**Scottish Natural Heritage**

**Improvement – People and Organisational Development**

**Business Analysis Report:**

**017327 – FeAST (Feature Activity Sensitivity Tool) redevelopment**



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# EXECUTIVE SUMMARY

**This report sets out business requirements and reviews available options for the redevelopment of the Feature Activity Sensitivity Tool (FeAST) tool.**

The FeAST Working Group[[1]](#footnote-1) (FWG) commissioned a review of the tool to investigate how it could be improved and address user feedback. The desired outcome is for FeAST to be the one place to find information on the sensitivities of all Scottish marine features of conservation importance, **as simple as possible to use and understand**, with the ability to interrogate from different starting points. It should give an indication on how sensitive features are, with transparent evidence on how that sensitivity scoring conclusion was reached. The tool content was not in scope for this analysis.

Based on an assessment of the business aims for this work, current SNH IS hierarchy for software developments, and resource implications, **Option C (utilising existing commercial off the shelf (COTS) softwarefor a rebuild of FeAST)is recommended. It is further recommended that FWG proceeds to agree this approach, the business requirements and resourcing for any software redevelopment in detail through commissioning further analysis. The cost of implementing this Option is estimated at around £20,000 in staff resource. The cost of the software is minimal.** Only if there is found to be no suitable COTF software, should a bespoke re-build be considered.

Through the course of this analysis, a number of detailed recommendations relating to the functionality of FeAST have been identified. These recommendations should be given careful consideration by FWG in developing the specification for redevelopment.

It is also recommended that the **FWG develop a landing page for the tool**, which also links to other relevant tools and guides the user as to the function of each. The location of this page needs to be agreed by the group.

# AIM

The purpose of **this analysis** is to consider the available options and provide recommendations for improvements to the current functionality of the FeAST tool. This analysis is being undertaken to inform wider development discussions amongst FWG partners.

# BACKGROUND

The Feature Activity Sensitivity Tool (FeAST) is a tool used to collate information on feature sensitivities, pressures, activities and the evidence on which this is based for marine features in Scotland. The sensitivity data contained in the FeAST tool originally came from a 2010 project, MB0102, led by the Marine Biological Association (MBA). The data were subsequently modified to give sensitivity assessments applicable to Scottish features and activities, and pressures were altered to be in line with OSPAR work. The tool is currently hosted on the Marine Scotland (MS) website[[2]](#footnote-2) and has been live since 2013.

It is possible through FeAST to search by either marine feature or activity. FeAST presents assessments of sensitivity of mainly benthic Priority Marine Features (PMFs[[3]](#footnote-3)) to various pressures (e.g. siltation) and links these to marine activities that could be associated with these pressures. It assesses and combines assessments of tolerance and recovery to derive an overall sensitivity score. It does not take into account the intensity, frequency or cumulative impacts from activities taking place at specific locations.

Although there are other sensitivity tools (see Annex E) a key distinction is that FeAST is the only tool that provides assessments at the wider feature level[[4]](#footnote-4). The other tools assess sensitivity at a biotope level. The aim in any redevelopment is to retain the current ‘feature’ level focus to help ensure its usability in the future; much of the legislation and policy focus is on lists of habitats and species at a feature level e.g. Priority Marine Features (PMFs) that are considered to be marine nature conservation priorities in Scottish waters. It is also felt the tool is more accessible and user friendly, as features are usually referred to when discussing designated sites and casework, and this allows stakeholders to interrogate the tool without having an in-depth knowledge of biotopes.

The review is intended to address user feedback. Other work to date to inform this analysis includes user survey results (2015, 2019) and FWG meeting discussions. Redevelopment needs to be completed before updated marine sensitivity assessments can be added to the system.

# OUTPUTS

The outputs of this review will be a set of high-level business needs and an options appraisal. A subsequent phase will include a decision by the FWG about next steps. More detailed user requirements will then need to be identified for the preferred option, and will involve more discussions with the FWG.

# MARINE DATA

Key areas of information that need to be consolidated in a marine sensitivity tool include:

* All marine activities – specifically tailored to activities in Scotland.
* Scottish marine biodiversity and geodiversity features of conservation importance (e.g. PMFs, MPA protected features, Annex 1 habitats, Annex 2 species).
* Sensitivity assessments and links between features, pressures and activities.
* Confidence scores for the sensitivity assessments, evidence sources, references.

# EXCLUSIONS

The following is out of scope:

* The breadth of the FeAST tool itself i.e. which features, pressures and activities it covers/will cover in the future.
* The depth of the FeAST tool itself i.e. the data and information about sensitivity assessments, confidence scores, evidence, pressure and activity descriptions etc. that the tool covers or will cover in the future.
* A detailed business plan for redevelopment.

# STRATEGIC CONTEXT

The FeAST tool was initially developed to focus on features within Marine Protected Areas to support ongoing discussions on management. FWG ambition is to expand to include all Scottish marine habitats and species of conservation importance. Providing sensitivity assessments and making these available and easily accessible will help to ensure consistency in conservation and wider marine management work.

Sensitivity information on marine features is essential to a wide variety of strategic and site-specific work in marine conservation, by better understanding and highlighting potential impacts and advising on their protection. This work also links to one of SNH’s 2019/2020 Business Plan[[5]](#footnote-5) priorities, ‘Support Marine Scotland in completing a well-managed Scottish MPA network and completing the review of Priority Marine Features’. Some areas where sensitivity information has informed strategic work to date include:

* Development of Conservation Strategies for species (e.g. seabirds, and small cetaceans).
* Reporting and assessment duties (e.g. includes Scotland’s Marine Atlas, and reporting duties relating to the Scottish MPA network, Natura and OSPAR).
* Developing a well-managed network of MPAs (management discussions, including Regional Marine Plans, priority work on the more sensitive features, developing detailed Conservation Objectives, understanding feature recovery and connectivity etc.)
* Joint work with MS on safeguarding Priority Marine Features
* Climate change work – supporting recovery and resilience

The FeAST tool also plays an important role in supporting SG’s Open Data Strategy[[6]](#footnote-6). ‘Open data is… easily discoverable, accessible to anyone and able to be freely used, re-used and redistributed by anyone; made available via the internet, in an electronic format, and with open licensing which allows its reuse’.

