



ADFG

Writer's Guide



Second Edition

Alaska Department of Fish and Game

ADF&G Writer's Guide



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The committee assembling this writing guide recognizes that we all despise tedium and that so many writing rules in our language seem needless and arcane — cumbersome minutia that get in our way. But when these rules are carefully examined, a useful and generally helpful purpose is revealed.

Like it or not, we are judged by our peers by how well we use and write our language, and standards in spelling and usage form integral constituents of good writing. Some argue that standards stifle creativity. Responding to such a complaint, newspaper columnist Marilyn Vos Savant recently had this to say:

I think standardization encourages creativity — by providing the framework upon which new developments can be conceived and built. For example, without a dictionary and rules of grammar to provide the standards for words and their use, a complex language cannot evolve, without which a complex written literature cannot be cultivated. In the great civilizations, a higher and higher standard of living requires more and more standardization, which produces both brilliant and beautiful improvements — which we can all later take for granted, of course!

We all take good writing for granted. Not until we are forced to read a weakly constructed manuscript filled with stacked adjectives, dangling syntax or misplaced modifiers, and general lack of thoughtful organization do we then — if only for a fleeting moment — appreciate the effective and considerate writer.



This manual was written, compiled, edited, and produced by the Interdivisional Committee of Editors comprising Mary “Mo” Hicks (chairwoman) — Wildlife Conservation; Carla B. Seibel and Nancy Parr — Commissioner’s Office; Robert L. Wilbur, Katherine E. Aschaffenburg, Kurt Savikko, and Sid O. Morgan — Commercial Fisheries Management and Development; Marla Trollan — Public Communications; Mike Mills — Sport Fish; Ellen Fritts — Habitat and Restoration; and Robert J. Wolfe — Subsistence.



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Foreword

Before 1992 Alaska Department of Fish and Game employees lacked a concise reference for their daily correspondence. In March 1992, Commissioner Rosier adopted, as policy, the *ADF&G Writing Standards*, first edition, as our department's guide to provide consistent word usage for department publications and correspondence.

This second edition of *Writing Standards*, now called the *ADF&G Writer's Guide*, promotes consistency, simplifies writing decisions, and takes away some of those everyday writing dilemmas. Does DLP mean defense of life *or* property . . . or is it life *and* property? Do salmon *run* and *return* have the same meaning? Is it *snow* or *opilio* crab? Is *state* capitalized? These answers and many others are in your revised *ADF&G Writer's Guide*.

To provide accurate and consistent writing, these updated writing standards are more than just a guide, they are department policy. Thank you for using this writing manual.



A handwritten signature in black ink that reads "Frank Rue". The signature is written in a cursive style and is positioned above a horizontal line.

Frank Rue, Commissioner

Section I: Policies and General Information

I.1 Hierarchy With Other Manuals

This manual standardizes word usage that has presented difficulties for department staff and has often been used incorrectly. In addition, the manual contains useful publications-related information. The scope of this manual has been coordinated among divisions to reflect their specialized usage. The divisions also retain individual flexibility in formatting and structuring their reports and correspondence.

In cases where written materials are prepared for special purposes (e.g., ANILCA, U.S./Canada, and State of Alaska regulations), their usage conventions may conflict with this manual; those uses are acceptable but only for those special documents. For example, in manuscripts prepared for journals or other external publications, those editorial styles take precedence; otherwise, follow the standards in this manual. If minor conflicts arise between this manual and divisional manuals or references, this manual will take precedence over divisional manuals. Such conflicts should be noted for future consideration in manual revisions.

I.2 Publication Procedures Required by Law

The department must comply with the following intricate laws. Therefore, if you have a print job, you should first consult the headquarters Supply Section or your divisional administrative or publications personnel to determine exact procedures to follow for your particular print job.

a. Printing Choices

In accordance with state laws, ADF&G publications (defined below), excluding those produced by an ADF&G xerographic copier, shall be produced by an in-state commercial facility or Certified Employment Program. If none

of these options can produce the material as specified, then out-of-state printing facilities may be used.

Publication is a written document, including books, brochures, flyers, manuals, newsletters, pamphlets, programs, reports, and similar documents (AS 44.99.240). It does not include posters, standard forms, maps, fish tags, letterhead stationery or envelopes, or hunting, fishing, or drivers' licenses.

Produced means copying, printing, publication, or reproduction.

Certified Employment Program is a nonprofit program to increase employment opportunities for individuals with physical or mental disabilities that constitute substantial handicaps to employment (AS 36.30.990).

b. Procurement Requirements

ADF&G publications must comply with state printing standards, which vary among publication types. The standards at the time of this printing can be found in Appendix A. These standards change periodically; please ask your supply officer for updates.

The following is a brief summation of the Delegations of Procurement Authority for ADF&G as of this printing. A full listing can be found in Appendix B. For bidding requirements, see Section 1.2.d.

Purchases <\$5,000, except credit card purchases, require reasonable and adequate solicitation effort from Alaska vendors before out-of-state solicitation.

Solicitations >\$5,000 to \$25,000 require soliciting at least 3 Alaska vendors for a verbal response before out-of-state solicitation.

Solicitations >\$25,000 to \$50,000 require written solicitation of 3 Alaska vendors for a written response before out-of-state solicitation.

Solicitations >\$50,000 require a formal Invitation to Bid (ITB) in accordance with AS 36.30.130 and 2 AAC 12.130.

For all purchases, an Alaska Bidder Preference of 5% and applicable preferences in AS 36.30.322–36.30.338 shall be considered when awarding contracts.

For professional services contracts, the Alaska Offerors Preference of 10% must be considered.

All printing services shall be purchased in accordance with AS 36.30, 2 AAC 12, and AAM 83.010 – 83.065.

Computer hardware and software must be approved by the divisional computer coordinator prior to purchase.

c. Cost Blocks

According to AS 44.99.210, if a publication costs more than \$1,500 in general funds per printing, or if a publication is a report required by law and the annual cost exceeds \$1,500, regardless of funding source, a cost block is required.

Cost blocks are not required for the following types of publications: (1) publications intended for foreign or out-of-state use, (2) programs for a public ceremony of a state agency, or (3) use by a state agency to develop a market for the agency's services or products.

The cost block must be constructed and relevant costs calculated in accordance with AS 44.99.210 and appear in a prominent place, such as on the inside front cover of the publication. It should be at least 12-point type size bordered by at least a 2-point rule. The cost block can be reduced in size if too large to fit on a smaller-sized publication. Here is an example of a cost block.

The Alaska Department of Fish and Game printed this publication at a cost of \$1.89 in Juneau, Alaska, USA.

d. Bidding Procedures

You have 3 options when seeking bids for printing: (1) If it is a particularly large job and you need it quickly, you can bypass the bidding process and hire a certified employment program (get a list of qualified employment programs from the department's Supply Section), or (2) you can solicit bids from at least 3 commercial printers, all of which should be Alaskan (unless exempted — see Section 1.2.a). Before deciding, however, you need to look at your publication's complexity (color, shading, graphics, binding), the number of copies needed, and how quickly you want the job done.

The table below explains prices and when it is necessary to go through the department's Supply Officer.

Under \$2,500	Written quotes suggested. No Purchase Request (Form 02-099) needed.
\$2,500 to \$10,000	Three written quotes from printers required, 2 of which should be Alaskan. Submit all paperwork with a Purchase Request to your administrative staff.
\$10,000 to \$25,000	Written quotes must go to the ADF&G Supply Officer along with a Purchase Request.

Over \$25,000

Information must first go to the ADF&G Supply Officer, who will forward required materials to the Division of General Services, Department of Administration. The department's Supply Section will then release an Invitation to Bid.

e. Providing Copies to State Libraries

The state library collects and indexes publications produced by state agencies. Though they do not necessarily want everything ADF&G produces, they should at least be given the option to decide. As of this printing, the state library requests 8 copies of our publications for distribution to its depository libraries around the state. ADF&G is responsible for mailing these copies to the following address:

Alaska State Library
Attn: Government Publications
PO Box 110571, MS 0571
Juneau, AK 99811-0571

I.3 Journal Page Charges

If journal page charges for a scientific publication exceed \$2,500, you will need to prepare a Request for Alternate Procurement and submit it to headquarters for approval. Use the following language for the justification.

The department requires publication of a scientific paper in the following journal: (...name of journal...). After carefully considering possible journals that might publish this manuscript, this journal was determined to have the unique distribution this paper requires. In addition, this journal is highly respected by scientists this paper needs to reach. No other journal offers these 2 essential attributes. If this request is not approved, important scientific information will not be distributed to the appropriate scientific audience, and the department will not receive the research recognition it should. This shortcoming could affect the department's ability to deal with management situations authoritatively and to influence important resource decisions made in concert with other agencies and regulatory boards.

I.4 Bias-Free and Gender-Neutral Language

The department uses bias-free and gender-neutral language. Documents should be carefully reviewed for biased language. The phrase *gender-neutral*

refers to words that make no reference at all to gender (see below). They allow us to avoid gender stereotyping.

Use	Alternative Words
congressman/congresswoman sportsman, hunter, angler fisherman, fisher chairman/chairwoman (if known) chairperson, chair (if unknown)	senator/representative/member of Congress sportsperson, outdoor recreationist
Avoid Using	Instead Use
craftsman manmade man-hour, man-month fireman manpower	artisan manufactured, artificial worker-hour, worker-month firefighter workforce, personnel, human resources, staff

1.5 Copyrights

The following Standard Operating Procedure (III-401) is included here for convenient reference. (In a few places, this SOP has been slightly modified for clarity; content and meaning were not altered from the SOP as written.)

Federal copyright laws assign the creators of written materials, music, photographs, visual arts, architecture, databases, computer software, etc., exclusive rights to determine how and when such material is copied or reproduced (see Savikko and Wilbur¹, Item 1). Similarly, patents protect original inventions.

Copyrights do not prevent using copyrighted materials in ways that would alter their original form and content such that the restructured item no longer mirrors, in full or in part, the copyrighted item. For example, a book on the birds of Alaska can be used by another author to develop a different but very similar book on the same subject, provided none of the graphical material or verbatim text is used without the original author's permission. Copyrights, therefore, only protect against copying or other unauthorized uses, and that protection is of limited duration, generally from 50 to over 100 years (see Savikko and Wilbur¹, General Comments).

a. Material Copyrighted to the Department of Fish and Game

A department employee creating copyrightable materials on state time does not own the copyright; instead, under Section 201 (*works made for hire*)

of the Copyright Act, these materials become the intellectual property of the department or State of Alaska. Reproduction of these works, other than by the department, requires written permission by the department, except as allowed under the *fair use* provisions of the copyright act (this generally allows an individual to make a single copy of copyrighted material for a research purpose or for each member of a group for an educational purpose — see *Fair Use*).

Copyrights, while historically most important for artistic and literary creations with commercial value, are becoming increasingly important for intellectual property, such as research results, computer software, databases, etc. Copyrights thwart piracy of intellectual property and facilitate recouping damages from piracy. In addition, copyrights help to ensure proper credit for copyrighted materials copied or republished by others. Therefore, copyright issues for states are increasing. States have not customarily charged royalties (percentage of each copy sold) or licensing fees (flat 1-time fee) for use of their copyrighted materials, but as state budgets shrink and intellectual innovation by states increases, the need to more judiciously manage state copyrights has become increasingly important.

If the department's copyrighted material is to be reproduced by someone outside of state government, the department may elect to (1) license the use with a royalty or fee and impose appropriate conditions, (2) license the use and condition the request without seeking a royalty or fee, or (3) deny the request (see *Licenses and Requests to Reproduce the Department's Copyrighted Materials*).

b. Copyrights and Department Contracts

Copyrightable materials created by an independent contractor hired by the department are not automatically "works made for hire," and special provisions must be provided to ensure the copyright belongs to the department. Under Sections 101 and 202(b) of the Copyright Act, 9 categories of works provided under contract can become the department's intellectual (copyright) property: a work specially ordered or commissioned for use as a (1) contribution to a collective work, (2) part of a motion picture or other audiovisual work, (3) translation, (4) supplementary work (as secondary adjunct to work by another author), (5) compilation, (6) instructional text, (7) test, (8) answer material for a test, or (9) atlas. If the work satisfies 1 of these categories, a written agreement between the department and the contractor specifying that such contract products are to be prepared as "works made for hire" is needed to ensure ownership of the copyright belongs to the department. In addition, copyrights of contractual works that fall outside these 9 categories can be transferred to the department. Therefore, all department contracts should expressly address the question of whether or not copyright ownership will belong to the department under a "works

made for hire” or through copyright transfer. Contracts should also describe any limitations on use of copyrighted materials (see Savikko and Wilbur¹, Item 6).

Although intellectual property produced by federal employees within their official duties are not copyrighted and are usually considered to be *public domain* (i.e., not copyrighted), when the federal government commissions work by the department, through grant or contract, the federal government may allow the department to claim copyright protection (see Savikko and Wilbur¹, Item 38).

c. Copyright Protection vs Public Disclosure

While materials copyrighted to the department may not be reproduced except as allowed by the department, this should not be confused with disclosure of public records as set forth in AS 09.25.100 – 09.25.220 and 6 AAC 96.100 – 96.900. These state laws ensure that public records are available to the public for inspection and that reasonable numbers of copies be provided by the state agency, which is quite different from an individual or company making unauthorized and unlimited copies of state-copyrighted materials.

d. Fair Use

The *fair use* section of the copyright law is complex (see Savikko and Wilbur¹, Item 16); however, copies of copyrighted materials can ordinarily be made by anyone without seeking the copyright owner’s permission as follows.

Single copy for *personal use* (includes job-related use by an individual in research or education. (Note: *personal use* in a recent court decision means that you promptly read and study the article, not simply copy and file it away in your library for a rainy day; nor can you aggregate papers to form a collective work for personal use.)

A single copy for each member of a group assembled for research or educational purposes.

Similarly, a single-copy reproduction of software for educational use can be made but must be retrieved and destroyed after the use is completed, unless the software is in the public domain.

A state employee should only reproduce/copy copyrighted materials for personal use as described above. Other uses would require approval from the copyright owner (see Section h, *Staff Use of Copyrighted Material*).

e. Licenses and Requests to Reproduce the Department's Copyrighted Materials

Copyright transfers (exclusive licenses) and nonexclusive licenses of scientific manuscripts prepared for external journal or symposium publication by department staff should be approved by the divisional editor (i.e., the individual within the respective division responsible for approving release of manuscripts for external publication).

All other requests for copying or reproducing the department's copyrighted materials, except as allowed under *fair use*, or to release or to license the use of department copyrights should only be acted upon by the appropriate division director or the commissioner according to the following guidelines.

Intellectual property copyrighted to the State of Alaska belongs to the residents of Alaska. Consistent with the Public Records Act, the department will therefore protect the overall public interest in authorizing use of the department's intellectual property and in deciding whether to charge a royalty or license fee or require special stipulations.

In general, reproduction of the department's copyrighted material will be encouraged if the public clearly receives a benefit from the requested use. Stipulations attended to approved uses of the department's intellectual property should be included, as needed, to ensure the requested use acknowledges the public's role in developing this material.

The department's intellectual property should not be reproduced by private or other governmental agencies in such a manner that it represents the material as their own. Therefore, permission to reproduce the state's intellectual property should include a stipulation that the requester(s) properly credit the department.

In granting a license, the department may also require disclaimers be included on reproductions to exonerate the state from liability for errors or deficiencies in reproduction.

Requests for private commercial reproduction of the department's intellectual property should be considered on a case-by-case basis. If the department determines the public would clearly derive an associated benefit, the request may be granted. In making that determination, the department may consider the fees the public would have to pay for this commercial product (see Savikko and Wilbur¹, Item 25).

The department may levy appropriate and reasonable royalties or fees to offset public funding used to develop its intellectual property and to

offset fees the public may be charged to purchase the commercial product. If the fees are high and the public or state benefits are comparatively low, requests may not be in the overall public interest and may be accordingly denied. The department should consider the fair market value of its intellectual property (not the cost to develop the product) and set any royalties or fees accordingly (see Savikko and Wilbur¹, Item 25).

Requests for reproducing the department's intellectual property should also be denied when the requested use would:

involve profit-making from sale of reproduced items that the department specifically prepared for free public distribution, except when that item is no longer available and the department has no plans to make additional copies for free distribution;

create public confusion or mislead the public (e.g., reproducing and distributing information that was inaccurate or out of date); or

reflect badly on the department (e.g., unseemly uses, poor quality of reproduction).

f. Internet and Copyrights

Subject to *fair use*, such as limited copying for purposes of scientific research or criticism, the unauthorized copying and posting of material contained on a department web page to another web page may constitute copyright infringement. A person seeking to copy material from a department web page to another web page must first obtain permission from the department. This is different from downloading materials for uses allowed under *fair use*, such as making a paper copy for subsequent reading. Likewise, copying copyrighted materials posted on the Internet for inclusion on a department web page could be an infringement of copyright, unless the copyright holder licensed such use.

g. Department Copyright Notice

Copyright protection begins automatically from the moment the work is created in fixed form and begins without any formality, process, or application. The standard copyright notice (e.g., "© 1998 Alaska Department of Fish and Game") is not required to establish copyright. Nevertheless, copyright notice should be included on the department's formal publications and any other important materials the department may want to inform users of its copyright. Occasionally, special materials that need the

highest possible level of copyright protection (e.g., department logo, computer program) should be registered with the federal copyright office and might additionally be protected under federal and state trademark laws (see Savikko and Wilbur¹, Item 34).

Under Section 407 of the Copyright Act, if the materials include a copyright notice, you must, within 3 months of the date of publication, send 2 complete copies of the material to the Register of Copyrights for filing with the Library of Congress. (Note: Failure to comply, upon written demand by the Register, can make the department subject to fines.) Send 2 copies to:

Register of Copyrights
Copyright Office
Attn: 407 Deposits
Library of Congress
Washington, DC 20559-6000

h. Staff Use of Copyrighted Material

When staff are not sure whether the *fair use* provision of the Copyright Act would allow copying a needed item, staff should request copies or copying permission from the copyright owner or the owner's designated agent, which may include the Copyright Clearance Center (222 Rosewood Drive, Danvers, MA 01923; phone 508-750-8400; Internet address <http://www.copyright.com>). This center can provide prompt authorization to photocopy many copyrighted materials and bill and receive any attendant royalty payments. Also, if you plan to reproduce department-copyrighted material outside your job other than as allowed under *fair use* (see above), you will need to secure the department's permission first.

Staff planning to reprint or republish articles or parts of articles (e.g., a figure or table) previously published in periodicals, books, etc., will need to secure permission from the copyright owner. Keep in mind that most journals are the copyright owners of the papers they publish, not the authors; i.e., authors generally transfer their original copyrights to the journal. However, if all the authors of a paper were federal employees and the paper was developed within the scope of their official duties, then no copyright exists, and you may use the material without permission (do cite the source of the material).

When requesting permission to copy, republish, or reprint material from a copyright owner or designated agent, prepare a letter of request that includes the following: (1) explain the nature of the request (i.e., your intended use and its duration), and (2) include pertinent source information (e.g., year, volume, number, edition, pages or portions of a page) that clearly identifies the material. Include an approval line below your signature on the letter, as shown below, and enclose a self-addressed and stamped return envelope.

Permission Granted:

(signature)

(date)

If there is no response, staff should not assume permission to be granted. Permission is essential because state employees acting in their official capacity are not immune from being sued in federal court for copyright infringement (see Savikko and Wilbur¹, General Comments).

¹ Savikko, K. E., and R. L. Wilbur. 1997. Alaska Department of Fish and Game's copyright policy (SOP III-401) background. Alaska Department of Fish and Game, Commercial Fisheries Management and Development Division, Regional Information Report 5J97-16, Juneau.

I.6 Office of Equal Opportunity (OEO) Statement

Every ADF&G publication, including brochures, videos, and posters, must have the following OEO statement printed in a prominent location, such as on the inside front or back cover. Please note that this statement occasionally will change. All personnel are responsible for ensuring they use the most current version.

The Alaska Department of Fish and Game administers all programs and activities free from discrimination based on race, color, national origin, age, sex, religion, marital status, pregnancy, parenthood, or disability. The department administers all programs and activities in compliance with Title VI of the Civil Rights Act of 1964, Section 504 of the Rehabilitation Act of 1973, Title II of the Americans with Disabilities Act of 1990, the Age Discrimination Act of 1975, and Title IX of the Education Amendments of 1972.

If you believe you have been discriminated against in any program, activity, or facility, or if you desire further information please write to ADF&G, P.O. Box 25526, Juneau, AK 99802-5526; U.S. Fish and Wildlife Service, 4040 N. Fairfax Drive, Suite 300 Webb, Arlington, VA 22203 or O.E.O., U.S. Department of the Interior, Washington DC 20240.

For information on alternative formats for this and other department publications, please contact the department ADA Coordinator at (voice) 907-465-4120, (TDD) 907-465-3646, or (FAX) 907-465-2440.

I.7 Use of Commercial Vendor Name

Mention by name of a commercial vendor (e.g., Bendix Corporation) in a departmental or external publication should include a disclaimer, either

as a footnote or as a single generic statement at the back or front of all reports or publications, similar to the following:

Product names used in this publication (report) are included for scientific completeness but do not constitute product endorsement.

I.8 Confidentiality of the Scientific Review Process

The following Standard Operating Procedure (III-402) is included here for convenient reference (the Department of Law has reviewed this policy and found it consistent with relevant state and federal laws).

a. Policies

1. In accordance with the common law “public interest” exception to disclosure of public records, as recognized in AS 09.25.120(a)(4), the Alaska Department of Fish and Game considers all written materials related to draft technical reports or scientific publications (see *Definitions*) to be confidential and will not release (1) draft reports or publications, except as provided by paragraph II below, or (2) any review materials related to the scientific review (see *Definitions*) of any draft report or publication. That is, except as allowed under paragraph II, only final reports and publications will be available to the public or to department staff not involved directly in the scientific review process. Per 6 AAC 96.335(b), the commissioner directs the department’s scientific editors (see *Definitions*) to deny, as specified in 6 AAC 96.335, requests for such draft materials. Related appeals from the requester(s) will be considered and acted upon by the commissioner according to 6 AAC 96.340 – 96.350.
2. The scientific editors may approve release of draft technical reports and scientific publications only (1) when they have determined that such release would not prejudice the final content of the paper and the senior author has approved the release, or (2) when public review is an identified part of developing the final form and content of the paper (that is, the report is a *public involvement manuscript* — see *Definitions*).
3. Department staff who conduct reviews will treat the manuscripts and all review materials as confidential; that is, they will not share the manuscript or the review materials with professional colleagues or the public.

b. Explanation

The department's scientific reports and publications archive advancements in management practices, establish the historical database critical to effective management today and tomorrow, and form the building blocks of science upon which new research is based. They are also the vehicle by which new findings are authenticated by fellow scientists. The 1974 Federal Council of Science and Technology developed current government policy stating, "The publication of research results is an essential part of science." Without publications, research findings would not be distributed to those who need them and authentication of results would be greatly hampered.

Scientific peer review, an established protocol of the publication process, corrects and validates research before it is published (Council of Biology Editors 1983, 1990, 1991; Day 1988). Reports and publications produced without scientific peer review are referred to as *gray literature*. Collette (1990) writes, "Because [gray literature] is poorly evaluated, it lacks credibility. Authors of gray literature . . . have not completed the necessary tasks of producing credible information."

