

**Editing and Style Guidelines for the
NOAA Technical Memorandum
NMFS F/SPO Series**

**Office of Science and Technology (OST)
Scientific Publications Office (SPO)**

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Background

The NOAA Technical Memorandum NMFS series (TM) is published by NMFS Offices and Science Centers, and is used for timely documentation and communication of preliminary results, interim reports, or more localized or special purpose information. NMFS Offices and Science Centers are responsible for reviews and technical accuracy of TMs. The TMs are numbered publications and can be obtained from the issuing Office or Science Center and are published online.

The NMFS Scientific Publications Office publishes the F/SPO series for reports that are authored by Office of Science and Technology staff, and occasionally for other offices when the subject matter is national in scope. For more information about the TM series, please visit <http://spo.nmfs.noaa.gov/tech-memos>.

The following guidelines apply to the F/SPO TM series only; other organizations provide their own guidelines.

Style

These guidelines follow the *U.S. Government Printing Office Style Manual* (available at <https://www.govinfo.gov/collection/gpo-style-manual>) and *Scientific Style and Format: the CSE Manual for Authors, Editors, and Publishers* (8th ed.) for editorial style, and the American Fisheries Society's (AFS) *Common and Scientific Names of Fishes from the United States, Canada, and Mexico* (7th ed.) for fish nomenclature. Later in this document, a table summarizes style and editing items of note or that may deviate from the cited style references for clarity or simplicity.

Titles, Headings, and Abstract

Keep titles, headings, subheadings, and the abstract (if one is included) short and clear. Because abstracts are circulated by abstracting agencies, it is important that they represent the research or topic clearly and concisely. For workshop proceedings, the abstract should summarize the objectives or goals and recommendations of the workshop. Headings within each section must be short, reflect a logical sequence, and have at least two subheadings. If a heading has only one subheading, authors are encouraged to reorganize the section. In addition, authors should avoid “stacked headings”: consecutive headings with no text in between. In this case, consider deleting one of the headings.

Readability

The entire text should be understood by readers from multiple disciplines. Therefore, all acronyms, abbreviations, and technical terms should be spelled out the first time they are mentioned, followed by the acronym or abbreviation in parentheses. The scientific names of species must be written out the first time they are mentioned; in subsequent mentions of scientific names, the genus may be abbreviated. Only journal titles, scientific names (genera and species), and vessel names should be italicized.

Editing

The following steps outline the editing procedure for the TM series.

NOTES: 1) Authors should not submit incomplete documents for editing. The document should not contain sections marked “TBD” or “placeholder”; such documents will be returned to the author. 2) Documents should be submitted for editing **after** all formal review and signature processes are completed and the document has been approved in the Research Publication Tracking System (RPTS).

1. Office of Science and Technology authors submit their **Word** documents electronically to John Thibodeau, Communications Specialist, ST/3, at john.thibodeau@noaa.gov for assignment to the technical editor.
2. In the email, authors must specify the following information:
 - Who the audience is
 - When the author would like comments returned
 - What level of edit the document requires (e.g., proofreading, moderate edit, or full edit)
3. The technical editor does a quick read-through of the document to assess its suitability for its audience and to determine whether the requested level of edit is sufficient.
4. The technical editor works with the author to reach consensus on the level of edit and schedule. The editor makes every effort to return the document when requested, barring major issues with the document and considering the current workload.
5. The technical editor adds the document to the editing queue.
6. The technical editor marks the document in Word, including formatting inconsistencies, using the track changes feature.
7. The technical editor returns the document to the author and is available to discuss revisions with the author via phone or email.
8. After the author is satisfied with the edits and considers the document final, he or she submits the edited Word file to the managing editor for final formatting review. (Note that the step of creating the required 508-compliant PDF file is done only after the managing editor has reviewed the manuscript.) Please see the [Submission for Publication](#) section for details and further formatting instructions.