# USERS

The target audience is SNH staff, regulators (e.g. Marine Scotland[[7]](#footnote-7), Local Authorities, SEPA), other advisers (e.g. JNCC), industries, and other interested users including consultants, researchers and local communities. The tool is flagged to other regulators and developers/industries during casework and more strategic liaison over plans and policies.

## Uses of the tool

The FeAST tool is intended to support a wide variety of work involving conservation advice including MPAs, and consenting and management decisions. It should also be useful to those compiling Environmental Impact Assessments, Habitat Regulation Assessments and MPA assessments. Consistency and transparency of sensitivity evidence is essential. Feature level sensitivity also makes the discussions and advice easier to give to regulators, developers etc.

The redevelopment is intended to improve the ways the tool can be used, leading to its wider use. The tool can potentially be a valuable resource whenever sensitivity information and/ or links between pressures and activities are required.

During interviews, examples of FeAST use highlighted included:

## Development management

This may include an initial search for sites or site-specific advice. Initial screening – designations, features and sensitivities – that point to things to consider, a sense check. The tool is referenced in discussions with developers, directing them to use the tool in their applications. Consultants also use FeAST as a reference when presenting their findings. Based on discussions, the tool does not appear to be used when developing Environmental Impact Assessment, though it helps informs it.

## Licencing / consents

Viewed as a useful prompt when reviewing benthic visual surveys requests.

## User issues (see Annex E for contributors)

*FeAST Working Group*

There is consensus across the FWG that the current tool is still valid but no longer fit-for-purpose. The tool has not been significantly updated since 2013, with some of the references etc. potentially now out of date and in need of reviewing. FWG is keen to create more alignment of pressures/ sensitivities across the UK and with OSPAR, and to make the tool more user-friendly. JNCC also highlighted the confusion users feel about the different tools, and a need for more clarity. The ability to view the summary of evidence is a key aspect of FeAST. Other work to date to inform this analysis includes user survey results (2015, 2019) and FeAST Working Group meeting discussions.

*JNCC Marine Management Team (Aberdeen)*

There is a push in JNCC to make better use of the tool but there is a lack of resources available to help those unfamiliar with the tool get up-to-speed. The tool is not generally used as part of day-to-day work, or casework. JNCC does try to refer developers to the tool, as part of their own scoping work or check the tool themselves, if an assessment from a developer or consultant returned a surprising result (this is infrequent). The tool was better used when first created.

Generally JNCC finds the tool contains helpful information but could be made more user-friendly. They have received limited feedback on the tool from others beyond general comments in the past about its complexity.

Suggested areas to strengthen the tool included improvements around how the scoring and confidence assessments are displayed. More information would help those who want to understand better how the scoring came about. Also need to make it clearer that a ‘low confidence’ assessment does not mean it is not important (not sure the pop up does this).

JNCC would also welcome the ability to view and compare activities more easily when searching a feature. It would also be useful to be able to search by both the activity and the feature and for a filterable table to be generated with the combined information. When using the website it is difficult to navigate back to where you have just come from.

*Consultants – aquaculture*

The tool is viewed as a useful starting point for users who may not be familiar with pressures from activities and the type of features that could be impacted.  It can also provide a quick overview or sense check to ensure all relevant pressures and features have been identified early in the process, particularly at the early and site selection and screening stage.  When viewing by feature, you can also view the list of activities associated (or not-associated) with that pressure, which could be useful if you needed to consider cumulative impacts of other nearby activities. Some found it helpful to use FeAST in conjunction with other tools, e.g. MarSEA and marine spatial mapping (e.g. sitelink).

However, feedback indicates that finding information is not always easy, as the answer is in several places, and to move onto the next bit of information, it is necessary to close and reset. It was also felt that presenting information in table form is not ideal, as there is a lot of detail in one place. There is also no information on how up-to-date the assessments are so the tool can feel static. The tool is not viewed as useful in the formal application stage. The search results can be too generic. Even if searching for a specific Activity, information about other activities will be included.

A useful improvement would be the ability to filter further from Feature into different pressure categories (e.g. chemical, physical etc.). It was also suggested that the collapsible interface in MarSEA is helpful for navigation. A download option would also be helpful.

*Consultants – others*

There was no opportunity to speak to other consultants. SNH advised that the tool was referred to recently in an environmental statement from SSE. However, it is unclear if this was based on referenced advice from an agency, rather than direct use of the tool.

## Summary of user issues

The following high level issues have emerged:

* **Profile**
* **Accuracy**
* **Ease of use**

## Profile

The tool has not been well publicised recently, as the FWG want to make it more user friendly first.

It is not clear from Google analytics who is using the tool. The 2016 user survey identified the majority of respondents were from a government agency. The survey indicated that the tool was easy to find, provided people know what it is called, together with the connection with Marine Scotland: the tool is accessed via the Marine Scotland website[[8]](#footnote-8). This provides some Scottish branding through the header at the top of the webpage, but the tool itself does not specifically say it is a Scottish tool. **If the tool is hosted elsewhere in the future it needs to be clearly branded.**

There is a view that the style of the tool is quite old-fashioned, which gives the impression the information might be older and therefore potentially out of date.