During the scientific review process, it is customary among the sciences to treat review materials as confidential (Marshall 1996). Release of draft reports and publications is inappropriate because errors and shortcomings, common in preliminary drafts, could mislead the public, misdirect related ongoing research, and produce wasteful dialogue complicating and delaying timely publication. Reactions of the public or professional colleagues to draft materials could also sway or prejudice the author(s) into making conciliatory but unwarranted changes to the final publication. Lack of confidentiality could also lead to unfair and unethical use of the unpublished information by competitive colleagues who might use the information to their personal advantage (see Marshall 1996).

After a manuscript is published, the files containing scientific review materials should remain confidential and unavailable for public inspection for 4 reasons: (1) Exposure of errors in reviewed manuscripts could wrongfully discredit an author's work and needlessly reduce confidence in the valid published findings. (2) Absent anonymity, a referee's scientific objectivity can be compromised; i.e., the specter of public or colleague scrutiny of review materials could discourage some referees from preparing forthright and candid critiques or in other cases could lead to overly critical or self-serving critiques. (3) Scientific review is a deliberative process — a critique that is meant to be a catalyst, not a product; as such, review materials are not any more relevant to the final publication than are any number of preliminary drafts the author(s) privately discarded. (4) Authors expect confidentiality in the review process and referees generally expect anonymity (although they sometimes have the prerogative to sign their reviews); not to uphold those protocols would lead to distrust and criticism of the department's scientific review process, which could exacerbate

difficulties in recruiting qualified referees and erode the department's scientific credibility (Marshall 1996).

None of these types of problems, should they be allowed to exist, would serve the public interest. Science must remain objective and unimpaired by external pressures and influences if we are to maintain the benefits the public derives from research. For these reasons confidentiality of all review materials and draft technical reports and scientific publications better serves the public's overall interest than does release of these records.

c. Definitions

Draft public involvement manuscripts: Draft papers in which the public plays a direct role in determining the final form and content of the paper and thereby becomes a *de facto* author of sorts (for example, a report that develops a new management strategy through a public forum that synthesizes science with the needs of affected users).

Draft scientific publication: A prepublished manuscript that (1) was authored by a department employee on work time and (2) has been or will be submitted for publication in a professional externally or internally published journal or symposium proceedings.

Draft technical report: A prepublished manuscript that (1) was authored by a department employee on work time, (2) has been or will be published by the department, and (3) describes or documents fish or wild-life resources, their related habitat/environment, or other factors that affect their well-being, or information concerning public consumptive or nonconsumptive uses of fish and wildlife.

Scientific editors: Those individuals who (1) coordinate the scientific review process and maintain review files for technical reports and scientific publications, and (2) have final authority to determine when a draft report or publication is in final form and ready for duplication and distribution.

Scientific review process: In this process, a draft technical report or scientific publication is reviewed by professional peers (called referees) and scientific editors to correct and validate the paper before it is published. The referees generally conduct their reviews in anonymity from the author, a protocol that allows more candid and forthright discussion of problems, such as faulty scientific methods, errors in the data or in its interpretation, inadequate discussion of relevant scientific literature, exaggerated or unwarranted conclusions, etc. In some cases the review process may also reveal plagiarism or scientific fraud, or in other cases

it may identify authorship problems (i.e., inclusion of authors having no role in the research or exclusion of those who did).

d. References

- Collette, B. B. 1990. Problems with gray literature in fishery science. Pages 27–32 *in* J. Hunter, editor. *Writing for fishery journals*. American Fisheries Society, Bethesda, Maryland.
- Council of Biology Editors. 1983. *CBE style manual*, fifth edition. Council of Biology Editors, Bethesda, Maryland.
- Council of Biology Editors. 1990. *Ethics and style in scientific publishing*. Council of Biology Editors, Bethesda, Maryland.
- Council of Biology Editors. 1991. *Peer review in scientific publishing*. Council of Biology Editors, Chicago, Illinois.
- Day, R. A. 1988. *How to write and publish a scientific paper*. Oryx Press, New York.
- Marshall, E. 1996. Trial set to focus on peer review. *Science* 273:1162–1164.

NOTES



Section 2: Standard References

The following list of references are the standards to be used by the department. Each reference addresses a different area, such as correct common and scientific names of species, spelling, or word usage. Always use the latest edition available.

2.1 General References

These references provide information that is customarily, though not exclusively, applicable to our writing.

a. Spelling

The standards for word definition and spelling are: (1) *Random House*; (2) *Webster's New Third International Dictionary*; and (3) *The American Heritage Dictionary of the English Language*. The latter will be followed for the majority opinion.

b. Word Usage

The Gregg Reference Manual (McGraw–Hill Book Company), edited by William Sabin and now in its 8th edition, is the field standard for style, usage, and grammar. Another useful reference is *The Chicago Manual of Style* (The University of Chicago Press), which is the standard used by the *Council of Biology Editors* and editors of the *Gregg Reference Manual*.

c. Scientific Reporting

Now in its 6th edition, *Scientific Style and Format* (Council of Biology Editors, Inc.), formerly the *CBE Manual*, is an excellent reference for questions related to scientific usage and preparing publications.

2.2 Technical References

The following references are to be used exclusively as final authority for common and scientific names of fauna and flora and for placenames in Alaska.

a. Fish Species

Common and Scientific Names of Fishes from the United States and Canada (5th edition), 1991, American Fisheries Society, Special Publication 20, will be followed for both scientific and common names of fishes, as well as for correct capitalization of names. For fish species of Alaska, refer to the list in Section 9.4 of this manual.

b. Aquatic Invertebrate Species

Common and Scientific Names of Aquatic Invertebrates from the United States and Canada: Mollusks, 2nd edition, American Fisheries Society, Special Publication 26; and *Common and Scientific Names of Aquatic Invertebrates from the United States and Canada: Decapod Crustaceans*, American Fisheries Society, Special Publication 17, are the standards for scientific and common names of aquatic invertebrates, as well as for the correct capitalization of names. For invertebrate species of Alaska, refer to the list in Section 9.4 of this manual.

c. Bird Species

For birds of Alaska, use the list in Section 9.5 of this manual. For non-Alaskan bird species, use the *Checklist of North American Birds*, prepared by the Committee on Classification and Nomenclature of the American Ornithologists' Union, Sixth Edition (American Ornithologists' Union 1983). This is the standard used for the spelling of bird names. However, we do not follow their practice of capitalizing all common names of birds; instead, we follow the widespread nomenclatural custom using capitals for only that part of a common name that is an established proper name (e.g., Pacific loon, common loon).

d. Mammal Species

For mammals of Alaska, use the list in Section 9.6 of this manual. For non-Alaskan mammals, use *Mammal Species of the World* (1993, Smithsonian Institution Press) by D. E. Wilson and D. M. Reeder. This is the stan-

standard used for scientific and vernacular names of wildlife. Although capitalization assistance is not offered by this book, we follow the widespread nomenclatural custom using capitals for only that part of a common name that is an established proper name (e.g., Sitka black-tailed deer, mule deer).

e. Plant Species

Flora of Alaska and Neighboring Territories, A Manual of the Vascular Plants (Stanford University Press, Stanford, California) by Eric Hultén is the standard for scientific names of plants.

f. Placenames

Dictionary of Alaska Place Names (U.S. Geological Survey Professional Paper 567, Reprinted 1971 with minor revisions) by Donald J. Orth is recognized by ADF&G as the standard for placenames within Alaska.

2**NOTES**

Section 3: Acronyms, Abbreviations, and Symbols

3.1 Agencies, Organizations, Associations, and Commissions

Agencies, businesses, corporations, etc., have defined their own abbreviations or acronyms; under no circumstances is it correct to modify that abbreviation in any way. In other words, upper/lowercase letters, periods, and symbols should be used exactly as the agency or business uses them. It is almost always appropriate to introduce these abbreviations on first use.

Depending on your audience, particularly one that is scientific, removing periods from most general abbreviations is fine (e.g., ADF&G, IAFWA, nr, Ph.D., or AM/PM). However, be sure to remain consistent throughout your document.

a. ADF&G Divisions/Sections

Alaska Board of Fisheries/Alaska Board of Game	BOF/BOG
Big Game Services Board (replaced the Guide Board)	BGSB
Boards Support Section (formerly the Division of Boards)	Boards ¹
Commercial Fisheries Entry Commission	CFEC
Division of Commercial Fisheries (formerly the Commercial Fisheries Management and Development Division)	CF [CFMD]
Commissioner's Office	CO
Division of Administration	Administration ¹
Division of Sport Fish	SF
Division of Subsistence	Subsistence ¹
Division of Wildlife Conservation (formerly the Division of Game)	DWC or Wildlife Conservation ¹
Fisheries Rehabilitation, Enhancement and Development Division	FRED ²
Habitat and Restoration Division	H&R
Oil Spill Impact Assessment and Restoration Division	OSIAR Division or OSIAR ²
Public Communications Section	PCS

b. State of Alaska

Alaska Department of Commerce and Economic Development	DCED
Alaska Department of Environmental Conservation	DEC
Alaska Department of Fish and Game	ADF&G ³
Alaska Department of Health and Social Services	H&SS
Alaska Department of Natural Resources	DNR
Alaska Department of Public Safety	DPS
Alaska Department of Transportation & Public Facilities	DOT&PF
Alaska Permanent Fund Corporation	APFC
Alaska Public Offices Commission	APOC
Fish & Wildlife Protection	FWP
Office of Management and Budget	OMB
University of Alaska Anchorage	UAA
University of Alaska Fairbanks	UAF
Institute of Arctic Biology	IAB-UAF
Institute of Marine Science	IMS-UAF
Institute of Social and Economic Research	ISER-UAF
School of Fisheries and Ocean Sciences	SFOS-UAF
University of Alaska Southeast	UAS

c. U.S./Federal

Bureau of Indian Affairs	BIA
Bureau of Land Management	BLM
Federal Aviation Administration	FAA
National Marine Fisheries Service	NMFS
Restricted Access Management Division (NMFS)	RAM
National Oceanic and Atmospheric Administration	NOAA
National Park Service	NPS
Pacific Salmon Commission	PSC
U.S. (do not spell out when part of an organizational name)	
United States	U.S.
United States of America	USA
U.S. Geological Survey	USGS
U.S. Army Corps of Engineers	COE
U.S. Department of Agriculture	USDA
U.S. Department of Commerce	DOC
U.S. Environmental Protection Agency	EPA
U.S. Fish and Wildlife Service	FWS
U.S. Forest Service	USFS

d. Other Agencies, Organizations, Associations, and Commissions

Ahtna Regional Corporation	4
Alaska Aquaculture, Inc.	AAI
Alaska Eskimo Whaling Commission	4
Alaska Federation of Natives	AFN
Alaska Native Foundation (The)	4
Alaska Public Employees Association	APEA
Alaska Rural Development Council	4
Alaska Sea Otter Commission (The)	4
Alaskan Shellfish Grower’s Association	ASGA
Alaska State Employees Association	ASEA
Alaska Village Initiatives	4
Aleut Regional Corporation	4
Aleutian/Pribilof Islands Association	4
American Fisheries Society	AFS
Arctic Slope Regional Corporation	4
Armstrong–Keta, Inc.	AKI
Association of Village Council Presidents	AVCP
Bering Sea Fishermen’s Association	BSFA
Bering Straits Regional Corporation	4
Bethel Native Corporation	4
Bristol Bay Native Association	BBNA
Bristol Bay Native Corporation	BBNC
Burro Creek Farms	BCF
Calista Regional Corporation	4
Canada Department of Fisheries and Oceans	DFO
Central Council — Tlingit and Haida Indian Tribes of Alaska	4
Chignik Regional Aquaculture Association	CRAA
Chugach Regional Corporation	4
Chugachmiut	4
Cook Inlet Aquaculture Association	CIAA
Cook Inlet Regional, Inc.	CIRI
Copper River Native Association	4
Council for Yukon First Nations	CYFN (First Nations) ⁵
Dingle–Johnson/Wallop–Breaux	D–J/W–B
Doyon Regional Corporation	4
Douglas Island Pink and Chum, Inc.	DIPAC
Eskimo Walrus Commission	4
Independent Science Advisory Board	ISAB
Indigenous People’s Council for Marine Mammals	4
International Association of Fish and Wildlife Agencies	IAFWA
International Pacific Halibut Commission	IPHC
Inuit Circumpolar Conference	ICC
Kake Nonprofit Fisheries Corporation	KNFC
Kawerak, Inc.	4



Ketchikan Tribal Hatchery Corporation	KTHC
Klawock River Hatchery, Inc.	KRHI
Kodiak Area Native Association	⁴
Kodiak Regional Aquaculture Association	KRAA
Koniag Regional Corporation	⁴
Kuskokwim Native Association	⁴
Maniilaq Association	⁴
Medvejie Creek Hatchery	⁴
Metlakatla Indian Community	MIC
NANA Regional Corporation, Inc.	⁴
National Academy of Sciences	NAS
National Science Foundation	NSF
North Pacific Anadromous Fish Commission	NPAFC
North Pacific Fishery Management Council	NPFMC
Northern Southeast Regional Aquaculture Association	NSRAA
Port Graham Hatchery Corporation	PGHC
Prince of Wales Hatchery Association	POWHA
Prince William Sound Aquaculture Corporation	PWSAC
Qutekcak Shellfish Hatchery	⁴
Rural Alaska Community Action Program, Inc.	RurAL CAP
Sealaska Regional Corporation	⁴
Sheldon Jackson College	SJC
Sikusuilaaq Hatchery	⁴
Southeast Alaska Regional Health Consortium	SEARHC
Southern Southeast Regional Aquaculture Association	SSRAA
Tanana Chiefs Conference, Inc.	TCC
Tlingit and Haida Fisheries Development Corporation	THFDC
United Nations	UN
Valdez Fisheries Development Association	VFDA
Vuntut Gwich'in First Nation	VGFN
Wallop-Breaux	W-B
Western Association of Fish and Wildlife Agencies	WAFWA
Yukon-Kuskokwim Health Corporation	YKHC
Yukon Territorial Government	YTG

Note: For a list of village councils and corporations not listed in this section, contact RurAL CAP, 731 E. 8th Avenue, PO Box 200908, Anchorage, AK 99520; phone 907-279-2511. Their *Directory of Rural Alaskan Organizations* can be purchased for \$15.

- ¹ No official abbreviation, but short form is acceptable for informal use.
- ² Now merged into other divisions.
- ³ Some have begun to delete the ampersand (&) from ADF&G. This should not be done in any situation because it has become, over the years, an integral part of our agency abbreviation. For example, just as people say, “B and O Railroad” (B&O) or “R and D” (R&D), they also say “A D F and G” — not “A-D-F-G.” Manuscripts submitted for publication outside the department should also use ADF&G (most editors do not know the correct abbreviation and will assume you do). Also, generally do not put “the” preceding an acronym when standing alone; e.g., “ADF&G announced...” not “The ADF&G announced...”
- ⁴ Spell out name in full.
- ⁵ Following the signing of the Umbrella Final Agreement, Council for Yukon Indians (CYI) became CYFN.

3.2 States, U.S. Territories, and Canadian Provinces

In all situations other than addresses, use the following abbreviations (with periods and spacing as shown); these abbreviations are generally not introduced. When abbreviating state names in addresses, use the 2-letter postal codes (without periods) shown in parentheses.

a. U.S. States and Territories

Alabama	Ala. (AL)
Alaska	Alaska (AK)
American Samoa	Ameri. Samoa (AS)
Arizona	Ariz. (AZ)
Arkansas	Ark. (AR)
California	Calif. (CA)
Colorado	Colo. (CO)
Connecticut	Conn. (CT)
Delaware	Del. (DE)
District of Columbia	D.C. (DC)
Federated States of Micronesia	spell out
Florida	Fla. (FL)
Georgia	Ga. (GA)
Guam	Guam (GU)
Hawaii	Hawaii (HI)
Idaho	Idaho (ID)
Illinois	Ill. (IL)
Indiana	Ind. (IN)
Iowa	Iowa (IA)
Kansas	Kans. (KS)
Kentucky	Ky. (KY)
Louisiana	La. (LA)
Maine	Maine (ME)
Marshall Islands	spell out
Maryland	Md. (MD)
Massachusetts	Mass. (MA)
Michigan	Mich. (MI)
Minnesota	Minn. (MN)
Mississippi	Miss. (MS)
Missouri	Mo. (MO)
Montana	Mont. (MT)
Nebraska	Nebr. (NE)
Nevada	Nev. (NV)
New Hampshire	N.H. (NH)
New Jersey	N.J. (NJ)

New Mexico	N.Mex (NM)
New York	N.Y. (NY)
North Carolina	N.C. (NC)
North Dakota	N.Dak. (ND)
Northern Mariana Islands	spell out
Ohio	Ohio (OH)
Oklahoma	Okla. (OK)
Oregon	Oreg. <i>or</i> Ore. (OR)
Palau	spell out
Pennsylvania	Pa. (PA)
Puerto Rico	P.R. (PR)
Rhode Island	R.I. (RI)
South Carolina	S.C. (SC)
South Dakota	S.Dak. (SD)
Tennessee	Tenn. (TN)
Texas	Tex. (TX)
Utah	Utah (UT)
Vermont	Vt. (VT)
Virginia	Va. (VA)
Virgin Islands	V.I. (VI)
Washington	Wash. (WA)
West Virginia	W.Va. (WV)
Wisconsin	Wis. <i>or</i> Wisc. (WI)
Wyoming	Wyo. (WY)

b. Canadian Provinces

Alberta	Alta. (AB)
British Columbia	B.C. (BC)
Manitoba	Man. (MN)
New Brunswick	N.B. (NB)
Newfoundland	Nfld. (NF)
Northwest Territories	N.W.T. (NT)
Nova Scotia	N.S. (NS)
Ontario	Ont. (ON)
Prince Edward Island	P.E.I. (PE)
Quebec	P.Q. <i>or</i> Que. (QC <i>or</i> PQ)
Saskatchewan	Sask. (SK)
Yukon Territory	Y.T. <i>or</i> Yuk. (YT)

3.3 Alaska Caribou Herds

Adak caribou herd	¹
Beaver Mountains caribou herd	¹
Central Arctic caribou herd	CAH
Chisana caribou herd	CCH
Delta caribou herd	DCH
Denali caribou herd	¹
Farewell–Big River caribou herd	¹
Fortymile caribou herd	FCH
Fox River caribou herd	FRCH
Galena Mountain caribou herd	GMH
Kenai Lowlands caribou herd	KLCH
Kenai Mountains caribou herd	KMCH
Killey River caribou herd	KRCH
Kilbuck caribou herd	KCH
Macomb caribou herd	MACH
Mentasta caribou herd	MECH
Mulchatna caribou herd	MCH
Nelchina caribou herd	NCH
Northern Alaska Peninsula caribou herd	NAP
Nushagak Peninsula caribou herd	NPCH
Porcupine caribou herd	PCH
Rainy Pass caribou herd	¹
Ray Mountains caribou herd	RMH
Southern Alaska Peninsula caribou herd	SAP
Sunshine Mountains caribou herd	¹
Teshekpuk caribou herd	TCH
Tonzona caribou herd	TOH
Twin Lakes caribou herd	TLCH
Western Arctic caribou herd	WAH
White Mountains caribou herd	¹
Wolf Mountain caribou herd	¹

¹ Spell out name in full.

3.4 Miscellaneous Abbreviations and Acronyms

All the miscellaneous abbreviations and acronyms listed below, except those with a footnote, should be spelled out in full and introduced on first usage—i.e., spell out in full on first use and put the abbreviation or acronym beside it in parentheses.

Introducing the abbreviation may not be necessary for informal documents when the intended audience is familiar with the abbreviation and use will be limited to that audience. In many cases, it may be better to avoid using the abbreviation, especially if the word is infrequently used in the document.

age-weight-length (adj)	AWL
Alaska Family Leave Act	AFLA
Alaska Juneau Mine	AJ Mine
Alaska National Interest Lands Conservation Act ¹	ANILCA ¹
Alaska Native Claims Settlement Act	ANCSA ¹
approved leave without pay	ALWOP
Arctic-Yukon-Kuskokwim	AYK
as soon as possible	ASAP
bacterial kidney disease	BKD
capital improvement project	CIP
carapace width/length	CW/CL
catch per unit effort	CPUE
Clean Water Act	CWA
coded wire tag	CWT
community development quota	CDQ
compass directions (maps and coordinates):	
east	E ¹
north	N ¹
south	S ¹
west	W ¹
Comprehensive Environmental Response, Compensation and Liability Act	CERCLA
cub(s) of the year	COY
days of week (first 3 letters in tables, figures only — no period; otherwise spell out)	Sun, Mon, etc.
defense of life or property	DLP
Dingell–Johnson/Wallop–Breaux	D–J/W–B
doctoral degree	Ph.D. ¹
emergency order	EO
Endangered Species Act	ESA
Equal Employment Opportunity/Affirmative Action	EEO/AA
essential fish habitat	EFH
et alii (and others)	et al. ¹
et cetera (and so forth)	etc. ¹
Evolutionarily Significant Unit	ESU
Exclusive Economic Zone	EEZ
exempli gratia (for example)	e.g., ¹
Exxon Valdez oil spill	EVOS
Federal Family and Medical Leave Act	FMLA

federal fiscal year	FFY
field purchase order	FPO
file transfer protocol (Internet)	FTP
fiscal year 1999	FY99
fishery management plan	FMP
fish resource permit	FRP
fish transport permit	FTP
fork length	FL
free on board (do not spell out)	FOB or f.o.b. ¹
general fund	GF
geographic information system	GIS
global positioning system	GPS
Gulf of Alaska	GOA
guideline harvest level	GHL
harvest per unit effort	HPUE
hypertext markup language	HTML
id est (that is)	i.e., ¹
individual fishery quota	IFQ
individual transfer quota	ITQ
infectious hematopoietic necrosis virus	IHNV
joint venture	JV
latitude/longitude	lat./long. ¹
leave without pay	LWOP
local area network	LAN
Magnuson–Stevens Fishery Conservation and Management Act	Magnuson–Stevens Act ²
memorandum of agreement	MOA
memorandum of understanding	MOU
merit anniversary date	MAD
months (first 3 letters in tables, figures only — no period; otherwise spell out)	Feb, Jun, etc.
not applicable	NA
not interested	NI
notice of violation	NOV
number	
for general audiences	no.
for technical audiences	nr
optical character recognition	OCR
optical mark recognition	OMR
Pacific Fisheries Information Network	PacFIN
Pacific Salmon Treaty	PST
portable document format	PDF
position control number	PCN
Position Description	PD
purchase request	PR

regional planning team	RPT
Reimbursable Services Agreement	RSA
Retirement Incentive Program	RIP
sex (tables, figures, and crosses only — otherwise spell out)	
male	♂
female	♀
social security number	SSN
special harvest area/terminal harvest area	SHA/THA
time of day ³	
ante meridiem	AM/AM ³
post meridiem	PM/PM ³
Tongass Land Management Plan	TLMP
total length	TL
travel authorization	TA
viral hemorrhagic septicemia virus	VHSV
wide area network	WAN
World Wide Web	www

¹ Do not introduce on first use.

² Magnuson–Stevens Act is a shortened version for the Magnuson–Stevens Fishery Conservation and Management Act. We suspect it will take on an abbreviation sometime soon.

³ For general audiences periods may be included, but omit periods for scientific audiences (per CBE style). When typesetting, use small capitals (*AM*, *PM*) whenever possible. Most word processors and desktop publishing softwares are capable of making small capitals; otherwise full-size capitals may be used.

