# Writing water quality reports

When writing a water report to be presented to a body for review, there are certain points that need checking. we will discuss them in detail. Just like writing a normal report, a water quality report has a few rules to follow to make it good. In a water quality Report:

1. Write text that's easy to understand

The ability of a reader to understand the information in a good water quality report depends upon many factors, including:

- The simplicity of words and sentence structure.
- The clarity and cohesiveness of explanatory text.
- The reader's background knowledge and cultural perspective.

Consider working with a professional writer or editor who is experienced in communicating with your audience and (ideally) has some knowledge of the topic water quality management. However, remain "hands-on" to maintain the accuracy of the information and to ensure that the writer doesn't miss any nuances that may be important to your audience.

**Anticipate the Possibility of Misinterpretation**

Your audience may interpret (and misinterpret) words and phrases in ways that you never intended. You may use the word "average," for instance, to explain a statistical concept, but people do not necessarily interpret it that way. Even highly skilled readers may be unfamiliar with many common water quality management terms, especially those related to quality measurement. Unfamiliar terms common in report cards include accredited, affiliated, options, providers, respondents, specialty, and utilization.

**Use Familiar Words**

It is critical to use words that are familiar to readers and as simple as possible. Use words that your readers would use themselves.

**Explain New Terminology**

In some situations, you can replace a technical term with a nontechnical label. Sometimes meaning is lost in words the respective audience has not heard of. When a simple word won't do, and you need to use a term that might be unfamiliar, define it right away and explain its implications for the reader. Water quality reports offer good opportunities to educate the public about concepts they need to know.

**Be Cautious About Using Acronyms**

It takes extra effort for readers to learn and remember a new acronym, so don't use acronyms just out of habit. Use acronyms only when the acronym is more familiar to consumers than the full term or when your audience really needs to know the acronym. Unfamiliar acronyms can also be intimidating to many readers. They stand out from ordinary text because of the capitalization, and it's often unclear how to pronounce them.

**Use a Conversational Tone**

Most readers will be more engaged in your report if you:

- Address them directly using a conversational tone.
- Periodically invite them to think about particular issues or questions.
- Try to avoid language that seems overly formal or "academic;" you want your readers to feel like the report card was written for people "like them.". Basically, know your audience

**Use Active Voice**

Many quality reports use passive sentence structures that can sound impersonal and be hard to understand. Readers might prefer text in the active voice. Active voice is simpler and more direct. You can write the vast majority of sentences in an active voice, which makes it much easier for readers to understand and act upon the information.

**Use Simple Sentence Structures**

Sentences should be easy for readers to interpret. Research has found that readers often interpret complex sentences by picking out the subject, verb, and object. If that task is too hard, all but the most motivated readers will give up. To make it easy for your readers:

- Don’t pack too much information into a single sentence.
- Keep most of your sentences relatively short.

**Be Consistent**

Keeping your language and writing style consistent will help readers follow and comprehend the material. Here are tips:

- **Use consistent terminology.** Define terms clearly and use them in the same way throughout the text. For example, don't discuss "measures of experience" in the introduction, then use only the term "satisfaction" in an accompanying chart.
- **Maintain a consistent tone.** Tone is the attitude implied by the language. Whatever tone you choose, keep the same "voice" throughout; some readers may skip critical material that feels different (e.g., a very academic-sounding explanation of measures in an otherwise chatty report), assuming that it doesn't apply to them.

Water quality reports should be orderly presented and a clear-cut presentation of the search findings of one was tasked with such an activity. This is because this is the communication medium between the investigator and the recipient. You should address critical matter for instance;

- Where does the water come from?
- What medium was used to transfer it from location A to location B?
- Are there contaminants in the water in question? (Risk parameters)
- What is the water composition? (Only if there was a lab test conducted)
- What does this information mean to the recipients?
- Have there been related studies on the same issue as yours?

You need to close the report on a strong finish as the introduction began. The points highlighted in a report might be of so much importance but the presentation determines the support it gets.

**General Water Quality Indicators**

As discussed in previous lectures, there are indicators that have to appear on your report. These water quality indicators are parameters used to indicate the presence of harmful contaminants. Testing for indicators can eliminate costly tests for specific contaminants. Generally, if the indicator is present, the supply may contain the contaminant as well. For example, turbidity or the lack of clarity in a water sample usually indicates that bacteria may be present. The pH value is also considered a general water quality indicator. High or low pH can indicate how corrosive water is. Corrosive water may further indicate that metals like lead or copper are being dissolved in the water as it passes through distribution pipes.