General Editing Tips

Abbreviations:

- Do not start or end a sentence with an abbreviation, especially U.S. (write out United States) and etc. (write out “and so on” or restructure the sentence)
- In tables, where space is generally constrained, abbreviate the names of states and journals (for accepted journal abbreviations, see [this list](#))
- Always abbreviate units in tables:

centimeter(s)	cm
foot or feet	ft
inch	in or in. is accepted; sometimes “in” can be mistaken for the preposition
kilogram(s)	kg
kilometer(s)	km
liter(s)	l
meter(s)	m
metric ton (tonne)	t
millimeter(s)	mm
pound(s)	lb (same for singular and plural)
ton(s)	no abbreviation

Acronyms: Spell out on first use and include the acronym in parentheses after the term. If the term occurs only once, there is no need to include the acronym.

Adverbs: If an adverb ends in –ly, do not hyphenate it in a compound modifier (e.g., a clearly defined new species *but* a well-defined strategy)

Capitalization:

- Capitalize “region” if it is part of a formal name as in “the Northwest Region” *but* “the region”
- Capitalize the first word after a colon only if the word starts a complete sentence (e.g., One thing is clear: The problem will not fix itself.)
- In headings: To avoid confusion about whether to capitalize the second word in a compound modifier in headings, write words without the hyphen whenever possible (i.e., “closed” as in nonexempt, nonemployer, reevaluate). Consult Webster’s dictionary and the section on hyphenation for guidance. **Note:** If a word in a heading is hyphenated, always capitalize the second part of the compound.

Colon: *See Capitalization, Lists, Quotations*

Comma:

- Insert after the last item in a series, also called the serial or Oxford comma (e.g., the flag is red, white, and blue)
- Place inside a closing quotation mark

Common names of fishes: Do not italicize; capitalize only proper names and do not capitalize the second name (e.g., Pacific hake *but* smooth dogfish)

Dashes:

- Em dash (—) used for a hard stop in the text, mainly for emphasis, no space on either side (e.g., We will eradicate—not just uncover—the source of the problem)
- En dash (–):
 - Use to connect numbers in a page or date range, no space on either side
 - Do not use with “from” (e.g., from page 6 to 10 *not* from page 6–10; from 16 to 20 April *not* from 16–20 April). Basically, a “from” always requires a “to.”
 - Use to join words of equal rank (e.g., East–West Highway, Report of the Joint NOAA–MMC Workshop, cost–benefit analysis)

Dates: Can be written in two forms:

- Day-month-year (e.g., 11 May 2016, 20 April 2016, or 20 Apr 2016 [if abbreviated])*
- Month-day-year *but* spell out month and set off year with commas (e.g., The total solar eclipse of July 11, 1991, passed over the world’s largest telescopes); *but* no commas necessary if using only the month and year (e.g., I met him in July 1991.)

*May, June, and July are always spelled out. For accepted abbreviations of other month names, see GPO 9.44 *but* no periods at end of abbreviations (Jan, Feb, Mar, Apr, and so on).

Equations: *See Equations and Mathematical Symbols***Footnotes:**

- In text:
 - Number superscripts sequentially from left to right and top to bottom
 - Place superscripts as close to the reference as possible, even in the middle of a sentence
 - For superscripts occurring at the end of a sentence or clause, place outside punctuation including quotes *but* inside parentheses
 - Font is the same as regular body text *but* font size is determined by the Word footnote function
 - Do not insert space between footnotes; use the automatic Word formatting, which places consecutive footnotes without extra space between them.
- In tables:
 - If a footnote applies to the entire table, insert the superscript after the table title
 - Otherwise follow the same rules as for text

Hyphenation:

- To join prefixes and suffixes with stem words that must be capitalized (e.g., pre-Columbian)
- With the prefixes ex-, quasi-, well-, and self- and the suffix -elect*
- Never hyphenate an adverb ending in -ly when forming a compound modifier
- Always hyphenate re-create (as in “to create again”) to avoid confusion with recreate (“to refresh through play or amusement”)
- To form compound modifiers when the second part is a past or present participle (e.g., ill-advised strategy, seizure-inducing drug)
- To form compound modifiers with units (e.g., a 100-pound fish or 120-lb fish)
- Use double hyphens with ages (e.g., a 7-year-old program *but* the program is 7 years old)
- For clarity, if omitting the hyphen would leave one word with a meaning inappropriate to the context (e.g., light-year, has-been)
- To avoid visual confusion when letters are repeated (e.g., shell-like, meta-analysis)

*Many words are now written closed (especially those with the prefixes non-, pre-, and re-) so consult *Merriam-Webster’s Collegiate Dictionary* (11th edition) for guidance.