There may be some misunderstandings about the tool and how it works and this highlights the need for training when the revised FeAST is promoted more widely.

**Recommendation: Develop and implement a training and communication plan for the tool.**

## Accuracy

The FeAST tool is currently static and there has been no significant update of the assessments presented since its launch in 2013. It is possible, as an administrator to the system (those in the initial FWG), to make changes manually to the underlying data (by exporting and then re-importing a spreadsheet) but this has been done infrequently to date.

**Recommendation: All FWG members should have/ retain admin rights in the new tool.**

In some cases users are identifying inaccuracies in the tool. It would be helpful if it was possible, through the tool for users, to alert the FWG to new information. This will help make the tool feel more interactive for the user.

**Recommendation: A peer review/ feedback option should be established that allows users to flag any updated research etc.**

At the moment there is a caveat on the tool homepage advising that FeAST is updated periodically; however there is no audit trail for the user to understand what has changed since they last used the tool. This would provide a helpful reassurance to users that the tool is active.

**Recommendation: Include some form of ‘what’s new’ on the tool home page.**

## Ease of use

Overall the tool is not viewed as intuitive and its ease of use relates to how frequently it is used. As this is generally not a tool people use on a daily or weekly basis, there can be a re-familiarisation period needed.

The guidance provided is useful but it may be helpful to have something a little more in-depth and interactive that guides the user around the website.  The Glossary also contains helpful information, but users may not intuitively look in the Glossary to find it.

When using the website it is difficult to navigate back to where you have just come from.

**Recommendation: A ‘back step’ option to improve the tool’s navigation would be useful.**

There were a number of observations around which information is displayed. Although the content of the tool was outside the scope of this analysis, it is important that any tool can be easily adapted to changing needs over time.

**Recommendation: Any tool needs to be easily adapted and edited by the FWG, so data can be displayed in different ways and is easy to update.**

## Search parameters

When searching a feature, it was felt it would be helpful if relevant activities were made available in the same window/ table, instead of having to click on the ‘view activities’. This would make it easier to compare activities. One of the users also said it would be helpful to be able to compare different marine management options (activities).

**Recommendation: The tool should enable all the search results to be available in the same window.**

**Recommendation: The tool should also enable users to search by both the activity and the feature and for a filterable table to be generated with the combined information.**

## References

References are not immediately obvious to the user. They currently sit in the glossary under ‘Features’, ‘Feature references’. The references have also not been reviewed and some are now thought to be out of date. There is a danger this undermines the tool.

An overarching, categorised reference list with a search function would be useful. It could be worth exploring whether the use of reference software such as EndNote would help capture references in FeAST.

**Recommendation: Include a dedicated shortcut for references and acronyms on the home page and at the bottom of generated tables and consider hyperlinking references.**

## Exporting data

An export facility was in the initial specification for the FeAST tool, though dropped as it was not considered a priority. There is widespread support for this option now. As part of this, the ability to tailor search results before exporting should be considered to improve overall functionality (some search results are less relevant to the user).

**Recommendation: Any redeveloped tool should have an export function.**

# REVIEW OF OTHER TOOLS AND COMPARISON WITH FeAST

Table 1 summarises a review of other tools currently in use, with similarities to FeAST.

Table 1 Summary of tools in use similar to FeAST

|  |  |  |
| --- | --- | --- |
|  | Name of tool |  |
| Feature  | ***FeAST*** | *MarineEvidence and Sensitivity Assessment (MarESA)* | *JNCC Pressure-Activities Database (PAD)* | *Natural England Designated Sites System* | *National Marine Planning Interactive – Marine Scotland*  | *IMPACT* | *Biodiversity in Planning: Wildlife Assessment check* |
| Geographic scope | Scotland | UK wide | UK wide | England | Scotland  | Scotland | UK wide  |
| Level of data | feature | biotope | Activities andpressures only | Feature/subfeature | feature | feature? | National conservation sites  |
| MPA/wider focus | wider | wider | wider | MPAs | wider | wider | wider |
| Sensitivity assessments  | yes | yes | no | Yes(sensitive/ not sensitive scores) | no | no | basic – just indicates need for further advice |
| Pressure information  | yes  | yes | yes | yes | no | yes | no |
| Activity information | Yes | no | yes | yes | yes | Yes(renewables only) | no |
| Spatial information  | no | no | no | no | yes | no | yes  |
| Additional functions  |  no | Download option | Download option  | no | Export maps | no | Download and save option  |
| References  | yes | yes | yes | no | no | no | no but provides spatial data sources  |

**More detailed information about these tools are provided in Annex D.**

Distinguishing features in FeAST:

* Feature-level focus, applicable to species and habitats found in Scotland.
* Sensitivity assessments based on feature scores (rather than biotopes), which are applicable across Scotland (not just in MPAs).
* Scottish activities, which Scottish industries recognise and agree as useful to separate or aggregate in the way we have.
* Ability to search tool from either a feature or an activity.

