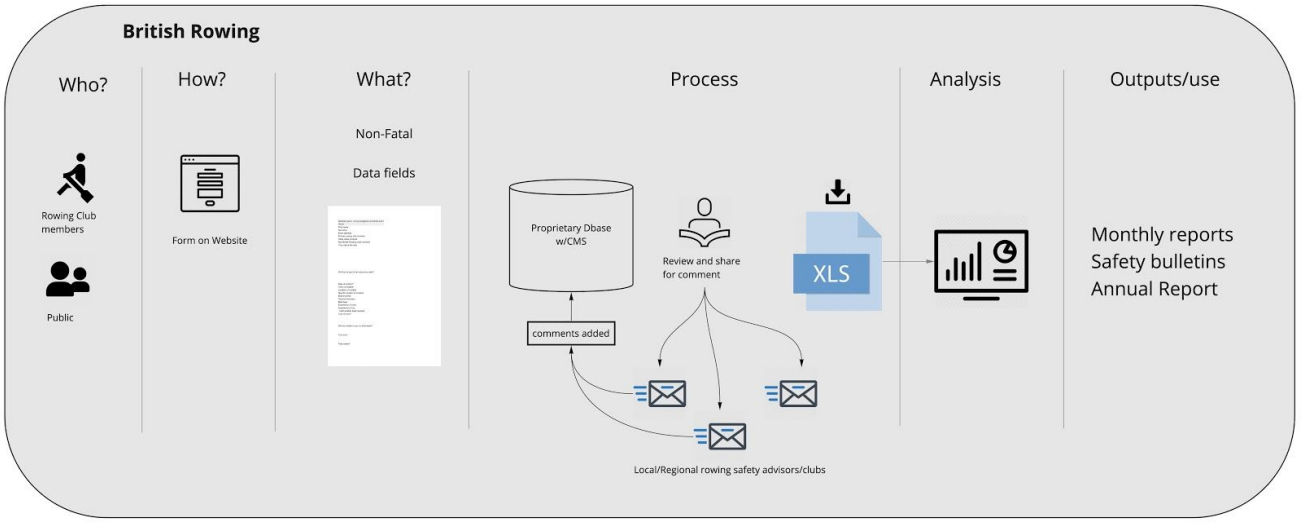
Environment Agency



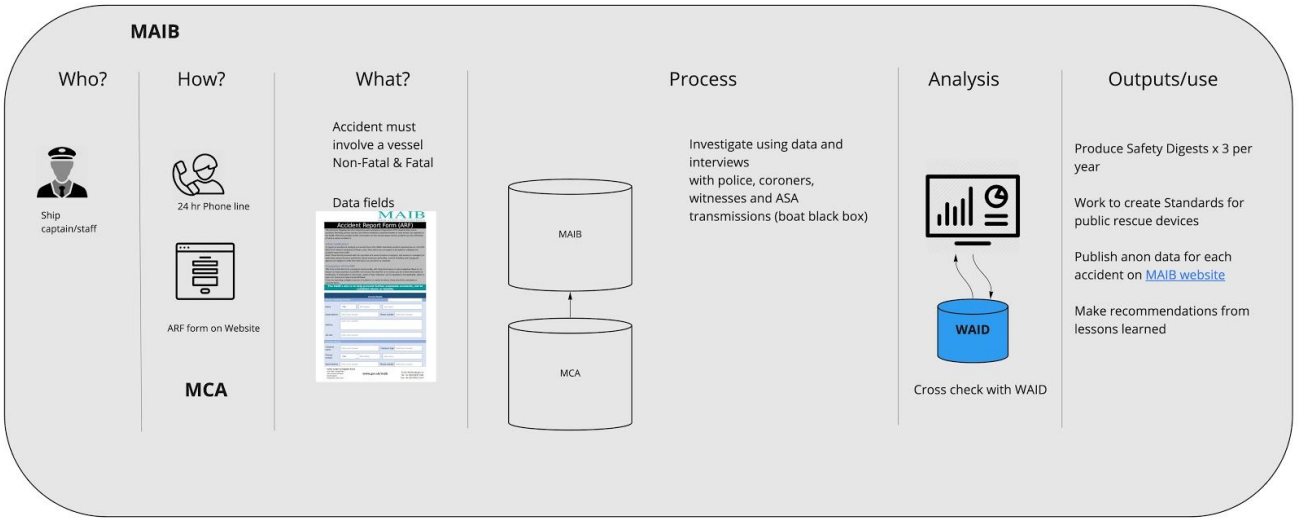
SLSGB



British Rowing



MAIB


MAIB
Who?
How?
What?
Process
Analysis
Outputs/use
Ship captain/staff
24 hr Phone line
ARF form on Website
MCA
Accident must involve a vessel Non-Fatal & Fatal
Data fields
MAIB
MCA
Investigate using data and interviews with police, coroners, witnesses and ASA transmissions (boat black box)
WAID
Cross check with WAID
Produce Safety Digests x 3 per year
Work to create Standards for public rescue devices
Publish anon data for each accident on MAIB website
Make recommendations from lessons learned

MPU


MPU
Who?
How?
What?
Process
Analysis
Outputs/use
Police boat
XLS
Log book info put in spreadsheet
Fatal
Manually enter into spreadsheet - no database.
Keeps info to ensure everyone gets identified
MCA
WAID
Cross check with WAID
Just kept on file
Data shared with MCA
MCA cross checks with their data and WAID
Mental Health Unit (NHS) analyse

WAID A5: technical discovery

Contents

About appendix five

This appendix sets out our findings from the technical discovery that took place. It is relevant to sections 1 to 3 of the main discovery report.

As part of the technical discovery we looked at WAID and we analysed a number of sources. This appendix summaries what we found.

The sources we considered included:

- the WAID non disclosure agreement (provided by Forum)
- WAID workshop summary hosted by RNLI in 2013 (provided by Forum)
- WAID stakeholder manual (provided by Forum)
- National Water Safety Forum website
- WAID 2018 annual fatal water incident report
- Published reports that use WAID data
- A number of documents about the WAID taxonomy (provided by Forum)

We spoke to the current WAID supplier twice, and a research interview took place with a stakeholder who had worked on the WAID taxonomy. We drew on other research interviews where there was relevant content to review.

We also learnt from elsewhere, including:

- Road safety data (Stats19)
- gov.uk Registers
- GDS API technical and data standards

- GDS Technology Code of Practice

The current WAID system

We spoke to Co-op Web, the current supplier of WAID, to understand how it was built and what's happened since then.

The first version of WAID was built by a sole trader. Co-op Web then took over the development. The last time that they did any development on WAID 1 was about 5 years ago. The system no longer receives regular maintenance.

The system is written in C# using .NET, and uses DevExpress 13.1.8 for the user interface. It's backed by a Microsoft SQL Server database.

The database design is too complicated for the functionality that the system actually provides. This is because the original creator of WAID designed the system around some requirements which in the end didn't get fully implemented. If another development team wanted to take over the development of the system, they would need to spend time to understand the current design and do some refactoring work to make it suitable for future development.

The technology stack uses DevExpress, which is a proprietary commercial component licenced on a yearly per-developer basis. These costs might limit the size of the team that could work on the system.

The system uses version 1 of the WAID taxonomy.

What's been built since then

Co-op Web started building a WAID 2 "alpha". It uses Laravel, which is an open source PHP web framework. It has a completely new user interface and it uses version 2 of the WAID taxonomy. It was a proof of concept to understand if they could build something that could be quickly developed and iterated. A full specification for a new system was produced, but the development of this new system did not go beyond the proof of concept stage.

They also built a dashboard to generate charts and PDF reports, using Microsoft Power BI in Azure.

The WAID taxonomy

We looked at version 2 of the WAID taxonomy. By “taxonomy” we mean the structure of the data held in WAID, and the way in which it’s categorised.
Taxonomy 2 was designed in 2010, after WAID had collected 5 years of data. Its main goal was to provide a richer and more granular view of an incident. As we mentioned in our research findings, in taxonomy 1 lots of the contextual information is only contained in an incident’s narrative, which is free text and hence difficult to analyse. For example, taxonomy 2 allows a record to collect multiple dates, times, and locations, so that a timeline of the incident can be built up. And it breaks down some values into more descriptive options – for example, it splits the “manually powered craft” activity type into activities such as kayaking or rowing.

When we were looking at taxonomy 2, it became clear that it’s already had a lot of work put into it. We think that, when thinking about building a new WAID system, it should not be the first priority for change. It provides a good place to start, and there are more important ideas to explore.

We think that it might be possible for the taxonomy to evolve in a more rapid, iterative way in the future as new data users and their needs are identified. The speed of evolution would be limited by two factors:

- the governance around the taxonomy and making sure it works for data users and contributors
- migrating existing WAID records to use the new taxonomy – this could be aided by a semi-automated review process that uses the existing data, for example by looking for certain words in the narrative to populate new or modified fields

Opening up the data in WAID

We thought about how WAID can open up its data. The only data WAID currently releases is a spreadsheet of aggregated statistics, once a year. We think that this can be improved. WAID is a rich and potentially very useful set of data. Our research has already identified some possible uses for it. In addition, when you publish open data, you’ll find that people will find uses for it that you could never have anticipated.

The aim is to give more people access to the data that WAID holds. In an ideal world, the Forum would release the full raw WAID data set. But this brings privacy issues around potentially releasing sensitive information about individuals – living or dead. So one thing we wanted to understand was how the Forum could address that risk.

We began by speaking to colleagues who have worked at the Open Data Institute. We learned more about privacy and access control. One possible model would be to release

data with different levels of redaction for different audiences. For example, the Forum could publish an anonymised but still very useful version of the data for the general public. It could then give members of the Forum, or university researchers, access to the full unredacted dataset. We were pointed towards Anonymisation Network UK, who are a group of anonymisation experts who we'd be able to speak to for more concrete advice on how to do this. This could form part of the scope of an alpha for a new WAID.

An example of similar open data – road accident data ("Stats19")

To look at a possible model for how WAID could open up its data, we looked at an example of open data which is quite similar to the data held in WAID. This is the road accident data – sometimes referred to as "Stats19" – a database of the accidents reported to the police which happened on public roads, and the vehicles and casualties.

It's published by the Department for Transport under an Open Government Licence, and is available on data.gov.uk, the government's open data site. They publish the full, raw data set, with a small number of fields redacted for privacy:

- vehicle registration mark
- driver/casualty home postcodes – replaced with a decile of index of multiple deprivation

When thinking about the privacy implications of releasing their data they spoke to the Office for National Statistics's Methodology Advisory Unit – this could be something useful for the Forum to explore.