Italics:

- Italicize the entire scientific (Latin) name of fish species (e.g., *Salmo salar*)
- Do not italicize the titles of articles, books, or other source material in citations (see the *Citation Examples* section)

Long sentences (more than 10 words): Divide into two or more sentences

Names of fish species, scientific and common:

- Italicize the entire scientific (Latin) name (e.g., *Salmo salar*)
- Capitalize only the first part of the Latin name (e.g., *Limanda ferruginea*)
- Do not capitalize the second part of the common name, although AFS recommends this
- Capitalize any proper nouns in the common name (e.g., Pacific hake)
- Verify spellings of fish names in *Common and Scientific Names of Fishes from the United States, Canada, and Mexico* (the free AFS Fish Name Spellchecker can be used: <https://fisheries.org/books-journals/writing-tools/fishnames/>).

Noun strings (four or more in a row): Break up so the reader can identify the subject or object*

*Except for species names (e.g., Southern Resident killer whale)

Numerals: Write out one through nine, write 10 and above as numerals*

*Except for units of time and measurement, which are always written as numerals (e.g., nine fish and six vessels *but* 9 mm and 6 pounds; also 3 months, 4 days, 9 hours, 2 minutes)

Parentheticals: Do not use consecutive parentheticals [e.g., (2007) (30%); write as (2007; 30%)]

Semicolons:

- Insert between elements in a run-in list if any list item contains commas or if the items are overly long (in this case, consider formatting as a vertical list to increase readability)
- Always place outside quotes

Titles and headings:

- Use consistent case for all headings of the same level:
 - Sentence case—capitalize only the first word of a title or heading
 - Title case—capitalize the first word and last word of the title or heading regardless of their parts of speech; all nouns, pronouns, adjectives, verbs, adverbs, and subordinating conjunctions (*if, because, as, that, etc.*); and prepositions of more than four letters (through, throughout, between)
Examples: This is an example of sentence case; This Is an Example of Title Case
- Capitalize the second word in a compound modifier (e.g., Non-Employer, Well-Defined, Twenty-First), but write as many of these words as feasible without the hyphen (i.e., “closed”). See the sections on capitalization and hyphenation for further guidance.

Quotations: Place punctuation inside quotes except for colon (:) and semicolon (;)

Units:

- Write out in text but abbreviate in tables*
*Except for %, which is used throughout *and* no space between numeral and %
- Insert a space between a numeral and unit of time or measure (e.g., 150 pounds, 150 lb, 5 hours)

Footnotes

Footnotes must be numbered with Arabic numerals. NOTE that the year does not appear in the text reference (Smith¹) because the reference is not formal literature.

Personal communications and unpublished data: Footnote all personal communications and unpublished data, listing the name, affiliation, and address of the communicator and date of communication, except when by an author or coauthor. For example:

¹Smith, J. 2022. Personal commun. Department of xxxx, Univ. Toronto, Toronto, Canada BVI 589.

A personal communication by a coauthor is cited in the text as (J. Conway, personal commun.).

Personal observations by the senior author or a coauthor are cited as (senior author, personal observ.) and (J. Conway, personal observ.), respectively. Unpublished data of the senior author, or a coauthor, are cited in the text as (senior author, unpubl. data) and (J. Conway, unpubl. data), respectively.

Unpublished manuscripts: these should include the title, author, pagination of the manuscript or report, and the address where it is on file. These include manuscripts being prepared for submission to a journal or under review; only manuscripts accepted to formal publications may be included in the Literature Cited section.