FeAST is currently unique as a tool that provides a feature-level pressure sensitivity tool that is applicable across Scotland. However, there are improvements that could be made to the tool, drawing on the features of the other tools described above and Annex E. Key requirements based on the other tools (some of which have already been identified by users above):

**Recommendations**:

**The tool should have ability to:**

* **navigate back to the last page via a ‘go back’ link**
* **bring up more detailed information and evidence via pop-up windows**
* **keep the search visible on the left of the page so it is easy to change the search parameters without clicking back**
* **save and download data**
* **search by pressures too – e.g. siltation – which would then bring up relevant activities and features.**

## Links to other tools in the UK

Users would also welcome stronger links across all relevant UK marine tools. A landing page could be created, where all tools and functions could be listed, with a description of which to use for different circumstances. The FWG would need to agree ownership of any new site. The page would have links to:

* MarLIN/ MarSEA
* FeAST
* NE tool
* Wales?
* PAD – JNCC tool
* MS National Marine Planning interactive (NMPi) spatial planning tool

**Recommendation: Create and maintain a landing page for all relevant tools.**

## FeAST Tool functions

The FeAST tool is currently hosted and maintained by Marine Scotland. The tool scores marine feature sensitivity using a scoring matrix, the results of which are then presented on a website interface through search queries. First a score of tolerance is given based on evidence/expert judgement (categories of tolerance are described in the tool glossary) and then a score of recovery is given. A matrix then provides a final sensitivity score. There are other options if scoring is not possible e.g. ‘Not Assessed’ (if no evidence). A similar approach is used to identify the confidence of the sensitivity scoring. The confidence assessment is presented to the user through a hover box.

Google analytics was added to the live website at the start of 2019 to start tracking users. It is not possible to identify individual users (to ensure GDPR compliance IPs were anonymised) or to identify FWG hits. However a breakdown by cities did show that there were active users outside the partner organisations[[9]](#footnote-9). Active sessions last up to 10 minutes. Between January - April 80% of users were new visitors, suggesting the majority are not returning to the site regularly[[10]](#footnote-10).

**Recommendation: Administrators need to be able to run analytics on number of users, page hits etc.**

As an administrator for the tool, it is possible to log in and create or edit Pressures or Activities via a Feature selection from a dropdown menu. It is also possible to view any deleted entries through an ‘audit’ page. Additional data can also be uploaded from excel spreadsheet files, though only in a specific predefined format.

Based on the analysis added functionality is required. Users need to be able to provide feedback on tool content and export search results.

**Recommendation: The tool should have a feedback and export user function.**

The FeAST use case below sets out what the system will do.



Figure 1 Use Case for the FeAST tool

# ADDITIONAL SYSTEM REQUIREMENTS

The table in Annex B identifies some emerging requirements from a review of the ‘As-Is’ process. **The main issues identified to date relate to navigation and the way the search results are displayed.** For example, it is not possible to explore around a search parameter without having to re-enter the search criteria each time you navigate away from the page. These issues are also reflected in user feedback and the recommendations. More detailed ‘as is’ process tables can be provided separately.

# OPTIONS APPRAISAL

The following options for the FeAST tool have been assessed against the issues and recommendations outlined in the analysis:

|  |  |
| --- | --- |
| **A**  | Do nothing – keep the tool running as it currently is. |
| **A (1)**  | Do minimum - functionality of the tool is retained but the content is updated. |
| **B**   | Share – merge FeAST with one of the existing, related tools.  |
| **C**  | Buy –commercial off the shelf (COTS) option. |
| **D (1)**  | Build - in-house. |
| **D (2)**  | Build - contracted out. |

## Options summary

***A – Do nothing – keep the tool running as it currently is***

This option involves no additional development. FeAST tool remains as it currently is. In light of the issues and the ambitions set out by the FeAST Working Group this is not a viable option, with the tool gradually becoming out-of-date. It is also not clear at this stage who will be hosting the tool going forward, potentially making the ‘do nothing’ option unviable if the hosting role/ site has to change.

***A (1) - Do minimum - functionality of the tool is retained but the content is updated***

A ‘do minimum’ option is where the functionality of the tool is retained but the content is reviewed and updated. This may improve the perceived value of the tool by some users. Elements of this work are already underway, but would not address the wider usability issues.

***B – Shared - merge FeAST with one of the exising, related tools***

This option involves merging the FeAST tool with an existing assessment tool. However a review of other related tools in the UK (para. 49-51 and Annex D) confirmed that none are suitable for merging with the FeAST data, without causing conflicts within the same tool and losing some functionality (e.g. activity based starting point in sensitivity interrogation). This would be confusing to the user. There is also a strong desire to maintain the Scottish focus of FeAST. This option will therefore not meet the aims of the redevelopment.

***C – Buy –commercial off the shelf (COTS) option***

This option involves buying or sourcing existing software tools. They tend to be open source and are hosted in the cloud. The software supplier provides the operating system, storage, and maintenance role. This fits with the Scottish Government’s digital strategy, SNH’s 2020 Blueprint, and our digital transformation agenda, to move away from bespoke solutions and towards open data and cloud hosting.

The costs for this option are lower than an in-house rebuild but there would still need to be someone to set up the platform (configure it). They will also need to set up access privileges etc. This is not a role currently undertaken within the IS development team in SNH, but may be available through other FWG members or a contractor. The software supplier will likely provide some configuration support.

Under this option, it may be possible to hire a consultant to run the tool at a cost. However as FeAST is largely a static tool and not an interactive service this was not explored further. Another option would be to hire a consultant to configure the tool, but this would still require input from the business. It is unlikely that this would result in notable savings but may be required if there is a limit to FWG resource availability.

The range of software services does enable a degree of flexibility in what can be achieved. However it is recognised that this will not necessarily mean all desired requirements can be met. It would also need to ensure the software chosen allows for a number of administrators, both within and outwith SNH.

A couple of options are outlined Table 2[[11]](#footnote-11), though it is not for this analysis to recommend the best software solution.