3.5 Technical Abbreviations

Most technical abbreviations should be used only in conjunction with a number or in a table heading; spell out most text uses not associated with a number. You do not need to introduce these technical abbreviations (spell out in full on first use and put the abbreviation beside it in parentheses) unless your audience is nontechnical and may not know the abbreviation; in that case it may be better to avoid the abbreviation entirely. Most of these technical abbreviations are international standards from *Système International d'Unités* and the new *CBE Manual, Scientific Style and Format*.

Prefixes

giga (10 ⁹)	G
kilo (10 ³)	k
mega (10 ⁶)	M
milli (10 ⁻³)	m
micro (10 ⁻⁶)	μ
nano (10 ⁻⁹)	n

Time and Temperature

day	d
degrees Celsius ^a ([°F - 32]/1.8)	°C
degrees Fahrenheit ^a (<i>A Fahrenheit/Celsius conversion is in Appendix C</i>) ([1.8 x °C] + 32)	°F
hour (spell out for 24-hour time of day)	h
minute	min
month ^b	
second	s
week ^b	
year ^b	

Mathematics and Statistics

analysis of variance	ANOVA
base of natural logarithm	e
chi-square	χ ²
coefficient of variation	CV
common test statistics	(F, t, etc.)
confidence interval ^c	CI
correlation coefficient (multiple)	R
correlation coefficient (simple)	r
covariance ^c	cov
degree (angular or temp.) ^a	°
degrees of freedom	df
equal to or greater than	≥
equal to or less than	≤
greater than	>
less than	<
logarithms:	
base 10	log
base x	log _x
natural	ln

null hypothesis ^c	H ₀
alternative hypothesis ^c	H _A
mean ^c	\bar{x}
minute (angular)	'
not significant	NS
percent	%
plus or minus	±
population size	N
probability	P
sample size	n
second (angular)	"
standard deviation ^d	σ or s
standard error ^d (of the mean)	s _{\bar{x}}
type I error probability ^c	P _a
type II error probability ^c	P _b
variance ^d	σ ² or s ²

Weights and Measures (English)

acre ^b (0.405 ha)	
cubic feet per second (0.0283 m ³ /s)	ft ³ /s
fathom ^b (1.829 m or 6 ft)	
foot (30.5 cm)	ft
gallon (3.79 L)	gal
inch (2.54 cm)	in
knot (0.514 m/s)	kn
mile (1.61 km)	mi
nautical mile ^c (1,852 m or 1.852 km)	nmi
ounce (28.4 g)	oz
pound (0.454 kg or 454 g)	lb
quart (0.946 L)	qt
ton ^b (2,000 lb or 907.2 kg)	
yard (0.914 m or 91.4 cm)	yd

Weights and Measures (Metric)

centimeter (0.394 in)	cm
gram (0.0353 oz)	g
hectare (2.47 acres)	ha
kilogram (2.20 lb)	kg
kilometer (0.622 mi)	km
liter (0.264 gal, 1.06 qt)	L
meter (1.09 yd, 3.28 ft, 39.4 in)	m
micrometer (do not use micron)	μm

millimeter (0.0394 in)	mm	joule (0.239 gram-calories or 0.000948 Btu)	J
milliliter	mL	lux (10.8 fc)	lx
tonne ^e (1,000 kg or 2,205 lb)	t	molar	M

Physics and Chemistry

any atomic symbol may be used

alternating current	ac	newton	N
ampere	A	normal	N
British thermal unit (1.05 J)	Btu	ohm	Ω
calories (should be converted to joules in the metric system)		ortho	o
chemical acronyms listed in <i>Webster's</i> dictionaries (DDT, EDTA, etc.) may be used		para	P
direct current	dc	pascal	Pa
footcandle (0.0929 lx)	fc	parts per million (per 10 ⁶ — in the metric system, use mg/L, mg/kg, etc.)	ppm
hertz	Hz	parts per thousand (per 10 ³)	ppt, ‰
hydrogen ion activity (negative log of)	pH	siemens	S
		volt	V
		watt	W

Note: Letters were intentionally used for these footnotes to preclude possible mistaking of footnote numbers for mathematical power.

- ^a Close up when used in conjunction with numbers expressing longitude/latitude and angles. For temperatures, the international standard calls for a space between the number and the degree symbol C or F (e.g., 45 °F). However, many journals follow a different practice of closing (no space) the number with the degree symbol (e.g., 45°F). Use either style but be consistent within a document.
- ^b No abbreviation; spell out.
- ^c Should be introduced on first use (i.e., spell out in full on first use and put the abbreviation beside it in parentheses, or spell out throughout document). Or, if your document includes a list of abbreviations used, this displaces a need for introducing the abbreviation.
- ^d If you prefer you may use SE for standard error, SD for standard deviation, or var for variance or a unique abbreviation for mean (i.e., other than \bar{x}); however, these abbreviations should be introduced on first usage. Note that σ is the parameter and s is the estimate.
- ^e Metric ton may be used instead; its abbreviation (mt) may be used, but it should be introduced on first use. Note: t stands for “tonne” not “ton”; always spell out “ton.”

Section 4: Compound Words

4.1 General and Technical Compound Words

If you cannot find the word here or in the dictionary see Appendix D.

	Word	Source ¹	(Form) Example of Usage
A	above-mentioned (before-)	G (824b)	(adj) — avoid use of <i>aforementioned</i>
	add-on	A	(n/adj) <i>the hatchery add-on allowed</i>
	age at maturity	G (831a)	(n) <i>their age at maturity was</i>
	age-at-maturity	G (816a)	(adj) <i>age-at-maturity studies</i>
	age class (group) ²	*(W); R	(n/adj) — 2 words
	angler-day (-hour)	T; G (801)	(n) — hyphenate
	areawide	G (820b)	(n/adj) <i>the distribution will be areawide</i>
B	backwater	W; A	(n/adj) — always 1 word
	baseline	*(W)	(adj) — always 1 word
	benefit–cost (cost–benefit)	G (806, 818b)	(adj) <i>the benefit–cost ratio</i>
	bi (words)	G (833a)	(prefix) — 1 word
	bio (words)	G (835)	(n/adj) — usually 1 word
	boat day	G (818a)	(n/adj) — 2 words
	bottomfish	*(R)	(n/adj) — 1 word
	bottomwater	R	(n/adj) — 1 word
	break up	W	(v) <i>the ice began to break up in</i>
	breakup	W; A	(n) <i>breakup occurred in</i>
	broodstock	*(W)	(n/adj) — 1 word
	brood year ²	G (818a)	(n/adj) — 2 words
	buyback	R	(n/adj) <i>encourage a buyback program</i>
	bycatch	G (833a); T	(n/adj) — 1 word (v) — avoid (see Section 6)
	C	cannot	W; A
carryover		A	(n) <i>the carryover was substantial</i>
catch-and-release		T; G (828)	(n/adj) — hyphenate
catch-at-age		G (804c)	(n/adj) — hyphenate
catcher-only		T; G (806)	(n/adj) — hyphenate

Word	Source ¹	(Form) Example of Usage
catcher–processor	T; G (806)	(n/adj) — use en dash
catch per unit effort	T	(n) — without hyphens
centerline	R	(n) <i>the road's centerline</i>
charter boat	G (801)	(n) <i>our charter boat is</i>
charterboat	T	(adj) <i>the charterboat captain</i>
checkstation	T	(n/adj) — 1 word
chi-square	A; R	(n/adj) — hyphenate
cholorophyll <i>a</i>	T;	(n) <i>cholorophyll a was</i>
cholorophyll- <i>a</i>	T;	(adj) <i>cholorophyll-a data</i>
cleanup	A	(n/adj) <i>the oil spill cleanup was a difficult</i>
clean up	A	(phrasal) <i>they will need to clean up the</i>
clearcut	R	(n/adj/v) — 1 word when used in relation to forests
clear water	G (801)	(n) <i>in clear water</i>
clearwater	T	(adj) <i>clearwater species normally</i>
co (words)	G (835)	(prefix) almost always 1 word (<i>cochair, coauthor, coworker</i> ; however, <i>co-owner</i>)
coastline	W; A	(n/adj) — 1 word
coastwide	G (820b)	(adj) — 1 word
coded wire tag ³	T; G (827a)	(n/adj) — do not hyphenate ³
coded-wire-tag ³	G (811–812)	(v) <i>were coded-wire-tagged³</i>
cold water	W; A	(n) <i>they occur in cold waters of</i>
coldwater	* (A)	(adj) <i>most coldwater species are</i>
common property	R; G (818a)	(n/adj) — 2 words, no hyphen
crabmeat	R	(n) — 1 word
cub(s) of the year	T; G (818c)	(n/adj) — do not hyphenate
D database	R; A	(n/adj) — 1 word
data set ²	R	(n) — 2 words
deep-sea	R	(n) — hyphenate
deep water	W	(n) <i>live in deep water</i>
deepwater	W	(adj) <i>these deepwater seines</i>
divisionwide	G (820b)	(adj) — 1 word
downriver (downstream)	W; A	(adj/adv) <i>the downriver camp is</i>
E early run	G (801)	(n) <i>the early run was</i>
early-run	G (816a, 814)	(adj) <i>the early-run chinook</i>
ear tag	G (801)	(n) <i>the ear tag read</i>
eartagged	* (W)	(v/adj) <i>they eartagged the bears</i>
east side	G (801)	(n) <i>fisheries on the east side</i>
eastside	W	(adj) <i>the eastside catch was</i>

Word	Source ¹	(Form) Example of Usage
egg take	G (801)	(n) <i>the egg take began on</i>
egg-take	G (816a,814)	(adj) <i>egg-take operations will continue</i>
elect	G (808b)	(adj) <i>Governor-elect Smith</i>
email	W	(n) — do not hyphenate or capitalize
even-year	G (816a,814)	(adj) <i>the even-year returns are</i>
ex-	G (808b)	(adj) <i>ex-President Bush</i> (see Section 6e)
exvessel	T	(adj) — 1 word
F F-test	T	(n/v/adj) — hyphenate/italicize <i>F</i>
field test	* (R)	(n) <i>conduct a field test</i>
field-test	A	(v) <i>to field-test the equipment</i>
fieldwork	A; R	(n) <i>budget expenditures on fieldwork</i>
finclip	T	(adj/v) — 1 word
finfish	W; A	(n/adj) — 1 word
fish farming ²	R	(n/adj) — 2 words
fish ladder ²	W; R	(n/adj) — 2 words
fish meal ²	W	(n/adj) — 2 words
fish pass ²	T; G (818a)	(n/adj) — 2 words
fishway	W	(n/adj) — 1 word
fish wheel ²	W; R	(n/adj) — 2 words
fixed-wing	R	(adj) — hyphenate
fly-fishing	A; R	(n/adj) — hyphenate
follow-up	G (815a)	(n/adj) <i>a follow-up meeting</i>
food/bait fishery	T; G (295a)	(adj) <i>the food/bait herring fishery</i>
fork length	W	(n/adj) — 2 words
former	G (1101)	(adj) <i>former President Reagan</i> (Section 6e)
freeze-up	W	(n) <i>freeze-up occurred in</i> (do not use as a verb)
fresh water	G (801)	(n) <i>most species live in fresh water</i>
freshwater	W; A	(adj) <i>most freshwater species are</i>
full time	W; R	(n) <i>worked the full time allowed</i>
full-time	W; R	(adj/adv) <i>all worked full-time</i>
furbearer	W; A	(n) — 1 word
G goodness of fit	T; G (801)	(n) <i>they examined goodness of fit</i>
goodness-of-fit	T; G (831a)	(adj) <i>goodness-of-fit analysis</i>
groundfish	W	(n/adj) — 1 word
H hand-held	A; G (816a,814)	(adj) <i>the hand-held unit is</i>
handmade	A; W	(adj/adv) — 1 word

Word	Source ¹	(Form) Example of Usage
handwritten	R	(adj) — 1 word
harvest per unit effort	T	(n) <i>the harvest per unit effort was</i>
hard-on-bottom	T	(adj) <i>hard-on-bottom trawling</i>
haulout	T; G (803d)	(n) — 1 word
headwaters	W; A	(n) <i>the headwaters originate</i>
high-ranking	G (822a)	(adj) — hyphenate
high seas ²	R; W	(n/adj) — 2 words
homemade	A; W	(adj/adv) — 1 word
home page ²	A; G (801)	(n/adj) — 2 words
home port ²	W; R	(n/adj) — 2 words
hydroacoustic (also see <i>sonar words</i>)	T	(n/adj) — 1 word
I		
in-depth	A; R	(adj) — hyphenate
in-house	A; R	(adj) — hyphenate
inriver	G (833a)	(adj) — 1 word
in season	G (801)	(n) <i>the strategy in season</i>
inseason	* (W)	(adj) <i>the inseason strategy</i>
inshore	W; R	(adj) — 1 word
in-state	G (837)	(adj/n) — meaning within the state
instate	W; R	(v) — meaning to install
instream	G (833a)	(adj) — 1 word
intertidal	R; A	(adj) — 1 word
L		
lakeshore	A; R	(n/adj) — 1 word
land-and-shoot	G (831b)	(adj) <i>the land-and-shoot concept</i>
landlocked	W; A	(adj) — 1 word
landowner	W; A	(n/adj) — 1 word
late run		(see <i>early run</i>)
lay off	W	(v) <i>they will lay off 3 people</i>
layoff	W; R	(adj/n) <i>layoffs will occur</i>
legal size	G (801)	(n) <i>crab of legal size were</i>
legal-size	W; A; R	(adj) <i>legal-size crabs were</i>
length-at-age	G (804c)	(n/adj) — hyphenate
length-weight	G (818b)	(n/adj) — use en dash
life history ²	G (801)	(n/adj) — 2 words
life stage ²	G (801)	(n/adj) — 2 words
long term (time)	G (801)	(n) <i>in the long term</i>
long-term (-time)	W; A; R	(adj) <i>the long-term effects</i>
limited entry	T; G (801; 818a)	(n/adj) — 2 words

Word	Source ¹	(Form) Example of Usage	
M	mainstem	T (n/adj) <i>mainstem spawning grounds</i>	
	man-hour/man-month	W; A; G (806) (avoid, use <i>worker-hour</i> , see Section 1)	
	mark–recapture	G (806,811a) (adj) — hyphenate using an en dash	
	mark–recovery ³	G (814,816a) (adj) — hyphenate using an en dash	
	mid ⁴	R (adj) — see footnote 4	
	mid eye to tail fork ⁵	G (801) (n/adj) — see footnote 5	
	mixed stock ²	T; G (818a) (n/adj) — 2 words	
	moving average ²	G (818a); T (n/adj) — 2 words	
	multi (words)	W; G (833a) (n/adj) — usually 1 word	
	muzzleloader	A; R (n) <i>muzzleloaders were allowed in</i>	
	muzzleloading	A; R (adj) <i>muzzleloading rifles were</i>	
	N	nearshore	W; R (adj) <i>the nearshore fishery was</i>
		net pen	G (801) (n) <i>fry reared in net pens are</i>
net-pen		G (814,816a) (adj) <i>net-pen rearing was</i>	
new-shell/old-shell		G (816a) (adj) — use only as an adjective	
newsworthy		W; A (adj) — 1 word	
non		R; G (833a,838) (prefix) — usually 1 word	
non-Alaskan ⁶		G (838) (n/adj) <i>include non-Alaskan workers</i>	
nonindigenous ⁶		G (833a) (adj) <i>nonindigenous stock</i>	
nonlocal		G (833a) (adj) — 1 word	
non-Native ⁶		G (838) (n) — hyphenate when referring to nonaboriginal people of Alaska	
nonnative ⁶		W; G (833a) (adj) <i>is a nonnative species in</i>	
nonnavigable ⁶		G (833a) (adj) <i>in nonnavigable waters</i>	
nonrural		G (833a) (adj) — 1 word	
O	odd-year	G (816a) (adj) <i>odd-year harvests have been</i>	
	off-road	A (adj) — hyphenate	
	offshore	W; A (adj) <i>the offshore fishery was</i>	
	off-site	A (adj) <i>off-site analysis</i>	
	old growth	G (801) (n) <i>the old growth is</i>	
	old-growth	G (816a) (adj) <i>old-growth forests displayed</i>	
	on board	G (831a) (adv) <i>the man was on board when</i>	
	onboard	A; R (adj) <i>onboard processors will</i>	
	ongoing	W; A (adj) — 1 word	
	online	* (A) (adj) — 1 word	
	onshore	W; A (adj) <i>the onshore team set up</i>	

Word	Source ¹	(Form) Example of Usage
on-site	A	(adj) <i>on-site investigation</i>
outmigrate ⁷ (emigrate)	*(A); G (833a)	(v) <i>salmon outmigrate when</i>
outmigrating ⁷ (emigrating)	*(A)	(adj) <i>the outmigrating fry were</i>
outmigration ⁷ (emigration)	*(A)	(n) <i>during the outmigration</i>
overfish, overwinter, overharvest, etc.	W; G (833a)	(v) — 1 word
P		
<i>P</i> -value	T	(n/adj) — hyphenate/italicize <i>P</i>
parent year	G (801)	(n) <i>in the parent year, when</i>
parent-year	G (814)	(adj) <i>parent-year numbers were</i>
part-time	W; G (816a)	(adj/adv) <i>offered a part-time position</i>
passthrough	R	(n/adj) <i>passthrough funds were</i>
paycheck	W; A	(n) — 1 word
payday	W; A	(n) — 1 word
personal use	G (818a)	(adj/n) <i>the personal use fishery</i>
placename	R	(n) — 1 word
postaudit or preaudit	W; G (833a)	(n) — 1 word
postseason or preseason	W; G (833a)	(n/adj) — 1 word
poststatehood or prestatehood	G (833a)	(n/adj) — 1 word
pot lift ²	G (801)	(n/adj) — 2 words
preemergent/preemergence	W; G (833a, 835)	(n/adj) — 1 word
prerecruit or postrecruit	G (833a)	(n/adj) — 1 word
prerelease	W; G (833a)	(n/adj) — 1 word
presmolt	G (833a)	(n) — 1 word
proofread	W; R	(v) — 1 word
put-and-take ⁷	G (828b, 831b)	(n/adj) — hyphenate
Q		
quasi ⁴	R	(adj) — see footnote 4
R		
radio collar ⁸	G (801)	(n) — <i>the radio collar batteries</i>
radiocollar ⁸	T; G (811a)	(adj/v) — <i>we radiocollared caribou</i>
radio tag ⁸	G (801)	(n) — <i>the radio tag data</i>
radiotag ⁸	T; G (811a)	(adj/v) — <i>we radiotagged</i>
radiotelemetry ⁸	T; G (811a)	(n) — 1 word
radiotracking ⁸	T; G (811a)	(n) <i>they tested radiotracking devices</i>
radiotracked ⁸	T; G (811a)	(v/adj) <i>we radiotracked the bears</i>
reef fish ²	*(R)	(n) — 2 words
regionwide	G (820b)	(adj) — 1 word
return-at-age	G (804c)	(n/adj) — hyphenate

Word	Source ¹	(Form) Example of Usage
returns per spawner	G (815a)	(n) <i>when returns per spawner is known</i>
return-per-spawner		(adj) <i>return-per-spawner analysis</i>
riverbank	R	(n) — 1 word
riverbed	R	(n) — 1 word
river mile	T	(n) — 2 words
river mouth	G (801)	(n) <i>fisheries at the river mouth</i>
river-mouth	G (816a)	(adj) <i>river-mouth fisheries</i>
roadside	W; R	(n/adj) <i>a roadside attraction</i>
rod hour	G (818a)	(n/adj) — 2 words
roundtrip	A	(n/adj) — 1 word
rulemaking	T	(n) — 1 word
run of origin	G (831a)	(n) <i>we determined run of origin</i>
run-of-origin		(adj) <i>run-of-origin determinations</i>
S sac roe ²	G (818)	(n/adj) — 2 words
salmon (ocean) ranching ²	G (801)	(n) — 2 words
salt water	W; A	(n) <i>live in salt water</i>
saltwater	W; A	(adj) <i>saltwater species may</i>
same-day-airborne ⁷	T	(adv) — hyphenate
scale pattern ²	T; G (818a)	(n/adj) — 2 words
sea duck ²	W; A	(n/adj) — 2 words
sea-fresh	G (811a,813)	(adj/v) — hyphenate
seagoing	W; A	(adj) <i>seagoing trout are</i>
sea run	G (801)	(n) <i>the sea run was less</i>
sea-run	W	(adj) <i>sea-run cutthroat trout are</i>
seawater	W; A	(n/adj) — 1 word
seedstock	* (W)	(n/adj) — 1 word
shallow-water	G (816a)	(n/adj) <i>a shallow-water trawl</i>
shell-aging ⁷	G (811a)	(adj) — hyphenate (also see Section 6, <i>aging</i>)
shellfish, shellfishery	W; A	(n/adj) — 1 word
shorebased	T	(adj) — 1 word
shoreline	W; A	(n) — 1 word
short term	R; W	(n) <i>in the short term</i>
short-term	W	(adj) <i>short-term memory</i>
size (sex) selectivity	G (815a)	(n) <i>indicated size selectivity was</i>
size-selective	G (820a)	(n/adj) — hyphenate
size-selectivity		(adj) <i>size-selectivity bias was</i>
skip molt	G (801)	(n) <i>skip molts are usually</i>
skip-molt	G (811a,816a)	(adj/v) <i>skip-molt crabs are</i>
snow cover	A	(n) <i>less snow cover</i>

Word	Source ¹	(Form) Example of Usage
snow line	A	(n) <i>above the snow line</i>
soak-hour	G (809a)	(n/adj) — hyphenate
socioeconomic	W; G (833a)	(adj) <i>the socioeconomic trend</i>
soft shell	G (801)	(n) <i>soft shells were found</i>
soft-shell	W; A	(adj) <i>soft-shell crabs are</i>
sonar words ⁹	T	— see footnote 9
spawn on kelp (or roe)	G (831a)	(n) <i>they harvested spawn on kelp</i>
spawn-on-kelp (or roe)		(adj) <i>the pound spawn-on-kelp fishery</i> (also see Section 6 for usage note)
spike-fork	G (818b)	(n/adj) — hyphenate
sport fish	W; R	(n/adj) <i>sport fish species</i>
sportfishing	R	(v/adj) — not <i>sportsfishing</i>
standby	W	(n/adj) — 1 word
statewide	W; G (820b)	(adj) — 1 word
stock of origin		(see <i>run of origin</i>)
streambank	T	(n) — 1 word
streambed	A; R	(n) — 1 word
stream life	G (801)	(n) <i>the stream life was</i>
stream-life	G (814, 816a)	(adj) <i>stream-life studies</i>
subadult	W	(n/adj) — 1 word
subarea	W; R	(n/adj) — 1 word
sublegal	T	(n/adj) — "undersized" or "undersized adults" may be preferable
T tag-recovery ³	G (814, 816a)	(adj) — use an en dash
tar balls ²	R	(n) — 2 words
thermal mark(ing) ³	G (827a)	(n/adj) — 2 words/no hyphen
tideland	W; A	(n/adj) — 1 word
tidemark	W; A	(n/adj) — 1 word
tidewater	W; A	(n/adj) — 1 word
tideway	W; A	(n/adj) — 1 word
time frame ²	A; R	(n) — 2 words
time line ²	G (801)	(n) — 2 words
time series ²	W; R; G (818a)	(n/adj) — 2 words
townet	W	(n/adj) — 1 word
<i>t</i> -test	T	(n/adj) — hyphenate/italicize <i>t</i>
turn around	W	(v) <i>when you turn around</i>
turnaround	W; R	(n) <i>the sudden turnaround caused</i> (adj) <i>the turnaround time for the project</i>
U underescapement	G (833a)	(n) — 1 word
underway	W; R	(adj/adv) — 1 word

Word	Source ¹	(Form) Example of Usage
unitwide	G (820b)	(n/adj) — 1 word
unoiled	W	(adj) — 1 word
upriver	W; A	(adj/adv) — 1 word
up to date	G (813)	(n) <i>the data were up to date</i>
up-to-date		(adj) <i>the up-to-date data</i>
U.S./Canada	T	(adj) — use periods/slash
W waterbird(s)	W; A	(n) — 2 word
water body ²	T	(n) — 2 words
waterborne	W; A	(adj) — 1 word
watercourse	W; A	(n/adj) — 1 word
watercraft	W	(n) — 1 word
waterfowl	W; A	(n/adj) — 1 word
waterland		(n/adj) — 1 word
watershed	W; A	(n/adj) — 1 word
web site	G (801)	(n) — 2 words
westside		(see <i>eastside</i>)
widespread	W; A	(adj) — 1 word
wild stock	T	(n/adj) — 2 words
wild type	R, A	(n) <i>the wild types are</i>
wild-type		(adj) <i>wild-type descriptions</i>
workday	W; A	(n) — 1 word
worker-hour (-month)	G (806a)	(n) — hyphenate
workload	W	(n) — 1 word
work station ²	R	(n) — 2 words
Y year class	G (818a)	(n/adj) — 2 words
yolk sac	W; A	(n) <i>the yolk sac is</i>
yolk-sac	G (814)	(adj) <i>the yolk-sac fry are</i>
young of the year	T; G (818c)	(n/adj) — do not hyphenate

¹ Source: A *The American Heritage Dictionary of the English Language*, 3rd edition. Houghton Mifflin Co. (1992).