Unredacted data is available to some researchers under a licence.

WAID A6: thoughts on open data

Contents

About appendix two

This appendix sets out preliminary findings about open data for water incident information. The ideas shared are drawn from the research completed in discovery. We suggest some of the ideas may be considered further, as part of the next phase of delivery.

We understand that some water incident information is already open, and made publicly available on the Forum's website. However we were keen to explore how the approach to open data for water incident information may develop alongside the creation of a new WAID service.

The appendix is relevant to section 3. (research findings and conclusions) of the main discovery report.

Open data was a common interest for stakeholders and users

We raised a question about the current and future approach to open data for water incident information at the discovery inception. Open data was considered by the participants when exploring the motivations for the discovery.

The goals for the future of WAID identified during inception, set out aspirations to take new approaches to data, including greater openness (see appendix one for further information about the inception).

The theme of open data continued to be an area of interest amongst the people we spoke to over the course of the discovery. We heard of the overarching value to open data, in its ability to strengthen preventive action, and to inform and build awareness about water safety amongst the public.

Making contributing data more open

The research revealed an appetite for data that may not be totally reliable, as long as it could be classified in terms of its known veracity. One participant pointed out that some of the nuanced, contextual information does not conform readily to fields in a taxonomy and that many inferences are made eg: did they intend to be in the water? If there is a scale of which parts of the record are inferred and which are rock solid they could be compared. This also would apply to widening the net of data sources to social media and the public. By classifying data this way, it can be gathered and analysed with the caveat of what's reliable and what isn't necessarily reliable. This could still result in some interesting patterns emerging.

Making distribution of data more open

On the openness of data collected, again it would need to be classified so that certain data is kept securely and shared only with the relevant organisations to allow them to carry out preventive action and data that can be distributed to the public. This particularly applies to data on suicide where - collecting more data (eg: social media listening) will be valuable but disseminating has enormous risk. It also applies to data collected which could potentially be commercially damaging. We heard that pool operators are fearful of figures around near-misses because a perception that swimming is dangerous could result in revenue loss.

The RLSS did a study on pool statistics and the number of reported incidents and estimated there were really around 1,500 'rescues' in a year where only 200 were reported. There are challenges around how to define when an intervention by a lifeguard should be logged and what constitutes a 'rescue' or 'intervention' (does it include a verbal warning or actually getting into the water to pull someone out?). This highlights one of the research findings around clear and agreed definitions.

Suggested steps to explore further

- **Start with the users**. Think about who the data users might be, to identify what data may be needed and why, to inform an approach to open data.
- **Test an open data approach incrementally.** Building upon what you learn, and alongside the development of a future WAID service.

- **Consider privacy.** When thinking about how to open up data whilst preserving privacy, it may be helpful to speak with privacy and anonymisation experts. There are people who specialise in this, for example the UK Anonymisation Network. We understood that privacy concerns were an important consideration to project stakeholders and Forum members.

- **Use standards.** Consider using data standards in the open data where they are applicable, for example, OpenActive describes sporting activity types.
- **Releasing data.** When releasing the data, consider:
    - the signposted of the information
    - how it is documented
    - how data may be released to different levels of granularity for different audiences, with appropriate access controls and authentication. The ODI's data spectrum talks about.
- **Learning from elsewhere:**
    - https://data.police.uk is an example of look at.
    - learn from how road accident data is handled (see appendix five for a summary of this).
    - look at ODI's Data and Public Services Toolkit.
    - look at Open Data Certificates to think about the characteristics of good open data.

WAID A7: service design write-up

Contents

About appendix seven

This appendix sets out the service design work we did during the discovery. It is relevant to section 3. (research findings and conclusions) of the main discovery report.

Summary

There was a light-touch approach to service design on the discovery.

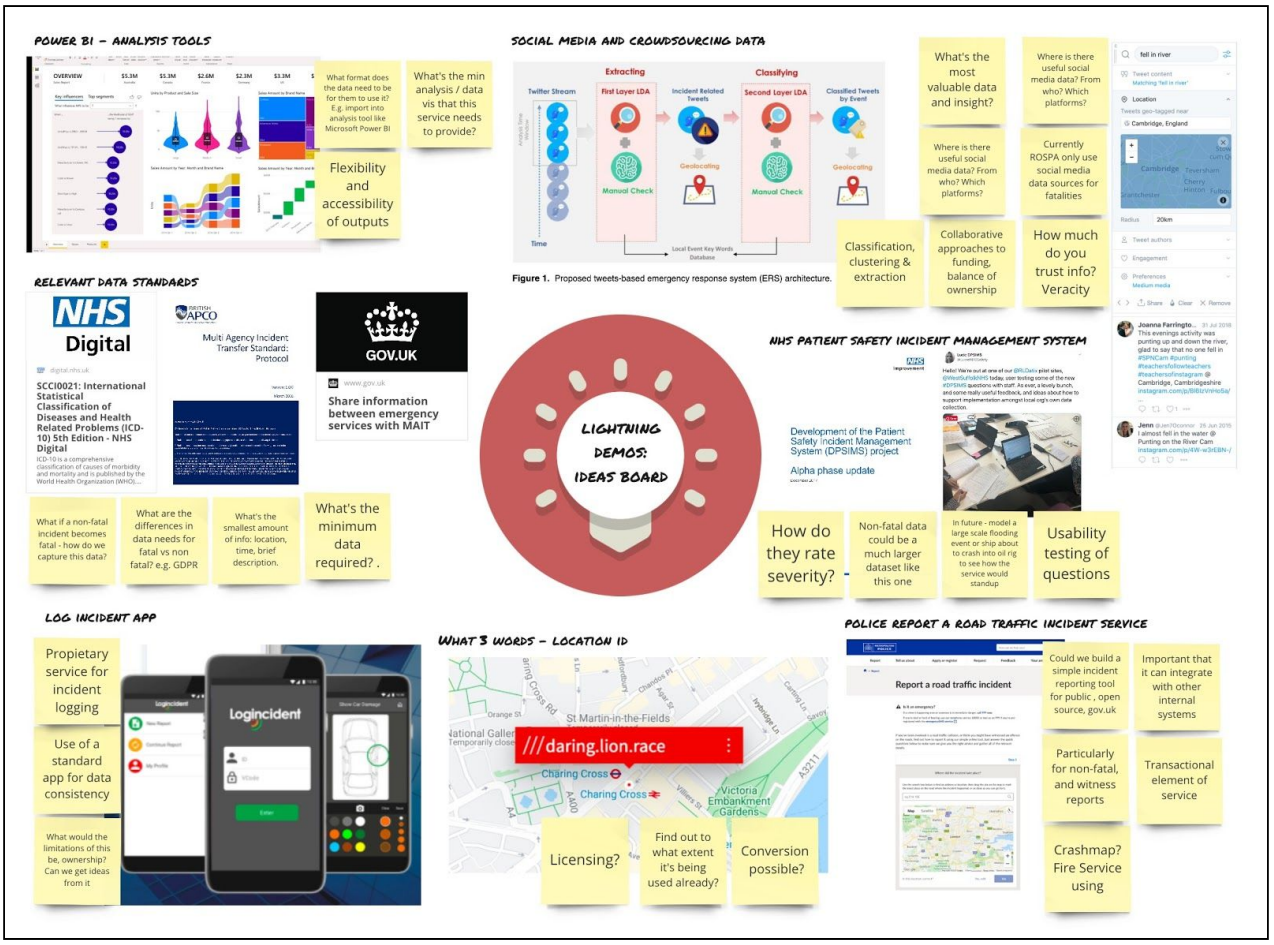
The service design work that completed included:

- **learning from elsewhere** via a 'lightning demo' workshop for the discovery team
- a **collaborative design workshop** with project stakeholders and WAID users
- **opportunity-solution tree mapping**

Learning from elsewhere

When thinking about improving an existing service it's important to look outwards and learn from best practice and technology in use elsewhere. We used a lightning demos workshop to bring this perspective and draw design inspiration from other organisations and sectors.

During the workshop members of the dxw team ran 3 minute demos of solutions or concepts they've come across that could be of relevance to WAID. After each demo the team discussed the most useful or interesting ideas and captured them in an ideas board, shown below:



Key design ideas that came out of this session:

- how could the service make use of relevant data standards such as ICD10 and MAIT
- what can we learn from off the shelf incident logging apps, such as Log Incident that's being used by the Canals and Rivers Trust. What are the pros and cons of buying versus building the reporting tool for example, costs, configurability and accessibility.
- what are the options for Location IDs? Which involve licensing, which are most useful and could the service convert between different systems e.g. What 3 Words and Longitude and Latitude?
- how can WAID data outputs feed into analysis tools, such as Microsoft Power BI that's already being used by some WAID stakeholders? What is the basic minimum analysis that should be provided within the WAID service?
- could WAID utilise strategies and technologies for crowdsourcing incident data from social media? Where could relevant data be found and how to determine veracity.
- NHS DPSIMS Project - managing large cross-organisational data sets, usability testing of questions.
- simple online reporting forms such as those in use by Police for reporting incidents. This could be built using the GOV.UK Design System.

The relevant ideas from the lightning demos workshop were synthesized into the discovery recommendations.

Collaborative design

In sprint two we completed a collaborative design workshop, often referred to as a co-design workshop.

The objective of this session was to imagine what the future WAID service might look like and generate ideas for possible solutions that we could go on to prototype and test.

The workshop was attended by a representative group of 5 WAID stakeholders and users as well as the dxw team.

