Report Formatting and Presentation Guidelines[1] - Draft Final

EPA Evaluation Support Division

Avoid unnecessary revisions by adhering to the following guidelines.

These guidelines follow the EPA *Policy and Implementation Guide for Communications Product Development and Approval* (available online at http://www.epa.gov/productreview/guide/app3.html), but also address issues unique to EPA program evaluation reports. Other than the exceptions outlined here, EPA follows the widely available *Associated Press Stylebook*.

1. Organization: IMRAD Format

Reports should generally be in IMRAD format: Introduction, Methods, Results, and Discussion/Conclusion. Do not combine sections (e.g., Results and Discussion) or mix, for example, results with methods. A Conclusion section following the Discussion is preferred, but should not repeat material that has been covered previously. Use outline formatting, in which major sections are numbered and then divided into subsections labeled with letters or numbers, to distinguish between sections of the manuscript.

Title Page

Title

A product may not reach its audience if the title is not to the point and does not include the pertinent vocabulary.

- Aim for a clear, concise, and informative title that specifies what is evaluated.
- Avoid titles that are complete sentences (including interrogative titles).
- Hanging titles (those with a colon) are overused and sometimes use more words than necessary.
- For clarity, consistency, and for indexing purposes, titles should be restricted to two levels: one main title followed, if required, by one sub-title.
- The division between the main title and the subtitle is indicated by spacing down one-half line and shifting to a lighter weight (and sometimes a smaller size) of the same typeface.

[1] These guidelines draw upon those developed for the peer-reviewed journal *Conservation Biology* (http://www.conservationbiology.org/SCB/Publications/ConsBio/Instructions/Style.cfm) and upon the Evaluation Report Checklist developed by Gary Miron for The Evaluation Center at Western Michigan University (http://www.wmich.edu/evalctr/checklists/).

- For purposes of clarity and easy reference, one of the key words in the title should appear at the beginning or as near it as feasible. Use vague phrases like "Report To Congress" and "Guide To Federal Activities" in subtitles (not the main title).

Other title page items

- Clearly identify authors -- name and affiliation
- Include date of preparation
- Identify name of client(s) or funder(s)

Tables of Contents

- List first and second level headings and corresponding page numbers
- Include lists of tables, figures, and appendices
- Include lists of acronyms and abbreviations

Acknowledgments

- Acknowledge sponsors, data collectors, informants, contributors to the report, research assistants, reviewers of the report, etc.

Executive Summary

An executive summary is a miniature version of your paper: 1-2 pages of introduction, methods, results, and discussion/conclusion. Content within each of these areas should briefly summarize a corresponding section in the report. Length should not generally exceed 10 pages. The executive summary should not contain literature citations, much data, or meaningless clauses such as “We discuss results…” or “We summarize implications…”

References and explanatory notes should be used sparingly in executive summaries. Endnotes should be used when citing references or supporting material in this section.

Introduction

The introduction provides the reader with context for the rest of the report. Accordingly, the introduction should:

- Describe the evaluation’s purpose and research questions (if not covered in methods section)
- Describe the program/project being evaluated (inc. goals, historical context, and logic model, if appropriate) and rationale for evaluation.
    - This is an appropriate place to include organization mission statements.
    - Use the logic model to explain the scope of the program—areas of direct influence and areas of indirect influence and how the evaluation questions were developed based on the logic model.
- Identify target population for the program/project
- Identify relevant audiences and stakeholders for the evaluation
- Review related research
- Describe the report’s organizational structure (i.e., intro, methods, results, etc.)

Methods
The methods section provides the reader with an understanding of how the evaluation was conducted. This section should provide sufficient detail to permit a reader to replicate the study and its findings by retracing the author's steps.

The methods section should:
- Define the evaluation's purpose and research questions (if not covered in intro)
- Describe the evaluation approach and the rationale for this approach
- Describe the evaluation design, including data collection methods, sample sizes and timing of data collection
    - *note:* actual instruments should be included in an appendix to the final report
- Identify sources of information and data
- Outline limitations of the evaluation (e.g., limitations related to methods, data sources, potential sources of bias, etc.)
- Describe the audience for the report, how the findings can be used by the audience, and how publicly available the document will be. (These are required by EPA Quality Assurance Plans.)