G *The Gregg Reference Manual*, 8th edition. Glencoe/McGraw-Hill (1996). The number in parentheses is the section number in *Gregg*.

R *Random House Unabridged Dictionary*, 2nd edition. Random House, Inc. (1993).

T The word is not in the dictionary. This spelling is consistent with common technical usage or similar terms.

W *Webster's Third New International Dictionary*. Merriam Webster, Inc. (1986).

- * The word is in the dictionary (as indicated by the parenthetical letter), but we decided not to use the dictionary spelling because it does not appear consistent with established usage within the profession or is inconsistent with similar terms also in the dictionary.
- ² Do not hyphenate established common compound words, like *mixed stock* or *brood year*, when they serve as adjectives (e.g., *mixed stock fishery*; Gregg 818.a); nor are they hyphenated when they are joined with a participle to form an adjective (e.g., *mixed stock-related failures*). Appendix D provides more details.
 - ³ Some stand-alone adjectives modify established compound nouns; with *gifted public oratory*, for example, *gifted* modifies *public orator* (it is not *gifted public* that modifies *orator*). Likewise, *thermal mark code* or *thermal marking system* are not hyphenated because *thermal* presumably modifies *mark codes* or *marking system*. Likewise, in noun/adjective use *coded* modifies *wire tag* and is not hyphenated. But as a verb it is really *coded wire tag-tagged*, but *tag* is dropped to avoid needless redundancy, hence, *coded-wire-tagged*; if you have introduced the CWT abbreviation, you may use *CWT-tagged* (but never *CWT'd*). Another and often better verb is simply *tag/tagged*. However, with *mark- or tag-recovery data*, there is an en-dash (denotes equal terms) because the compound is modifying *data*, so it would then become *thermal mark-recovery data*.
 - ⁴ *Mid* is a stand-alone word and combining form. *Random House Unabridged* lists a large number of compound (combining form) *mid* words. Most noun forms are now combined as one word; some we frequently use include *midafternoon*, *midcourse*, *midday*, *midgut*, *midleg*, *midline*, *midmorning*, *midnight*, *midpoint*, *midrange*, *midship*, *midstream*, *midsummer*, *midway*, *midweek*, *midwinter*, and *midyear*. If you must use a *mid* compound not listed here, first consult *Random House*. Then, if you cannot find the compound, follow this general rule, as derived from Gregg (Section 816a) and *Random House*. Use *mid* in the same way you would *early/late* or *upper/lower*; that is, hyphenate *mid* when it is a compound adjective, but not when it is a single, stand-alone adjective. For example, *we took the mid-depth samples*, but *we took samples at mid depth*; or *in the mid 1980s we . . . but the mid-1980s harvests . . .*. If you use 2 time frames joined by the word *and*, be careful to balance each reference to time (e.g., *late spring and mid autumn*; never *late spring and mid-fall*). *Quasi* is a stand-alone adjective used to modify nouns (*quasi contract*, *quasi population*). *Quasi* is also a combining form that is hyphenated to form an adjective or adverb (*quasi-essential*, *quasi-legal*, *quasi-normally*).
 - ⁵ Introduce *mid eye to tail fork* as an abbreviation at first mention and for adjectival use, such as *. . . lengths from mid eye to tail fork (METF) were . . . then . . . METF lengths averaged . . .*. Avoid using *mid-eye-to-tail-fork lengths*.
 - ⁶ Words with the “non” prefix are seldom hyphenated unless they are combined with a word that normally begins with an uppercased proper name (e.g., *non-Togiak*).
 - ⁷ Jargon — consider using another term, or you may need to introduce and explain the term on first use unless addressing an audience familiar with the term.
 - ⁸ Authors are asked to first check any words beginning with *radio* in the dictionary. If not in the dictionary, then spell *radio* words that are verbs as 1 word, e.g., *radiocollar*, *radiotag*, *radiotrack*, etc. The nouns *radio collar* and *radio tag* are spelled as 2 words because they refer to objects (*collars* and *tags*), not a process (*radiocollaring*, *radiotagging*). Nouns serving as adjectives should retain their noun form (*radio wave pattern*) but participial adjectives should be one word (*radiocollared bear*, *radiotagging analysis*).
 - ⁹ Sonar equipment has produced a number of compound words. As nouns, these should be 2 words, but as adjectives hyphenate *wide-beam echoes*, *parallel-beam study*, *side-scan sonar*, *pan-and-tilt transducer*, *cross-sectional area*, *dual-channel recorder*, *thermal-chart recorder*.

4.2 Fishing Gear

Noun	Adjective	Verb	Noun
<i>Net Words:</i>			
dip net	dip net ¹	(to) dipnet ¹	dipnetter
drift gillnet ¹	drift gillnet ¹	(to) drift gillnet ¹	drift gillnetter ¹
driftnet ²	driftnet ¹	(to) driftnet ¹	driftnetter ²
fyke net	fyke net ¹	NA	NA
gillnet ²	gillnet ¹	(to) gillnet	gillnetter ²
landing net	NA	NA	NA
set gillnet ¹	set gillnet ¹	(to) set gillnet ¹	set gillnetter ¹
setnet	setnet ¹	(to) setnet ¹	setnetter ¹
test net ¹	test-net ¹	NA	NA
trammel net	trammel net ¹	NA	NA
<i>Trap Words:</i>			
fish trap	fish-trap ¹	NA	NA
minnow trap ¹	minnow-trap ¹	NA	NA
<i>Troll Words:</i>			
NA	hand troll ¹	(to) hand troll ¹	hand troller ¹
NA	power troll ¹	(to) power troll ¹	power troller ¹
<i>Seine Words:</i>			
beach seine	beach seine ¹	(to) beach seine ¹	NA
haul seine	haul seine ¹	(to) haul seine ¹	haul seiner
purse seine	purse seine ¹	(to) purse seine ¹	purse seiner
<i>Miscellaneous:</i>			
crab pot ¹	crab pot ¹	NA	NA
fishpound	fishpound ¹	NA	NA
fish wheel	fish wheel ¹	NA	NA
herring pound ¹	herring pound ¹	NA	NA
longline	longline ²	(to) longline ¹	longliner ²

¹ Not in the dictionary: Webster's, Random House, or American Heritage.

² Word was in the dictionary other than as shown here, but the committee opted to depart from the dictionary form. In such instances, the committee believed the dictionary form was not up to date and opted for a form more contemporary or consistent.

NA Inappropriate to use the word in this manner/form.

NOTES

4

Section 5: Capitalization Help

Capitalization decisions can be simple but often are complex and subjective. The footnotes provide guidance for some of the thornier decisions. In addition, 2 rules of thumb may be helpful: (1) when writing for an audience that is used to a particular capitalization, follow that convention, even if you believe it is incorrect, and (2) when you make a subjective decision, make sure you follow it consistently throughout the document and apply it consistently to other similar capitalization decisions.

	Word	Source¹	(Form) Example of Usage
A	Arctic ²	C (7.36); G (332)	<i>Arctic/arctic² weather is the Arctic Circle is wildlife is abundant in the Arctic</i>
	attorney general ³	G (312,313)	<i>Attorneys General Johnson and Smith</i> Otherwise lowercase: <i>the attorneys general met</i>
B	bay (see <i>sound</i>)		
	board ⁴	G (327)	<i>the board listened to</i> <i>the Board of Game listened to</i>
	bush		<i>... bush Alaska</i>
	Bush ⁵	C (7.36,7.39)	<i>...benefit people in the Bush</i>
C	capital improvement projects	G (306); C (7.49)	<i>capital improvement projects are</i>
	Central Alaska ⁶	C (7.36); G (341)	<i>in Central Alaska there are</i> <i>the Central Region has</i>
	commissioner ³	C (7.18); G (312)	<i>when Commissioner Smith was Smith, commissioner of ADF&G</i> <i>the commissioner will not attend</i>
	Congress	G (325)	Uppercase
	constitution	G (346)	Lowercase unless proper name: <i>U.S. Constitution, or Constitution of the State of Alaska</i>

Word	Source ¹	(Form) Example of Usage
council ⁴	(see <i>board</i>)	
D Delta Bison Range	G (303)	Bounded placename; see <i>hunt</i>
department ⁴	C (7.49); G (327)	<i>Department of Fish and Game staff</i> <i>the department recommended</i>
director ³	(see <i>commissioner</i>)	
district	C (7.49); G (331)	<i>the district catch was</i> <i>the District 15 catch was</i> <i>the Security Cove District catch was</i>
division ⁴	(see <i>department</i>)	
Donut Hole	C (7.39); G (333a)	<i>harvests from the Donut Hole were</i>
drainage	G (309b)	Always lowercase
E east	G (338)	(placename) <i>cities in the East are</i> (compass direction) <i>the sun rises in</i> <i>the east</i>
eastside ⁷	C (7.39); G (338)	(popular name) <i>the Eastside gillnet</i> <i>fishery</i> (n) <i>the gillnet fisheries on the east side</i> (adj) <i>the eastside gillnet fisheries</i>
elect	G (317)	<i>he was the governor-elect</i> (always lowercase)
emergency order	G (346)	<i>when Emergency Order 1-Y-10-87 was</i> <i>the emergency order closed the</i>
ex-	G (317 and 1101)	<i>ex-Governor Hickel left</i> (see Section 6: <i>ex/former</i>) <i>the ex-governor left office on</i>
F fax	G (356)	<i>the fax arrived at 5:30 PM</i>
federal	G (328, 329)	<i>the federal government was</i> <i>the Federal Reserve Board lowered</i>
federal aid	G (328)	Not capitalized unless used with proper title of program; i.e., <i>Federal Aid in Wildlife Restoration</i> (can introduce an abbreviation)
federal aid contracts	G (328)	<i>we mailed out the federal aid contracts</i>
First Nation	G (348)	informal term used for indigenous inhabitants (e.g., <i>Tagish First Nation</i>)

Word	Source ¹	(Form) Example of Usage
First Nations	G (348)	legal treaty term for indigenous inhabitants (e.g., <i>Canadian First Nations</i>)
fiscal year	G (308)	<i>the fiscal year will end</i>
fish and game fund	G (308)	<i>funding will come from the fish and game fund</i>
fishery	C (7.41)	<i>when the gillnet fishery was when the False Pass fishery was</i>
fund	G (308)	When referring to fiscal funds with the state budget, use lowercase: <i>fish and game fund</i>
G general fund	G (308)	<i>the general fund shortfall</i>
governor ³	C (7.18); G (312, 313)	<i>Jones, the governor of Alaska, was Governor-elect Jones traveled the governor signed into law (also see ex-; Section 6e)</i>
H herd	G (309b)	<i>the Alaska Peninsula caribou herd (see Section 3.3 also)</i>
hunt	G (309b)	<i>the Delta bison hunt was</i>
I Inside Passage	C (7.36); G (333a)	<i>the ship traveled the Inside Passage</i>
Interior Alaska	C (7.36); G (333a)	<i>species in Interior Alaska are the Alaska Interior is largely</i>
	G (332)	<i>the Interior is largely</i>
Internet	G (303)	<i>Internet users were increasing</i>
L legislature	G (327)	<i>the legislature adjourned on the Alaska State Legislature passed SB 513 the 1996 legislature</i>
lower ⁷	G (337); C (7.36)	<i>stocks in the Lower Yukon⁷ are in the lower portion of the Yukon</i>
Lower 48	G (333a)	<i>the Lower 48 has a different climate</i>
N native	G (348, pp 261–262) C (7.34, 7.35)	<i>natives of Alaska (those born in Alaska) stocks native to this area were</i>

Word	Source ¹	(Form) Example of Usage
Native	G (348)	For indigenous inhabitants use: <i>Native American(s)/Alaska Natives; Canadian First Nations; Tagish First Nation</i>
north	(see east)	
North Pacific/Atlantic/Pole	C (7.36); G (341)	<i>North Pacific populations are</i>
North Slope	C (7.36, 7.39); G (333a)	<i>...the populations on the North Slope were</i>
northern Alaska ⁶	C (7.36); G (341)	<i>the northern Alaska climate is</i>
northern Pacific Ocean ⁶	C (7.36); G (341)	<i>those in the northern Pacific Ocean</i>
P Pacific Northwest	C (7.36); G (341)	<i>the Pacific Northwest experiences in the northwestern Pacific there are</i>
Pacific Rim	C (7.39); G (333a)	<i>dealing with Pacific Rim countries</i>
Panhandle, Alaska	C (7.39); G (333a)	<i>the ship made stops in the Alaska Panhandle</i>
permanent fund	G (308)	<i>the Alaska permanent fund</i>
R range	G (303, 331); C (7.49)	<i>the Delta Bison Range was the range east of Tok</i>
refuge	G (331)	<i>the Anchorage Coastal Wildlife Refuge the refuge was selected because</i>
Region	C (7.40)	<i>the Central Region has</i>
river	G (331); C (7.42)	<i>the Chilkat and Chilkoot Rivers flow the flow in the river was</i>
river mouth or system/basin ⁸		<i>the Yukon river system⁸ the Yukon river mouth</i>
S scuba	G (522a)	No longer capitalized (short for self- contained underwater breathing apparatus)
sound	G (331)	<i>the Prince William Sound harvest was oil deposits in the sound were</i>
south	(see east)	
Southcentral Alaska ⁶	C (7.36); G (338, 341)	<i>moose in southcentral Alaska are Southcentral⁹ moose populations were</i>
Southeast Alaska ⁶	C (7.36); G (338, 341) G (332)	<i>deer in Southeast Alaska are deer in southeastern Alaska are deer in Southeast⁹ are</i>

Word	Source ¹	(Form) Example of Usage
state ¹⁰	C (7.40)	<i>and the state (or State) of Alaska was however, New York State (or state) was the state (or State)¹⁰ requested that</i>
stock	G (309b)	<i>the Togiak stock entered the</i>
Styrofoam	G (356)	Trademark name—capitalize; use the term polystyrene unless referring specifically to the trademark product
Super Cub	(<i>Piper Aircraft</i>)	a Super Cub was used for the survey
T trans-Alaska pipeline	(<i>Alyeska</i>)	<i>The trans-Alaska pipeline opened</i>
treaty	G (346a)	Lowercase unless part of title: <i>Pacific Salmon Treaty</i> <i>the treaty for U.S./Canada</i>
U upper ⁷	(see <i>lower</i>)	
V village	G (334)	<i>the location of the village of Kobuk (not part of proper name); however, Kobuk Village employment (part of proper name)</i>
Visqueen	G (356)	This still is capitalized: <i>uses Visqueen in camp</i>
W weir	G (309b)	<i>the Chilkat River weir was</i>
west	(see <i>east</i>)	
western Alaska ⁶	C (7.36); G (341)	<i>in western Alaska occur</i>
west side ⁷	(see <i>east side</i>)	
Westward ^{6,9}	G (332)	<i>in the Westward Region there are in Westward⁹ there are</i>
World Wide Web	G (303)	always capitalize
X Xerox	G (356)	Trademark name—always capitalize; avoid using as a verb in technical writing

¹ Source: C *The Chicago Manual of Style*. University of Chicago Press (1993). The section number is in parentheses.

G *The Gregg Reference Manual*, 8th edition. Glencoe/McGraw-Hill (1996). The section number is in parentheses.

- ² When referring to the region, capitalize (e.g., “Arctic weather” meaning weather in the Arctic); when used as an adjective aligned with cold, lowercase (e.g., “arctic weather” meaning frigid).
 - ³ Do not customarily capitalize titles of state officials when used alone (e.g., *commissioners*, *senators*, *attorneys general*), except when title is part of the individual’s name (e.g., *Director Green*). These titles alone may be capitalized when there is a need for special emphasis; however, be consistent. Capitalize most high-ranking federal titles.
 - ⁴ Normally, words like *board*, *division*, *department*, *village*, and *council*, when used alone as a common name, are not capitalized. However, for some audiences it may be capitalized when the full authority of the agency is to be emphasized, such as *Council* for NPFMC in certain correspondence. Whether upper or lowercase, be consistent within a document (for more discussion see *Gregg*, sections 326 and 327).
 - ⁵ Capitalize *Bush* when referring to the geographic areas of Alaska and Australia.
 - ⁶ Nonspecific (unbounded) regions or areas of Alaska and similar proper geographic names are generally lowercased — e.g., *central Brooks Range*; *southeastern*, *western*, and *northern Alaska*; *northern Pacific Ocean*. However, some regions, especially those with geographic distinctiveness, have developed placename status; these include *Southeast Alaska*, *Interior Alaska (the Interior)*, *Central Alaska*, and *Southcentral Alaska*. ADF&G administrative regions are always capitalized because they are proper names: *Southeast Region*, *Central Region*, *AYK Region*, *Westward Region*.
 - ⁷ Uppercasing of words like *upper*, *lower*, *middle*, etc., depends on whether they are part of an actual placename or simply denote a general area or location. If, for example, the upper area of the Yukon River had established boundaries representing a very specific region of the river, then *Upper Yukon* would be appropriate. If it was more of a general area, then it would be best to use *upper Yukon*. The same holds true for *west side* and *east side*.
 - ⁸ Although *river* can be a common noun (lowercase) or part of a river’s proper name (uppercase), *river system*, *river basin*, or *river mouth* are only compound common nouns (lowercase) and are never part of a river’s proper name. Therefore, in the example, *Yukon* is a proper-name adjective (uppercase) modifying the common compound noun *river system* or *river mouth* (lowercased); note that *Yukon* is actually a truncation of *Yukon River* to avoid redundancy—i.e., the *Yukon River river system (river mouth)*. The proper name *River* is dropped rather than the common name *river*.
 - ⁹ The stand-alone form should not be used in technical or formal writing.
 - ¹⁰ Use “state of Alaska” for all uses except when referring specifically to the governmental body; for example, “*The State of Alaska is considering a comprehensive health plan for residents*,” or “*The State of Alaska must place at least 25 percent of all oil royalties in the permanent fund*.” The short form, *state* alone, should not be capitalized unless the lack of capitalization would produce ambiguity (where both government and geographic area are referred to in the same document).
-

Section 6: Watch-Out Words

The following list and explanations for correct use of problematic words will help you minimize common writing mistakes.

A affect/effect

Affect is normally used as a verb meaning to influence, change, or modify. *Effect* is normally a noun; it is also a verb meaning to bring about.

- Examples: ...which affected the decision to extend the
(meaning to influence)
...this will effect a restructuring of the
(meaning to bring about)
...the regulation takes effect on
...which has had a major effect (*noun*)

aging

Although commonly used in biological writing, aging is not recognized by any dictionary as meaning *the determination of age*, so the public and international audiences may interpret the word to mean *the process of growing older*, which is the dictionary definition. Therefore, use “aging” with caution, or define parenthetically on first mention. Also, the British spelling, *ageing*, is not recommended.

allocate/apportion

Use these words when you or others do the apportioning or allocating (e.g., *allocation* plans for fisheries or hunters). Do not use when you are trying to estimate the proportions or parts of a natural population (e.g., “...the run was *allocated* to stock by”) because we are not allocating/apportioning the parts or components of the population — the populations themselves are; instead, use something like: “...*we estimated stock portions of the run.*”

allright/alright

Like *all wrong*, the expression *all right* should be spelled as 2 words. *Alright* is incorrect.

alternate/alternative

As nouns, the difference between these terms is clear. When these words appear as adjectives, some find their usage confusing. As a verb or adjective, *alternate* means “occurring in turns” or “every other one,” and *alternative* is a noun meaning “possibilities.”

Examples: *We alternated day and night observations.*

The team discussed 6 alternative sites for the weir.

We rejected the alternative hypothesis.

among/between

Use *among* when comparing 3 or more. Use *between* when comparing 2.

appraise/apprise

Appraise means to evaluate; *apprise* means to inform.

as

see *because*

as/like

Like is correctly used as a preposition. Although *like* is also widely used as a conjunction in colloquial speech, use *as*, *as if*, or a similar expression in written material.

Examples: *Duck hunting, like deer hunting, requires a great deal of skill.*

The moose calf looks as if it hasn't eaten in days.

assure/ensure/insure

All 3 words have essentially the same meaning. However, when referring to financially guaranteeing life or property, use *insure* exclusively.

Assure should only be used when it refers to a person (e.g., to *assure* someone). Use these 2 words only in these limited senses. In most of our writing, therefore, *ensure* will be the correct choice.

Examples: To set a person's mind at ease:
I assure you we will finish on time.

To make certain:
I want to ensure we do this correctly.

awhile/a while

The meaning of *awhile* is for a period; the "for" notion is part of the meaning. Consequently, it is redundant to write, "The policy will work for awhile." (A preposition, normally "for," can introduce *a while*, but must not be used to introduce *awhile*.)

Examples: *The policy will work awhile.*

The policy will work for a while.

B

because/as/since

Do not use *as* or *since* as synonyms for *because*. Use only in a temporal sense.

Examples: Avoid:
...was closed since/as the population levels were

Use:
...was closed because population levels were

(Note: In the first example you need the rest of the sentence to determine whether *since* has a temporal meaning or is being used as a synonym for *because*. Ambiguity is not evident in the second example, so using *because* simplifies reading.)

bi/semi

Bimonthly and *biweekly* can either mean "every 2 months/weeks" or "twice a month/week." *Semimonthly*, on the other hand, means "twice a month." If the words must be used, use *bimonthly/biweekly* for "every 2 months/weeks" and *semimonthly/semiweekly* for "twice a month/week."

Also, note that *biannually* means "2 times a year" and *biennially* means "every 2 years."

bycatch

Use only as a noun or adjective. Never use as a verb (*crab bycaught in cod pots*); instead use *incidentally harvested*.

