Scottish Environment Protection Agency
Buidheann Dìon Àrainneachd na h-Alba

For the future of our environment

State of Scotland's Water Environment

Summary Report 2022

September 2023

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State of Scotland's Water Environment Summary Report 2022

Summary of 2022 Classification Results

Classifying Scotland's Water Environment

The water environment classification results have been updated, incorporating all data available up until 31/12/2022. The results are generated from a variety of types of environmental data, including monitoring data on water quality[1], ecology survey data on the presence or absence of different species, and modelling, incorporating data on pressures on water resources, migratory fish access and physical condition.

What was the state of the water environment in 2022 classification?

Since the previous results for 2020 were produced, the proportion of our water environment assessed as being in good or better overall condition has increased from 66.4% to 67.1%. This equates to an improvement in overall condition for 27 water bodies. There are additional improvements to individual aspects of classification, such as access for fish migration and water resources, although these do not necessarily result in improvements to the overall condition due to the presence of other impacts. These additional improvements are explained below. If any single aspect of a water body is classified as below good, that water body's overall condition is reported as below good.

The detailed results will be published on SEPA's water classification hub.

Table 1 shows the total number of water bodies classified in Scotland and table 2 shows the proportion of those water bodies currently in good or better condition.

[1] Information on SEPA's water environment monitoring can be found here: Monitoring | Scottish Environment Protection Agency (SEPA)

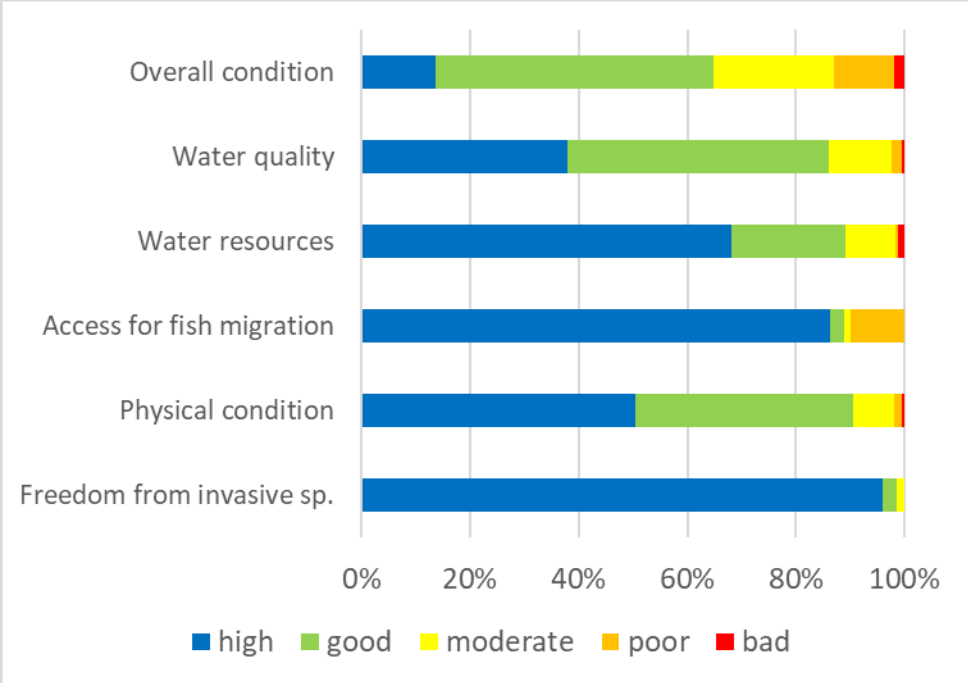
Number of water bodies classified in Scotland (table 1)