Results
The results section describes the evaluation's findings for the reader. The results section should:
- Address all evaluation questions
    - Include direct explanations regarding questions that could not be answered
- Describe details of evaluation findings clearly, logically, and objectively
    - Include both positive and negative findings
- Label charts, tables, and graphs consistently, appropriately, and clearly **(see Section 4, Supporting Elements, for additional guidelines)**
- Summarize findings (in each results chapter or altogether in a summary chapter, as appropriate)

  The results section should not include recommendations, unless they are qualitative data from an interviewee. Recommendations generally belong in the discussion/conclusion.

Discussion/Conclusions
The discussion and conclusions section provides the reader with the evaluator's interpretation of the evaluation results and their implications (i.e., answer the "so what?" question). This section (or sections) should:
- Discuss the implication of the evaluation results for EPA and relevant stakeholders
- Include recommendations for program improvement

Quality Assurance Plans
All EPA ESD evaluations should include a "Quality Assurance Plan" in an Appendix. This Plan should include the title of the evaluation; a brief synthesis of the Methods section that covers each of section components; the name of the organization sponsoring the evaluation; the name of the EPA project leader; the name of the EPA quality manager; and the date that the plan was developed (not the date the report was completed). A short statement should also be included that indicates why the data – in spite of possible limitations – are suitable for the purposes laid

out in the report. One page should generally be sufficient for this section. The QAP should refer the reader to the Methods section for further details.

2. References

In-text citations

- In most cases, enclose citations in text in **parentheses**. For example: "Human-modified habitats that look suitable but provide poor reproductive rewards are called ecological traps (Gates and Gysel 1978)." Instead of "According to Gates and Gysel (1978), human modified habitats…"
- Use *and* between two author surnames (Gates and Gysel 1978)
- For citations with more than two authors, use et al. (Hatchwell et al. 1996). Do not italicize et al.
- List parenthetical citations chronologically and separate entries with a semicolon (Zorenstein et al. 1991; Waddell and Fretwell 2001).
- Multiple sources by the same author: (Cox et al. 1991, 1992; Chapman 2001, 2002)
- *In press* documents: (*In press* means the source being cited has been officially accepted for publication). Provide the year the source will be published in the text and in the References cited use *in press* (…in landscapes. Conservation Biology 17: in press).
- Manuscripts in review: These journal articles, reports, etc., must be cited as unpublished until the paper has been officially accepted and should not appear in the References cited.
- Unpublished data: Use (R. Fowler, unpublished data; M. E. Soulé, personal communication).
- Avoid "in. lit." citations. Provide the original citations whenever possible. For example, (Jones 1995), instead of (Jones 1995, referenced in Smith 2000).
- Make sure all references cited in text are listed in References cited and vice versa.

"References Cited" section

- Spell out <u>all</u> journal titles in full. Titles are italicized.
- Capitalize only the first word, proper nouns, and other words that would normally be capitalized in a sentence. Do not capitalize the first letter of each word or all letters.
- "Submitted" papers and personal communications should not be in the References Cited; cite as unpublished data in the text (include full reference in parentheses in the text).
- Remove "Inc.," "Co.," etc. from reference in text and Lit. Cited: (SAS Institute 1998) not (SAS Institute, Inc. 1998).
- Conference proceedings and conference abstracts can be cited in References cited only if they have a "publisher" and the location of said publisher can be provided. If not formally published, the publisher is the organization from which a copy can be obtained.

Sample citations

- **Institutions as authors:** Spell out name of the institution and include location of publisher. *Example:*
    - World Wildlife Fund (WWF). 2002. *Giant panda home ranges*. Washington, D.C.: WWF. ***or***

- WWF (World Wildlife Fund). 2002. *Giant panda home ranges*. Washington, D.C.: WWF.

The initial citation in the *References Cited* section needs to match the text citation: WWF vs. World Wildlife Fund.