Table 2 Examples of commercial off the shelf options

|  |  |  |
| --- | --- | --- |
| **Option**  | **Description**  | **Costings**  |
| **VFront**  | VFront is a free, open source front-end for MySQL or PostgreSQL databases. PostgreSQL is similar to Oracle but is an open source database management system.  | This is free.  |
| **TIBCO Spotfire**  | This is a data analytics platform. It provides analytics capacity and an interactive dashboard presentation for data. This is currently being used by **SEPA** for a number of their services[[12]](#footnote-12). | Small ongoing fee the Spotfire tool. There is usually a small ongoing subscription fee for Amazon WS cloud hosting. Roughly up to £10 per month. |

***D (1) – Build - be-spoke - in-house***

This option involves an in-house build from scratch, possibly by an organisation that is a member of the FWG. This would require developer time to build an outward-facing customer interface populated by an internally hosted database (could just link to the existing database):

* **JNCC** offered developer time during discussions, but this would require follow up, and is likely to need to be bid and paid for.
* **SNH** has developer resource, but it would need to be bid for.
* **Marine Scotland** have indicated they cannot offer developer resource for this project at this time.

Re-building the tool in-house would cost less than contracting it out but there could be an indefinite delay in getting the work completed due to the constraints on developer resource and competing priorities. It is contrary to SG’s digital transformation hierarchy - share; buy; build. It also runs counter to the principle set out in SNH’s Strategic Application Review[[13]](#footnote-13) that internal developers should focus on line of business systems, rather than on those for **which there are commercial products available.**

Any longer term maintenance also needs to be bid for amongst competing priorities.

***D (2) – Build - be-spoke - contracted out***

This option involves the FWG contracting out the work to an external consultant. This is the most costly option. Similar to D (1) above, this option also runs counter to the SG digital transformation hierarchy and the principles set out in SNH’s Strategic Application Review.

If this is the option preferred by the FWG it is possible to identify a developer through e.g. the GOV UK[[14]](#footnote-14). The business requirements provided in this paper would form the basis for any tender requests. A large majority of software suppliers for database dashboards provide supported software tools (as outlined under **Option C** above).

The cost could be reduced if development costs are shared by more than one FWG partner. Ongoing maintenance costs could also be shared. Shared ownership would require strong partnership working and a sharing of resources to maintain and update the tool. This would require discussion within the FWG.

# NON-FINANCTIAL BENEFITS

The options were also assessed against the business aims for the tool. This is explored in the table below, which scores each aim 0 (not addressed) 1 (addressed). This is a subjective assessment but provides some weighting to the different options. The advantages and disadvantages of each option are listed at Annex A. Based on this, the COTS and build options offer the strongest benefits.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Business aims**  | **Do nothing** | **Do minimum** | **Share** | **COTS** | **Build - in-house** | **Build - contracted out** |
| User friendly | 0 | 0 | 0  | 1 | 1 | 1 |
| Increased functionality  | 0 | 0 | 0 | 1 | 1 | 1 |
| Easy to manage/ update content | 0 | 0 | 1 | 1 | 1 | 1 |
| Scottish focus  | 1 | 1 | 0 | 1 | 1 | 1 |
| **Total**  | **1** | **1** | **1** | **4** | **4** | **4** |

# RESOURCES

As the tool is already in place, there are no direct resource savings to be had from any tool redevelopment. However there are potentially indirect benefits to be had from a reduction in upstream planning enquires, and reduced time from advisers who need to access up-to-date sensitivity information; particularly if an improved tool leads to greater use.

# RISKS

Although the existing users do see some value in the tool overall their use of the tool seems low. There is a risk that any redevelopment fails to result in the anticipated increase in users. Any agreed option, and associated costs, should be informed by this.

# RECOMMENDATIONS

A summary of recommendations is captured in Annex C. **Option C - *Buy –commercial off the shelf (COTS) option* - would meet the business needs most cost effectively and allow work to progress within a reasonable timeframe.** It also fits with SNH’s 2020 Blueprint and our digital transformation agenda, which moves away from bespoke solutions and towards open data and cloud hosting. It is therefore recommended that the FWG adopt this approach.

# NEXT STEPS

The next steps for the FeAST working group to undertake before redevelopment can be undertaken should be:

* Agree preferred option, including governance roles and responsibilities.
* Commission a further analysis to refine requirements and redevelop the tool. This could include more detailed user stories/ experiences to guide development.

# Annex A - Options – Advantages / Disadvantages

|  |  |  |
| --- | --- | --- |
| **Options** | **Advantages** | **Disadvantages** |
| **Option A – Do nothing**  | No resource input required  | Would not address any of the usability issues discussed and would mean the tool is no longer fit for purpose  |
| **Option A (1) – Do something**  | May improve the perceived value of the tool by some users, by ensuring the content is up to date  | Would not address any of the usability issues expressed or allow the FWG to increase its profile/ use more widely. Also no ability to alert users to the latest update |
| **Option B – Share**  | Fits digital transformation hierarchy (share, buy, build)Sharing editing role should help to ensure available resource for updates. Builds on already well-established processes | There is no parallel tool to merge the FeAST data with, without causing conflicts within the same tool. This would mean it is no longer user friendly. Limited to the functionality of the merged tool.  |
| **Option C - Buy – off the shelf option** | The types of software available are free or based on a low cost subscription fee and development time will be lower than it would if the tool was being rebuilt from scratch. External updates/ software supportFits digital transformation hierarchy (share, buy, build). Other public sector bodies have adopted a similar approach (e.g. SEPA).Cloud based so open access for partners (would need to ensure any software can be easily updated by a number of users). Many of tools offer additional functionality, including different ways of displaying the information. Some influence over design.  | Less experience of this type of software within SNH, though recently used to replace a tool to store large sized media files corporately (Digital Assets Manager).There may be limited scope to influence this, depending on the flexibility of the software and may not give all the functionality required.Also still requires configuration either by a contractor or in house FWG staff (not available in SNH) |
| **Option D – Build - in-house**  | This option provides a clean slate to develop the tool to suitCan influence design and scope of the tool. Can make changes to the tool over time using IS resources, though the ability to do this will depend on whether partner bodies provide that resource.  | Developer time/ costs – up to three months estimated (in SNH). Any longer term maintenance also needs to be bid for amongst competing priorities. This time is currently unavailable in SNH. This may be delayed for an undefined period if dependent on SNH developer time.Does not fit the digital transformation hierarchy (share, buy, build) |
| **Option D (1) - Build - contracted out** | This option provides a clean slate to develop the tool to suitCan influence design and scope of the tool. | Cost would be higher, and staff time is required to manage an external contractor. The aims of the redevelopment can be met using other less costly optionsDoes not fit the digital transformation hierarchy (share, buy, build). |