C**commercial fishery**

Traditionally, the term *commercial fishermen* has included those who compete to catch and sell fish (e.g., trollers, seiners, setnetters, and crab fishermen). This usage is to be retained. More recently, an additional group of harvesters has been recognized: private nonprofit hatchery operators, derby operators, and even the State of Alaska (sells confiscated fish or fish taken in test fisheries). These other harvesters, although authorized to sell fish, do not compete among themselves or with commercial fishermen. Therefore, they are not, in the traditional sense of the word, commercial fishermen. Although their harvests are commercial because they are sold, we do not want to refer to them as commercial fishermen nor represent them as participants in a commercial fishery because it would bend established meaning and cause confusion, requiring needless explanation. Therefore, the following terms should be used when it is necessary to refer to these types in a collective sense:

Harvest Terms:

Commercial fishery harvest + other commercial harvests = total commercial harvests

Note: When additional clarity is needed, the term *commercial common property harvest* can be used instead of *commercial fishery harvest*.

Fishery Terms:

Commercial fishery + other commercial harvest operations = (no aggregate term)

Participant Terms:

Commercial fishermen + other commercial harvesters = (no aggregate term)

(Note: Both commercial fishermen and other commercial harvesters can sell fish only under a CFEC card or license unique to their particular type of taking. For example, trollers, derby operators, and hatchery operators each have their own unique CFEC card.)

complement/compliment

Complement means “something that completes or brings to perfection.”

Example: *These findings complemented their study.*

Compliment means “an expression or act of courtesy or praise.”

Example: *He complimented Joan on her brilliant speech.*

comprise/compose

Comprise means to include, contain, consist of; *compose* means to make up. The parts compose (make up) the whole; the whole comprises (includes) the parts; the whole is composed of (NEVER is comprised of) the parts.

Examples: *ADF&G comprises (consists of) 6 major divisions.*

Six divisions compose (make up) ADF&G.

ADF&G is composed of (is made up of) or comprises (includes) 6 divisions.

continual/continuous

Continual means “intermittent, but frequently repeated.” *Continuous* means “without interruption.”

Examples: *He continually stutters when speaking.*

The fish tank leaked continuously until, hours later, we were able to repair it.

D

different from/different than

Use *different from* when the comparison is between 2 persons or things (e.g., *My report is different from yours*). Use *different than* when the object of comparison is expressed by a full clause (e.g., *The department is different than it was 20 years ago*).

discreet/discrete

A *discreet* person is cautious and prudent and exercises good judgment. *Discrete* means “separate and distinct,” as *discrete* stocks of fish.

dominant/predominant (adjectives)

Both are adjectives having similar meanings relating to power, influ-

ence, authority, or superiority. *Predominant*, however, is the better choice when referring to greater prevalence in numbers. The adverbs *dominantly* and *predominantly* should be used similarly.

dominate/predominate (verbs)

Both are verbs having similar meanings related to exerting power, influence, authority, or superiority. *Predominate*, however, should be used when referring to greater prevalence in numbers, as should the adverb *predominately*.

due to/because of

Due to is often used where *because of* is required. You should be able to substitute the words *attributable to* for *due to*; if the substitution sounds funny, use *because of*.

E

each other/one another

Use *each other* to refer to 2 persons or things; *one another* for more than 2.

Examples: *The 2 candidates seem to enjoy insulting each other.*

The 3 candidates compete with one another for space on the front page.

ensure

see *assure*

ex-/former

Ex- should be used to refer to the person who immediately preceded the current titleholder (*ex-President Bush*); *former* refers to an earlier titleholder (*former President Ford*).

F

factor of, times

Proportions for increases are frequently expressed incorrectly. In the following information — the starting average = 7 cm and increases by 14 cm to 21 cm — describing the increase can often lead to problems, such as in the following examples:

Examples: Wrong:

The average increased by a factor of 3 (or by 3 times). This says the average increased by 3×7 (the base) or by 21; that would mean the new average was $7 + 21$, or 28. The problem or watch-out word is *by*.

Right but Weak:

The average increased by a factor of 2 (or by 2 times). This statement is correct: the average increased by 2×7 or 14. However, it may be misunderstood; that is, many readers might incorrectly assume the new average was 14, not 21.

Better:

The average increased 3 times (or 3-fold or 300%). The average increased 3 times the initial average of 7, or the new average was 21. Note, that avoiding use of the word *by* changes the whole mathematical meaning and makes the sentence compatible with conventional interpretation.

Also Wrong:

A 300% (3-fold) increase in the average was noted. The increase was 14 or 200%, not 21 or 300%.

The Fix:

A 200% increase... That is correct, but unless you need to focus on the amount of the increase itself, it may be best to reconstruct, focusing instead on how the average changed: *The average increased 300% (or 3-fold).*

fold, times

See *factor of*

farther/further

Farther refers to distance only. Use *further* in all other cases.

Examples: ...*farther* upriver we found
 ...*this finding furthers* our hypothesis
 ...*should be further* analyzed

fewer/lesser

Use *fewer* when referring to countable items; use *lesser* for amounts that are not countable.

forgo/forego

Forgo (variant spelling *forego*) means to abstain from or give up or abandon.

Examples: *We will forgo the test fishery this year.*

The director was willing to forgo travel to save money.

Forego means to precede in time or place.

Example: *It was a foregone conclusion that the state would intercede.*

H**historic/historical**

Historic refers to noteworthy events in history. Use *historical* when referring to past events in a cumulative or generic sense.

Examples: *...the historic enactment of ANILCA set*

...the historical migration period has been

hybrid crosses

When depicting hybrid crosses, use the following formats: *Chionoecetes bairdi* x *Chionoecetes opilio*; or *C. bairdi* x *C. opilio*; or Tanner crab x snow crab. The female partner is always first (left of x).

6**I****imply/infer**

Imply means “to suggest”; you imply something by your own words or actions.

Example: *Victor implied (suggested) that data would be available.*

Infer means “to assume, to deduce, to arrive at a conclusion.” You *infer* something from another person’s words or actions.

Example: *I inferred (assumed) from Victor’s remarks that we would never see that data.*

insure

see *assure*

irrespective/regardless

Irrespective and *regardless of* (not *irregardless*) are synonyms meaning ignoring “equal rights for all, *irrespective of* (*regardless of*) class or race.”

its/it’s

Its is the possessive form of *it*, whereas *it’s* is the contraction for *it is*.

L**latter/former**

Avoid these words whenever possible. They force the reader to stop and search back over previously read material to locate the intended reference. Often just a few additional words will provide the necessary connection without interrupting the reader.

lie/lay

When to use *lie* or *lay* and their forms can be confusing. The following is taken from *Gregg*.

Lay (principal parts: *lay, laid, laid, laying*) means “to put” or “to place.” This verb requires an object [noun/pronoun] to complete its meaning.

Examples: Please *lay* the *boxes* on the pallets with extreme care.

I *laid* the *message* right on your desk.

I *had laid* 2 other *notes* there yesterday.

He *is* always *laying* the *blame* on his assistants. (Putting the blame.)

The dress *was laid* in the box. (A passive construction implying that someone *laid* the dress in the box.)

Lie (principal parts: *lie, lay, lain, lying*) means “to recline, rest, or stay” or “to take a position of rest.” It refers to a person or thing as either assuming or being in a reclining position. This verb cannot take an object [noun/pronoun].

Examples: Now he *lies* in bed most of the day.

The mountains *lay* before us as we proceeded west.

This letter *has lain* unanswered for 2 weeks.

Today’s mail *is lying* on the receptionist’s desk.

Test: In deciding whether to use *lie* or *lay* in a sentence, substitute the word *place*, *placed*, or *placing* (as appropriate) for the word in question. If the substitute fits, the corresponding form of *lay* is correct. If it doesn't, use the appropriate form of *lie*.

Examples: I will (*lie* or *lay*?) down now. (You could not say, "I will *place* down now." Therefore, write "I will *lie* down now.")

I (*laid* or *lay*?) the pad on his desk. (I *placed* the pad on his desk" works. Therefore, write "I *laid* the pad.")

I (*laid* or *lay*?) awake many nights. ("I *placed* awake" doesn't work. Write "I *lay* awake.")

These files have (*laid* or *lain*?) untouched for some time. ("These files have *placed* untouched" doesn't work. Write "These files have *lain* untouched.")

He has been (*laying* or *lying*?) down on the job. ("He has been *placing* down on the job" doesn't work. Write "He has been *lying* down.")

like/likely

Be careful about substituting *as* for *like*.

Examples: Avoid: ...*rockfish, as other reef fishes, are*

Use: ...*rockfish, like other reef fishes, are*

Avoid using *likely* as a substitute for *probably*; i.e., avoid using *likely* as an adverb unless it is immediately preceded by a modifier, such as *very likely*, *most likely*, etc.

Examples: Avoid: ...*deer, which likely are found near*

Use: ...*deer, which probably are found near*

But: ...*deer, which very likely are found near*

N

noncommercial

noncommercial = sport + personal use/subsistence

P Pacific herring (or Pacific halibut)

Use *Pacific herring* and the scientific name on first usage in the document; you may use just *herring* thereafter (exception: if your document involves both Atlantic and Pacific herring, the qualifier will probably be needed throughout). Also, the following terms should be used when characterizing herring populations and fisheries:

For Herring Use:

$$\text{run biomass} - \text{harvest or catch} = \text{escapement biomass}$$

Equivalent in Salmon:

$$\text{run} - \text{harvest or catch} = \text{escapement}$$

Note: The *run* and *run biomass* are composed of mature fish that are participating in spawning, and excludes immatures remaining at sea. Therefore, when referring to an entire herring or salmon population consisting of both the mature and immature fish, use “total population.”

parameter

Often incorrectly used. Use only as a mathematical variable or constant. Avoid using as a synonym for a “characteristic element” (e.g., *the biological parameters studied included*) or “a fixed limit or boundary” (e.g., *were within the parameters of the investigation*).

passive voice

The passive structure allows writers to reverse their nouns at the beginning and end of a sentence (*The report was written by the director*, with end-focus on the director instead of on the report, as in the sentence, *The director wrote the report*). Aside from emphasis, another purpose for the passive structure is simply not to mention the doer of an action (*The regulations will be discussed* instead of *Ken will discuss the regulations*). Passives should be used for emphasis or by necessity. Otherwise, they are wordy and often carry less information. Passives easily lead writers into using misplaced phrases like, *The caribou were observed using binoculars* instead of *Using binoculars, we observed the caribou*. Find your passive sentences by looking for a *be* verb (*is, are, was, were*) next to an action word (*found, made, done, heard, recommend*) usually ending in *ed, de, nd, ne, or rd*.

Examples: Passive:

The new training policy was approved.

Rewritten:

The deputy commissioner approved the new training policy.

Passive:

Salmon escapement was discussed at the meeting.

Rewritten:

We discussed salmon escapement at the meeting.

Passive:

The physiology test was done at the University of Alaska Fairbanks.

Rewritten:

Dr. Gomez, a zoologist from the University of Alaska Fairbanks, directed the physiology test.

percent/percentage/percentage points

Use *percent* for general audiences and in department correspondence; use the percent sign (%) for scientific audiences when associated with a number and *percentage* when not used with a number. Also, the difference between 7% and 15% is not 8% but 8 *percentage points*.

plant/stock/transplant

A lake or stream is *stocked* with fish, but fish are *planted* into a lake or stream. Use *transplant* rather than *plant* when you want to reinforce that fish being planted originated from a source other than the source being stocked. Note: Do not use *transplant* for animals and birds; instead use *introduce* or *reintroduce*.

prevalence/incidence

Prevalence is a rate over time of some disease (several data points); *incidence* is a particular percentage infected at a point in time (1 data point).

principle/principal

Principle is a noun meaning a rule, a fundamental doctrine, or a level of ethics. *Principal* is an adjective or a noun (sum of money, head of a school) and generally is the correct word to use when *principle* is not what is meant.

Examples: *The principal finding was that...*

The principle followed was that...

Q**quasi**

Quasi is a prefix that indicates “to a degree” or “to some extent.” It can also stand for “half” as in a semicircle or semimonthly. One should avoid using this term. Instead, refer to *bi/semi*.

R**raise/rise**

Raise means it is moved upward by someone or something — that is, not of its own volition. *Rise* means to move upward by itself or upon its own volition.

random

Care must be taken when using this word. It is commonly, almost gratuitously, added to describe the word *sample*, even though the sample may not have been actually random. Use *random sample* only in its strict statistical sense; i.e., every possible individual sample has an equal probability of being selected.

regard/regards

When used to mean *consider*, *as* should be used; e.g., “He *considers* it dishonest,” but “He *regards* it *as* dishonest.” Never follow with an infinitive, such as “He *regards* it to be dishonest.” The terms *with regard to* and *in regard to* mean *with reference to*. Do not use *regarding* and *in regard to* for introducing a subject. As a noun, use the plural *regards* only in the formal expression, such as “Give my *regards* to the commissioner.”

regardless

Do not use *irregardless*, which is nonstandard and a double negative.

relation/relationship

Use *relationship* when referring to familial ties of people; use *relation* to describe connections between inanimate objects or concepts.

respectively

This word is often overused in scientific writing. It makes reading difficult because it forces the reader to cross-reference parts of the sentence. Its use should be minimized.

Examples: Avoid: *...samples A and B were 45 mm and 65 mm, respectively.*

Use: *...sample A was 45 mm and B was 65 mm.*

run/return

Run refers to an aggregation of salmon of all ages returning from ocean feeding grounds to spawn in any given year. *Return* refers to an aggregation of salmon over several or more years that represent the surviving adult offspring from a single brood year. For pink salmon, run equals return.

S

salmon ages

For any given salmon brood, their birth date is conceptually standardized at January 1 of the year following the brood year, regardless of when a given brood actually hatched. For example, a brood spawned in 1995 conceptually hatched January 1, 1996, and the aging clock begins to run on that date. Therefore, a salmon juvenile spawned in 1995 will be age 0 throughout 1996 and age 1 throughout 1997, etc. In a document that refers to salmon ages, at least some of which include saltwater life stages, use the European aging system: *x.* for the freshwater age only, *.x* for the saltwater age only, and *x.x* for both saltwater and freshwater ages. In a document that only mentions freshwater ages, drop the European system's period (i.e., avoid *x.*) and use the age without the period (i.e., age *x*); note, however, that *x* is the same number regardless of whether the European or non-European system is used.

salmonid life stages

Terms denoting salmon life stages are often misused, in part because many writers are unaware of correct usage, as defined in the following chronology of stages:

ovum — denotes an unfertilized female reproductive cell(s) [synonym: *gamete* or sometimes *egg*].

egg/embryo — denotes a fertilized egg up to hatching [synonym: *fertilized egg*].

sac fry — hatched fry with a yolk sac; this stage remains relatively acquiescent in the incubation gravel.

alevin/emergent fry — fry that have utilized their yolk sac, *alevins* referring to those still within the gravel, and *emergent fry* to those recently emerged or emerging from the gravel.

fry — larval stage following emergence that lasts until pigmentation and parr marks are visible.

parr — applies to only freshwater-rearing species (sockeye, coho, chinook) and denotes the stage between the development of pigment/parr marks and the smolt stage; note that pink and chum salmon skip this and the smolt stage and go from the fry stage directly to the juvenile stage.

smolt — for freshwater-rearing species (sockeye, coho, chinook) it is the time that parr are able to osmoregulate and migrate to salt water.

juvenile — the early marine stage of all species that begins with their entry into salt water and continues through the end of that calendar year.

immature — this stage lasts from the first day of January following salt-water entry until gonadal development becomes noticeable; pink and coho salmon skip this stage and enter the maturing stage immediately following the juvenile stage because their gonads begin to develop around the first January following saltwater entry.

maturing — the ocean-rearing stage that begins when gonadal development becomes noticeable and lasts until the adult stage. Chum, sockeye, and chinook salmon enter this stage from the immature stage. However, pink and coho salmon enter this stage from the juvenile stage — i.e., on the first day of January following saltwater entry — because their gonads begin to develop at that time.

adult — generally covers the period from the beginning of the spawning migration or run until death; note that *spawner* should be used only for those adults constituting the escapment.

Terms that aggregate 2 or more successive stages can be developed as needed but should be defined on first usage (e.g., *subadult* to refer to immature and maturing salmon); however, the *freshwater-rearing* and *ocean-rearing stages* are common enough and sufficiently intuitive to enable usage without introduction. For more information on definitions of the ocean-rearing stages see INPFC Bulletins 31 (coho), 34 (sockeye), 35 (chum), 38 (chinook), and 40 (pink salmon).

since

see *because/as/since*

spawn on kelp

Use *spawn on kelp* rather than *roe* or *eggs on kelp*. Hyphenate when used as an adjective. Other variations include *pound spawn on kelp* or *pound spawn-on-kelp fishery* or *wild spawn-on-kelp fishery*; *suspended spawn on kelp* or *suspended spawn-on-kelp fishery*. When referring to the herring *spawn-on-kelp* fisheries, use the following qualifiers to describe harvests: “equivalent herring harvest” or “harvest in product weight.”

special harvest area/terminal harvest area

The *special harvest area* (SHA) is an area where private hatchery returns segregate from wild stocks and the private hatchery takes returns for cost recovery. The *terminal harvest area* (THA) is the area adjacent to a state or private hatchery where commercial fishermen may harvest segregated hatchery returns. The THA may be separate and adjacent to the SHA or be the same area as the SHA but open at different times; or the THA may include but extend beyond the SHA. Use THA when referring to common property harvests taken in the THA; use SHA when referring to private hatchery cost recovery.

stock/deme (local population)

The term *stock*, especially as applied to salmon, has become very problematic in recent years, largely because of different meanings ascribed by management, conservation biology (genetics), and the Endangered Species Act. Geiger and Gharrett (1997) have recommended that *stock* be used only in management and the word *deme*, instead of *stock*, be used for applications to conservation biology. Van Alen (1998) and Wilbur et al. (1998) provide appropriate definitions for *stock*, *stock group*, and *deme/local population*. To mitigate the semantical turmoil in which these terms have become embroiled, staff should use these terms as provided in these 3 papers:

Geiger, H. J., and A. J. Gharrett. 1997. Stocks at risk: what’s the stock and what’s the risk? *Alaska Fishery Research Bulletin* 4(2):178–180.

Van Alen, B. *In press*. Status and stewardship of salmon stocks in Southeast Alaska. Proceedings of the conference towards sustainable fisheries: balancing conservation and use of salmon and steelhead in the Pacific Northwest. Ann Arbor Press, Ann Arbor, Michigan.

Wilbur, R. L., J. Seeb, L. Seeb, and H. J. Geiger. 1998. Is it a deme, a stock, or a subspecies? These and other definitions. Alaska Department of Fish and Game, Commercial Fisheries Management and Development Division, Regional Information Report 5J98-02, Juneau.

subject–verb agreement

Is it “*a total of 270,000 salmon **was** harvested or **were** harvested*”?

Singular and plural subjects require singular and plural agreement with the verb, but agreement can be tricky when the subject is more than one word; often these “extended” subjects are attached to “of” phrases (2 tons *of biomass*). Verb agreement with stretched out subjects becomes even trickier because the connected *of phrases* carry different types of nouns. There are two types:

- *noncount* nouns are words that generally are not counted, like the words *salt, butter, soil, biomass*, and are usually singular.
- *count* nouns are countable, like *book, words, and computer* and are either singular *or* plural.

We offer 4 rules to eliminate some of the hardships of subject–verb agreement:

1. Units of measurement take singular verbs because they are thought of as distinct, single units. Example: *Four feet of line was tangled.*
2. The phrases *a number* and *a total* are usually plural; however, *the number* and *the total* are usually singular.

A total of 270,000 salmon were harvested.

A number of salmon harvested and discarded were not included.

The total number of salmon harvested was 270,000.

3. Noncount nouns are generally singular (**MS222** was added; the **biomass** was stored).
4. Recast passive sentences to active to make agreement even easier. See Section 6, page 61 for more information on passive sentences.

Passive sentence: Two feet of soil *was taken* from the site.

Active sentence: DEC *took* 2 ft of soil from the site.

T

test fishery

This term is Alaska jargon that originated from experimental fisheries resembling small-scale commercial fisheries the department conducts

to assess early run strength prior to commercial openings. The term, as jargon, should always be parenthetically defined. However, do not use the term to describe any sort of fish population sampling conducted by department staff. That is, *fish population samples* should be called that, or something similar, not *test fisheries* or *test catches*.

that/which

That is used when introducing an essential clause (i.e., a clause needed to correctly understand the full and correct meaning of the sentence). Such clauses are not set off from the rest of the sentence by commas. *Which* is used to introduce a nonessential clause (i.e., a clause that includes extra information that is useful but not necessary for correct interpretation of the sentence); these nonessential clauses are set off by commas. Note that careless use of *that/which* can cause misreading of the sentence. For example, in the following carelessly constructed sentence, readers can extract 2 different meanings:

The samples which were collected on Friday all tested positive.

The considerate author will avoid ambiguity and help readers select the intended interpretation:

The samples that were collected on Friday all tested positive. (Essential clause: tells the reader that the Friday samples were all positive, presumably to distinguish those from other sample results.)

The samples, which were collected on Friday, all tested positive. (Non-essential clause: the clause provides information, but it could be left out without altering the main point of the sentence.)

Rarely does the word *that* introduce a nonessential clause:

Exception: Their conclusion, that $A=F$, was later refuted.

Also, remember to avoid *that/the* pile-ups, like “the data indicates (not *thatthe*) herd population is declining”

toward/towards

Toward and *towards* are different forms of the same word. *Toward* is the preferred form in American English. In British English, *towards* is more common than *toward*.

W**while**

Do not use *while* as a conjunction; use in a temporal sense only (e.g., “*While sampling, we discovered . . .*”). Otherwise, in place of *while* use *although, but, whereas, or and*.

Examples: Avoid:

. . . were studied, while the western stock was not.

Use:

. . . were studied, although (but) the western stock was not.

who

The word *who* carries either essential (identifying information that is needed to understand the correct meaning of the sentence; e.g., “*The manager who works in the Anchorage office received the award.*”) or nonessential (extra information that is useful but not necessary for correct interpretation of the sentence; e.g., “*The manager, who is in Hawaii this week, received the award.*”).

Essential information does not require a comma; nonessential information requires a comma or a pair of commas midsentence. The comma visually separates nonessential messages so the reader can easily discern the sentence’s main point.

Examples: *The publisher will consider proposals from biologists who submit their plans before June 30* (essential, no comma).

Select people who want to be on this committee (essential, no comma).

The biologist in the blue shirt, who graduated from Montana State University, is the new regional supervisor (nonessential information is set off by a pair of commas).

When *who* follows a proper noun, the *who*-unit is usually nonessential and requires commas.

Example: *Kate Persons, who works in our Nome office, is a member of the survey team.*

who/whom

The traditional rules that determine the use of *who* and *whom* are simple but require remembering grammar. To make your job simpler, when you are puzzling over whether you should write *who* or *whom*, apply this easy test: use *who* when the words *I, he, or she* are appropriate substitutes and use *whom* when *I, he, or she* are not appropriate substitutes.

with

Do not use *with* as a conjunction. Use *and*, *but*, or a *semicolon* (;).

- Examples: Avoid: *Temperatures were taken daily with water samples taken every...*
- Use: *Temperatures were taken daily, and water samples were taken...*
- Or: *Temperatures were taken daily; water samples were taken...*

Note: The *Gregg Reference Manual* has an excellent chapter on word usage problems — see Chapter 11.