- **Journal articles:** Christensen, N. D., and J. Eu. 2003. Ecology of cranberry bogs: a case study. *Ecology* 59**:**1147–1167, 1178–1187. For a supplement citation: …13(supplement 1)**:**172–180. If a paper is in press, the "in press" follows the journal title (i.e., *Ecology*: in press.).
- **Edited books:** Cran, B., C. Boy, and L. Shi. 1911. Native forest birds of Guam. Pages 4-8 in T. Wu and L. Lee, editors. *Flora and fauna of Guam*. Ace, Ohio: Tell Books.
- **Reports**: Barnes, J., and S. Craig. 2003. *Conservation status of riparian areas in southeastern Oregon*. General technical report N-24. Portland, Oregon: U.S. Fish and Wildlife Service.
- **Internet citations:** Include the name of the sponsoring organization and their physical location. Example: Carne, A. 2003. *The art of leaving well enough alone.* Washington, D.C.: National Science Teachers Association. Available from http:www.nsta.org/art2/scienceandchildren (accessed March 2002).

3. Supporting Elements (Tables, Figures, Appendices)

Number of elements

Strive for a ratio of no more than one supporting element to every four pages of text (text includes References cited). Publication of raw data, even in an appendix, is usually not vital to the results and conclusions of a study. Do not put more than one supporting element on a page.

Exhibits

ESD documents should not include any supporting elements referred to as "Exhibits." All supporting elements should be labeled as Tables, Figures, or Appendices.

Appendices

We encourage the use of appendices as a means to archive supplementary materials. As noted above, it is generally not necessary to include raw data in the appendix to an evaluation.

Content

Tables and figures should be self-explanatory and should supplement (not duplicate) the text. A reader should be able to interpret tables and figures without referring to the text. This means all abbreviations and terms unique to the document must be defined. Common statistical notations do not need to be defined. Use the same terminology in supporting elements as you did in the text.

Referencing a supporting element in the text

- Provide a summary or generalization of data and cite supporting elements parenthetically.
  - *Incorrect*: Perception and tolerance indices are shown in Fig. 2.
  - *Correct:* Cheetahs were increasingly perceived as a problem on farms, but the level of tolerance for them did not decrease (Fig. 2).

- Spell out the word *figure* only at the beginning of a sentence; otherwise, abbreviate (e.g., Fig. 1).

Tables

- Legends need to be informative within one sentence. A list of column or row headings is not informative or sufficient. Use the legend and footnotes to fully inform readers.
- Define abbreviations (in footnote) even if they are already defined in text.
- If there is only one footnote, use an asterisk (*). If there is more than one footnote, use letters ([a], [b], [c],)
- Bold type is not allowed in tables.
- Do not use grid lines on tables.
- If you have more than one table with the same data provided for, say, different states, combine the tables if you can. To set entries within a column apart from each other use indentation.
- Unless an entry is a complete sentence capitalize only the first word of the first entry in a row (exception is proper nouns) and do not use periods.
- Do not split tables into separate parts (e.g., Table 1a and Table 1b). Make separate tables or combine data under the same columns or rows.

Table Example

Table 1. Logistic-regression models built with….[a]

Variable	Symbol	*p*	df
General model[b]	f_g	0.0015	3
landscape ruggedness	rug	0.0113	
forest cover (%)	bosque	0.0085	
Human model			
human population	pob1		
….			

[a]Significance level of coefficients….
[b]Next most parsimonious models at…

Figures - Refer to the style guidelines below for graphs and maps.

Graphs

- Do not use top and right-hand axis lines if they do not have units associated with them.
- Do not enclose graphs in a square.
- Label all axes and include units of measure in the label: *e.g.,* Number of species/km^2.
- Note use of upper and lowercase letters in above Table example.
- Use a key instead of describing shading or shapes in the legend.
- Match typeface and type size among figures.

- Make sure axis labels and units are not out of proportion (e.g., very large axis label and very small numbers along the axis).
- If a figure has more than one part that needs to be specifically identified, use lowercase letters. Make sure if the figure has letter labels they are used or referred to in the legend.
- If identifiers to be placed along the x-axis are long, slant them for easier reading (no vertical orientation).
- Significant figures along an axis need to match, i.e., 1.0, 2.5, 2.0 (not 1, 2.5, 2).
- The label for the y-axis should run vertically to the left of the numbers, and numbers should be horizontally oriented.
- Labels along both axis lines should be centered.

Maps
- Maps must have a scale.
- Make sure shadings can be differentiated.