# Annex B – Summary of Emerging Requirements and Recommendations

## Table 1 - summary of emerging requirements for FeAST

|  |  |  |  |
| --- | --- | --- | --- |
| **Ref.** | **Emerging requirements**  | **Requirement Type** | **Description & MOSCOW rating** |
| **1** | **Maintain current user functionality** | **Functional** | The basic matrix functions of the tool are to be retained.*Rating: MUST*  |
| **2** | **The administrator can run analytics to identify, e.g.** * **Users**
* **Page hits**
 | **Functional** | To be able to run analytics, uses of the tool, including the ability to identify administrators. Will help inform future reviews. Needs to conform to GDPR*Rating: SHOULD* |
| **3** | **The tool is clearly branded.** | **General** | If the tool is hosted elsewhere in the future it needs to be clearly branded.The Scottish link is important to Scottish Government/ SNH. *Rating: SHOULD* |
| **4** | **Working group members have administrator rights**  | **Non-Functional** | This is important for ongoing maintenance. Some software licences may specify number of administrators.*Rating: SHOULD* |
| **5** | **The user can offer feedback within the tool, e.g. flag any updated research etc.** | **Non-Functional** | Ideally an online feedback option, though email may be an option if required. This can help the interaction with users. *Rating: SHOULD* |
| **6** | **The administrator can edit the tool easily, e.g.:*** **Search options**
* **Data displayed**
 | **Functional** | Data can be displayed in different ways and is easy to update.Future proofing the tool so it can be changed easily if there are changing priorities around marine data.*Rating: SHOULD* |
| **7** | **Search results open in a new window**  | **Functional** | Allows easier navigation back to an earlier stage of the search*Rating: COULD* |
| **8** | **All search results are available in the same table** | **Non-Functional** | When searching a feature, include a column with the activities instead of having to click on the ‘view activities’, as would make it easier to compare activities and reduce the number of ‘clicks’ required to view search results, e.g. clicking an additional hyperlinks. *Rating: SHOULD* |
| **9** | **Users can search by Pressure** | **Functional** | This is added functionality, by extending search options. *Rating: COULD* |
| **10** | **Users can navigate back to the last page via a ‘go back’ link** | **Functional** | Improving navigation will make it more user-friendly, which is one of the key drivers of the redevelopment. *Rating: SHOULD* |
| **11** | **Users can save and download results**  | **Non-Functional** | This is a popular request for the tool. *Rating: SHOULD* |
| **12** | **Pop-up windows bring up more detailed information/ evidence** | **Functional** | This will allow the tool to display additional information if required, while still in the main search results.*Rating: COULD* |
| **13** | **Search parameters remain visible to users so they can be changed easily** | **Functional** | To reduce the number of ‘clicks’ required for viewing / amending search results. *Rating: SHOULD* |
| **14** | **Users can filter the generated feature pressures table by activity**  | **Functional** | This should allow for easier interpretation of the data*Rating: COULD* |
| **15** | **Users can close down/ shut off irrelevant returns (list) before exporting** | **Functional** | This improves the usability of the tool*Rating: COULD* |

## Table 2 - Summary of additional recommendations

|  |  |  |
| --- | --- | --- |
| **ID** | **Title**  | **Detail** |
| **1** | **develop and implement a training and communication plan for the tool** | This is intended to encourage and support the wider use of the tool. This is a key driver for the redevelopment. *Rating: SHOULD* |
| **2** | **Include some form of ‘what’s new’ on the tool home page** | Provide a more transparent audit to reassure users on the accuracy of the tool*Rating: COULD* |
| **3** | **A ‘back step’ option to improve the tool’s navigation would be useful.** | To help improve functionality and user experience*Rating: COULD* |
| **4** | **Any tool needs to be easily adapted and edited by the FWG, so data can be displayed in different ways and is easy to update.** | To help with business requirements for all FWG*Rating: SHOULD* |
| **5** | **The tool should enable all the search results to be available in the same window** | To help improve functionality and user experience*Rating: COULD* |
| **6** | **Dedicated shortcut for references and acronyms on the home page and at the bottom of generated tables and consider hyperlinking references** | This helps with visibility/ accessibility of the tool contents. Consider the use of EndNote or something similar for all references, to allow easy exporting *Rating: COULD* |
| **7** | **Create and maintain a landing page for all relevant tools** | To help raise the profile of the tool within the wider UK suite. *Rating: COULD* |

# Annex C: Key Functions Required of the FeAST Tool

The key functions required of the FeAST tool are outlined below.

**Add content**

The administrator (s), members of the FWG, need to be able to add content to the tool. If a new tool is created there will also be data transfer from the current tool. An audit trail should be possible for all administrative functions.

***Display content***

The tool needs to display any added content in the appropriate format.