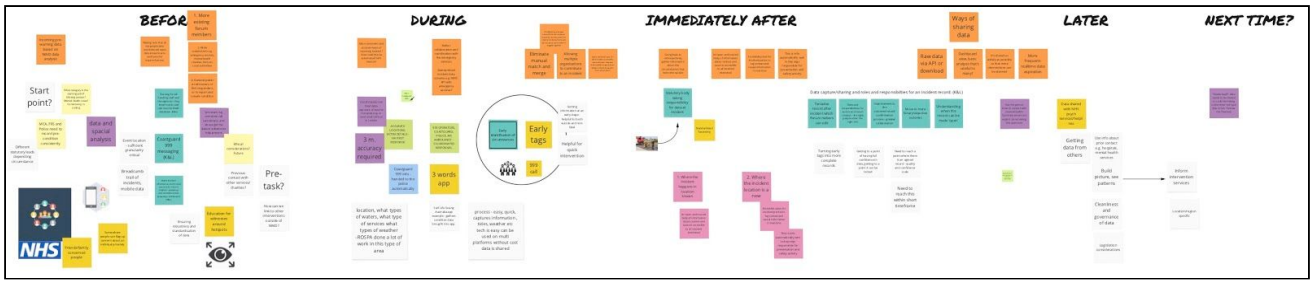
During the session the group completed a storyboarding activity structured around 2 water-incident scenarios. The scenarios were based upon those initially discussed at the inception workshop, but simplified into 2 high level scenarios covering the main incident variables:

1. Fatal, coastal, suicide
2. Non-fatal, inland, accidental

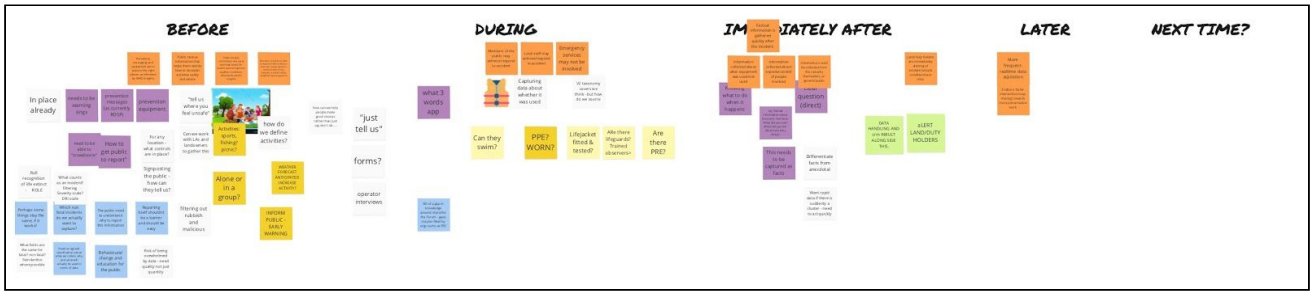
Using digital collage techniques the group worked together to depict how each scenario might look in an ideal future. When working through each scenario the attendees were prompted to consider how tools, processes and data could be improved to meet the future goals for the WAID service. At the end of the workshop the group had created a rich storyboard for each scenario, filled with ideas and possible solutions for each stage of the incident timeline.

These are scenarios created by the participants:

Fatal, coastal, suicide



Non-fatal, inland, accidental



The ideas generated in the co-design workshop have been used to:

- inform recommendations contained in the main discovery report and recommendation annex
- create a future user journey contained in the main discovery report

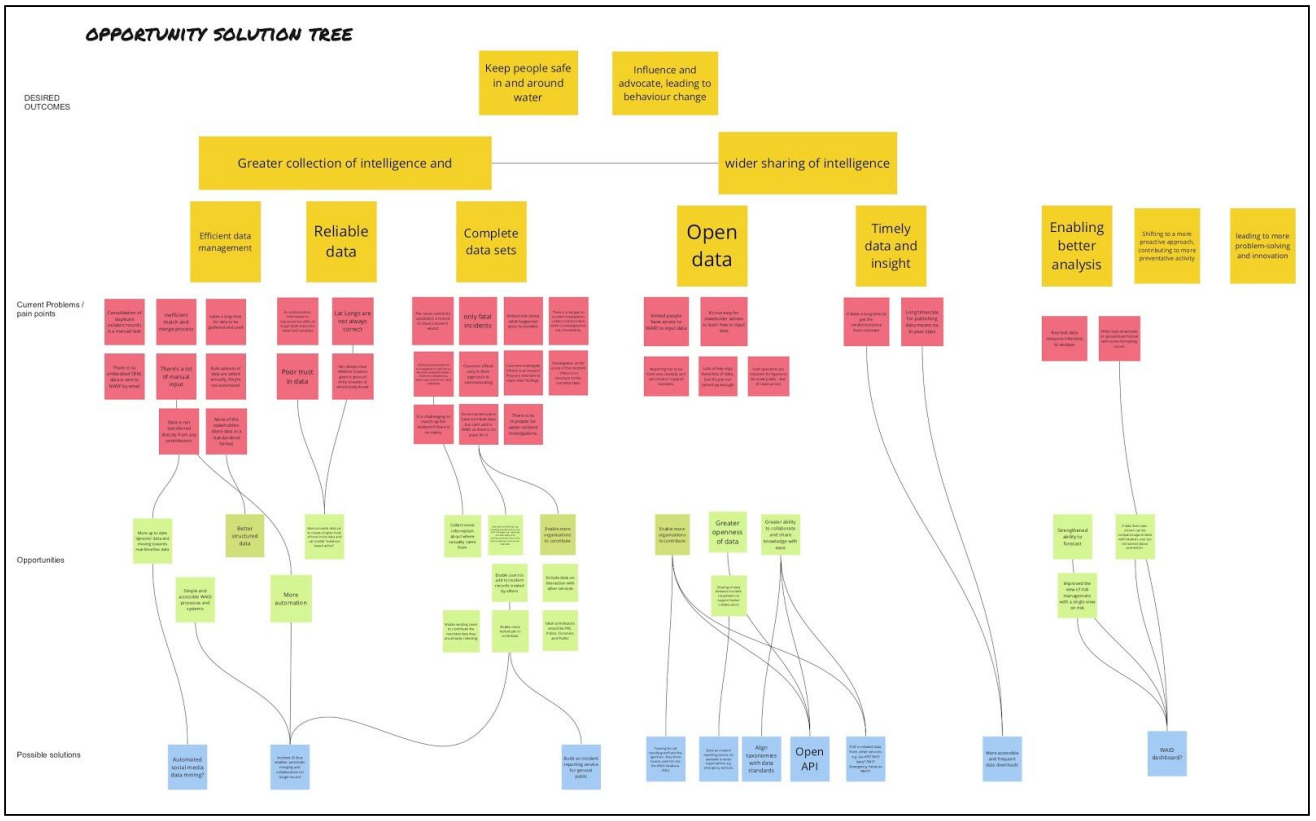
Opportunity-solution tree mapping

Towards the end of the discovery we used an approach called ‘opportunity solution tree mapping’, to help shape the discovery recommendations.

This approach helped us to shape, ground and prioritise our recommendations.

We used the mapping approach by thinking about the potential future solutions and recommendations, and tracing them back to research insights and initial project goals.

This is what our opportunity solution tree mapping looked like:



This work fed into the recommendations contained in the main discovery report and recommendation annex.

WAID A8: online survey findings

Contents

About appendix eight

This appendix summarises the findings of the online survey which was live between March 17-April 10th. It is relevant to section 3. (research findings and conclusions) of the main discovery report.

Introduction

We conducted an online survey to capture stakeholder feedback which had 62 respondents (with 30 completing the entire survey). We asked them about collection and use of their own incident data and how/if they interacted with the WAID data.

Work done previously on WAID had revealed a problem

“Nobody could actually say what they really wanted to use this data for”.

We asked participants directly what they used their own data for and what they used WAID data for. Many responses reflected what had been heard in the interviews but where respondents came from different backgrounds/roles to those interviewed, answers are shown in full.

How participants use their own data:

- To inform evidence based decisions about risk
- To provide a clear understanding of water risks
- To identify and analyse trends and hotspots (high risk sites)
- To ensure efficient planning of operational activity and resources
- To comply with Government or statutory requirements
- To prepare for Court proceedings or incident review
- To inform training and safety advice
- For management/annual reporting and statistical analysis
- To compile a ‘safety digest’ of learnings from people’s mistakes and/or good practice
- Statutory emergency records, collated nationally.

“The purpose is to turn data into evidence that can then be used to drive actions that improve water safety.”

“To identify trends in data sets , improve our preventative work and to improve our response to water related incidents. It provides us with a clear understanding of our water risks, profiling who is getting into difficulty around water, and how we can improve our response (both location of assets , training and mobilisation methodology).”

“ It is recorded due to governance and legal obligations, there must be a record of incident information if there were to be an investigation or a request to attend a coroner's court due to an incident. The information gathered can help senior management make important operational decisions, and it can also be requested by other organisations.”

“To allow for greater knowledge when planning searches. To carry out regular peer review. In support of further investment by the authorities.”

“Operational assurances to MCA for declared assets. Strategic decision making of assets. Health and safety of crew. Educational purposes - understand why people got into difficulty. Press and PR opportunities to raise awareness of charity and services.”

“We publish an annual diving incident report we use the data to inform development of training and safety advice we use to understand trends and to respond to requests for research data .”

How participants use WAID data:

- To shape water safety strategy and prevention activities
- Underpinning water safety education work to understand who is at risk and what causes the accidents
- To help with SLSGB CAG Clinical Advisory Group to guide practice and also event planning.
- Identifying hotspots and to see overlap with our high risk sites.
- Where relevant to provide a context to our data.
- As an evidence base to inform campaign design and delivery.
- To identify incidents in need of investigation and relevant trends that indicate further strategic action is required.
- To correctly site Public Rescue Equipment (PRE)
- For water safety education
- To plan local campaigns and community action
- To report to Government, gain support of MPs and Local Authorities
- Justify trade associations support

“Informing our suicide interventions with clients who have been referred to us where alcohol and/or drugs have been a factor in their suicidal behaviour around or in open water. Referrals in West Wales around this set are predominantly made via Neighborhood Police teams stating suicide behaviour in sea (involving or not cliffs) or rivers. Awareness of managers as to issues helps inform treatment and campaign interventions locally”.

“ We have a joint project with the RNLI as part of the Drowning Prevention Strategy, this has created a joint community safety programme. Coastal volunteers deliver safety

messages to the public based on the data and information gathered and the types of activities people are taking part in."

"Use within general communications - within the membership and external communications. Helps us to justify the trade associations support for national drowning prevention strategy, why we are working with a range of other agencies, why it is important for members to raise water safety awareness with employees, to see overlap with our high risk sites."

" I use the info in many different ways. To educate and share the extent of the problem we have. To get backing from MP's and or the public who may be unaware of the dangers that open water possesses. To encourage councils, companies and organisations to do more. That can be legislation, signage, water safety equipment in place. "

"Engagement with families, police and SARS across the charity region to inform communities of risk. Also linking key behaviours to national safety messages/campaigns to raise awareness and reduce risk. Purchasing of bilingual campaign materials to deliver in affected areas and engage with media in written and electronic formats."

"Promoting safety information to the swimming pool and hot tub industry."

"To report to Government and to inform prevention activity and promote water safety publically."

Who participated?