4. **Scientific names (not "Latin names")**

- Scientific names: In the Executive Summary and at first mention in the text, use common name followed by scientific name (genus and species) in parentheses. For example: cane toad (*Bufo marinus*).
- Organisms: *Clarkia springvillensis* (first use); *C. springvillensis* (thereafter, even starting sentence); *Clarkia* spp. or sp. or var. (rom.).
- Common names: all lower case (creeping thistle, tiger), except where proper noun (e.g., Siberian tiger).

5. Numbers and Statistical Elements

- longitude and latitude (l48^{o}N, 78^{o}W) (no periods)
- Degrees: use symbols.
- Spell out whole numbers below 10, but use figures for 10 and above. *Exceptions:*
  - a 5-year-old girl, 3 percent, 6 cents;
  - A number at the beginning of a sentence should be spelled out (e.g., "Twelve program offices and all 10 Regional offices think…").
- Fractions may be spelled out (one-half, one-third) unless used with units of measure (0.5 mm or 0.5 years).
- When less than one, use 0 before decimal point.
- Numbered lists: (1)…; (2)…; and (3)…
- Put a space between numbers and the unit of measure (6 m, 14 mL)
- *p*, probability; df, degrees of freedom; SE, standard error; SD, standard deviation, χ^2, chi square

7. Miscellaneous Style Points

- **Regions**. Many readers don't know what "Region 1," "Region 2," etc. mean, so explicitly list states when referring to an EPA Region for the first time. For example, "Region 5 (IL, IN, MI, MN, OH, WI)." Use regional descriptions if appropriate (e.g., "EPA New England"). Also, use "EPA regional offices" instead of "EPA regions."

- **Model variables**
  - Whole words used as a model variable are lowercase (e.g., species). Multiple-letter abbreviations that are not complete words are all capital letters
    - *Acceptable*: DEM for digital elevation model;
    - *Unacceptable*: PATCH for patch area.
  - Italicize all single-letter variables in equations, except for Greek letters. Variables of more than one letter are not italicized (e.g., RU, meaning reproductive units as opposed to *RU*, in which *R* and *U* are separate interacting terms).
  - Define every variable used in equations.

- **Computer applications.** Initial cap only (i.e., Partition, ArcInfo) if the name of the program is a word. If the name is not a word, use all caps: SAS.

- **Footnotes.** Avoid footnotes in text unless footnoted material is lengthy (more than 2-3 lines long). Use parentheses instead.

- No trademark symbols
- Include two spaces after a period and at least one line between paragraphs.
- To conserve paper, avoid excessive white space.

8. Writing Style

Clarity is everything

Our audience is the general environmental professional, so clarity in language and syntax is important. For reports and other written products, informal language is not acceptable. In addition, **"**literary devices, metaphors and the like, divert attention from the substance to the style [and]…should be used rarely" (Day 1998).

Plain language

As with all federal agencies and departments, EPA must use plain language in its communications. Because EPA evaluations and other written products have diverse audiences, it is particularly important for authors of ESD products to **avoid use of jargon**. (Additional guidance is available from the General Services Administration's Language Network on the Internet at www.plainlanguage.gov.)

Voice

- Use active voice most of the time. Avoid passive voice, where the object seems to be the subject and the true subject is hidden or missing. For example, "mistakes were made." By whom? Sentences in the passive voice are perfect if you are trying to hide something or escape responsibility. Sentences in the active voice are strong, clear, simple and credible.
- To avoid passive voice, use “we”, “I”, or the name of the organization doing the activity. For example:
    - "EPA will issue a proposed cleanup plan this summer.," not "A cleanup plan will be issued this summer."
    - “EPA experts surveyed the plots.,” not “The plots were surveyed by EPA experts.”
    - “We converted all GIS data to raster format.,” not “All GIS data were converted to raster format.”
- In particular, the methods section should not be written entirely in passive voice.

Tense

- Past tense: use it in the methods (telling what you did) and results (telling what your results were) sections.
- Present tense: use it when you refer to previously published findings.

In general, most of the **executive summary**, **methods**, and **results** should be in past tense, and most of the **introduction** and **discussion** should be in present tense.

Abbreviations, acronyms, and initializations

- Do not begin a sentence with an abbreviation.

- Do not fill the evaluation with abbreviations and acronyms. Overuse of these devices makes reading and comprehension difficult. A handful of abbreviations for terms particular to your paper or topic used throughout is acceptable, but many more is questionable. It may be time consuming to type these words out, but keep the reader in mind.