***Review content***

The administrator (s), members of the FWG, need to be able to review the content, either to correct entries or to remove content.

***Remove content***

The administrator (s), members of the FWG, need to be able to remove content that is no longer relevant. This may also involve replacing or editing the content with new information.

***Feedback on content***

The user can feedback on content viewed in the tool, which can then be reviewed by the tool administrator (s).

***Search content***

The user will need to be able to search the tool using a variety of search fields.

***Read content***

The user needs to be able to read any content/ search results online.

***Export content***

The user needs to be able to export data (e.g. search results, references) from the tool in a useable format.

***Run query***

The administrator (s), members of the FWG, needs to be able to run analytics on number of users, page hits etc.

# Annex D – Tool Comparison

*Marine Evidence and Sensitivity Assessment (MarESA)*

MarLIN (Marine Life Information network) hosts the Marine Evidence and Sensitivity Assessment (MarESA)[[15]](#footnote-15), funded by all the Statutory Nature Conservation Bodies (SNCB), and there is a programme of work to update and add assessments (currently mainly benthic habitats and species). The agencies[[16]](#footnote-16) have a Memorandum of Understanding (MOU) with MBA, and provide £5-10K annually. MBA rely on those who use the tool to advise of updates or run regular peer reviews. MBA updates MarSEA every six months. They also send an extract of their dataset to JNCC at the same time. **JNCC and other agencies do not have access to the underlying database/ evidence base.**

MarSEA assesses sensitivity on a biotope[[17]](#footnote-17) level, whilst FeAST assesses sensitivity on a more aggregated feature[[18]](#footnote-18) level. This focus can make FeAST more user-friendly. For example, if you want an indication of the sensitivity of the PMF ‘burrowed mud’, in MarESA you would need to access and interrogate two biotope and three species sensitivity assessments. MarESA also does not link the pressures to activities, so you need to know the relationship between pressures and activities to use this tool and understand the likely impacts of activities on features.

MarESA pressures are derived from an agreed OSPAR list, similar to FeAST. MarESA and FeAST use a similar sensitivity scoring method, with a matrix to combine scores of tolerance and recovery. FWG is currently developing suitable methods to score mobile species (not in MarSEA currently) for use in FeAST.

MarLIN has a page via MarSEA where it is possible to request a data extract (<https://www.marlin.ac.uk/data-extract>) but the release is not live. (pdf downloads.)

MarSEA is intended as an academic resource.

*JNCC Pressure-Activities Database (PAD)[[19]](#footnote-19)*

The PAD[[20]](#footnote-20) database is found on the JNCC website, with supporting data and references spreadsheets. The database identifies marine activities and associated pressures in UK waters. The JNCC website makes reference to FeAST and the Natural England Designated Sites System, and has included those Scottish activities identified in FeAST, but are worded differently. The database also hosts a number of activities not in FeAST and more relevant to the rest of the UK. There are no marine features in this tool.

Unlike FeAST the associations highlighted in PAD between activities and pressures are all those that might occur, and the database includes an evidence base for the majority of these associations. The associations between pressures and activities within FeAST are restricted to those that occur at certain benchmarks (or thresholds) for each pressure, in an attempt to highlight the associations that are routinely mentioned in conservation advice. FeAST currently does not include an evidence base for these associations, but draws upon PAD and its evidence for updating FeAST associations where relevant. The activity titles are also different between the tools making comparisons difficult.

*Natural England Designated Sites System[[21]](#footnote-21)*

The tool identifies pressures associated with the most commonly occurring marine activities, and provides a detailed assessment of the feature/subfeature or supporting habitat sensitivity to these pressures within a specific marine designated site. Similar to FeAST, it provides an initial assessment of whether an activity may have an impact on a feature, although it does this from the perspective of specific sites (as opposed to FeAST which applies across Scotland). It is not possible to search the tool by feature.

The Natural England approach is site specific (relating to Marine Protected Areas) e.g. for [Lundy Special Area of C](https://designatedsites.naturalengland.org.uk/Marine/FAPMatrix.aspx?SiteCode=UK0013114&SiteName=lundy&SiteNameDisplay=Lundy+SAC&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=)onservation:

* the user must choose an activity (e.g. aquaculture), then the tool lists a generic score of ‘sensitive’ or ‘not sensitive’ for the features of the site, and does not categorise the sensitivities into high medium or low like MarESA and FeAST.
* Clicking on the ‘sensitive’ score then brings up a more detailed description of the pressure and score.
* Clicking on ‘biotopes’ brings up more detailed information on the sensitivity of all the individual biotopes that form part of the feature of the site, which uses the information within MarESA.
* Unlike FeAST, clicking on pressures brings up more detailed information and evidence on how the pressure is associated with the activity. The tool also splits the pressures into medium to high risk pressures (pressures commonly induced by activity) and low risk pressures (pressures with some uncertainty over being induced by activity and usually can be discounted).

The initial search remains on the page so it is easy to change the search parameters without clicking back. There are no references stored within the tool, instead it provides links to MarLIN.

*IMPACT[[22]](#footnote-22)*

IMPACT is an online impact assessment tool for marine and tidal energy produced by Aquatera. The tool provides direct access to the outputs of a 2012 study: [A Review of the Potential Impacts of Wave and Tidal Energy Development on Scotland’s Marine Ecological Environment (Aquatera, 2012).](http://www.scotland.gov.uk/Resource/Doc/295194/0121070.pdf)

The tool focuses on the potential impacts arising from different technology types and support structures. Search criteria (drop down menus) for the tool are:

* Environmental Pressure
* Technology Category
* Mooring or Support Structure
* Species Category
* Species Group/Benthic Habitat
* Individual Species

It is possible to select all or a number of options under some of the menus.