Rivers	Lochs	Estuaries	Coastal	Ground Water	Total
2410	334	48	457	403	**3652**

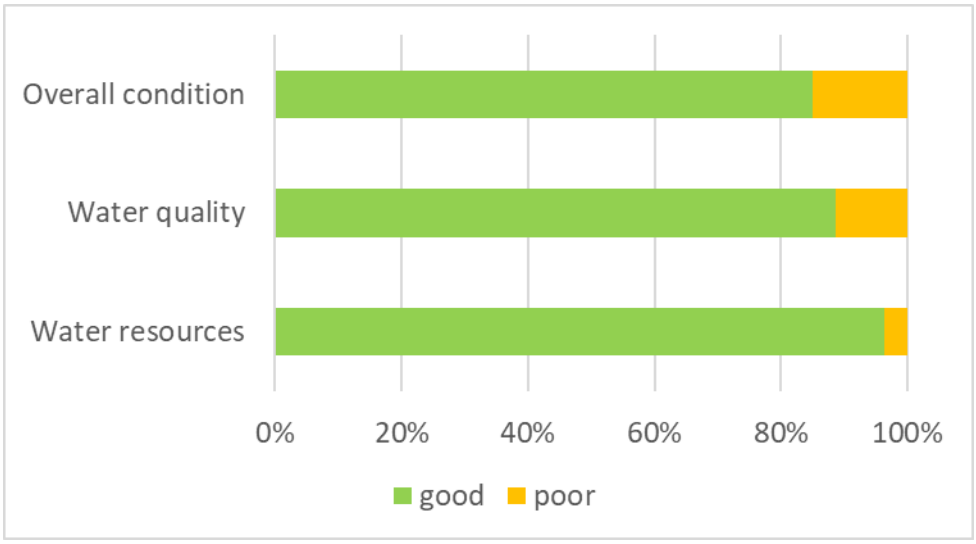
Overall condition of Scotland's water environment (table 2)

	Rivers	Lochs	Estuaries	Coastal	Ground Water	Total
high/good	57.2%	69.8%	87.5%	99.6%	84.9%	**67.1%**
below good	42.8%	30.2%	12.5%	0.4%	15.1%	**32.9%**

SEPA monitors the environment to assess the condition of water quality, water resources, physical condition, fish migration and the impact of invasive non-native species. We also assess fish ecology as part of overall condition, but as this can be influenced by many factors, it is not included under any of the individual aspects of classification in the overview in figure 1.