Fire and Rescue

Ambulance Service

Water Safety Activist

WAID administrator

RNLI

Search and Rescue

Beach lifeguards

Local Authorities

Water Safety Educators

Community Water Safety Groups

Substance Misuse services

Harbour/Port authority

Flood rescue

Trade associations

Road Safety

Water Safety Equipment suppliers

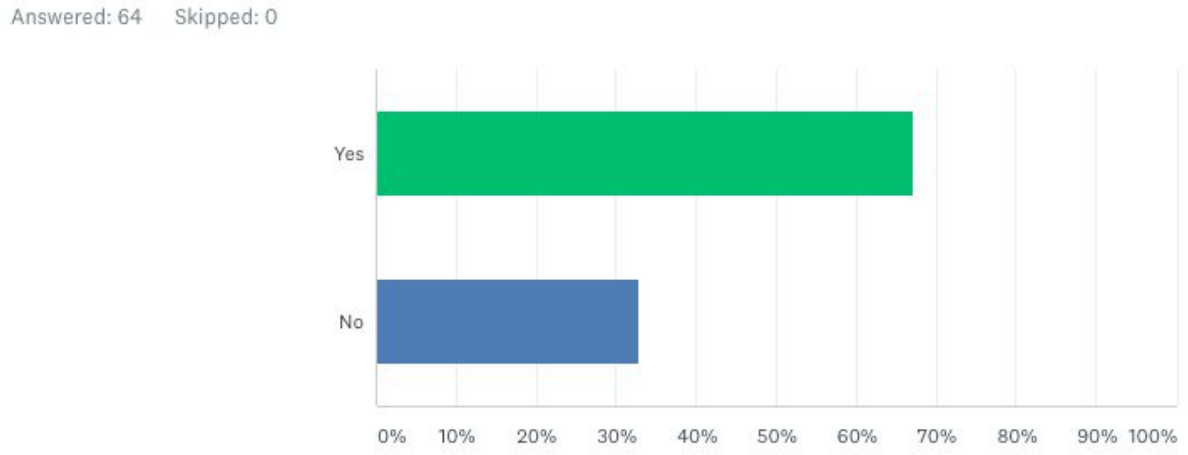
Health & Safety advisors

Consultant - Independent expert

Part 1 - About collecting water-related incident data

The first section of the survey was around how organisations collect their own water-related incident data:

67% collect water -related incident data for their own organisations



How they collect data

Data is collected with a mix of paper and electronic means (including CCTV, Radar, recordings of phone, radio and radar channels) although largely on paper first (then transferred onto a platform). Blue light services have automatically logged control room calls feeding into their (IRS). Paramedics use AMPDS. Evidence from VHF and Radar, Interview of Witnesses, Microsoft AX

This is automated for some services:

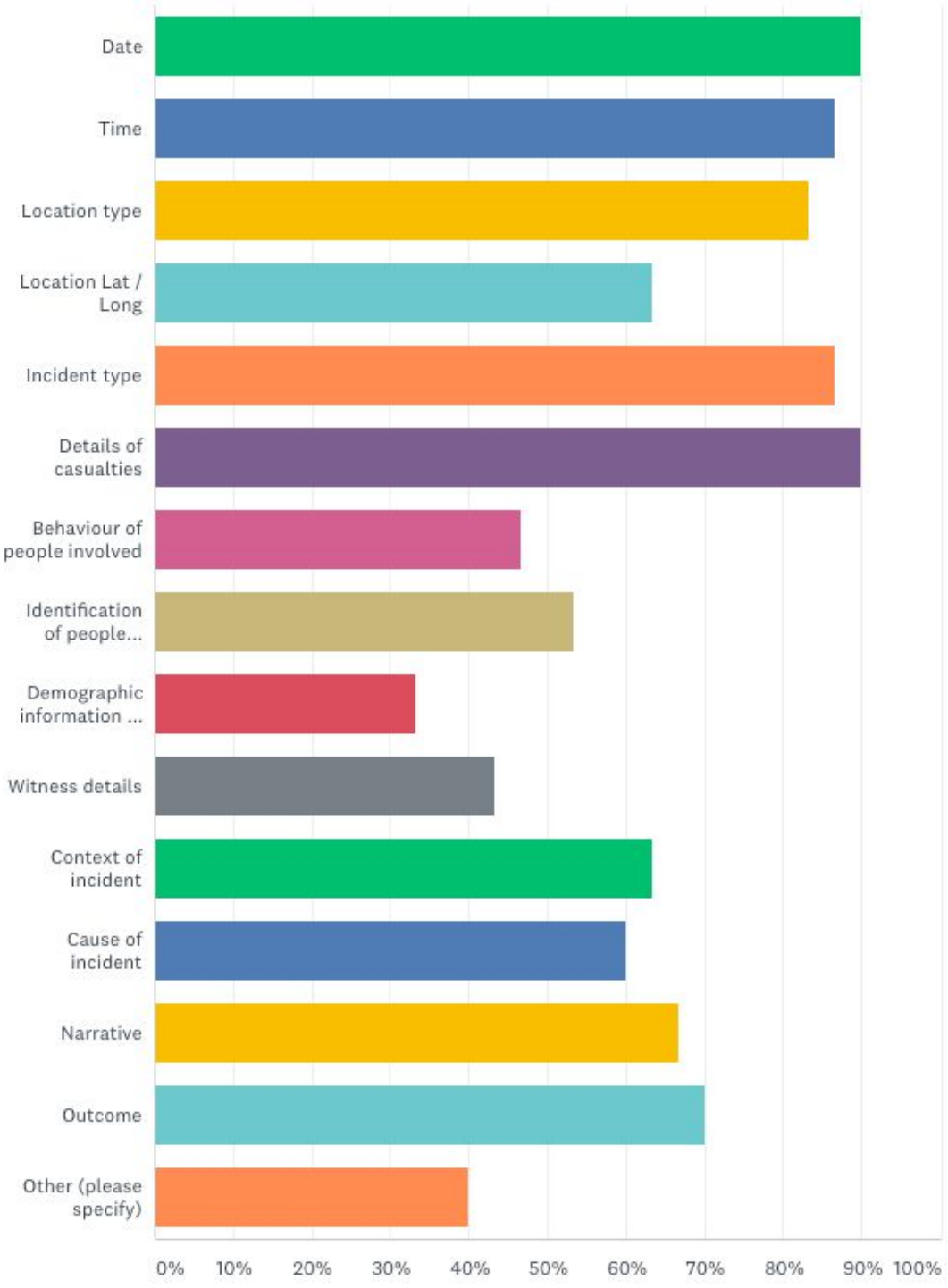
- The ambulance service use a system called MOBIMED , which draws data off for national ambulance statistics
- Captured through our IMAP database and stored in Document Manager
- SARMAN and AIR (Association Incident Recording) database. Part of Lowland Rescue
- Storm CAD C&C
- information captured from our mobilising system is automated and then enriched with human input, largely from the firefighters that attended the incident
- InFo Exchange provides by Alcumus
- Automated internet searches for media reports on water related incidents in quarries

Data is collected manually for many participants with some organisations having elements of automated collection which are sometimes added to manually.

“The Operational Control System transfers key details to our Incident Recording System which is then added to manually by operational crews”

What data do they collect?

Answered: 30 Skipped: 34



Other responses highlight some of the challenges of collecting data:

"The above response is that of ambulance at scene recording. My example described how easy data is missed. Location is usually away from incident. If RNLI lifeboat and on duty Lifeguards, HMCG and SAR-H, they record things as per their procedures, as does Police and Fire, but all generally ask ambulance service in. ***Easy win is to focus on ambulance service****. Self presentation at hospital or other healthcare (GP Minor Injury unit, all have different medical approaches). The Fatal Padstow drownings had 7 different organisations investigating."*

"Details of casualties very basic, age, sex, name and what injuries reported in media. This is the same for demographic data. The data we cover is basic so that we have knowledge/ stats of number of injuries/fatalities occurring in quarries (active or disused, nature of quarry e.g. sand and gravel, hard rock, - whether member or non-member site - who owns if known - location - this includes all incidents involving members of the public injured in quarries/wharf regardless of whether or not water involved)."

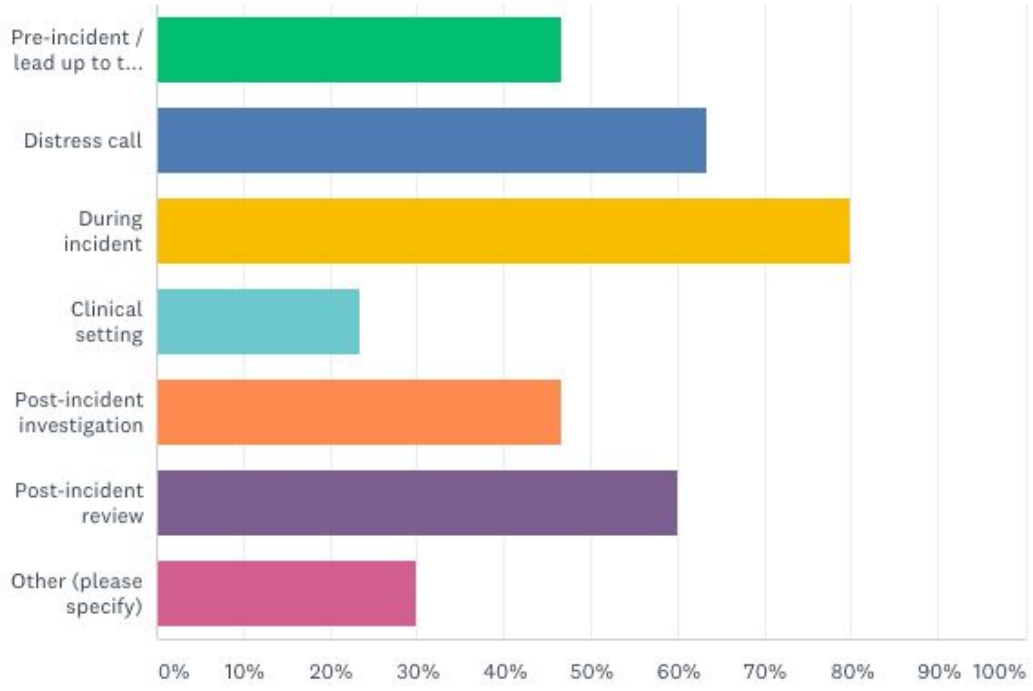
"A lot of information is collected via volunteers and not always consistent."

"Activity type/ what happened. Location feature, alcohol drugs involved, location name, boat type if applicable, water depth and environmental features (if available), coroner information, In regards to witness details - we record observations in the narrative but no personal details. If by demographics you mean where they live etc, we don't record this and it is not currently captured on WAID."