Below is an example of the data to be included in a water quality report template (Not necessarily everything is inclusive)

- Title and contract information
- Project title
- Organization name (both recipient and researcher, if any)
- Contact information (Phone numbers, email, address, etc.)
- Purpose of the report
- The site of the report (Location)
- Frequency and duration of visit to the water body in study
- Data management and reporting (detail report, methods of collection, methods, of testing, methods of storage etc.)
- Intended data use
- Person responsible for the data analysis and reporting
- Tools used (computers, computer programs used, physical water tools for measure e.g., thermometers)
- Reporting format and frequency
- Quality assurance and quality control (date started, date completed)
- Outline the models used (briefly discussed at the beginning of the lecture)

- Recommendations and suggestions. (Baseline assessment, benefit assessment, sustainability assessment, policy assessment, environmental assessment, hydrology trends e.g., agriculture, water management indicators, water waste etc.)
- Conclusion
- References and bibliography

**Water quality modeling** involves water quality-based data using mathematical simulation techniques. Water quality modeling helps people understand the eminence of water quality issues and models provide evidence for policy makers to make decisions in order to properly mitigate water. Water quality modeling also helps determine correlations to constituent sources and water quality along with identifying information gaps. Due to the increase in freshwater usage among people, water quality modeling is especially relevant both in a local level and global level. In order to understand and predict the changes over time in water scarcity, climate change, and the economic factor of water resources, water quality models would need sufficient data by including water bodies from both local and global levels. A typical water quality model consists of a collection of formulations representing physical mechanisms that determine position and momentum of pollutants in a water body. Models are available for individual components of the hydrological system such as surface runoff; there also exist basin wide models addressing hydrologic transport and for ocean and estuarine applications. Often finite difference methods are used to analyze these phenomena, and, almost always, large complex computer models are required. We will only focus on how to create a good report and how to successfully integrate good water quality models.

**Building A Model**

Water quality models have different information, but generally have the same purpose, which is to provide evidentiary support of water issues. Models can be either deterministic or statistical depending on the scale with the base model, which is dependent on if the area is on a local, regional, or a global scale. Another aspect to consider for a model is what needs to be understood or predicted about that research area along with setting up any parameters to define the research. Another aspect of building a water quality model is knowing the audience and the exact purpose for presenting data like to enhance water quality management for water quality law makers for the best possible outcomes.

**Formulations and associated Constants**

**Water quality is modelled by one or more of the following formulations**

- Advective Transport formulation
- Dispersive Transport formulation
- Surface Heat Budget formulation
- Dissolved Oxygen Saturation formulation
- Reaeration formulation
- Carbonaceous Deoxygenation formulation
- Nitrogenous Biochemical Oxygen Demand formulation
- Sediment oxygen demand formulation (SOD)
- Photosynthesis and Respiration formulation
- pH and Alkalinity formulation
- Nutrient’s formulation (fertilizers)
- Algae formulation
- Zooplankton formulation
- Coliform bacteria formulation (e.g., *Escherichia coli*)

**Summary.**

Standards and reports

In the setting of standards, agencies make political and technical/scientific decisions based on how the water will be used. Most of these decisions are influenced by reports written and submitted. These In the case of natural water bodies, agencies also make some reasonable estimate of pristine conditions. Natural water bodies will vary in response to a region's environmental conditions, whereby water composition is influenced by the surrounding geological features, sediments, and rock types, topography, hydrology, and climate. Environmental scientists and aqueous geochemists work to interpret the parameters and environmental conditions that impact the water quality of a region, which in turn helps to identify the sources and fates of contaminants. Environmental lawyers and policymakers

work to define legislation with the intention that water is maintained at an appropriate quality for its identified use.

Another general perception of water quality is that of a simple property that tells whether water is polluted or not. In fact, water quality is a complex subject, in part because water is a complex medium intrinsically tied to the ecology, geology, and anthropogenic activities of a region. Industrial and commercial activities (e.g., manufacturing, mining, construction, transport) are a major cause of water pollution as are runoff from agricultural areas, urban runoff and discharge of treated and untreated sewage. A good report will feature issues such as these and need to be unbiased in reporting and rich in correct data

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