¹Smith, J. 2022. Unpubl. manuscript. Annotated key to the fishes of the North Pacific Ocean, 908 p. Department of xxxx, Univ. Toronto, Toronto, Canada BVI 589.

Informal publications: Authors are advised, wherever possible, to avoid references to nonstandard (gray) literature, such as internal, project, processed, or administrative reports. Where these references are used, please include whether they are available online (include link) or from a public depository.

¹National Marine Fisheries Service. 1991. Annual progress report 13R-LP, 127 p. [Available at xxxx (division, agency, street address, zip code).] If available only online, cite as follows: [Available at <https://www.....>]

Web pages: In-text links to web pages may be used sparingly but should be footnoted with a page title and full link. For example:

¹NOAA Fisheries. 2023. Bycatch. [Available at <https://www.fisheries.noaa.gov/topic/bycatch>]

Literature Cited

Title the list of references “Literature Cited” and include only published works or those actually in press. (Unpublished manuscripts, including ones being prepared for submission or under review, should be footnoted; see above.)

Journal citations must contain the following information:

- Complete title of the work.
- Inclusive pagination.
- Full journal title or its accepted abbreviation. Whichever convention you choose, use it consistently throughout the Literature Cited section. If you opt to use abbreviations, make sure they conform to standard abbreviations for journal titles at https://spo.nmfs.noaa.gov/sites/default/files/List_of_Journal_Abbreviations_final.pdf
- Year, month, volume, and issue numbers of the publication. If manuscript has been accepted for publication but not yet assigned to an issue, the year should instead be listed as [In prep.].
- Digital Object Identifier (DOI) code if available; formatted as <https://doi.org/> followed by the DOI code (for example: <https://doi.org/10.7755/FB.119.4.1>)

For books, include the following information:

- Full title of the book, and chapter title if citing only a specific chapter
- Number of pages
- Publisher name
- Publisher location

Citations should be listed alphabetically by the senior author's surname and initials. Coauthors should be listed by initials and surname. Where two or more citations have the same author(s), list them chronologically; where both author and year match on two or more, use lowercase letters to distinguish them (2021a, 2021b, 2021c, etc.). Authors must double-check all literature cited; they alone are responsible for its accuracy. Please see the next section for examples of citations and use of abbreviations.

Citation examples

Peer-reviewed journal articles:

Somerton, D. A., K. Williams, and M. D. Campbell. 2017. Quantifying the behavior of fish in response to a moving camera vehicle by using benthic stereo cameras and target tracking. *Fish. Bull.* 115:343–354. <https://doi.org/10.7755/FB.115.3.5>

Theses or dissertations:

York, H. 2005. Vocal culture and social stability in resident killer whales (*Orcinus orca*) of the northeastern Pacific. Ph.D. diss.,* 126 p. Univ. British Columbia, Vancouver, BC.

*For Master's theses, write M.S. thesis; do not abbreviate "thesis."

NOAA Technical Memoranda:

Yoklavich, M., J. Reynolds, and D. Rosen. 2015. A comparative assessment of underwater visual survey tools: results of a workshop and user questionnaire. NOAA Tech. Memo. NMFS-SWFSC-547, 34 p.

Books:

Fox, J., and S. Weisberg. 2019. *An R companion to applied regression*, 3rd ed., 608 p. Sage Publ., Thousand Oaks, CA.

Chapter in a book:

Armstrong, R. A., and H. Singh. 2012. Mesophotic coral reefs of the Puerto Rico shelf. *In* *Seafloor geomorphology as benthic habitat: GeoHab atlas of seafloor geomorphic features and benthic habitats* (P. T. Harris and E. K. Baker, eds.), p. 365–374. Elsevier, London.

Symposia:

Baskerville-Bridges, B., J. C. Lindberg, and S. I. Dorsoshev. 2004. The effect of light intensity, algal concentration, and prey density on the feeding behavior of delta smelt larvae. *In* *Proceedings of the symposium: early life history of fishes in the San Francisco estuary and watershed; Santa Cruz, 20–23 August* (F. Feyer, ed.), p. 219–228. Am. Fish. Soc., Bethesda, MD.