"This is usually from notification to RNLI (usually from coastguard) to the end of the incident from an RNLI perspective. i.e. the lifeboat returns to the lifeboat station and casualty (if any) handed to other services."

When is data collected?

Answered: 30 Skipped: 34



Other responses included:

"Although all of these may be included in one entry in the Safer Communities Wardens action logs which we share with SFRS (where applicable) and our new mobile working app which records our performance management data."

"I wrote the data fields for SLSGB SEAREM after collating first County data in Cornwall, where at time discovered the volunteers and paid council lifeguards were rescuing and preventing water coastal deaths to exceed lifeboat statistics nationally at the time (1990's)."

"We are interested in collecting data for all of these stages."

"We try and attend Coroners Inquests whenever we can to capture any relevant information."

"Post-incident review only by exception (injury to crew, or large scale PR)."

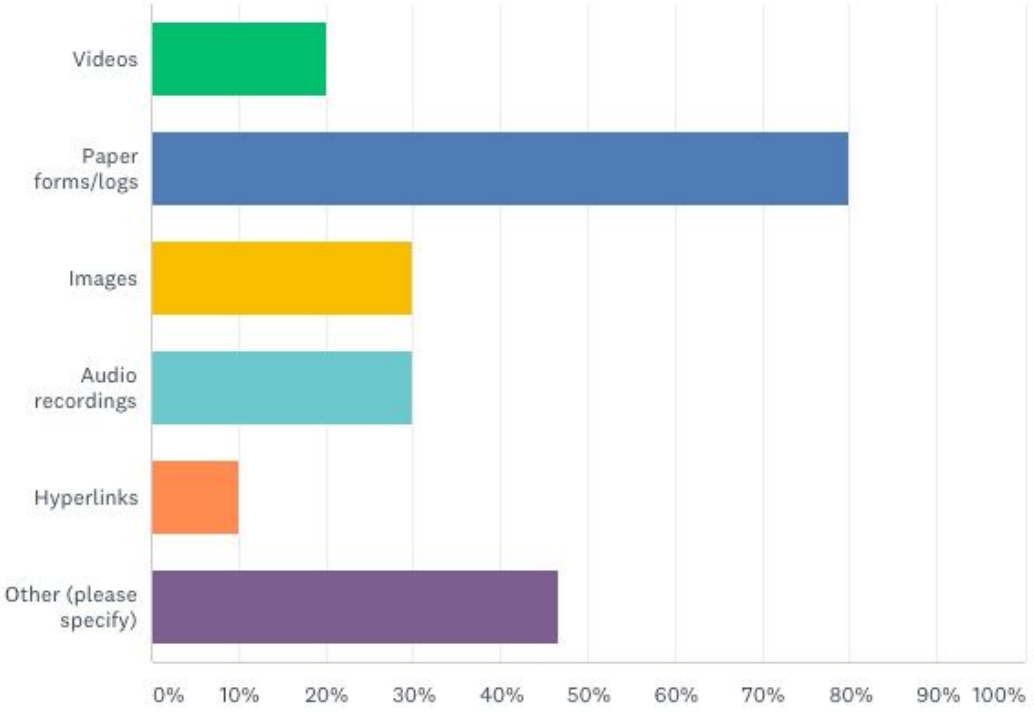
How do they ensure data is correct and complete?

- We follow a quality assurance process to resolve recurring or known issues

- There is some cross referencing with partner agencies though admittedly this is limited and happens on an ad hoc basis.
- The first point of recording data is at our Fire Control Room; where this data is captured on our command and control system. Crews will complete the incident recording system (IRS) which captures the key points
- Witnesses , and confidential medical notes, down to clinicians experience. Thankfully in some south west areas they have a lot of ex-lifeguards in ambulance services but they assume ambulance advisors are aware and the processes can collect the relevant data.
- Well established investigation process utilising the MAIIF Investigation Manual during which we consider "PACE" as some of our incidents end up with prosecution under our Bye-laws
- Information is shared and checked by Officer in charge
- Real-time information and tracking and info from Police
- We trust our voluntary clubs to provide accurate records and feedback
- Pro forma as part of procedure to check for completeness
- It depends on the incident. Recordings are for harbour regulation purposes - SAR data is not comprehensively recorded as that is the responsibility of the Coast Guard.
- ID if they have it, ships name IMO number, photo's

What formats are used to collect data?

Answered: 30 Skipped: 34



Other:

- RADAR and VHF
- Incident logs
- Excel Spreadsheet
- Digital forms

Do they collect ‘near-miss’ data?

29 answered this question, with a few exceptions they all collect either all incidents attended or near misses. Different terms are used for near-misses including ‘Assistance’ and ‘Safety Improvement Opportunities’.

“Yes all related activities are recorded in the Safer Community Wardens daily electronic logs.”

“Not in ambulance service - unless waste of response. There is a written commentary of facts known.”

“Yes, All PIR (Port incidents report) and NMR (Near miss reports) are recorded and investigated.”

“Yes, have a health and safety reporting tool.”

“Yes (near-miss data) under heading 'assistance'.”

“ Yes - if it gives us greater knowledge of potential hot spots against trends, clinical governance and lifeguard support.”

“Storm will capture this but won’t be downloaded unless specifically requested.”

“Yes - we call these Safety Improvement Opportunities.”

“Yes, spread across 8 categories 1 Fatality 2 DCI 3 Surface/Boating 4 Ascent 5 Technique 6 Equipment 7 Illness/Injury 8 Misc.”

Do they collaborate on data collection and who else contributes?

Some collaboration does take place particularly between emergency services/agencies. Data is collected pro-actively from media sources, public and Coroners. There is caution around data privacy.

Collaboration taking place:

- SFRS and Police Scotland. Also members of the public will occasionally report defects or theft to water safety equipment and signage.
- Public, Police Marine Unit, commercial operators, Maritime and Coastguard Agency, Local Marinas and Local Yacht Clubs
- RNLI, Coast Guard and NCI
- Partner agencies, witnesses, tasking authorities.
- All our voluntary lifeguard clubs, current numbers are 31 throughout Wales
- Police, members, other statutory authorities
- Members, other diving organisations other rescue organisations, media information
- HMCG, RNLI Launching Authority, casualty themselves.

Data protection concerns:

- Anyone involved in an incident is recorded, but we only record information for ourselves.
- Protected data would need to be released under appropriate regulation or law.
- Only our own staff can access our logs

Pro active research:

- Members and the media reports we pick up
- In the information we hold which is mainly press articles, the public, relatives, police and other emergency services contribute to building up the picture of the incident. Coroners contribute information along with other WAID stakeholders if we don't have all the information we require If an individual wants to report a particular incident to our organisation, then occasionally we get this information via our help inboxes

No collaboration with data:

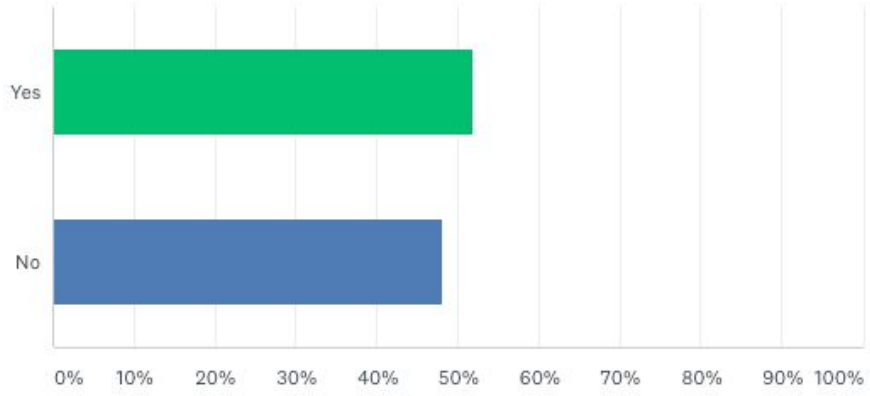
- Only SLSGB members
- No other contributors
- Instructors and lifeguards only
- We would like to make it as easy as possible for those involved with response to incidents to contribute. Including landowners, water front and on-water operators, and if possible the public

Part 2 - About WAID

About contributing data to WAID

Do respondents contribute to WAID? Around 50% do.

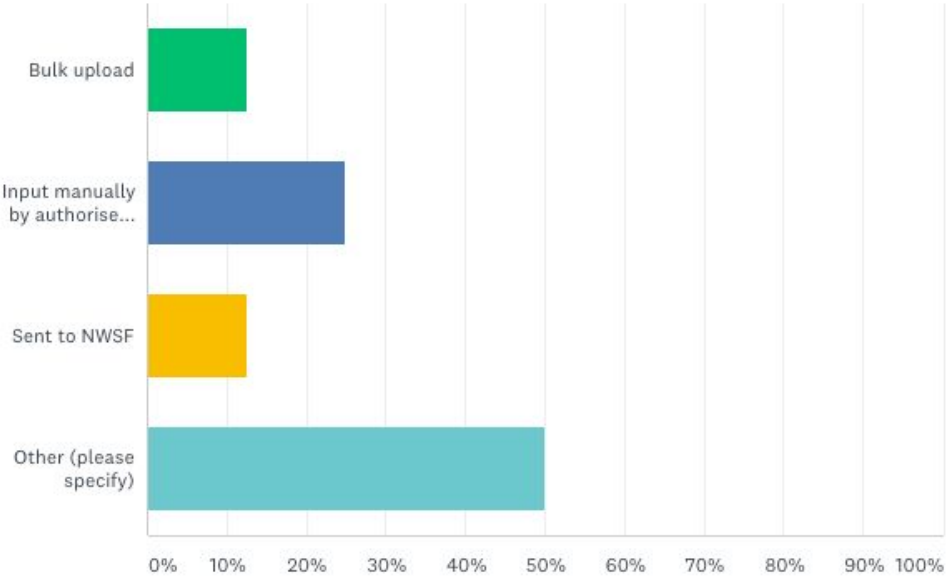
Answered: 27 Skipped: 37



How do they input data into WAID?

Only 16 answered but the majority is manual input either by their own or WAID superuser.

Answered: 16 Skipped: 48



"Very occasionally we have shared a file with WAID to cross reference our data with your data - mainly to identify gaps or where the location of the incident has been described differently."

Is there data gathered that is not submitted to WAID and why?