On the results page the tool returns a table listing the environmental pressures and associated key issues in relation to that search query. This is similar to FeaST. It is then possible to dig further via three links on the right of each entry:

* *Summary assessment results* - a matrix which summarises the judgements made in the assessment between a species & technology for each identified environmental pressure.
* *Detailed assessment* - assessed interaction between a species & technology for each identified environmental pressure. As for the summary assessment results above, a score for the potential significance of each interaction is given along with a brief explanation of the judgement made.
* *Assessment and monitoring guidance*

These links all open in the same window, similar to FeAST, though unlike FeAST it is easy to navigate back to the last page via a ‘go back’ link. Apart from the last, which gives the pdf link to guidance, the additional information is also in table form. Under the detailed assessment page there is an ‘export results’ option but it brings up an error message.

## Other tools

*National Marine Planning Interactive – Marine Scotland[[23]](#footnote-23)*

This tool is hosted by Marine Scotland and draws on data from SEPA and SNH and many other organisations. It provides marine spatial data on biodiversity, protected areas, marine industries, and many other data useful for planning decisions, but without any impact assessment or sensitivity assessments. The marine feature data it holds are displayed at the feature level, as it consumes data directly from SNH GeMS database.

*Biodiversity in Planning: Wildlife Assessment check[[24]](#footnote-24)*

This tool has been set up by the Partnership for Biodiversity in Planning. It is an online tool for**householders**and **small to medium-scale developers** to check whether they will need expert ecological advice before submitting a planning application. Based on responses to a series of questions the results page will indicate areas where advice may be required (e.g. protected sites, national species etc.). This can be used in any subsequent application.

Although this tool provides no sensitivity assessment so is not directly comparable to FeAST it has some useful features that may benefit FeAST including the ability to save results and download a printable report.

# Annex E – Contributors

|  |  |
| --- | --- |
| **Contact** | **Organisation**  |
| Sarah Murray | Aquatera environmental services and products |
| Dr Aoife Brennan | Scottish Sea Farms Ltd. |
| Kate Stronach | Mowi Scotland Ltd.  |
| Jillian Whyte; Becky Hitchin(also collated feedback from other colleagues) | Marine Management Team, JNCC Aberdeen office |
| Ellen Last; Natalie Askew; Laura Robson | JNCC Peterborough office  |
| Suzanne Henderson  | SNH |
| Katie Gillham  | SNH |

1. Work on FeAST in Scotland is overseen by a joint Working Group including SNH, SEPA, JNCC, MSS and MS. This is one of the working groups that sits under Marine Scotland’s Marine Biodiversity Programme Board. [↑](#footnote-ref-1)
2. <https://www.marine.scotland.gov.uk/FEAST/> [↑](#footnote-ref-2)
3. <https://www.nature.scot/professional-advice/safeguarding-protected-areas-and-species/priority-marine-features-scotlands-seas> [↑](#footnote-ref-3)
4. NE also uses features, but limited to protected features within specific designated sites. [↑](#footnote-ref-4)
5. <https://www.nature.scot/sites/default/files/2019-03/SNH%20Business%20Plan%202019-20%20-%20Part%20One.pdf> [↑](#footnote-ref-5)
6. <https://beta.gov.scot/publications/open-data-strategy/> - accessed on 23rd July 2018. [↑](#footnote-ref-6)
7. Planning & Policy and also MS-LOT (Marine Scotland licensing Operations Team), and their scientific advisers Marine Scotland Science. [↑](#footnote-ref-7)
8. <https://www.marine.scotland.gov.uk/FEAST/> [↑](#footnote-ref-8)
9. Excluding FWG locations, the majority of users are based in London and Glasgow [↑](#footnote-ref-9)
10. Weekly or monthly [↑](#footnote-ref-10)
11. There are other options, e.g. Caspio, a development platform for online database applications [↑](#footnote-ref-11)
12. <https://www.tibco.com/customers/scottish-environment-protection-agency> [↑](#footnote-ref-12)
13. A1847761 [↑](#footnote-ref-13)
14. <https://www.gov.uk/guidance/digital-outcomes-and-specialists-buyers-guide#what-you-can-buy-on-digital-outcomes-and-specialists> [↑](#footnote-ref-14)
15. <https://www.marlin.ac.uk/evidence> [↑](#footnote-ref-15)
16. MARLIN Steering Committee, which includes SNH [↑](#footnote-ref-16)
17. Biotopes are the smallest units used to describe a habitat (physical environment and its community) to enable description and comparisons. Similar biotopes can be grouped into ‘biotope complexes’. [↑](#footnote-ref-17)
18. ‘Feature’ is a term used to describe habitats, species or geomorphological interests (e.g. Priority Marine Features). It is also a term used to describe a grouping of/group of similar habitats and species - allowing a more manageable and useful single term for providing conservation advice (e.g. referring to the burrowed mud feature as opposed to listing a group of 2 biotopes and 3 species). [↑](#footnote-ref-18)
19. <https://jncc.gov.uk/our-work/marine-activities-and-pressures-evidence/> [↑](#footnote-ref-19)
20. microsoft Access database [↑](#footnote-ref-20)
21. <https://designatedsites.naturalengland.org.uk/> [↑](#footnote-ref-21)
22. <http://www.marine-impact.co.uk/assessment-tool.asp?cat=2> [↑](#footnote-ref-22)
23. #  <https://marinescotland.atkinsgeospatial.com/nmpi/>

 [↑](#footnote-ref-23)
24. <https://www.biodiversityinplanning.org/wildlife-assessment-check/> [↑](#footnote-ref-24)