Equations and Mathematical Symbols

Equations and mathematical symbols should be set from a standard mathematical program and tool (Equation Editor in MS Word). For mathematical symbols in the general text (a, c², p, ±, etc.), use the symbols provided by the MS Word program and italicize all variables, except those represented by Greek letters. Do not use photo mode when creating these symbols in the general text. Number equations (if there is more than one) for future reference by scientists; place the number within parentheses at the end of the first line of the equation. When formatting the document, make sure to align the equation numbers.

Tables

Tables and their headings should follow a consistent format throughout a document. If feasible, tables should not be excessively long and must be cited in numerical order in the text. They should be placed in the text as close to their references as possible. Headings should be short but sufficient to allow the table to be intelligible on its own. Table titles are written in sentence case (capitalize only the first word and all proper nouns) and should have no end punctuation. All unusual symbols and other incidental comments may be footnoted with Arabic numerals. Zeros should precede all decimal points for values less than 1.

Figures

Figures include line illustrations, such as charts and graphs, and photographs and must be cited in numerical order in the text. Insert the figure in the text as close to the reference as possible. The figure caption should use sentence case (capitalize only the first word and proper nouns) and should use end punctuation. Avoid vertical lettering except for y-axis labels. Zeros should precede all decimal points for values less than 1. Consider column and page sizes when designing figures.

Color

Generally, TMs are not printed in color unless color is necessary for communicating scientific information. Color is not used as a design element except when pre-approved for specific

outreach publications. Color can appear in an online publication, but must be easily converted to grayscale for printing without loss of meaning or readability.

Color is allowed in figures only to show morphological differences among species (for species identification), to show stain reactions, and to show gradations in temperature contours within maps. Color is discouraged in graphs, and for the few instances where color may be allowed, its use is determined by the Managing Editor.

Sample Report Structure

The sample report structures in this section cover the main categories of TMs and are based on documents on the SPO website. Authors should view these outlines as **suggestions only** to help organize their text; some sections may not apply to all documents in a category. Note that when using actual numbered outline format, the numbering starts with the body of the text (don't number the front matter sections). For more formatting examples, please visit the [F/SPO TM page](http://spo.nmfs.noaa.gov/tech-memos) (<http://spo.nmfs.noaa.gov/tech-memos>) to view PDF versions of published documents.

Standard Technical Memorandum:

- I. Cover
- II. Title page
- III. Title verso
- IV. Contents
- V. Executive summary
- VI. Introduction [sometimes includes structure of the report]
- VII. Methods
- VIII. Conclusions [or Discussions and Recommendations]
- IX. Acknowledgements
- X. Literature cited
- XI.** Appendices [optional]

Workshop Proceedings:

- I. Cover
 - II. Title page
 - III. Title verso
 - IV. Contents
 - V. Acknowledgements [optional]
 - VI. Executive Summary
 - VII. Introduction: Workshop Objectives, Structure of the Report, Background/Overview of the <technology/project/etc.>
 - VIII. Workshop Outcomes/Observations/Challenges
 - IX. Recommendations
 - X. Concluding Remarks [optional]
 - XI. Abstracts of Keynote Addresses [optional, include keywords]
 - XII. Responses to Questions [e.g., if centers sent out questionnaires before the workshop and used the answers to develop presentation topics]
 - XIII. Literature Cited
- Appendix A—Workshop Participants [personal photos are banned from scientific publications]
- Appendix B—Workshop Agenda
- Appendix C—Glossary

Symposium Proceedings:

- I. Cover
- II. Title page
- III. Title verso
- IV. Contents
- V. Introduction [optional]
- VI. Body [basically all abstracts of papers presented, including some entire papers]

Strategic Plan:

- I. Cover
- II. Title page
- III. Title verso
- IV. Preface/Foreword
- V. Contents
- VI. Introduction [sometimes includes structure of the report]
- VII. Legislative Background
- VIII. Goals and Objectives
- IX. Body
- X. Literature Cited
- XI. Appendices [optional]