Section 7: Plurals

7.1 Animals, Fishes, and Related Terms

Singular	Plural	Mix of Species
alevin	alevins	alevins
alga	algae ¹	algae ¹
bear	bears	bears
beaver	beavers	NA
bison	bison ¹	NA
buck	bucks ¹	bucks ¹
caribou	caribou ¹	NA
char	char ¹	chars ¹
clam	clams	clams
cod	cod ¹	cods ¹
coyote	coyotes	NA
crab	crabs	crabs
deer	deer ¹	deer ¹
doe	does ¹	does ¹
duck	ducks	ducks
elk	elk ¹	NA
fingerling	fingerlings	fingerlings
fish	fish	fishes
flounder	flounders ¹	flounders ¹
fox	foxes	foxes
fry	fry	fry
fungus	fungi/funguses	fungi/funguses
furbearer	furbearers	furbearers
geoduck	geoducks	geoducks
goat	goats	goats
goose	geese	geese
grouse	grouse ¹	grouses ¹
halibut	halibut ¹	halibuts ¹

Singular	Plural	Mix of Species
hare	hares	hares
herring	herrings ¹	herrings ¹
larva	larvae ¹	larvae ¹
lynx	lynx ¹	lynxes ¹
marten	martens	NA
megalopa ²	megalopae	megalopas
megalops ²	megalops	megalops
mink	mink ¹	NA
mollusk	mollusks	mollusks
moose	moose	NA
muskox	muskoxen	NA
muskrat	muskrats	NA
octopus	octopuses/octopi	octopuses/octopi
otter	otters	otters
parr	parr ¹	parr ¹
pike	pike ¹	esocids ⁴
plankter ³	plankton/plankters ³	plankton ³
rockfish	rockfish ¹	rockfishes ¹
salmon	salmon ¹	salmon ¹
sheep	sheep	sheep
shrimp	shrimp ¹	shrimps ¹
smolt	smolts ¹	smolts
squid	squid ¹	squids ¹
trout	trout ¹	trouts ¹
walrus	walruses	NA
waterfowl	waterfowl	waterfowl
weasel	weasels	weasels
wolf	wolves	NA
wolverine	wolverines	NA
zoa ¹	zoae ¹	zoae ¹

¹ The dictionary recognizes 2 acceptable plurals, but the committee decided that only this plural should be used in ADF&G writing.

² Use either *megalopa* or *megalops* and their plurals, but do not mix the 2 forms (*megalops*/*megalopa*) within a document.

³ Use *plankter* for a single planktonic organism. Use *plankters* when referring to a specific number of such organisms; however, *plankton* may also be used. For example, “a count of 1.3×10^3 zooplankters” but “the zooplankton count was 1.3×10^6 ” (not 1.3×10^3 zooplankton). Also, use *plankton* when referring to the population or general group of such organisms.

⁴ Although technically pickerels and muskellunge are pikes, when referring to a mix of pike species “pikes” may be misunderstood to be several or more pike *E. lucius*. Therefore, when referring to a mix of pike species, use “esocids.”

7.2 General Terms

The following singulars and plurals should be used as indicated. Words in brackets are allowed in general writing but not in technical writing. When there are 2 plurals and both are acceptable, they are separated by a slash (/).

Singular	Plural
agenda	agendas
criterion	criteria [criteria ¹]
data point [not data ²]	data
fishery ³	fisheries ³
formula	formulas
genus	genera
hypothesis	hypotheses
index	indices [indexes ¹]
memorandum	memoranda/memorandums
ovum	ova
phenomenon	phenomena
species	species
stratum	strata [stratums ⁴]
symposium	symposia/symposiums
taxon	taxa
virion	virions ⁵
virus ⁵	viruses ⁵

¹ Although allowed in popular writing, this should not be used in technical writing.

² Although *data* as a singular is allowed in popular writing, this should not be used in technical writing. (Note: *datum* is no longer used.)

³ Use *fishery* or *fisheries* as a plural modifier of *biologist* or *management*; whichever is used, use it consistently within the document, not both. For ADF&G biologists, use *fishery biologist* because this is the term for the job class.

⁴ Although the dictionary allows either, the committee did not endorse the use of this plural.

⁵ Use *virion(s)* or *virus particle(s)* when referring to a single or multiple particles, especially numbers of (e.g., *a single virion can infect...*). Use *virus/viruses* for all other uses; i.e., when not referring to numbers of particles.

NOTES

7

Section 8: Numbers

For all technical and scientific reports and publications published in-house, use the *modern scientific number style*¹ described in Section 8.1. For reports and similar documents having primarily a public audience, as well as all correspondence, use the *general number style* described in Section 8.2.

8.1 Numerals or Words: “Modern Scientific Style”

Use this modern scientific number style for all technical and scientific reports and published publications.

The conventions presented here revise what has often been called the “scientific number style.” That style generally used words for 1-digit whole numbers and numerals for larger numbers, a distinction that many found arbitrary. The revised or “modern scientific number style” treats numbers more consistently by extending the use of numerals to most 1-digit whole numbers that were previously expressed as words. This style allows all quantities to be expressed in a similar manner, and because numerals have greater visual distinctiveness than words, it increases the profile of quantities in running text.

This objective is further facilitated by the use of words instead of numerals for numbers appearing in a context that can be thought of as only secondarily quantitative; that is, when a number’s quantitative function has been subordinated to a nonquantitative meaning or the number is used idiomatically, it should be expressed as a word (for example, *the sixty-four-thousand-dollar question*).

Developing recommendations for *zero* and *one* was more difficult. For these numbers, applying consistent logic (numerals for quantities and words otherwise) would often increase tedium in making decisions about correct usage and create an inconsistent appearance because *one* in particular has a variety of functions and readers might not quickly grasp the logic. Therefore, simplicity and consistent appearance have been given priority for these 2 numbers. For example, *one* can be used in ways in which

¹ Reproduced through courtesy of the Council of Biology Editors (see *CBE Style Manual* Subcommittee, 1998. CBE Views 21(1):14–16).

quantity is irrelevant: as a personal pronoun or synonym for *you* (*one must never forget that...*) or as an indefinite pronoun (*this one is preferred...*). Zero and *one* are also used in ways that are more like figures of speech than precise quantifications (*in one or both of the..., in any one year..., ...a zero-tolerance policy*). In addition, the numeral 1 can be easily confused with the letters *l* and *I*, particularly in running text, and the value 0 can be confused with the letters *O* or *o* used to designate a variable.

a. Cardinal Numbers

Because quantitative elements in scientific writing are of paramount importance, whole and decimal numbers in scientific text, titles, headings, tables, and figure captions should be expressed as numerals rather than words. This form increases their visibility and distinctiveness and emphasizes their enumerative function.

Examples: 3 hypotheses 7 samples 52 trees
 328 amino acids 4 times 0.5 mm

Numerals are also used to designate mathematical relationships, such as ratios and multiplication factors.

Examples: 5:1 4-fold 1000x magnification

There are 4 categories of exceptions when numbers should be spelled out.

1. If logic calls for a number to begin a sentence, title, or heading, then spell out the number. If possible, reword so the number appears elsewhere or join the sentence to the previous sentence.

Examples: *Twenty milligrams is the desired amount, but 15 mg is enough.*

The desired amount is 20 mg, but 15 mg is enough.

The drug is administered in a single dose; 20 mg is the desired amount, but 15 mg is enough.

2. When 2 numbers are adjacent, spell out the number that is most easily expressed in words and leave the other as a numeral, or reword the sentence to separate the numbers. In general, retain the numeral with a unit of measurement.

Examples: *The sample was divided into eight 50-g aliquots.*

The sample was divided into 8 aliquots of 50 g each.

3. Express the whole numbers *zero* and *one* as numerals only when

- they are connected to a unit of measure

1 year *1 mm* *1 J* *0°C* *1-digit numbers*

- they are used as assigned or calculated values

with q fixed at 1 *when z = 0* *a mean of 0*

- or they are part of a series or are closely or intermittently linked with numbers other than 0 or 1

0, 1, 5, and 9 were... (series)

1 of 4 subspecies (closely linked)

2 applications instead of 1 were... (closely linked)

between 0 and 2 (closely linked)

3 samples contained..., 1 sample was..., The last 5 samples... (intermittently linked).

- Otherwise, spell out *zero* and *one*.

one of the subspecies *was one of the most important*

one doctor *in one such instance*

at one time *zero-based budgeting*

one reason *the zero in Table 3*

In supporting scientific ethics one is obliged to...

Of the possible avenues of research, this one is the most promising.

There was one alternative we should have examined.

4. When a number is used idiomatically or within a figure of speech, spell out the word; however, like jargon, figures of speech may be inappropriate for scientifically oriented writing because they may not be readily understood by readers whose first language is not English. Recasting the phrase is generally the better option.

Examples: Expression: *This situation tells us a thing or two about...*
 Reworded: *...tells us several things about...*

Expression: *of two minds*
 Reworded: *undecided*

Expression: *a thousand and one possibilities*
 Reworded: *innumerable possibilities*

Likewise, in situations such as those given below, the number may be used in a way in which the exact numeric quantity is secondary to the overall meaning. In scientific material, rewording to avoid the number altogether may be best. Otherwise, either the word or the numeral may be used.

Examples: Original Phrase: *among the four of us*
 Possible Rewording: *among our group*

Original Phrase: *the two of them*
 Possible Rewording: *both of them*

Original Phrase: *We three*
 Possible Rewording: *We*

b. Ordinal Numbers

Ordinal numbers generally convey rank order rather than quantity. As such, rather than being expressly enumerative (answering the question *How many?*), they often instead describe *which, what, or in what sequence*. Because this function of ordinals is more prose-oriented than quantitative, distinctiveness within the text is less important for ordinal numbers, and nondisruptive reading flow and comprehension take precedence. Potential confusion between the numeral *1* and the letters *l* and *I* is also a consideration.

1. In general, spell out single-digit ordinals (corresponding to the numbers 1 to 9), whether adjectives or adverbs.

Examples: *the ninth time* *a third wave of immigrants*
were first discovered *the first ducklings emerged*

2. Comprehension is less likely to be impeded by the appearance of the numeric form of 2-digit ordinals (corresponding to the numbers 10 and higher), and the practice of using the numeric form for such ordinals is well established. Therefore, express these larger ordinals as numerals.

Examples: *for a 10th time* *the 98th test run* *the 19th century*

- Express single-digit ordinals in the numeric form if they appear in a series or are intermittently linked with larger ordinals.

Example: *The 5th, 8th, and 10th [not fifth, eighth and 10th/tenth] replications were... We developed 12 hypotheses... We tested the 1st [not first]... The 11th [not eleventh] was...*

- To provide visual cues to comprehension, single-digit ordinals may be expressed in the numeric form if they are used repeatedly.

Example: *Of those 6, we first examined the 4th subject, who... Then we looked at the 5th subject... We finally returned to review the 1st, 2nd, and 3rd subjects...*

Although the general policy for ordinals would dictate that words be used here, the numeric form provides more distinction for the references to the individual subjects. *Subject 1, subject 2,* and so on would accomplish the same thing. The numeric ordinals also enhance contrast with the adverbial use of *first* in this example. Whichever style is chosen in this situation — numeric ordinals or the spelled-out form — it should be used consistently throughout a document.

8.2 Numerals or Words: “General Style”

Use this “general number style” for all correspondence and for reports and similar documents having primarily a public, instead of technical, audience.

a. Cardinal Numbers

- Spell out all one-digit numbers, unless they are associated with a unit of measurement or a commonly used symbol.

Examples: *seven deer three biologists five percent six dollars*
7 mm 3°C 5% (or percent) \$6 but \$6.28

- Use numerals for two-digit numbers, except in the rather unusual situation in which a number is used idiomatically.

Examples: *10 deer 11 biologists 15 percent \$64 or 64*
dollars

3. Spell out all numbers that are used idiomatically or within a figure of speech such that the exact numerative function has become secondary.

Examples: *"a thousand and one questions"* *"the sixty-four-thousand-dollar question"*
"in any one week" (one = given) But: *in any 1-week period (clearly enumerative)*

4. For closely associated numbers or numbers in a series, if any one of the numbers is two digits, then use numerals for all; if all are one-digit numbers, spell them out.

Examples (series): *three males, four females, and seven unknown*
3 males, 10 females, and 7 unknown

Examples (associated): *from five to six* *two of the four*
from 5 to 11 *2 of the 12*
of the 15 samples, 3 were contaminated and 1 was...

5. Use numerals for all decimal numbers.

Examples: *1.1 million* *0.3 miles* *1.75 units* *...was multiplied by 0.667*

b. Ordinals

For ordinals, follow the new scientific number style, as presented in Section 8.1.b.

8.3 Fractions and Percentages

In general, fractions should be spelled out in running text. Hyphenate all fractions, whether used as adjectives or nouns.

Examples: *One-half (or half) of the subjects....*
Nearly three-quarters of the population....
A third of the study plots....
A two-thirds majority....

For fractional quantities greater than 1, mixed fractions may be used if the precise value is not intended. The fraction should be set close to the whole number.

Examples: *was followed for 3½ years* *about 1¼-km distance*

When the precise value must be conveyed, the decimal or percent form is preferred.

Examples: 3.5 L 27% of the a study area measuring 1.25 x 3.0 km

8.4 Dates

Do not use an apostrophe with years; for example, use the 1970s, not the 1970's.

When writing dates, use no punctuation in the following examples:

on 10 November 1983 we *in November 1983 we* *on November 10 we*

Set the year off in commas when written: "On November 10, 1983, we...."
[Note: some authors omit the second comma after the year, but this is not the ADF&G standard in correspondence.]

8.5 Time of Day

Use either the 12-hour system or the 24-hour clock (military), but not both in the same document.

12-Hour System: Examples include 12:45 AM (ante meridiem) and 9:30 PM (post meridiem). The small cap form (shown) for AM/PM should be used for formal documents. The reduction in point size is not necessary for general correspondence.

24-Hour System: For example, include 0056 hours and 2130 hours [Note: *not* 0056 h or 2130 h; that is, spell out hours because the abbreviation *h* is used to denote an amount of elapsed time rather than a time of day].

8.6 Ranges

a. Technical/Scientific Style

Treat both numbers in a range similarly; do not mix types.

Examples: Use: 40 thousand to 1.1 million...
 Or: 40,000 to 1,100,000...
 Not: 40,000 to 1.1 million...

Fully state both numbers in a range so they can each stand alone.

Examples: Use: *56 thousand to 74 thousand...*
 Not: *56 to 74 thousand...*

 Use: *56,000 to 74,000...*
 Not: *56 to 74,000...*

Use *to* to separate ranges introduced by *from*; use *and* to separate ranges introduced by *between*. Otherwise, use an en-dash (–) to express ranges.

Examples: Use: *from 33 to 124 of the...*
 Not: *from 33–124 of the...*

 Use: *between 1950 and 1965...*
 Not: *between 1950–1965...*

When expressing a range denoting units of measurement, whether spelled out units or an abbreviation or symbol, include the unit of measurement with the second number in the range only.

Examples: Use: *from 5 to 67 mm long...*
 Not: *from 5 mm to 67 mm long...*

 Use: *between 10 and 30% of the...*
 Not: *between 10% and 33% of the...*

b. General/Nonscientific Style

The same rules apply except that words are used for 2-digit whole numbers (see Section 8.2).

8.7 Ages of Animals and Fish

Use Arabic rather than Roman numerals in age notation (age 3, *not* age III). An animal or fish that is less than a year of age is *age 0*; avoid adding plus signs (+) to any ages. Also see *salmon ages* in Section 6.

Hyphenate ages that serve as adjectives (e.g., *age-1 trout had...*), but not those used as nouns (e.g., *trout that were age 1 had...*). Always hyphenate *n-year-old(s)*, but not if *year* is plural (e.g., *bears 3 years old were...*).

When using European notation for salmon ages, to refer to just the freshwater age use a numeral followed by a period (age 1.). To refer to just the saltwater age use a period followed by a numeral (age .1). Otherwise, use 2 numerals separated by a period (age 1.1). Also see *salmon ages* in Section 6.

Section 9: Species Names and Related Rules

Correct common and scientific names for most vertebrate and invertebrate species we write about are listed in this section. However, you should always consult the appropriate source when writing a species name because occasionally the names are changed and this manual will not always reflect the latest changes. The sources used to prepare these lists are in *Section 2* of this manual.

Correct spelling and capitalization of scientific and common names of animals follow strict rules established by the International Commission of Zoological Nomenclature. Some of the basic rules are summarized below.

9.1 Scientific Names

1. Scientific names of species are binomial or consist of 2 words: the first is the genus and the second is the specific or species name. The first letter of the genus is capitalized and the specific name or epithet is never capitalized; both are italicized (e.g., *Oncorhynchus keta*). When the genus has already been introduced in a document, it may be abbreviated when identifying a species (e.g., *O. gorbuscha*).
2. Subspecific names, when used, are also italicized and placed after the specific epithet (e.g., *Micropterus salmoides floridanus*).
3. The name of the individual who first described the species and the year it was described appear after the scientific name and should not be italicized (see list below for examples); however, the describer's name and year are often not included when writing a scientific name. If the name and year are enclosed in parentheses, the genus has been changed from the genus designated by the original describer.
4. To designate the scientific name of an unidentified species that has been identified only to the genus level, use the unitalicized abbrevi-

ation “sp.” (e.g., *Chlamys* sp.). In place of the specific or species name, use “spp.” for several or more unidentified species names (e.g., *Serranus* spp.). Do not use “sp.” to refer to an unspecified, general member of a genus. Although “spp.” is often used to refer to an aggregation of several to all members of the genus, that practice is unnecessary; instead simply use the italicized genus name alone without any species name. Do not combine either abbreviation with an abbreviated genus (e.g., do not use *O. spp.* for unidentified salmon species; use *Oncorhynchus* spp.).

9.2 Common Names

1. Common names are not italicized or capitalized, except for those portions using a proper name (e.g., “Canada goose” or “Pacific cod”). When writing a common name, the second part of the name should not be dropped (e.g., “pinks” for “pink salmon”); however, a generic term, such as “fish,” can often be used in place of the full common name when there is no ambiguity about the species being referenced.
2. Common names are used in most general and scientific writings, except in instances where a species lacks a common name (fairly common for lower-form invertebrates). However, in formal documents, introduce the scientific name (may be set off by commas or parentheses, or no punctuation) after the first mention of the common name, and thereafter you may use the common name alone. However, if the document has an abstract or executive summary, the scientific names should be introduced there as well as when first encountered in the main text.

9.3 Family and Order Names

The genus, subgenus, species, and subspecies are the only part of the taxonomic hierarchy that is italicized; all other taxonomic categories are not italicized. The first letter of the genus and subgenus is capitalized. Families (a species aggregate sharing common characters) always end in “idae” (family: Salmonidae). First letters of these names are capitalized; however, they are not capitalized if they are shortened to an informal name (e.g., salmonids for Salmonidae).

9.4 Common Fish and Shellfish of Alaska

Listing of all Alaskan species was not possible here; however, full listings are available in the standard references (see *Section 2.2*).

Common Name	Scientific Name	Notes ¹
Shellfishes		
■ Bivalves		
abalone, pinto	<i>Haliotis kamtschatkana</i> Jonas, 1845	
clam, Washington butter	<i>Saxidomus gigantea</i> (Deshayes, 1839)	
cockle		
Greenland smoothcockle	<i>Serripes groenlandicus</i> (Mohr, 1786)	
Nuttall cockle	<i>Clinocardium nuttallii</i> (Conrad, 1837)	
flat surfclam	<i>Simomactra planulata</i> (Conrad, 1837)	not "horse clam" or "fat gaper"
geoduck, Pacific	<i>Panopea abrupta</i> (Conrad, 1849)	not "geoduck"
horseshell, northern	<i>Modiolus modiolus</i> (Linnaeus, 1758)	
littleneck		
Japanese littleneck	<i>Venerupis philippinarum</i> (A. Adams & Reeve, 1850)	not "littleneck clam" or "Manila clam"
Pacific littleneck	<i>Protothaca staminea</i> (Conrad, 1837)	not "littleneck clam"
macoma		
Baltic macoma	<i>Macoma balthica</i> (Linnaeus, 1758)	
pointed macoma	<i>Macoma inquinata</i> (Deshayes, 1855)	
mussel		
mussel (foolish)	<i>Mytilus trossulus</i> Gould, 1850	not <i>Mytilus edulis</i> (Atlantic only), or "blue mussel"
California mussel	<i>Mytilus californianus</i> Conrad, 1837	
oyster, Pacific	<i>Crassostrea gigas</i> (Thunberg, 1793)	
razor		
Alaska razor	<i>Siliqua alta</i> (Broderip and G. B. Sowerby I, 1829)	not "razor clam"
Pacific razor	<i>Siliqua patula</i> (Dixon, 1789)	not "razor clam"
scallop		
giant rock-scallop	<i>Crassadoma gigantea</i> (J. E. Gray, 1825)	not "purple-hinged rock scallop"
reddish scallop	<i>Chlamys rubida</i> (Hinds, 1845)	not "pink scallop"
weathervane scallop	<i>Patinopecten caurinus</i> (Gould, 1850)	
softshell	<i>Mya arenaria</i> Linnaeus, 1758	not "softshell clam"
surfclam, Arctic	<i>Macromeris polynyma</i> (Stimpson, 1860)	not "surf clam"
■ Crabs		
box crab, armed	<i>Mursia gaudichaudii</i> (H. Milne Edwards, 1837)	not "box crab"
hair crab	<i>Erimacrus isenbeckii</i> (Brandt, 1848)	not "Korean horsehair crab"

Common Name	Scientific Name	Notes ¹
king crab		
blue king crab	<i>Paralithodes platypus</i> Brandt, 1850	
king crab (continued)		
golden king crab	<i>Lithodes aequispinus</i> Benedict, 1894	not “brown king crab” or <i>L. aequispina</i>
red king crab	<i>Paralithodes camtschaticus</i> (Tilesius, 1815)	
scarlet king crab	<i>Lithodes couesi</i> Benedict, 1894	
Dungeness crab	<i>Cancer magister</i> Dana, 1852	
Tanner crab		
snow crab	<i>Chionoecetes opilio</i> (Fabricius, 1788)	not “opi crab” or “opilio” or “opilio Tanner crab”
grooved Tanner crab	<i>Chionoecetes tanneri</i> Rathbun, 1893	avoid using “tanneri” by itself
Tanner crab	<i>Chionoecetes bairdi</i> Rathbun, 1924	
triangle Tanner crab	<i>Chionoecetes angulatus</i> Rathbun, 1924	avoid using “angulatus” by itself

■ Echinoderms

sea cucumber, red	<i>Parastichopus californicus</i>	
sea urchin		
green sea urchin	<i>Strongylocentrotus droebachiensis</i> (Müller, 1776)	
red sea urchin	<i>Strongylocentrotus franciscanus</i> (Agassiz, 1863)	

■ Shrimps

coonstriped shrimp	<i>Pandalus hypsinotus</i> Brandt, 1851	
humpy shrimp	<i>Pandalus goniurus</i> Stimpson, 1860	
northern shrimp	<i>Pandalus borealis</i> Kroyer, 1838	not “pink shrimp” or <i>P. eous</i>
sidestriped shrimp	<i>Pandalopsis dispar</i> Rathbun, 1902	
spot shrimp	<i>Pandalus platyceros</i> Brandt, 1851	

■ Squids and Octopuses

octopus, common	<i>Octopus vulgaris</i> Lamarck, 1798	
squid, opalescent inshore	<i>Loligo opalescens</i> S. S. Berry, 1911	

Finfishes

■ Esocids

northern pike	<i>Esox lucius</i> Linnaeus, 1758	
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Common Name	Scientific Name	Notes ¹
■ Forage Fishes		
capelin	<i>Mallotus villosus</i> (Müller, 1776)	
eulachon	<i>Thaleichthys pacificus</i> (Richardson, 1836)	
herring, Pacific	<i>Clupea pallasi</i> Valenciennes, 1874	not <i>C. harengus pallasii</i> or “herring” alone
■ Groundfishes/Miscellaneous		
cod, Pacific	<i>Gadus macrocephalus</i> (Tilesius, 1810)	not “gray” or “true” cod
flounder		
arrowtooth flounder	<i>Atheresthes stomias</i> (Jordan and Gilber, 1880)	not “turbot”
starry flounder	<i>Platichthys stellatus</i> (Pallas, 1787)	
hake, Pacific	<i>Merluccius productus</i> (Ayres, 1855)	not “whiting”
halibut, Pacific	<i>Hippoglossus stenolepis</i> Schmidt, 1904	not “halibut” alone
lingcod	<i>Ophiodon elongatus</i> Girard, 1854	
ocean perch, Pacific	<i>Sebastes alutus</i> (Gilbert, 1890)	
pollock, walleye	<i>Theragra chalcogramma</i> (Pallas, 1814)	not “tomcod,” pollack,” or “pollock” alone
rockfish		
dusky rockfish	<i>Sebastes ciliatus</i> (Tilesius, 1810)	
quillback rockfish	<i>Sebastes maliger</i> (Jordan and Bilbert, 1880)	
vermilion rockfish	<i>Sebastes miniatus</i> (Jordan and Gilbert, 1880)	
yelloweye rockfish	<i>Sebastes ruberrimus</i> (Cramer 1895)	
sablefish	<i>Anoplopoma fimbria</i> (Pallas, 1814)	not “blackcod”
sole		
English sole	<i>Pleuronectes vetulus</i> (Grirard, 1854)	
yellowfin sole	<i>Pleuronectes asper</i> Pallas, 1814	
stickleback, threespine	<i>Gasterosteus aculeatus</i> Linnaeus, 1758	
tomcod, Pacific	<i>Microgadus tomcod</i> (Walbaum, 1792)	not “tomcod”
■ Salmonids		
char, Arctic	<i>Salvelinus alpinus</i> (Linnaeus, 1758)	
Dolly Varden	<i>Salvelinus malma</i> (Walbaum, 1792)	not “Dolly” or “Dollies”
grayling, Arctic	<i>Thymallus arcticus</i> (Pallas, 1776)	not “grayling” alone
inconnu	<i>Stenodus leucichthys</i> (Guldenstadt, 1772)	not “sheefish”
salmon		
chinook salmon	<i>Oncorhynchus tshawytscha</i> (Walbaum, 1792)	not “king salmon”

Common Name	Scientific Name	Notes ¹
salmon (continued)		
chum salmon	<i>Oncorhynchus keta</i> (Walbaum, 1792)	not "dog salmon"
coho salmon	<i>Oncorhynchus kisutch</i> (Walbaum, 1792)	not "silver salmon"
pink salmon	<i>Oncorhynchus gorbuscha</i> (Walbaum, 1792)	not "humpies"
sockeye salmon	<i>Oncorhynchus nerka</i> (Walbaum, 1792)	not "red salmon"; for landlocked use "kokanee"
trout		
brook trout	<i>Salvelinus fontinalis</i> (Mitchill, 1792)	
cutthroat trout	<i>Oncorhynchus clarki</i> (Richardson, 1836)	
lake trout	<i>Salvelinus namaycush</i> (Walbaum, 1792)	not "lakers"
rainbow trout	<i>Oncorhynchus mykiss</i> (Walbaum, 1792)	not <i>O. gairdneri</i> ; for
sea		run use
"steelhead"		

¹ Many incorrect common names exist and should be avoided in scientific writing; some are listed here, as are some scientific names that have recently been changed.