- Avoid acronyms except for those widely understood by the general public.
    - EPA is acceptable, and so are other common acronyms like PCBs and CFCs.
    - Acronyms such as ARARA, DNAPLES, RI/FS, NPDES and ROD are generally not acceptable. Avoid these when possible, even if they have been previously referenced. A small number of acronyms may be appropriate, however, if they are central to the report. For example, it would be acceptable to use the acronym “NPDES” in an evaluation of the National Point Discharge Elimination System program.

- Define all abbreviations, initializations, and acronyms at first use, e.g., analysis of variance (ANOVA), World Conservation Union (IUCN).

- Always spell out "United States" when it appears as a noun. As a modifier, "U.S." is acceptable (but not in the Agency's name on covers or title pages).
- Always use the two-letter postal code abbreviations when abbreviating state names. No periods: "NY," not "N.Y." Note, however, that abbreviation is only appropriate in long lists and addresses.
- "Southwest" is one word; it is abbreviated "SW." Ditto for all compass points.
- "EPA" is a proper noun; it should be used by itself without "the" in front. For example, a sentence should begin *"EPA will ..."* instead of *"The EPA will ..."*

Gender Bias
Use gender-neutral words. Consult sources like the U.S. Labor Department's Dictionary of Occupational Titles or Rosalie Maggio's book Nonsexist Word Finder. Web-based guidance on plain language writing is available at: http://www.plainlanguage.gov.

9. Grammatical Bugaboos

Capitalization and Spelling

Agency	capitalized when "the Agency" refers specifically to EPA, as opposed to a generic organization.
online, webmaster	each is only one word; neither is capitalized or hyphenated.
section, article	not capitalized, even when referring to one part of a law or regulation.
state, federal, regional, local, tribal	not capitalized unless they begin a sentence or form part of an official title.
Title	capitalized when referring to a part of a law or regulation; not capitalized otherwise.
Web	capitalized when it refers to the World Wide Web, as in "Web site."

Using (the word)
In scientific writing, the word *using* is often the culprit in dangling participles and misplaced modifiers.
- Misplaced modifier: Ivory samples were taken from tusks using a 16-mm drill bit on a 40-cm drill. This reads as if the tusks used the drill. Keep related words together and in the order that conveys the intended meaning (and use active voice).

- Dangling participle: Using tissue isolation protocol, mtDNA was isolated from dried skins. In this sentence it is unclear who is doing the using; it has no actor and reads as if mtDNA is doing the using.
- The verb *utilize* should NOT be employed; *use* should be employed instead.
- Commas are not needed with short introductory phrases, unless meaning is unclear without.

Multiple modifiers

Too many modifiers: Do not pile up multiple adjectives (or nouns-turned-adjectives) in front of a noun (difficult to follow: “infected bird populations responses”; better: “responses of infected bird populations”).

Pronouns

Be careful, in particular, with the pronouns *this, these,* and *it*. If you do not provide a qualifier, it is sometimes difficult to tell to what these words refer. For example:

- *Unclear*: This program offers solutions to that problem.
- *Clear:* This computer program offers solutions to the problem of incorrect number sequencing.

Ampersands (&)

Use ampersands only when they are part of a formal name (e.g., C&O Railroad) or when space is at a premium (e.g., in the left sidebar).

Commonly Misused Words

Affect/Effect

"Affect" is normally a verb. "Effect" is normally a noun. For example:
*"Acid rain **affects** trees"*
*"Acid rain's damaging **effects** include weakening trees."*

The only use of "effect" as a verb is to mean "to cause" or "to bring about" as in *"EPA will effect change through a new program."* **However,** it is usually better to say accomplish, perform, produce, generate, make, etc.

Cleanup

The noun is "cleanup," the verb form is "clean up," and the adjective is "clean-up." For example:
*"The **cleanup** will take six weeks"*
*"Workers will **clean up** the site in six weeks"*
*"The **clean-up** work will take six weeks."*

Dispose

To "dispose" means to arrange, incline, or set in readiness. In contrast, "to dispose of" means to get rid of something. For example:
*"The on-scene-coordinator is **disposed to** clean up the site now"*
*"The on-scene-coordinator **will dispose of** the hazardous material at an approved landfill."*
Improper use: *"EPA will dispose the hazardous material."*

Environment
Use *"environment"* to mean what surrounds us on the Earth's surface: air, water, trees, land, etc. In contrast, *"earth's environment"* means planets, stars, asteroids, magnetic fields, etc.