Economic Report:

- I. Cover
- II. Title page
- III. Cover verso
- IV. Contents
- V. Abstract
- VI. Introduction
- VII. Body
- VIII. Literature Cited
 - I. Appendices [optional]

Report to Congress:

- II. Cover/title page
- III. Contents
- IV. Acknowledgements
- V. Preface [optional]
- VI. Executive Summary
- VII. Introduction
- VIII. Body [based on subject matter]
- IX. Appendices [optional]

Notes on Reports to Congress

Reports to Congress follow a stricter format than other categories in the TM series and should conform to GPO (<https://www.govinfo.gov/collection/gpo-style-manual>) and Plain Language guidelines (see the [Plain Language checklist](#) for guidance). For these reports, it is especially important that the text be understood by a non-scientific audience. Authors are advised to provide high-level descriptions of projects and programs and omit detailed calculations and complex scientific explanations. Instead, translate scientific terms to plain English. The following table contains suggested alternatives for some common scientific terms:

bathymetry	depth and shape of underwater terrain
benthic	occurring on the bottom of a body of water
biomass	population, abundance
bycatch	unintentional or accidental catch
data poor	for which little data is available
demersal	seafloor, bottom-dwelling
early life stage	juvenile
ecosystems services	benefits people obtain from ecosystems

histology	microscopic analysis
larvae	newly hatched fish
otoliths	ear bones
pelagic	midwater, free-ranging
recruitment	number of fish surviving to enter the fishery, or to some life history stage such as settlement or maturity
self-recruiting species	naturally occurring in communal water bodies, do not rely on human intervention (such as restocking) for their reproduction and survival
settlement	when larval or juvenile animals that have been living in open water leave that environment and attach to a sea bed, lake bed, or other solid surface
trophic level	level (or place) in the food chain
water column	between the ocean surface and seafloor
wild run	seasonal migration
young of the year	born within the past year (also called age-0)

Formatting

Front matter should follow the format in the template available on the SPO website at <http://spo.nmfs.noaa.gov/tech-memos> (click the Front Matter Template link). Authors are free to style their own layouts for the remainder of the document; however, styles must be used consistently throughout. Serif fonts, such as Times New Roman, are recommended for body text. One or two column page layouts are acceptable. The technical editor will mark formatting inconsistencies but will not reformat the document; this is the author’s responsibility.

Submission for Publication

Authors submit final files in Word format along with the completed manuscript transmittal form, [NOAA form 25-700](#) or a screenshot of the RPTS approval page. Submissions may be sent by email to the managing editor at shelley.arenas@noaa.gov. The report number is assigned when the completed approval document is received.

Publication – Online and In Print

After any final revisions, the managing editor will return the Word file to the author. The author then is responsible for providing a 508-compliant PDF for online publication on the SPO website (for F/SPO and OHC Tech. Memos. only). Accessible PDFs can often be created by using Word’s “Check Accessibility” tool. For additional technical assistance with creating the 508-compliant PDF, contact Jacqui Fenner (jacqui.fenner@noaa.gov). The author should also submit the PDF to NOAA’s Institutional Repository – see <https://library.noaa.gov/Research-Tools/IR/IR-FAQs> for procedures.

Authors should advise the managing editor if the publication has a specific “roll-out” date, otherwise it will usually be published within a day of receiving the 508-compliant PDF.

Authors may also order printed copies of their Tech. Memos. The total number of copies, address to ship the copies to, and a control code or accounting code to pay for the copies should be submitted either on the form 25700 or by email to the managing editor. For printing, SPO creates the PDF and coordinates printing through the NOAA printing office and GPO. Authors may need to supply print-ready cover art. Authors may also need to convert some color pages to grayscale before printing if the use of color doesn't meet specific reasons allowed by GPO policies. The Scientific Publications Office also prints a few copies of each report for archival purposes.

Questions? For any questions on preparing and submitting Tech. Memos. for editing and publication, please contact the managing editor at shelley.arenas@noaa.gov.