9.5 Birds of Alaska

We have developed this list from the *Checklist of Alaska Birds* by Daniel D. Gibson, University of Alaska Museum, 1993 (format has been modified to be consistent with other subsections of this manual). We have updated this list using *Inventory of the Species and Subspecies of Alaska Birds* by Gibson and Kessel, 1997. We have not followed the Ornithological Union practice of capitalizing all common names of birds. Instead, we have followed the widespread common names rule in zoology of capitalizing only the proper name portions of the common names. (Note: We do not distinguish between migratory and resident species.)

Common Name	Scientific Name
accentor, Siberian	<i>Prunella montanella</i> (Pallas, 1776)
albatross	
black-footed albatross	<i>Diomedea nigripes</i> Audubon, 1839
laysan albatross	<i>Diomedea immutabilis</i> Rothschild, 1893
short-tailed albatross	<i>Diomedea albatrus</i> Pallas, 1769
auklet	
Cassin's auklet	<i>Ptychoramphus aleuticus</i> (Pallas, 1811)
crested auklet	<i>Aethia cristatella</i> (Pallas, 1769)
least auklet	<i>Aethia pusilla</i> (Pallas, 1811)
parakeet auklet	<i>Cyclorhynchus psittacula</i> (Pallas, 1769)
rhinoceros auklet	<i>Cerorhinca monocerata</i> (Pallas, 1811)
whiskered auklet	<i>Aethia pygmaea</i> (Gmelin, 1789)
avocet, American	<i>Recurvirostra americana</i> Gmelin, 1789
bittern	
American bittern	<i>Botaurus lentiginosus</i> (Rackett, 1813)
yellow bittern	<i>Ixobrychus sinensis</i> (Gmelin, 1789)
blackbird	
Brewer's blackbird	<i>Euphagus cyanocephalus</i> (Wagler, 1829)
red-winged blackbird	<i>Agelaius phoeniceus</i> (Linnaeus, 1766)
rusty blackbird	<i>Euphagus carolinus</i> (Müller, 1776)
yellow-headed blackbird	<i>Xanthocephalus xanthocephalus</i> (Bonaparte, 1825)
bluebird, mountain	<i>Sialia currucoides</i> (Bechstein, 1798)
bluetail, red-flanked	<i>Tarsiger cyanurus</i> (Pallas, 1773)
bluethroat	<i>Luscinia svecica svecica</i> (Linnaeus, 1758)
bobolink	<i>Dolichonyx oryzivorus</i> (Linnaeus, 1758)
brambling	<i>Fringilla montifringilla</i> Linnaeus, 1758
brant	<i>Branta bernicla</i> (Linnaeus, 1758)
bufflehead	<i>Bucephala albeola</i> (Linnaeus, 1758)
bunting	
reed bunting	<i>Emberiza schoeniclus</i> (Linnaeus, 1758)
gray bunting	<i>Emberiza variabilis</i> Temminck, 1835

Common Name	Scientific Name
bunting (continued)	
indigo bunting	<i>Passerina cyanea</i> (Linnaeus, 1766)
little bunting	<i>Emberiza pusilla</i> Pallas, 1776
McKay's bunting	<i>Plectrophenax hyperboreus</i> Ridgway, 1884
Pallas' bunting	<i>Emberiza pallasi</i> (Cabanis, 1851)
pine bunting	<i>Emberiza leucocephala</i> Gmelin, 1771
rustic bunting	<i>Emberiza rustica</i> Pallas, 1776
snow bunting	<i>Plectrophenax nivalis</i> (Linnaeus, 1758)
yellow-breasted bunting	<i>Emberiza aureola</i> (Pallas, 1773)
yellow-throated bunting	<i>Emberiza elegans</i> (Temminck)
canvasback	<i>Aythya valisineria</i> (Wilson, 1814)
catbird, gray	<i>Dumetella carolinensis</i> (Linnaeus, 1766)
chickadee	
black-capped chickadee	<i>Parus atricapillus</i> Linnaeus, 1766
boreal chickadee	<i>Parus hudsonicus</i> Forster, 1772
chestnut-backed chickadee	<i>Parus rufescens</i> Townsend, 1837
mountain chickadee	<i>Parus gambeli</i> Ridgway, 1827
Siberian tit or gray-headed chickadee	<i>Parus cinctus</i> Boddaert, 1783
cormorant	
Brandt's cormorant	<i>Phalacrocorax penicillatus</i> (Brandt, 1837)
double-crested cormorant	<i>Phalacrocorax auritus</i> (Lesson, 1831)
pelagic cormorant	<i>Phalacrocorax pelagicus</i> Pallas, 1811
red-faced cormorant	<i>Phalacrocorax urile</i> (Gmelin, 1789)
coot	
American coot	<i>Fulica americana</i> Gmelin, 1789
Eurasian coot	<i>Fulica atra</i> Linnaeus, 1758
cowbird, brown-headed	<i>Molothrus ater</i> (Boddaert, 1783)
crane	
common crane	<i>Grus grus</i> (Linnaeus, 1758)
sandhill crane	<i>Grus canadensis</i> (Linnaeus, 1758)
creeper, brown	<i>Certhia americana</i> Bonaparte, 1838
crossbill	
red crossbill	<i>Loxia curvirostra</i> Linnaeus, 1758
white-winged crossbill	<i>Loxia leucoptera</i> Gmelin, 1789
crow	
American crow	<i>Corvus brachyrhynchos</i> Brehm, 1822
northwestern crow	<i>Corvus caurinus</i> Baird, 1858
cuckoo	
common cuckoo	<i>Cuculus canorus</i> Linnaeus, 1758
oriental cuckoo	<i>Cuculus saturatus</i> Blyth, 1843
yellow-billed cuckoo	<i>Coccyzus americanus</i> (Linnaeus, 1758)
curlew	
bristle-thighed curlew	<i>Numenius tahitiensis</i> (Gmelin, 1789)
Eskimo curlew	<i>Numenius borealis</i> (Forster, 1772)

Common Name	Scientific Name
curlew (continued)	
Far Eastern curlew	<i>Numenius madagascariensis</i> (Linnaeus, 1766)
little curlew	<i>Numenius minutus</i> Gould, 1841
dipper, American	<i>Cinclus mexicanus</i> Swainson, 1827
dotterel, Eurasian	<i>Charadrius morinellus</i> Linnaeus, 1758
dove	
oriental turtle-dove	<i>Streptopelia orientalis</i> (Latham, 1790)
mourning dove	<i>Zenaida macroura</i> (Linnaeus, 1758)
rock dove	<i>Columba livia</i> Gmelin, 1789
white-winged dove	<i>Zenaida asiatica</i> (Linnaeus, 1758)
dovekie	<i>Alle alle</i> (Linnaeus, 1758)
dowitcher	
long-billed dowitcher	<i>Limnodromus scolopaceus</i> (Say, 1823)
short-billed dowitcher	<i>Limnodromus griseus</i> (Gmelin, 1789)
duck	
American black duck	<i>Anas rubripes</i> Brewster, 1902
harlequin duck	<i>Histrionicus histrionicus</i> (Linnaeus, 1758)
ring-necked duck	<i>Aythya collaris</i> (Donovan, 1809)
ruddy duck	<i>Oxyura jamaicensis</i> (Gmelin, 1789)
spot-billed duck	<i>Anas poecilorhyncha</i> Forster, 1781
tufted duck	<i>Aythya fuligula</i> (Linnaeus, 1758)
wood duck	<i>Aix sponsa</i> (Linnaeus, 1758)
(See separate alphabetical listings for canvasback, eider, gadwall, garganey, goose, goldeneye, loon, mallard, merganser, redhead, scaup, scoter, teal, and wigeon)	
dunlin	<i>Calidris alpina</i> (Linnaeus, 1758)
eagle	
bald eagle	<i>Haliaeetus leucocephalus</i> (Linnaeus, 1766)
golden eagle	<i>Aquila chrysaetos</i> (Linnaeus, 1758)
Steller's sea-eagle	<i>Haliaeetus pelagicus</i> (Pallas, 1811)
white-tailed eagle	<i>Haliaeetus albicilla</i> (Linnaeus, 1758)
egret	
cattle egret	<i>Bubulcus ibis</i> (Linnaeus, 1758)
Chinese egret	<i>Egretta eulophotes</i> (Swinhoe, 1860)
great egret	<i>Casmerodius albus</i> (Linnaeus, 1758)
eider	
common eider	<i>Somateria mollissima</i> (Linnaeus, 1758)
king eider	<i>Somateria spectabilis</i> (Linnaeus, 1758)
spectacled eider	<i>Somateria fischeri</i> (Brandt, 1847)
Steller's eider	<i>Polysticta stelleri</i> (Pallas, 1769)
falcon	
gyrfalcon	<i>Falco rusticolus</i> Linnaeus, 1758
peregrine falcon	<i>Falco peregrinus</i> Tunstall, 1771

Common Name	Scientific Name
fieldfare	<i>Turdus pilaris</i> Linnaeus, 1758
finch	
American goldfinch	<i>Carduelis tristis</i> (Linnaeus, 1758)
Cassin's finch	<i>Carpodacus cassinii</i> Baird, 1854
common rosefinch	<i>Carpodacus erythrinus</i> (Pallas, 1770)
Eurasian bullfinch	<i>Pyrrhula pyrrhula</i> (Linnaeus, 1758)
hawfinch	<i>Coccothraustes coccothraustes</i> (Linnaeus, 1758)
house finch	<i>Carpodacus mexicanus</i> (Say, 1823)
oriental greenfinch	<i>Carduelis sinica</i> (Linnaeus, 1766)
purple finch	<i>Carpodacus purpureus</i> (Gmelin, 1789)
gray-crowned rosy-finch	<i>Leucosticte tephrocotis</i> (Swainson, 1832)
flicker, northern	<i>Colaptes auratus</i> (Linnaeus, 1758)
flycatcher	
alder flycatcher	<i>Empidonax alnorum</i> Brewster, 1895
dusky flycatcher	<i>Empidonax oberholseri</i> Phillips, 1939
gray-spotted flycatcher	<i>Muscicapa griseisticta</i> (Swinhoe, 1861)
Asian brown [grey-breasted] flycatcher	<i>Muscicapa dauurica</i> Pallas, 1811
great crested flycatcher	<i>Myiarchus crinitus</i> (Linnaeus, 1758)
Hammond's flycatcher	<i>Empidonax hammondii</i> (Xántus de Vesey, 1858)
least flycatcher	<i>Empidonax minimus</i> (Baird and Baird, 1843)
narcissus flycatcher	<i>Ficedula narcissina</i> (Temminck, 1835)
olive-sided flycatcher	<i>Contopus borealis</i> (Swainson, 1832)
Pacific-slope flycatcher	<i>Empidonax difficilis</i> Baird, 1858
red-breasted flycatcher	<i>Ficedula parva</i> (Bechstein, 1794)
Siberian flycatcher	<i>Muscicapa sibirica</i> Gmelin, 1789
willow flycatcher	<i>Empidonax traillii</i> (Audubon, 1828)
yellow-bellied flycatcher	<i>Empidonax flaviventris</i> (Baird and Baird, 1843)
frigatebird, magnificent	<i>Fregata magnificens</i> Matthews, 1914
fulmar, northern	<i>Fulmarus glacialis</i> (Linnaeus, 1761)
gadwall	<i>Anas strepera</i> Linnaeus, 1758
garganey	<i>Anas querquedula</i> Linnaeus, 1758
godwit	
bar-tailed godwit	<i>Limosa lapponica</i> (Linnaeus, 1758)
black-tailed godwit	<i>Limosa limosa</i> (Linnaeus, 1758)
Hudsonian godwit	<i>Limosa haemastica</i> (Linnaeus, 1758)
marbled godwit	<i>Limosa fedoa</i> (Linnaeus, 1758)
goldeneye	
Barrow's goldeneye	<i>Bucephala islandica</i> (Gmelin, 1789)
common goldeneye	<i>Bucephala clangula</i> (Linnaeus, 1758)
goose	
bean goose	<i>Anser fabalis</i> (Latham, 1787)
brant	<i>Branta bernicla</i> (Linnaeus, 1758)
Canada goose	<i>Branta canadensis</i> (Linnaeus, 1758)
emperor goose	<i>Chen canagica</i> (Sevastianov, 1802)

Common Name	Scientific Name
goose (continued)	
greater white-fronted goose	<i>Anser albifrons</i> (Scopoli, 1769)
lesser white-fronted goose	<i>Anser erythropus</i> (Linnaeus, 1758)
Ross's goose	<i>Chen rossii</i> (Cassin, 1861)
snow goose	<i>Chen caerulescens</i> (Linnaeus, 1758)
grackle, common	<i>Quiscalus quiscula</i> (Linnaeus, 1758)
grebe	
horned grebe	<i>Podiceps auritus</i> (Linnaeus, 1758)
pied-billed grebe	<i>Podilymbus podiceps</i> (Linnaeus, 1758)
red-necked grebe	<i>Podiceps grisegena</i> (Boddaert, 1783)
western grebe	<i>Aechmophorus occidentalis</i> (Lawrence, 1858)
greenshank, common	<i>Tringa nebularia</i> (Gunnerus, 1767)
grosbeak	
black-headed grosbeak	<i>Pheucticus melanocephalus</i> (Swainson, 1827)
blue grosbeak	<i>Guiraca caerulea</i> (Linnaeus, 1758)
evening grosbeak	<i>Coccothraustes vespertinus</i> (Cooper, 1825)
pine grosbeak	<i>Pinicola enucleator</i> (Linnaeus, 1758)
grouse	
blue grouse	<i>Dendragapus obscurus</i> (Say, 1823)
ruffed grouse	<i>Bonasa umbellus</i> (Linnaeus, 1766)
sharp-tailed grouse	<i>Tympanuchus phasianellus</i> (Linnaeus, 1758)
spruce grouse	<i>Dendragapus canadensis</i> (Linnaeus, 1758)
guillemot	
black guillemot	<i>Cephus grylle</i> (Linnaeus, 1758)
pigeon guillemot	<i>Cephus columba</i> Pallas, 1811
gull	
black-headed gull	<i>Larus ridibundus</i> Linnaeus, 1766
black-tailed gull	<i>Larus crassirostris</i> Vieillot, 1818
Bonaparte's gull	<i>Larus philadelphia</i> (Ord, 1815)
California gull	<i>Larus californicus</i> Lawrence, 1854
Franklin's gull	<i>Larus pipixcan</i> Wagler, 1831
glaucous gull	<i>Larus hyperboreus</i> Gunnerus, 1767
glaucous-winged gull	<i>Larus glaucescens</i> (Naumann, 1840)
great black-backed gull	<i>Larus marinus</i> (Linnaeus, 1758)
Heermann's gull	<i>Larus heermanni</i> Cassin, 1852
herring gull	<i>Larus argentatus</i> Pontoppidan, 1763
Iceland gull	<i>Larus glaucoides</i> (includes <i>thayeri</i>) Meyer, 1822
ivory gull	<i>Pagophila eburnea</i> (Phipps, 1774)
lesser black-backed gull	<i>Larus fuscus</i> Linnaeus, 1758
mew gull	<i>Larus canus</i> Linnaeus, 1758
ring-billed gull	<i>Larus delawarensis</i> Ord, 1815
Ross's gull	<i>Rhodostethia rosea</i> (MacGillivray, 1824)
Sabine's gull	<i>Xema sabini</i> (Sabine, 1819)
slaty-backed gull	<i>Larus schistisagus</i> Stejneger, 1884
western gull	<i>Larus occidentalis</i> Audubon, 1839

Common Name	Scientific Name
harrier, northern	<i>Circus cyaneus</i> (Linnaeus, 1766)
hawk	
goshawk, northern	<i>Accipiter gentilis</i> (Linnaeus, 1758)
red-tailed hawk	<i>Buteo jamaicensis</i> (Gmelin, 1788)
rough-legged hawk	<i>Buteo lagopus</i> (Pontoppidan, 1763)
sharp-shinned hawk	<i>Accipiter striatus</i> Vieillot, 1808
Swainson's hawk	<i>Buteo swainsoni</i> Bonaparte, 1838
<i>(also see separate listing for falcon)</i>	
heron	
great blue heron	<i>Ardea herodias</i> Linnaeus, 1758
green heron	<i>Butorides virescens</i> (Mearns, 1895)
black-crowned night heron	<i>Nycticorax nycticorax</i> (Linnaeus, 1758)
<i>(also see separate listing for bittern and egret)</i>	
Chinese pond heron	<i>Ardeola bacchus</i> (Bonaparte, 1855)
hobby, Eurasian	<i>Falco subbuteo</i> Linnaeus, 1758
hoopoe, common	<i>Upupa epops</i> Linnaeus, 1758
hummingbird	
Anna's hummingbird	<i>Calypte anna</i> (Lesson, 1829)
Costa's hummingbird	<i>Calypte costae</i> (Bourcier, 1839)
rufous hummingbird	<i>Selasphorus rufus</i> (Gmelin, 1788)
ruby-throated hummingbird	<i>Archilochus colubris</i> (Linnaeus, 1758)
jaeger	
long-tailed jaeger	<i>Stercorarius longicaudus</i> Vieillot, 1819
parasitic jaeger	<i>Stercorarius parasiticus</i> (Linnaeus, 1758)
pomarine jaeger	<i>Stercorarius pomarinus</i> (Temminck, 1815)
jay	
gray jay	<i>Perisoreus canadensis</i> (Linnaeus, 1766)
Steller's jay	<i>Cyanocitta stelleri</i> (Gmelin, 1788)
junco, dark-eyed	<i>Junco hyemalis</i> (Linnaeus, 1758)
kestrel	
American kestrel	<i>Falco sparverius</i> Linnaeus, 1758
Eurasian kestrel	<i>Falco tinnunculus</i> Linnaeus, 1758
killdeer	<i>Charadrius vociferus</i> Linnaeus, 1758
kingbird	
eastern kingbird	<i>Tyrannus tyrannus</i> (Linnaeus, 1758)
tropical kingbird	<i>Tyrannus melancholicus</i> Vieillot, 1819
western kingbird	<i>Tyrannus verticalis</i> Say, 1823
kingfisher, belted	<i>Ceryle alcyon</i> (Linnaeus, 1758)
kinglet	
golden-crowned kinglet	<i>Regulus satrapa</i> Lichtenstein, 1823
ruby-crowned kinglet	<i>Regulus calendula</i> (Linnaeus, 1766)
kittiwake	
black-legged kittiwake	<i>Rissa tridactyla</i> (Linnaeus, 1758)
red-legged kittiwake	<i>Rissa brevirostris</i> (Bruch, 1853)

Common Name	Scientific Name
knot	
great knot	<i>Calidris tenuirostris</i> (Horsfield, 1821)
red knot	<i>Calidris canutus</i> (Linnaeus, 1758)
lark, horned	<i>Eremophila alpestris</i> (Linnaeus, 1758)
longspur	
lapland longspur	<i>Calcarius lapponicus</i> (Linnaeus, 1758)
Smith's longspur	<i>Calcarius pictus</i> (Swainson, 1832)
loon	
Arctic loon	<i>Gavia arctica</i> (Linnaeus, 1758)
common loon	<i>Gavia immer</i> (Brünnich, 1764)
Pacific loon	<i>Gavia pacifica</i> (Lawrence, 1858)
red-throated loon	<i>Gavia stellata</i> (Pontoppidan, 1763)
yellow-billed loon	<i>Gavia adamsii</i> (Gray, 1859)
magpie, black-billed	<i>Pica pica</i> (Linnaeus, 1758)
mallard	<i>Anas platyrhynchos</i> Linnaeus, 1758
martin	
common house martin	<i>Delichon urbica</i> (Linnaeus, 1758)
purple martin	<i>Progne subis</i> (Linnaeus, 1758)
meadowlark, western	<i>Sturnella neglecta</i> Audubon, 1844
merganser	
common merganser	<i>Mergus merganser</i> Linnaeus, 1758
hooded merganser	<i>Lophodytes cucullatus</i> (Linnaeus, 1758)
red-breasted merganser	<i>Mergus serrator</i> Linnaeus, 1758
merlin	<i>Falco columbarius</i> Linnaeus, 1758
mockingbird, northern	<i>Mimus polyglottos</i> (Linnaeus, 1758)
murre	
common murre	<i>Uria aalge</i> (Pontoppidan, 1763)
thick-billed murre	<i>Uria lomvia</i> (Linnaeus, 1758)
murrelet	
ancient murrelet	<i>Synthliboramphus antiquus</i> (Gmelin, 1789)
Kittlitz's murrelet	<i>Brachyramphus brevirostris</i> (Vigors, 1829)
long-billed murrelet	<i>Brachyramphus perdix</i> (Pallas, 1811)
marbled murrelet	<i>Brachyramphus marmoratus</i> (Gmelin, 1789)
needletail, white-throated	<i>Hirundapus caudacutus</i> (Latham, 1801?)
nighthawk	
common nighthawk	<i>Chordeiles minor</i> (Forster, 1771)
lesser nighthawk	<i>Chordeiles acutipennis</i> (Hermann, 1783)
nightjar, jungle	<i>Caprimulgus indicus</i> Latham, 1790
nutcracker, Clark's	<i>Nucifraga columbiana</i> (Wilson, 1811)
nuthatch, red-breasted	<i>Sitta canadensis</i> Linnaeus, 1766
oldsquaw	<i>Clangula hyemalis</i> (Linnaeus, 1758)
osprey	<i>Pandion haliaetus</i> (Linnaeus, 1758)
ovenbird	<i>Seiurus aurocapillus</i> (Linnaeus, 1766)