100% of respondents stated that there is information collected by their organisation that is not submitted to WAID including:

- Medical information, circumstances, causes, linked to incidents.
- More recent data.
- We collate data from every incident the Coastguard attends, false alarms and non fatal data is not added into WAID.
- All the interventions, near misses, MAIB reports by us.
- Non-fatal Operational stats.
- Republic of Ireland fatalities which is outside the WAID remit. British citizens drowning abroad.
- Records of 999 calls.

Why don't they submit this data to WAID?

"It would not be possible to have the human resource to check the data for accuracy due to the huge volume of incidents collated. As an organisation we would need to change the process of how emergency calls are recorded from the beginning, there also may not be a robust way of checking for accuracy. For example, lat and long is only recorded at the beginning of an incident as a rough location. If that location is incorrect then it will not be updated, simply recorded within the narrative. There would not be the human resource to check each incident narrative to find a revised incident location"

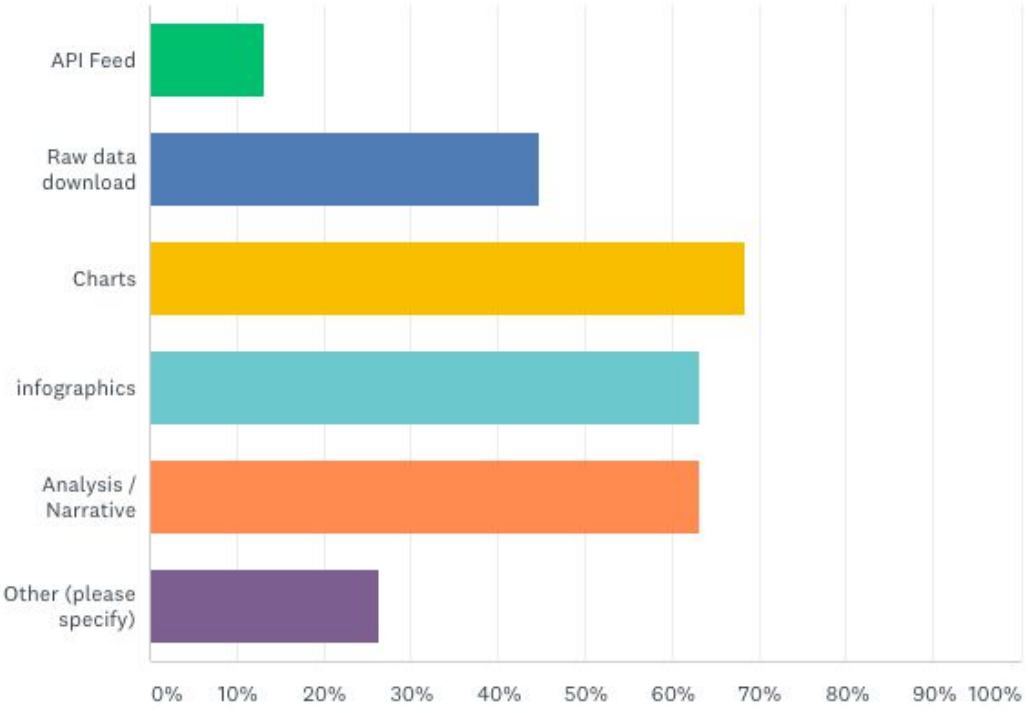
A number of reasons, such as: * No office support only volunteers * Mainly incidents are dealt with without the need for an incident number from HM Coastguard, ie. basic first aid, non-serious assistance, etc.

About the use of data from WAID

87% of respondents (answered by 48) use WAID data

What data formats do they need?

Answered: 38 Skipped: 26



- Going forward it would be useful to be able to select relevant data from WAID and cross reference with our data. This has already happened in the past.
- Bilingual Welsh language as per Welsh Government language act.
- We mainly refer to the Annual WAID reports but this may expand as we conduct more scientific analysis of our data
- GIS mapping data shows very good visual displays

Is there data they need but can't currently get from WAID?

Where casualties came from /live

- Where people who drown travelled from as we know lots of people do not live close to where they died. This insight is invaluable to help inform targeted water safety work to influence behaviour further up the drowning chain.
- Near misses, where patient lives not just where the incident occurs
- Specific area breakdown of Suicide stats. Postcode area from where casualty originated.

Cause of accident

- Immediate/underlying cause attribution linked to the incident

- True causality

Near-Miss data

- It would be great to have more information about incidents where there were near misses that occurred in quarry lakes (would be useful for all types of incidents whether or not water related). We would also like to run our data on high risk sites against your data to see whether there were concentrations of sites where some joint agency work would be worthwhile.
- Near miss data which police collect when responding to, dealing with and referring to tier 2 substance misuse services where alcohol and drugs are involved.

Other

- Yes, loads... psychological, event practice, prevention in place, equipment available to the public , resources for rescue, who raised alarm, what was done. Causes. Everything and trend mapping..
- I would like an annual update on area's around the country that have made huge changes. It would be good to hear about progress at all stages but at least annually we can get a feel for what is actually being done to reduce these shocking stats. I think it would be helpful to know the actual amount of alcohol consumption after loss of life. (Also extended to this question really. Is there an amount of alcohol in the system before a drink drive related death is classed as a drink drive related death or if the person driving was below the legal drink drive limit is it just recorded as a RTC?)
- Breakdown of locations within county to identify risk spots
- Ethnicity

How useful would they find an API feed?

34 answered - over 50% didn't know but nearly 40% thought it would be very useful/essential. A number of people commented they didn't know what an API feed was.

Other responses:

- Somewhat useful for accessing up to date data in a timely manner that can be manipulated as required.
- I think it could be useful to enable us to target our media/ social media/ learning materials better
- You assume I know what an API feed is. I googled it. A download function would always be useful

Finally, we asked if there was anything else they wanted to add around their needs with regard to incident data and insight

We received 19 responses, answers in full below. These correlate with the themes identified throughout this project:

Improved collaboration

- There needs to be an improved sharing of relevant incident information and performance data, this includes our contribution and provision of this (partners working in localities).
- Regularly sharing more local information with community safety partnerships would be extremely valuable too.
- Cross sharing data does not happen and the approach of coroners is varied.
- It needs to fit into existing formats presently used by police and CG, and it may be a system that we all have to agree on to make the data work

Non-fatal data/near misses

- In future the most useful development would be the recording and analysis of water-related incidents (i.e. non-fatal incidents) and publishing these.
- I believe that developing WAID to incorporate information on near misses etc. would be very helpful. It would be helpful if we were able to cross reference our high risk site data with information on other sites nearby that are recognised as high risk.
- It only captures death, so that is just the [tip of the] iceberg of trends and does not give the full picture for example mental health intervention for us is going up - not captured or seen as a role in our patrol by other services or statutory.
- More non-fatal drowning information would allow a richer picture for intervention development with fatal accidental drowning numbers being relatively small.
- We would like to see rescue data

Data analysis / Access to data

- The power BI dashboards are excellent so keep developing those. The more public this information can be it helps raise awareness of the risk
- Limited data access means root cause analysis cannot be made by what are mostly volunteers but may be highly experienced in their fields.
- An easy to access and use incident database would be very useful to analyse where, when and how incidents are happening so that control measures can be put in place.
- Easily accessible reporting pathway to start a conversation around a near miss or fatal drowning would improve chances of fuller stats and engagement with data recording. SAMPLE DATA: In Ceredigion, Wales 2019 Dyfed Drug & Alcohol Service

received around 6 referrals stating suicide behaviour around open water as a primary concern.
- Whatever WAID does it needs to be more open and easily reported.
- Being able to understand 3/5 year trends makes this more reliable. Being able to cross reference drowning data with other data for example environmental factors such as weather, flood and surf forecasts may add important context/narrative. Comparing drowning data to participation figures may also add important context to results. Self reporting of near-misses could be useful in certain activities, paddlesports for example (BMC has a good example).
- Trend analysis, link into our MIS system
- Clearly broken down stats - specific areas - suicide - accidental drownings - Drink/drugs involved - age - gender - etc
- It should be publicly available once suitable GDPR precautions are in place. Include near misses

Self-harm

These incidents would be classed as near misses and could be essential in mapping the incidents and individuals at risk of completing suicide by water as the strain on mental health services is currently very pressured where there is substance misuse present (dual diagnosis) where there is a real gap in provision for service users and the prevelance of completed suicides can be high. Any opportunities to formalise reporting of these via police, treatment services should be explored.

Limited resources

We should do a lot more with WAID, but being an entirely voluntary organisation, has some restrictions on our activities

Other

- I would like to know if possible how many deaths occurred close to easily accessible lifesaving equipment? Such as throw lines or life buoys.
- I think there is a lot that is positive about the WAID report I like the fact I get a physical copy to refer to. I also feel it is a fantastic media opportunity to raise awareness around the time of release. I think there is a lot right with the report and a lot that I would change. I would make a more child friendly copy for schools/ children. Something with colour to get them interested in reading. I would have some really scientific stuff for students to work on and potentially better. I would have an "idiots guide" for people like myself who learns very visually and take things in through things like graphs and visual change. Graphs which show increases and declines seem to be the easiest all rounders for the majority to understand.
- Data to use for media, signage, campaigns per area. Use of PCSO networks to report community behaviours of concern as generally everyone thinks someone is in control where someone doesn't know why everyone isn't doing anything!

- It would be helpful to know whether there are any plans to offer this service to other countries for a management fee to NWSF / RoSPA?
- Local information would indicate a significant number of drownings are from ethnic minority groups - if that is correct then we need to be able to evidence it to plan focused education & intervention planning.
- Statutory and linked clinical pathways. Nothing national exists, unless the coroner is involved, look at the JRCALC app. If a project does exist with Research Paramedics or linked study of hospitals the base data is limited in statistical modelling due to the low numbers. This is why foreign organisation study from International Life Saving Federation Medical Committee is so useful where there is a large dataset. An example would be Brazil and Dr Spilzman and Dr run beach ambulances.

WAID A9: desk research report

Contents

About appendix nine

This appendix summarises some of the desk research carried out throughout discovery. Following on from the information gained in the Inception workshop and interviews, further research was carried out to expand our knowledge of topics that had been raised. It is relevant to section 3. (research findings and conclusions) of the main discovery report.

Suicide

East Sussex CC worked with the Design Council to explore potential solutions to the problem of suicides at Beachy Head. They are in the process of implementing recommendations that followed a series of workshops with organisations involved with Beachy Head. Research showed there is a mythology around the place that attracts people to that location from all over the UK (and internationally) to take their lives.

In Malcolm Gladwell’s book “Talking with Strangers’ he discusses how many suicide attempts are linked (or ‘coupled’) to a particular location (eg: Golden Gate Bridge) or

method (eg: oven/gas) and that when attempts made are not fulfilled, the person often does not try a different method.