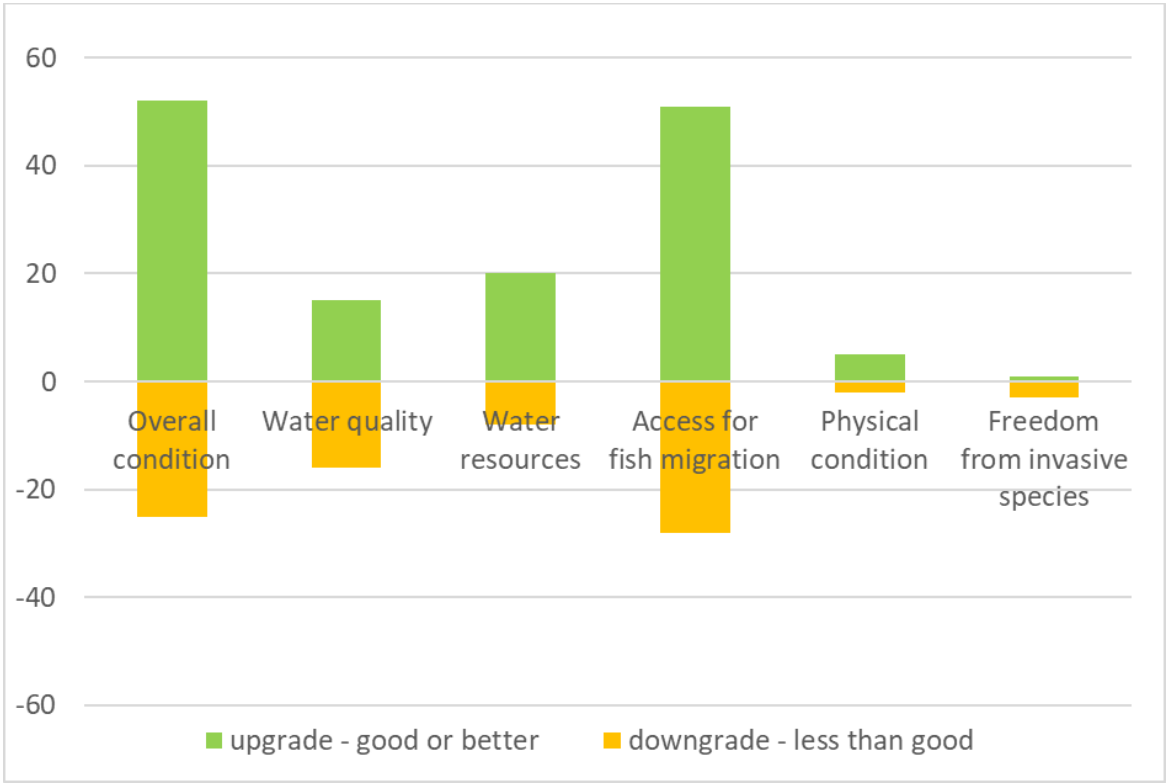


Overview of the state of surface water in 2022 classification (figure 1) Note: Surface water bodies include rivers, lochs, estuaries and coastal waters. Fish migration and water resources are not relevant to classification of estuaries and coastal waters. Our monitoring and modelling networks are designed to focus on the most significant localised impacts.



Overview of the state of groundwater in 2022 classification (figure 2) Note: Groundwaters are classified as either good or poor status.

What's changed since 2020?



Changes since 2020 classification (figure 3) Note: Figure 3 shows the number of water bodies which have moved between good or better and less than good condition for both groundwater and surface water bodies.

Overall condition

There have been the following changes to water body (WB) classifications for overall condition:

- 52 improvements to good or better condition
- 25 deteriorations to below good
- giving a net increase of 27 more water bodies at good or better overall condition

The reasons behind these changes are explained below. In addition to these changes, we also see movement between the five status classes, although these less significant changes are not presented here.

Water quality

There have been the following number of changes to WB classifications for water quality:

- 15 improvements to good
- 16 deteriorations to below good
- this gives a net decrease of 1

The number of potential deteriorations we have seen may be due to focussing monitoring efforts on those parts of the water environment considered to be most at risk. We are prioritising monitoring to determine whether these are short-term variation or sustained changes. Water quality can vary considerably over time, and it can therefore take some time to establish whether improvements have been achieved, or whether deteriorations are sustained and interventions required.

Water resources

We have reported the following number of changes to WB classifications for water resources:

- 20 improvements to good or better
- 8 deteriorations to below good
- this gives a net increase of 12

Two water bodies have improved to high status for flows following the completion of measures and a further water body has improved to high following the cessation of an abstraction. Our surface water flow assessments and groundwater connectivity modelling have been revised, to better reflect our understanding of the environment. Consequently, 17 surface and ground water bodies are now reported as good or better, and 8 are reported as less than good.

Access for fish migration

We have reported changes to the following numbers of WBs for migratory fish access:

- 51 improvements to good or better
- 28 deteriorations to below good
- this gives a net increase of 23

Since 2020, obstacles to fish migration have been eased or removed, opening up access to valuable fish habitat on 31 water bodies.

Additional data on natural migratory limits has improved our understanding of 20 water bodies previously thought to be impacted by obstacles to migration, but which are now reported at good or better condition for fish access. We've collected further information on obstacles to migration, both natural and artificial, to show that 28 water bodies are affected by existing structures.

Physical condition

We have reported changes to the following numbers of WBs for physical condition:

- 5 improvements to good
- 2 deteriorations to below good
- this gives a net increase of 3

Three water bodies have improved to good physical condition following the completion of restoration projects and a further two water bodies are now reported as good condition, following improved understanding of impacts. The classification of two water bodies has been revised to below good, on the reassessment of data on physical modifications, though there have been no changes on the ground.

Freedom from invasive species

We have reported the following changes to WBs in relation to invasive non-native species:

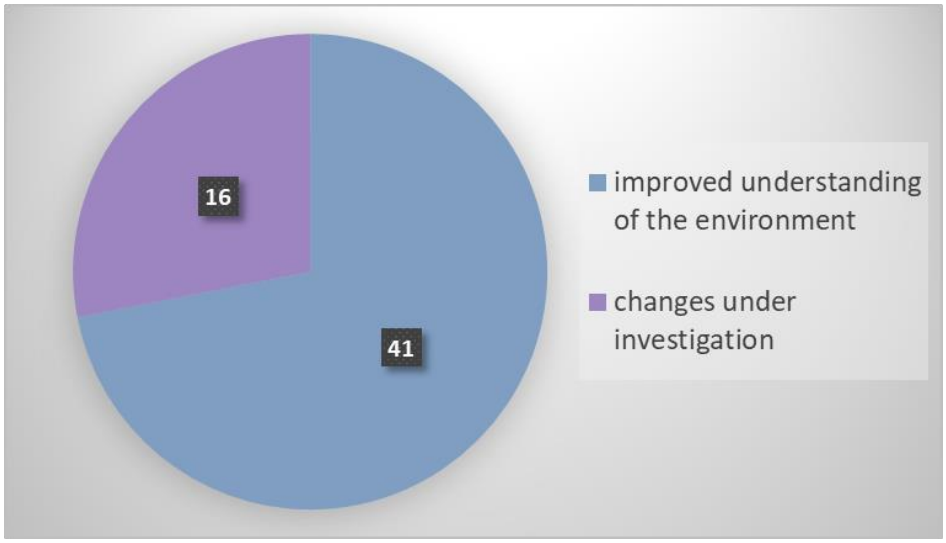
- 1 improvement to good
- 3 deteriorations to below good
- this gives a net decrease of 2

Improvements in our information on invasive species means that we are now aware of a further three water bodies which are impacted below good condition due to the presence of North

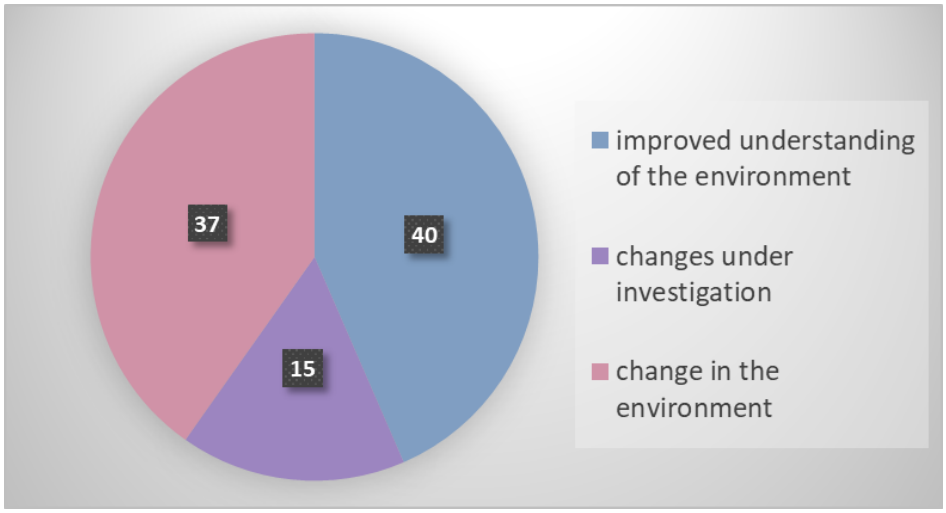
American signal crayfish. We are now reporting one water body as unimpacted, following the correction of data on the specific location of signal crayfish.

Reasons for change in classification

The pie charts in figures 4 and 5 below summarise the reasons for improvements and deteriorations in classification of water quality, water resources, access for fish migration, physical condition and invasive species. Note that the reasons for some changes affecting water quality are still under investigation. Further monitoring will confirm whether these changes are sustained and which water bodies require improvement actions.



Water body deteriorations in classification to below good (figure 4)



Water body improvements in classification to good or better (figure 5)

Data status statement

Our ability to take and analyse samples was seriously affected by covid restrictions during 2020 and 2021. In addition, the December 2020 cyber-attack had a serious impact upon SEPA's laboratory services. As a consequence, we only made a small number of prioritised updates for the 2020 classification results, to inform the third River Basin Management Plan and did not update the results for 2021. This report for 2022, represents a major step forward with the reinstatement of all our key monitoring programmes, however, levels of sampling remain lower than those pre-covid. We expect sampling in 2023 and 2024 to progressively address the gaps in monitoring data and therefore further improve the scope of the classification.

Summary

In summary, we have seen a net gradual improvement in most aspects of classification since results were last updated. This is the first significant update on the state of Scotland's water environment since 2019. As we continue to expand our monitoring network and analytical capabilities, we will be able to progressively improve our classification of the state of Scotland's water quality.