Impact
"Impact" as a verb is over-used. Use "affect" or "affected" instead. For example:
*"The contamination will **affect** a large area"* instead of *"the contamination will **impact** a large area."*
"The affected area ..." instead of *"the impacted area ..."*

May
"May" means permission exists, despite the lenience of some descriptive dictionaries. It *may not* be used as a synonym for can, might, could, or would.

Waste
The term "waste" is implicitly plural. Do not add an "s" unless you mean different types. For instance:
*"hospital **waste** comprises various dangerous items,"* but,
*"solid and liquid **wastes** must be treated differently."*

Which, That
Be careful of using "which" in place of "that." *"Which"* tells something about the subject that is not absolutely necessary:
*"The project, **which** is six weeks overdue, is still with the contractor."*
In contrast, *"that"* provides necessary definition or restriction:
*"Let's review the project **that** is six weeks overdue."* "Which" is always preceded by a comma; "that" never is.

Web
"Web" is one word and "Web site" is two words. Similarly, "Web page" is two words. Capitalize "Web" because it is short for "World Wide Web."

Bylines and Staff Credits
Printing and Binding Regulations state:

> *"The printing of Government employees' bylines in Government publications shall be confined to the authors of articles appearing therein, and to the photographers who have originated the pictures contained therein."*

When applying this regulation, consider:

- The term "byline" refers to any name listed for credits as opposed to employee names integral to the text itself.

- The term "author" applies to an individual who has conceived of, created, or is responsible for a text or section thereof. The term "author" cannot be extended to cover supervisors, managers, advisors, staff committee or workgroup members and other such contributors, who may, however, be listed as a group or staff (but not by name), under "acknowledgments."

- It is appropriate to acknowledge other non-contractor organizations or individuals representing them (although acknowledging an organization alone typically suffices).

- In general, contract numbers can be listed, but not contractor or contractor staff names. For third-party or independent evaluations commissioned by EPA, however, the report should identify the evaluation team (contracting firm and staff names). For example:

  This evaluation was performed by Evaluation Consulting, Inc., for EPA's Office of Environmental Policy Innovation and EPA Region IX under Contract 77-W-02-039 between EPA and Evaluation Consulting. The Evaluation Consulting evaluation team included Bob Smith, Peggy Jones, and Juan Ramirez. Alice Keyes of EPA Region IX and Katherine Dawes of EPA's Office of Environmental Policy Innovation played technical advisory roles.

Disclaimers

- Independent or third-party evaluations commissioned by EPA require non-EPA employees to express their own opinions. In these instances, the evaluation should include the following disclaimer:

  The material in this document has been subject to Agency technical and policy review, and approved for publication as an EPA report. The views expressed by individual authors, however, are their own, and do not necessarily reflect those of the U.S. Environmental Protection Agency.

- Draft documents require the following disclaimer:

  This text is a draft that has not been reviewed for technical accuracy or adherence to EPA policy; do not quote or cite.

- Documents that refer to particular companies, trade or service names, product names, or other commercial references require the following disclaimer:

  Mention of trade names, products, or services does not convey official EPA approval, endorsement, or recommendation.

10. Bibliography

Day, R.A. 1998. *How to write and publish a scientific paper.* 5th edition. Westport, Connecticut: Oryx Press.

Miron, Gary. 2004. *Evaluation Report Checklist*. Kalamzoo, Michigan: Western Michigan University. (Available online at **http://www.wmich.edu/evalctr/checklists/**; accessed January 12, 2005).

Society for Conservation Biology. 2004. Conservation Biology *Style for Authors.* Arlington, VA: Society for Conservation Biology. Available online at http://www.conservationbiology.org/SCB/Publications/ConsBio/Instructions/Style.cfm; accessed January 12, 2005.)

U.S. Environmental Protection Agency (EPA). 2004. *Policy and Implementation Guide for Communications Product Development and Approval.* Washington, DC: EPA. (Available online at http://www.epa.gov/productreview/guide/app3.html; accessed January 12, 2005).