From a study of 515 people who attempted to jump from the Golden Gate but were interrupted and helped, only 25 took their own lives at a later date with a different method.

At Beachy Head the stats are 8 people who are dissuaded to 1 person who goes through with the act.

This was explored in the Beachy Head workshops and ideas on how to rewrite the narrative around the location were recommended.

According to Gladwell suicides tend to rise in times of economic distress which means we may see an increase in this behaviour in 2020 and prevention strategies need to be put into place quickly. Beachy Head in the UK is well known but geo analysis of non-fatal data (where intervention worked) could identify new hotspots gaining their own mythology and help organisations to work together to take action to prevent acts of self-harm.

Open data and publication of suicide stats/information

Should WAID data become more accessible in the future there is a risk to self-harm figures and locations being publicised. A report in the BMJ in 2018 builds on a large body of previous studies showing that media coverage often results in an increase in 'copycat' attempts at that location/of that method. One explanation is the concept of 'social learning theory' where a vulnerable person sees a story about someone else who has had similar problems to them and has 'solved' them this way. It should be borne in mind that while the stats gathered in WAID around suicide fatalities and hotspots are critical to the organisations who can act to implement prevention strategies they should not be made available to the press/public. Equally, the stats around 'failed suicides' or successful interventions should be available for those organisations more frequently than annually so they can react quickly with preventative action.

Sources:

- https://www.nspa.org.uk/wp-content/uploads/2020/01/Preventing-suicide-in-public-places-Re-framing-and-Re-energising-Suicide-Prevention-on-the-Sussex-Coast-using-Design-Methods.pdf
- https://www.speakingofsuicide.com/2013/07/05/suicide-attempt-survivors/
- https://jech.bmj.com/content/57/4/238
- Talking to strangers: what we should know about the people we don't know
- Malcolm Gladwell - Allen Lane - 2019

United Utilities

United Utilities have 180 Reservoirs across the North West.

Following two teenage drownings in open water tragedies. Beckie Ramsay, the mother of Dylan (who drowned age 13) -started a campaign to prevent drowning, she collates information from press reports about water-related fatalities on her Facebook Page and speaks in schools to educate young people about water safety issues.

As part of the campaign to educate in schools, United Utilities commissioned a play to be written '60 seconds of summer' which toured schools in June/July last year. A novel approach to educating about water safety to young people.

Sources:

- https://www.unitedutilities.com/corporate/newsroom/latest-news/teenage-deaths-inspire-hard-hitting-water-safety-play/
- https://www.facebook.com/DoingItForDylan/
- https://www.unitedutilities.com/about-us/recreation-sites/reservoir-safety

'The problem with incident reporting'

In researching Incident reporting around other industries this study was found. "The problem with incident reporting". A BMJ study was based on incidents in a Healthcare setting and had some useful insight about Taxonomies.

"Most reported incidents include limited information, and asking for more only discourages reporting (and often generates inaccurate information). Subsequent deeper investigation will reveal the important details. Thus, taxonomies need to be pragmatic and flexible to accommodate these varied purposes".

The report compares the way Healthcare incidents are dealt with to the way the aviation industry have evolved their incident reporting system (over decades).

"*In aviation, incident reporting systems grew out of a decades-long history of conducting routine, structured, systematic investigations into the most serious aviation incidents and accidents."*

This suggests that if information were made more open then it might trigger an increase in incident reporting and raise awareness of issues that may not have been previously noticed.

“Highlighting a troubling problem can lead to more people noticing events and precursors, increasing reporting and generating richer, broader insight.”

This is a promising argument for including non-fatal data as well as making WAID data more accessible.

Sources:

- https://qualitysafety.bmj.com/content/25/2/71
- https://safetyculture.com/topics/incident-report/

A complete incident report - and the benefits to post-incident investigation

Following the death of Charlie Pope and campaigning by his father the.

Source:

- https://manchesterwatersafety.com/

Commissioned a review by ROSPA of the incident which showed many people using the lock gates to cross the canal. Now barriers and a new footbridge have been put in place.

Areas for further research

Ambulance Records

One of the WAID online survey respondents stated that collecting data from Ambulance services could provide the link and missing information from incidents that have been attended to by different organisations. It will also add to the data where a water-related accident has been self-reported and not attended by other services.

“If RNLI lifeboat and on duty Lifeguards, HMCG and SAR-H, they record things as per their procedures, as does Police and Fire, but all generally ask ambulance service in. Easy win is to focus on ambulance service. Self presentation at hospital or other healthcare (GP Minor Injury unit, all have different medical approaches).”

There was an interesting study relating to the user of ambulance records in planning prevention (in this case of violence).

Findings

- Ambulance records contain substantial new information on violence, with between 66 to 90 percent of ambulance incidents not found in police data. Therefore, police are not aware of the location of a substantial proportion of violent incidents.
- The volume of ambulance call-outs for public violence, averaging 16 per day in the West Midlands, means that ambulance data can offer high volume data that is not typically recorded by the police or emergency departments.
- Ambulance data is collected automatically and includes location data for each call; therefore, it does not require substantial additional work to be collated and shared. This means that if ambulance data can be proven to be effective in reducing crime, then it is easily scalable.
- Ambulance data is a new form of intelligence which may have value for violence prevention or reduction activities. However, its utility as such a tool is still unproven and further research is required. RAND Europe is planning an experimental follow-up study that will take this next step.

Source:

- https://www.rand.org/randeurope/research/projects/ambulance-data-injury-surveillance.html

ORR

ORR collect data from different sources into their database around Rail and Road incidents and have been publishing it since 1946. They publish updates to previous data (as new information arises eg: regarding fatalities). At the time of this WAID project ORR were conducting a survey of their online data users to establish their needs and how the data could serve them better.

WAID members could be invited to complete a survey online when they download the annual tables, this might surface more data on how WAID data could be more useful to them.

I did register and request a login to access the data but did not get a response, this could be interesting for future research and to learn about how they collect data.

Sources:

- https://dataportal.orr.gov.uk/statistics/health-and-safety/rail-safety/
- https://orr.gov.uk/rail/health-and-safety/reporting-riddor-incidents
- https://dataportal.orr.gov.uk/media/1230/rail-safety-statistics-quality-report.pdf

Location data accuracy

One of the challenges highlighted in this project is around how to get accurate data for the location of an incident. Sometimes there will be more than one location (eg: where the person entered water and where they were found). Further research to look at other international rescue services (not just water-related but in other settings such as mountain rescue that could have similar location challenges) and how they have addressed this / whether they have would be useful.

Barnardos

A project with similar challenges in terms of data sharing and privacy was carried out by Barnados with the aim of making real-time data from different sources available to the right people in child care settings. They encountered similar challenges of how to get organisations joined up in terms of data and data privacy. Unfortunately the information on how or whether they achieved this was not available but it could be an area for further exploration. If they could be engaged with they may have some learnings to share.

https://blog.barnar.do/safely-joining-up-information-to-protect-children-25b7bc4a001

WAID A10: user needs

Contents

About appendix ten

This appendix sets out the user needs. It is relevant to section 3. (research findings and conclusions) of the main discovery report.

One of the key purposes of a discovery is to identify and articulate the user needs so that they underpin the design or re-design of a service or product to meet them.

User needs are based on evidence gathered from the user research, in this case: inception, interviews and the online survey.

For the purpose of this project we classified ‘users’ by their relationship to the WAID database and how they interact with it currently. Four user groups emerged:

1. Direct users / administrators of WAID database
2. Contributors and users of WAID data
3. Users of WAID data
4. Potential future users/contributors

User needs identified

The user needs we’ve identified have been constructed in the following way:

- As as [the type of user]
- I need [what the user wants to do]
- So that I can [why the user wants to be able to do this]

No.	As a	I need	So that	Theme
U1.1	1. WAID dbase direct user	to reduce the amount of manual work required for me to reformat data for WAID	my time can be spent focusing on analysis	**Technology**

U1.2		to receive final outcomes from coroners offices	incident records are complete and reflect the final outcome	**Timeliness**
U1.3		to be certain the data collected is correct	the appropriate action can be taken in the form of prevention and intervention	**Data reliability**
U1.4		to be certain the data collected is correct	stakeholders know they can trust the data to build their strategy on	**Data reliability**
U1.5		details about water-based fatalities from many sources including media stories, police reports and inquest results	I can ensure the incident records are complete and show the full picture	**Collaboration**

No.	As a	I need	So that	Theme
U2.1	2. WAID data contributor	a way to contribute relevant data from my system into WAID	my data is represented in the UK figures	**Technology**
U2.2		to reduce the amount of manual work required for me to reformat data for WAID	my time can be spent focusing on analysis and reporting	**Technology**
U2.3		data on fatalities that is updated regularly	I can inform my strategy or take action based on data that's not 1 year old	**Timeliness**
U2.4		to know where casualties came from	I can target education campaigns and preventative strategies in the right locations and communities	**Location**
U2.5		data that is reliable	I know I'm basing my strategy on valid data	**Data reliability**
U2.6		data about all incidents including near misses	I can measure the effectiveness of preventative action	**Non fatal data**
U2.7		to be able to find out information about fatalities in my remit (eg: inland waterways) in the UK	I can find out what is happening in areas in my remit (eg: inland waterways) that are not covered by our organisation, to compare	**Collaboration**

			and learn from	
U2.8		to know how many deaths there have been last month	I can compare that figure to the last 5 years	**Timeliness**
U2.9		about the first language and ethnicity of casualties	I can target education campaigns and preventative strategies to the correct communities	**Causal/contextual**

No.	As a	I need	So that	Theme
U3.1	3. WAID data user	data on fatalities that is updated regularly	I can inform my strategy or take action based on data that's not 1 year old	**Timeliness**
U3.2		data that is reliable	I know I'm basing my strategy on valid data	**Data reliability**
U3.3		direct access to specific incidents of interest	I can look up a particular incident I need details for quickly without putting a burden on resources	**Technology**
U3.4		to be able to find out information about water-related fatalities in the UK	I can add incidents that were unknown or unreported by our operatives to our data and have a complete picture	**Collaboration**
U3.5		to be able to find out information about fatalities in my remit (eg: inland waterways) in the UK	I can find out what is happening in areas in my remit (eg: inland waterways) that are not covered by our organisation, to compare and learn from	**Collaboration**
U3.6		to know where casualties came from	I can target education campaigns and preventative strategies in the right locations and communities	**Location**
U3.7		about the first language and ethnicity of casualties	I can target education campaigns and preventative strategies to the correct communities	**Causal/Contextual**
U3.8		data about all incidents including near misses	I can measure the effectiveness of preventative action	**Non fatal data**

