

20. ANALYSIS AND INTERPRETATION OF RESULTS

Analysing your RHP results requires a thorough evaluation of incoming information. This includes checking all scores and comparing these to known standards and previous results. To assist with drawing meaningful conclusions from SASS and IHAS results, a set of guidelines have been produced (see SASS4 manual and NAEBP Report No8). Water quality conditions have been proposed for different categories of total score and average score per taxon.

The software packages (such as Rivers Database Query Centre and GIS programmes) mentioned in the previous section (section 19.2) offer a number of analytical tools to assist the user in analysing results. It may take some time to become familiar with all of these features and what they are capable of doing. Depending on your circumstances, you may wish to outsource the GIS spatial analysis component to a specialised GIS unit attached to a university or water board.

Interpretation implies deriving meaning from the analysis of the results. This is probably the most complex and demanding aspect of the RHP. A thorough knowledge of land-use and developments within the catchment is necessary to provide the context for understanding and interpreting your RHP results. Particularly for locating and identifying potential sources of environmental impacts and quantifying the effects of these on the aquatic ecosystem and prevailing water quality.

Additional factors to take into account when interpreting results:

- \$ Seasonality - the season when monitoring took place is an important factor to consider when analysing results. For SASS scores, expect the diversity of invertebrates to be considerably lower during the cold winter months, with no attendant deterioration in water quality. Some fish species migrate with the changing of seasons, which may also influence your FAI results.
- \$ Flow conditions - South African rivers are renowned to possess highly variable flows, often independent of seasonality. Changes in flow conditions of a river during wet and dry climatic conditions will influence your results and may not necessarily point to major anthropogenic (man-induced) alterations in water quality.
- \$ Natural variation in invertebrate, fish and plant diversity - this may be independent of water quality and habitat conditions. Fauna and flora are known to vary from region to region or even from site to site and over time. This should be borne in mind when applying predetermined guidelines to your results.
- \$ The resolution of SASS scores is at invertebrate family level, so changes in species level composition of some invertebrate communities in response to alterations in water quality may not be detected. However, major changes in abundance of invertebrate taxa (especially of the environmentally tolerant groups) may be significant in this respect.
- \$ Level of training of the PMT staff. This may affect the consistency of your results, particularly in the first year of your programme.

As the RHP is a long-term commitment to the garnering of pertinent environmental information, it will take some time before a meaningful set of results is accumulated for analysis and interpretation. For example, a data set of one year may show seasonal trends and major impacts, whereas a time-series of several years of information for a particular catchment will be much more valuable in terms of understanding environmental trends.

NOTE:

Your ability to analyse and interpret results will improve with experience and as you become more familiar with local environmental conditions and how these affect your RHP results. Other RHP practitioners can be consulted to assist in drawing meaningful conclusions from your results.