U3.9		to know how many deaths there have been last month	I can compare that figure to the last 5 years	**Timeliness**

No.	As a	I need	So that	Theme
U4.1	4. Potential future users	to know about incidents where there was a near-miss	I can assess risk for the activities I'm responsible for	**Non fatal data**
U4.2		to know about 'successful' interventions	I can demonstrate the effectiveness of rescue activities and safety measures	**Non fatal data**
U4.3		to know about incidents with no damage to property or injury	I have a picture of the frequency / or infrequency of incidents at different levels of seriousness	**Non fatal data**
U4.4		detailed information about self-harm incidents	I can identify trends and hotspot locations and coordinate preventative action	**Self harm**
U4.5		a way to contribute my incident data into WAID that is quick and easy	There are no extra pressures on resources	**Technology**
U4.6		to be able to collaborate with other UK wide services	we can ensure messaging is not conflicting	**Collaboration**

No.	As a	I need	So that	Theme
ALL	All users	clarity on definitions for terms such as 'rescue' or 'near miss'	I know the data will be valid and comparisons will be meaningful.	**Terminology**

Appendix 11: Further recommendations mapping

SUMMARISED RESEARCH FINDING (from the main discovey report section 3)	SUMMARISED RESEARCH FINDING (from the main discovey report section 3)		RECOMMENDATIONS (from the main discovery report section 6)		USER NEEDS (from appendices)			
Theme	**Theme**	**Finding**	**Grouping**	**No.**	**No.**	**As a**	**I need**	**So that**
	Technology	The current system has few automated processes, requiring manual data cleansing, uploading and verification.	**Technology**	**R9**	**U1.1**	1. WAID dbase direct user	to spend less time on manual data cleansing	I can focus on more important research tasks
		Many organisations involved in water safety do not have the resources to dedicate to contributing data to WAID.		**R10**	**U1.5**	1. WAID dbase direct user	details about water-based fatalities from many sources including media stories, police reports and inquest results	I can ensure the incident records are complete and show the full picture
					U2.1	2. WAID data contributor	a way to get relevant data from my system into WAID	my contributions to the WAID database is complete
					U2.2		to reduce the amount of manual work required for me to reformat data for WAID	my time can spend time focusing on analysis
					U2.3 U3.1	2. WAID contributor/user and 3. WAID data user	direct access to WAID incidents	I can look up a particular incident I need details for quickly without putting a burden on resouces
					U4.5	4. Potential future users	a way to contribute my incident data into WAID that is quick and easy	WAID can become a national database with the statistics that are useful to me.
	Location	Certain landmarks attract vulnerable people (eg: the Golden Gate bridge). For every fatality, around 8 people are dissuaded by an intervention. And they rarely choose to end their life at a different location.	**Location**	**R24**	**U2.4 U3.6**	2. WAID contributor/user and 3. WAID data user	to know where casualties came from	I can target education campaigns and preventative strategies correctly
				R25	**U2.5 U3.2**	2. WAID contributor/user and 3. WAID data user	Data that is reliable	I know I'm basing my strategy on valid data.
				R26	**U4.4**	4. Potential future users	detailed information about self-harm incidents	I can identify trends and hotspot locations and take preventative action
Data gaps Flooding	**Non-fatal data**	Stakeholders collect their own data (mostly non-fatal) which they use for shaping prevention strategies and water safety campaigns. They are aware that they would benefit from a complete picture of data across the UK	**Non fatal data Prevention and safety**	**R22**	**U2.6 U3.8**	2. WAID contributor/user 3. WAID data user	data about all incidents including near misses	I can measure effectiveness of preventative action
				R20	**U4.1**	4. Potential future users	to know about incidents where there was a near-miss	I can assess risk for the activities I'm responsible for.
					U4.2	4. Potential future users	to know about 'successful' interventions	I can demonstrate the effectiveness of rescue activities and safety measures
					U4.3	4. Potential future users	to know about incidents with no damage to property or injury	I have picture of the frequency or infrequency of incidents at different levels of seriousness.
Limited data sharing Self-harm	**Collaboration**	Limited data sharing	**People and organisations**	**R16**	**U1.5**	1. WAID dbase direct user	details about water-based fatalities from many sources including media stories, police reports and inquest results	I can ensure the incident records are complete and show the full picture
				R17	**U2.1**	2. WAID data contributor	a way to get relevant data from my system into WAID	my contributions to the WAID database is complete
				R18	**U2.7 U3.5**	2. WAID contributor/user and 3. WAID data user	to be able to find out information about fatalities on inland waterways in the UK	I can find out what is happening on stretches of waterway not owned by our organisation, to compare and learn from
				R19	**U4.5**	4. Potential future users	a way to contribute my incident data into WAID that is quick and easy	WAID can become a national database with the statistics that are useful to me.
					U4.6	4. Potential future users	to be able to collaborate with other UK wide services	we can ensure messaging is not conflicting
	Coroners	Coroners offices are reluctant to share information from inquests - unless an 'interested party'	**Coroners**	**R29**	**U1.2**	1. WAID dbase direct user	to receive final outcomes from coroners offices	incident records are complete and reflect the final outcome

		Coroners do not investigate circumstances of drownings unless they are considered violent, sudden or suspicious		R28				
		Coroners offices vary in their approach to communicating		R30				
		It takes a long time to get the verdict/outcome						
		It is challenging to match up the incident if there is no name.						
		Procurator fiscals in Scotland perform the same service as coroners but they are joined up nationally.						
		General		R27				
	Standardisation	None of the stakeholders share data in a standardised format	**Standardisation, Prevention and safety, Language and terminology**	R1				
		There is a standard ICD10 which WHO uses - nobody in the UK uses it						
		It would help data sharing if there was an agreed standard format		R21				
		Consistent terminology and definitions are required to have a consistent data set		R23				
The limitations of WAID	**Timeliness**	The time-lag of the WAID reports available annually for the previous year cause problems for users of this data	**Automate data collection**	R2	**U1.2**	1. WAID dbase direct user	to receive final outcomes from coroners offices	incident records are complete and reflect the final outcome
		Organisations have built their own systems to work around this and provide in-year fatality data - because they need it for management reporting		R3	**U2.3 U3.1**	2. WAID contributor/user and 3. WAID data user	Data on fatalities that is updated regularly	I can inform my strategy or take action based on data that's not 1 year old
		Some incidents can't be finalised until the Coroner verdict is received		R4	**U2.8 U3.9**	2. WAID contributor/user and 3. WAID data user	how many deaths there have been last month	I can compare that figure to the last 5 years
				R5				
The WAID taxonomy	**Terminology**	A lot of work has gone into development of taxonomy 2 but it has not yet been implemented	**Language and terminology Incident records**	R11	**U5**	All users	clarity on definitions for terms such as 'rescue' or 'near miss'	I know the data will be valid and comparisons will be meaningful.
		The new taxonomy is more granular		R12				
		Taxonomies can be problematic for data that does not easily conform		R13				
		If the taxonomy makes incident reporting to laborious, it will decrease or the records will be incomplete		R14				
		Terminology needs to be clearly defined and understood by all operatives (eg: what constitutes a 'rescue').		R23				
Limited data sharing Self-harm				R15				
Opening up WAID data The limitations of WAID Weaknesses in learning about incidents Barriers for users	**Opening up WAID data**	*See findings in technical research section of main discovery report and corresponding appendix*	**Open data**	R6				
				R7				
				R8				
	Causal Contextual data	Causal data is collected by some but not all of the stakeholders.	*For future consideration by the Forum*		**U2.9 U3.7**	2. WAID contributor/user and 3. WAID data user	about the first language and ethnicity of casuatlies	I can target education campaigns and preventative strategies to the correct communities
		For WAID the causes are in a dropdown menu and this is not really working (in current taxonomy)						
		Some causes are more identifiable than others (eg: equipment failure)						

		Knowing more about what happened in the lead up to an incident would help establish the cause but that data is not usually available (unless there is an investigation)					
		The contextual data is valuable but difficult to analyse as it is freetext and quality varies					
	Data reliability	There are concerns about data reliability	*For future consideration by the Forum*	**U1.3**	1. WAID dbase direct user	to be certain the data in WAID is correct	the appropriate action can be taken in the form of prevention and intervention.
		It is difficult to control, it depends on the operatives and how they report the information		**U1.4**	1. WAID dbase direct user	to be certain the data in WAID is correct	stakeholders know they can trust the data to build their strategy on.
		Most organisations don't have the resources to carry out a QA process (although some do)			2. WAID contributor/user and 3. WAID data user	to be able to find out information about fatalities on inland waterways in the UK	I can add incidents that were unknown or unreported by our operatives and have a complete picture
		Once more contributors are added and other sources (eg: social media/public) this could present problems around reliability		**U2.7 U3.5**	2. WAID contributor/user and 3. WAID data user	to be able to find out information about fatalities on inland waterways in the UK	I can find out what is happening on stretches of waterway not owned by our organisation, to compare and learn from
		There is still a perceived value to data that may be inferred		**U2.5 U3.2**	2. WAID contributor/user and 3. WAID data user	Data that is reliable	I know I'm basing my strategy on valid data.
	Self Harm	Analysis of 'near miss' and fatal data has shown factors contributing to increased rescues: physical characteristics of the location, amount of surveillance and speed of response.	*For future consideration by the Forum*	**U4.4**	4. Potential future users	detailed information about self-harm incidents	I can identify trends and hotspot locations and take preventative action
		There is no UK wide dataset that includes all successful interventions.					
		Certain landmarks attract vulnerable people (eg: the Golden Gate bridge). For every fatality, around 8 people are dissuaded by an intervention. And they rarely choose to end their life at a different location.					
		Most people who have been 'interrupted' have not gone on to end their life at a later date.					
		Coordinated efforts are required to identify and reduce this risk.					
		Reporting must be handled very carefully.					
	Money	Stakeholders that do not contribute funding to WAID feel they are not heard	*For future consideration by the Forum*	n/a			
		Non-contributing stakeholders don't want to ask for everything they need from WAID - they're conscious of their non funding status					
		If the data is used to improve efficiency of operational resources it will save a lot of money					
		How is WAID to be paid for?					
	Investigation	Examples of incidents exist where a lack of knowledge about the casualties has led to education campaigns being targeted to the wrong audiences.	*For future consideration by the Forum*	n/a			