Common Name	Scientific Name
owl	
barred owl	<i>Strix varia</i> Barton, 1799
boreal owl	<i>Aegolius funereus</i> (Linnaeus, 1758)
great gray owl	<i>Strix nebulosa</i> Forster, 1772
great horned owl	<i>Bubo virginianus</i> (Gmelin, 1788)
long-eared owl	<i>Asio otus</i> (Linnaeus, 1758)
northern hawk owl	<i>Surnia ulula</i> (Linnaeus, 1758)
northern pygmy-owl	<i>Glaucidium gnoma</i> Wagler, 1832
northern saw-whet owl	<i>Aegolius acadicus</i> (Gmelin, 1788)
oriental scops-owl	<i>Otus sunia</i> (Hodgson, 1836)
short-eared owl	<i>Asio flammeus</i> (Pontoppidan, 1763)
snowy owl	<i>Nyctea scandiaca</i> (Linnaeus, 1758)
western screech-owl	<i>Otus kennicottii</i> (Elliot, 1867)
oystercatcher, black	<i>Haematopus bachmani</i> (Audubon, 1838)
pelican, American white	<i>Pelecanus erythrorhynchos</i> Gmelin, 1789
petrel	
Cook's petrel	<i>Pterodroma cookii</i> (Gray, 1843)
fork-tailed storm-petrel	<i>Oceanodroma furcata</i> (Gmelin, 1789)
Leach's storm-petrel	<i>Oceanodroma leucorhoa</i> (Vieillot, 1818)
mottled petrel	<i>Pterodroma inexpectata</i> (Forster, 1844)
phalarope	
red-necked phalarope	<i>Phalaropus lobatus</i> (Linnaeus, 1758)
red phalarope	<i>Phalaropus fulicaria</i> (Linnaeus, 1758)
Wilson's phalarope	<i>Phalaropus tricolor</i> (Vieillot, 1819)
phoebe	
eastern phoebe	<i>Sayornis phoebe</i> (Latham, 1790)
Say's phoebe	<i>Sayornis saya</i> (Bonaparte, 1825)
pigeon, band-tailed	<i>Columba fasciata</i> Say, 1823
pintail, northern	<i>Anas acuta</i> Linnaeus, 1758
pipit	
American pipit	<i>Anthus rubescens</i> (Tunstall, 1771)
brown tree-pipit	<i>Anthus trivialis</i> (Linnaeus, 1758)
olive tree-pipit	<i>Anthus hodgsoni</i> Richmond, 1818
pechora pipit	<i>Anthus gustavi</i> Swinhoe, 1863
red-throated pipit	<i>Anthus cervinus</i> (Pallas, 1811)
plover	
American golden plover	<i>Pluvialis dominica</i> (Müller, 1776)
black-bellied plover	<i>Pluvialis squatarola</i> (Linnaeus, 1758)
common ringed plover	<i>Charadrius hiaticula</i> Linnaeus, 1758
little ringed plover	<i>Charadrius dubius</i> Scopoli, 1786
Mongolian plover	<i>Charadrius mongolus</i> Pallas, 1776
Pacific golden plover	<i>Pluvialis fulva</i> (Gmelin, 1789)
semipalmated plover	<i>Charadrius semipalmatus</i> Bonaparte, 1824
snowy plover	<i>Charadrius alexandrinus</i> Linnaeus, 1758

Common Name	Scientific Name
pochard, common	<i>Aythya ferina</i> (Linnaeus, 1758)
pratincole, oriental	<i>Glareola maldivarum</i> Forster, 1795
ptarmigan	
rock ptarmigan	<i>Lagopus mutus</i> (Montin, 1776)
white-tailed ptarmigan	<i>Lagopus leucurus</i> (Richardson, 1831)
willow ptarmigan	<i>Lagopus lagopus</i> (Linnaeus, 1758)
puffin	
horned puffin	<i>Fratercula corniculata</i> (Naumann, 1821)
tufted puffin	<i>Fratercula cirrhata</i> (Pallas, 1769)
rail, Virginia	<i>Rallus limicola</i> Vieillot, 1819
raven, common	<i>Corvus corax</i> Linnaeus, 1758
redhead	<i>Aythya americana</i> (Eyton, 1838)
redpoll	
common redpoll	<i>Carduelis flammea</i> (Linnaeus, 1758)
hoary redpoll	<i>Carduelis hornemanni</i> Holböll, 1843
redshank, spotted	<i>Tringa erythropus</i> (Pallas, 1764)
redstart, American	<i>Setophaga ruticilla</i> (Linnaeus, 1758)
robin	
American robin	<i>Turdus migratorius</i> Linnaeus, 1766
Siberian blue robin	<i>Luscinia cyane</i> (Pallas, 1776)
rubythroat, Siberian	<i>Luscinia calliope</i> (Pallas, 1776)
ruff	<i>Philomachus pugnax</i> (Linnaeus, 1758)
sanderling	<i>Calidris alba</i> (Pallas, 1764)
sandpiper	
Baird's sandpiper	<i>Calidris bairdii</i> (Coues, 1861)
broad-billed sandpiper	<i>Limicola falcinellus</i> (Pontoppidan, 1763)
buff-breasted sandpiper	<i>Tryngites subruficollis</i> (Vieillot, 1819)
common sandpiper	<i>Actitis hypoleucos</i> (Linnaeus, 1758)
curlew sandpiper	<i>Calidris ferruginea</i> (Pontoppidan, 1763)
green sandpiper	<i>Tringa ochropus</i> Linnaeus, 1758
least sandpiper	<i>Calidris minutilla</i> (Vieillot, 1819)
marsh sandpiper	<i>Tringa stagnatilis</i> (Bechstein, 1803)
pectoral sandpiper	<i>Calidris melanotos</i> (Vieillot, 1819)
purple sandpiper	<i>Calidris maritima</i> (Brünnich, 1764)
rock sandpiper	<i>Calidris ptilocnemis</i> (Coues, 1873)
semipalmated sandpiper	<i>Calidris pusilla</i> (Linnaeus, 1766)
sharp-tailed sandpiper	<i>Calidris acuminata</i> (Horsfield, 1821)
solitary sandpiper	<i>Tringa solitaria</i> Wilson, 1813
spoonbill sandpiper	<i>Eurynorhynchus pygmeus</i> (Linnaeus, 1758)
spotted sandpiper	<i>Actitis macularia</i> (Linnaeus, 1766)
stilt sandpiper	<i>Calidris himantopus</i> (Bonaparte, 1826)
terek sandpiper	<i>Xenus cinereus</i> (Güldenstädt, 1775)
upland sandpiper	<i>Bartramia longicauda</i> (Bechstein, 1812)
western sandpiper	<i>Calidris mauri</i> (Cabanis, 1857)

Common Name	Scientific Name
sandpiper (continued)	
white-rumped sandpiper	<i>Calidris fuscicollis</i> (Vieillot, 1819)
wood sandpiper	<i>Tringa glareola</i> Linnaeus, 1758
sapsucker	
red-breasted sapsucker	<i>Sphyrapicus ruber</i> (Gmelin, 1788)
yellow-bellied sapsucker	<i>Sphyrapicus varius</i> (Linnaeus, 1766)
scaup	
greater scaup	<i>Aythya marila</i> (Linnaeus, 1861)
lesser scaup	<i>Aythya affinis</i> (Eyton, 1838)
scoter	
black scoter	<i>Melanitta nigra</i> (Linnaeus, 1758)
surf scoter	<i>Melanitta perspicillata</i> (Linnaeus, 1758)
white-winged scoter	<i>Melanitta fusca</i> (Linnaeus, 1758)
shearwater	
Buller's shearwater	<i>Puffinus bulleri</i> (Salvin, 1888)
short-tailed shearwater	<i>Puffinus tenuirostris</i> (Temminck, 1835)
sooty shearwater	<i>Puffinus griseus</i> (Gmelin, 1789)
shoveler, northern	<i>Anas clypeata</i> Linnaeus, 1758
shrike	
brown shrike	<i>Lanius cristatus</i> Linnaeus, 1758
northern shrike	<i>Lanius excubitor</i> Linnaeus, 1758
siskin	
Eurasian siskin	<i>Carduelis spinus</i> (Linnaeus, 1758)
pine siskin	<i>Carduelis pinus</i> (Wilson, 1810)
skua, South Polar	<i>Catharacta maccormicki</i> (Saunders, 1893)
sky lark	<i>Alauda arvensis</i> Linnaeus, 1758
smew	<i>Mergellus albellus</i> (Linnaeus, 1758)
snipe	
common snipe	<i>Gallinago gallinago</i> (Linnaeus, 1758)
jack snipe	<i>Lymnocyptes minimus</i> (Brünnich, 1764)
pin-tailed snipe	<i>Gallinago stenura</i> (Bonaparte, 1830)
solitaire, Townsend's	<i>Myadestes townsendi</i> (Audubon, 1838)
sora	<i>Porzana carolina</i> (Linnaeus, 1758)
sparrow	
American tree sparrow	<i>Spizella arborea</i> (Wilson, 1810)
Brewer's sparrow	<i>Spizella breweri</i> (Swarth and A. Brooks, 1925)
chipping sparrow	<i>Spizella passerina</i> (Bechstein, 1798)
clay-colored sparrow	<i>Spizella pallida</i> (Swainson, 1832)
fox sparrow	<i>Passerella iliaca</i> (Merrem, 1786)
golden-crowned sparrow	<i>Zonotrichia atricapilla</i> (Gmelin, 1789)
Harris's sparrow	<i>Zonotrichia querula</i> (Nuttall, 1840)
house sparrow	<i>Passer domesticus</i> (Linnaeus, 1758)
lark sparrow	<i>Chondestes grammacus</i> (Say, 1823)
Lincoln's sparrow	<i>Melospiza lincolnii</i> (Audubon, 1834)

Common Name	Scientific Name
sparrow (continued)	
Savannah sparrow	<i>Passerculus sandwichensis</i> (Gmelin, 1789)
song sparrow	<i>Melospiza melodia</i> (Wilson, 1810)
swamp sparrow	<i>Melospiza georgiana</i> (Latham, 1790)
white-crowned sparrow	<i>Zonotrichia leucophrys</i> (Forster, 1772)
white-throated sparrow	<i>Zonotrichia albicollis</i> (Gmelin, 1789)
starling, European	<i>Sturnus vulgaris</i> Linnaeus, 1758
stilt, black-winged	<i>Himantopus himantopus</i> (Linnaeus, 1758)
stint	
little stint	<i>Calidris minuta</i> (Leisler, 1812)
long-toed stint	<i>Calidris subminuta</i> (Middendorff, 1851)
rufous-necked stint	<i>Calidris ruficollis</i> (Pallas, 1776)
Temminck's stint	<i>Calidris temminckii</i> (Leisler, 1812)
stonechat	<i>Saxicola torquata</i> (Linnaeus, 1766)
surfbird	<i>Aphriza virgata</i> (Gmelin, 1789)
swallow	
bank swallow	<i>Riparia riparia</i> (Linnaeus, 1758)
barn swallow	<i>Hirundo rustica</i> Linnaeus, 1758
cliff swallow	<i>Hirundo pyrrhonota</i> Vieillot, 1817
northern rough-winged swallow	<i>Stelgidopteryx serripennis</i> (Audubon, 1838)
tree swallow	<i>Tachycineta bicolor</i> (Vieillot, 1808)
violet-green swallow	<i>Tachycineta thalassina</i> (Swainson, 1827)
swan	
trumpeter swan	<i>Cygnus buccinator</i> Richardson, 1832
tundra swan	<i>Cygnus columbianus</i> (Ord, 1815)
whooper swan	<i>Cygnus cygnus</i> (Linnaeus, 1758)
swift	
black swift	<i>Cypseloides niger</i> (Gmelin, 1789)
chimney swift	<i>Chaetura pelagica</i> (Linnaeus, 1758)
common swift	<i>Apus apus</i> (Linnaeus, 1758)
fork-tailed swift	<i>Apus pacificus</i> (Latham, 1801)
Vaux's swift	<i>Chaetura vauxi</i> (Townsend, 1839)
tanager	
scarlet tanager	<i>Piranga olivacea</i> (Gmelin, 1789)
western tanager	<i>Piranga ludoviciana</i> (Wilson, 1789)
tattler	
gray-tailed tattler	<i>Heteroscelus brevipes</i> (Vieillot, 1816)
wandering tattler	<i>Heteroscelus incanus</i> (Gmelin, 1789)
teal	
blue-winged teal	<i>Anas discors</i> Linnaeus, 1766
Baikal teal	<i>Anas formosa</i> Georgi, 1775
cinnamon teal	<i>Anas cyanoptera</i> Vieillot, 1816
falcated teal	<i>Anas falcata</i> Georgi, 1775
green-winged teal	<i>Anas crecca</i> Linnaeus, 1758

Common Name	Scientific Name
tern	
Aleutian tern	<i>Sterna aleutica</i> Baird, 1869
Arctic tern	<i>Sterna paradisaea</i> Pontoppidan, 1763
black tern	<i>Chlidonias niger</i> (Linnaeus, 1758)
Caspian tern	<i>Sterna caspia</i> Pallas, 1770
common tern	<i>Sterna hirundo</i> Linnaeus, 1758
Forster's tern	<i>Sterna forsteri</i> (Nuttall, 1834)
sooty tern	<i>Sterna fuscata</i> (Nuttall, 1834)
white-winged tern	<i>Chlidonias leucopterus</i> (Temminck, 1815)
thrasher, brown	<i>Toxostoma rufum</i> (Linnaeus, 1758)
thrush	
dusky thrush	<i>Turdus naumanni</i> Temminck, 1820
eye-browed thrush	<i>Turdus obscurus</i> Gmelin, 1789
gray-cheeked thrush	<i>Catharus minimus</i> (Lafresnaye, 1848)
hermit thrush	<i>Catharus guttatus</i> (Pallas, 1811)
Swainson's thrush	<i>Catharus ustulatus</i> (Nuttall, 1840)
varied thrush	<i>Ixoreus naevius</i> (Gmelin, 1789)
towhee, spotted	<i>Pipilo maculatus</i> (Swainson, 1832)
turnstone	
black turnstone	<i>Arenaria melanocephala</i> (Vigors, 1829)
ruddy turnstone	<i>Arenaria interpres</i> (Linnaeus, 1758)
veery	<i>Catharus fuscescens</i> (Stephens, 1817)
vireo	
Cassin's vireo	<i>Vireo cassinii</i> (Wilson, 1810)
Philadelphia vireo	<i>Vireo philadelphicus</i> (Cassin, 1851)
red-eyed vireo	<i>Vireo olivaceus</i> (Linnaeus, 1766)
warbling vireo	<i>Vireo gilvus</i> (Vieillot, 1808)
vulture, turkey	<i>Cathartes aura</i> (Linnaeus, 1758)
wagtail	
black-backed wagtail	<i>Motacilla lugens</i> Gloger, 1829
gray wagtail	<i>Motacilla cinerea</i> Tunstall, 1771
white wagtail	<i>Motacilla alba</i> Linnaeus, 1758
yellow wagtail	<i>Motacilla flava</i> Linnaeus, 1758
warbler	
Arctic warbler	<i>Phylloscopus borealis</i> (Blasius, 1858)
black-and-white warbler	<i>Mniotilta varia</i> (Linnaeus, 1766)
blackpoll warbler	<i>Dendroica striata</i> (Forster, 1772)
black-throated green warbler	<i>Dendroica virens</i> (Gmelin, 1789)
Canada warbler	<i>Wilsonia canadensis</i> (Linnaeus, 1766)
Cape May warbler	<i>Dendroica trigrina</i> (Gmelin, 1789)
chestnut-sided warbler	<i>Dendroica pensylvanica</i> (Linnaeus, 1766)
dusky warbler	<i>Phylloscopus fuscatus</i> (Blyth, 1842)
lanceolated warbler	<i>Locustella lanceolata</i> (Temminck, 1840)
MacGillivray's warbler	<i>Oporornis tolmiei</i> (Townsend, 1839)

Common Name	Scientific Name
warbler (continued)	
magnolia warbler	<i>Dendroica magnolia</i> (Wilson, 1811)
Middendorff's grasshopper-warbler	<i>Locustella ochotensis</i> (Middendorff, 1853)
mourning warbler	<i>Oporornis philadelphia</i> (Wilson, 1810)
orange-crowned warbler	<i>Vermivora celata</i> (Say, 1823)
palm warbler	<i>Dendroica palmarum</i> (Gmelin, 1789)
prairie warbler	<i>Dendroica discolor</i> (Vieillot, 1808)
Tennessee warbler	<i>Vermivora peregrina</i> (Wilson, 1811)
Townsend's warbler	<i>Dendroica townsendi</i> (Townsend, 1837)
Wilson's warbler	<i>Wilsonia pusilla</i> (Wilson, 1811)
wood warbler	<i>Phylloscopus sibilatrix</i> (Bechstein, 1793)
yellow warbler	<i>Dendroica petechia</i> (Linnaeus, 1766)
yellow-rumped warbler	<i>Dendroica coronata</i> (Linnaeus, 1766)
waterthrush, northern	<i>Seiurus noveboracensis</i> (Gmelin, 1789)
waxwing	
Bohemian waxwing	<i>Bombycilla garrulus</i> (Linnaeus, 1758)
cedar waxwing	<i>Bombycilla cedrorum</i> Vieillot, 1808
wheatear, northern	<i>Oenanthe oenanthe</i> (Linnaeus, 1758)
whimbrel	<i>Numenius phaeopus</i> (Linnaeus, 1758)
whip-poor-will	<i>Caprimulgus vociferus</i> Wilson, 1812
wigeon	
Eurasian wigeon	<i>Anas penelope</i> Linnaeus, 1758
American wigeon	<i>Anas americana</i> Gmelin, 1789
woodpecker	
black-backed woodpecker	<i>Picoides arcticus</i> (Swainson, 1832)
downy woodpecker	<i>Picoides pubescens</i> (Linnaeus, 1766)
great spotted woodpecker	<i>Dendrocopos major</i> (Linnaeus, 1758)
hairy woodpecker	<i>Picoides villosus</i> (Linnaeus, 1766)
three-toed woodpecker	<i>Picoides tridactylus</i> (Linnaeus, 1758)
wood-pewee, western	<i>Contopus sordidulus</i> Sclater, 1859
wren, winter	<i>Troglodytes troglodytes</i> (Linnaeus, 1758)
wryneck, Eurasian	<i>Jynx torquilla</i> Linnaeus, 1758
yellowlegs	
greater yellowlegs	<i>Tringa melanoleuca</i> (Gmelin, 1789)
lesser yellowlegs	<i>Tringa flavipes</i> (Gmelin, 1789)
yellowthroat, common	<i>Geothlypis trichas</i> (Linnaeus, 1766)

9.6 Mammals of Alaska

This checklist is taken from the *Checklist to the Mammals of Alaska* (G.H. Jarrell, S. O. MacDonald, and J. A. Cook, 1998) and includes indigenous species and feral introduced species. Each scientific name is followed by the name of the author who first described the species and the year of publication. Parentheses indicate that, though the species name has remained the same, the species has since been assigned to another genus. (Note: we do not distinguish between migratory and resident species.)

For more information, refer to the Internet at www.uaf.alaska.edu/museum/mammal.

Common Name	Scientific Name
bat	
big brown bat	<i>Eptesicus fuscus</i> (Beauvois, 1796)
little brown bat	<i>Myotis lucifugus</i> (Le Conte, 1831)
silver-haired bat	<i>Lasionycteris noctivagans</i> (Le Conte, 1831)
(also see separate listing for myotis)	
bear	
black and glacier bear ¹	<i>Ursus americanus</i> Pallas, 1780
brown bear ²	<i>Ursus arctos</i> Linnaeus, 1758
polar bear	<i>Ursus maritimus</i> Phipps, 1774
beaver	<i>Castor canadensis</i> Kuhl, 1820
bison	<i>Bison bison</i> (Linnaeus, 1758)
caribou	<i>Rangifer tarandus</i> (Linnaeus, 1758)
coyote	<i>Canis latrans</i> Say, 1823
Dalls sheep	<i>Ovis dalli</i> Nelson, 1884
deer	
mule deer	<i>Odocoileus hemionus</i> (Rafinesque, 1817)
Sitka black-tailed deer ³	<i>Odocoileus hemionus sitkensis</i> (Rafinesque, 1817)
dolphin	
northern right-whale dolphin	<i>Lissodelphis borealis</i> (Peale, 1848)
Pacific white-sided dolphin	<i>Lagenorhynchus obliquidens</i> Gill, 1865
Risso's dolphin	<i>Grampus griseus</i> (G. Cuvier, 1812)
elk, Rocky Mountain	<i>Cervus elaphus nelsoni</i> Linnaeus, 1758
elk, Roosevelt	<i>Cervus elaphus roosevelti</i> Linnaeus, 1758
ermine	<i>Mustela erminea</i> Linnaeus, 1758
fisher	<i>Martes pennanti</i> (Erxleben, 1777)
fox	
arctic fox	<i>Alopex lagopus</i> (Linnaeus, 1758)
red fox	<i>Vulpes vulpes</i> (Linnaeus, 1758)
goat, mountain	<i>Oreamnos americanus</i> (de Blainville, 1816)
hare	
European rabbit	<i>Oryctolagus cuniculus</i> (Linnaeus, 1758)
snowshoe hare	<i>Lepus americanus</i> Erxleben, 1777
tundra hare	<i>Lepus othus</i> Merriam, 1900

Common Name	Scientific Name
lemming	
Bering collared lemming	<i>Dicrostonyx rubricatus</i> (Richardson, 1889)
brown lemming	<i>Lemmus trimucronatus</i> (Richardson, 1825)
collared lemming	<i>Dicrostonyx groenlandicus</i> (Traill, 1823)
Nelson's collared lemming	<i>Dicrostonyx nelsoni</i> Merriam, 1900
northern bog lemming	<i>Synaptomys borealis</i> (Richardson, 1828)
St. Lawrence Island collared lemming	<i>Dicrostonyx exsul</i> G. M. Allen, 1919
Unalaska collared lemming	<i>Dicrostonyx unalascensis</i> Merriam, 1900
lion, mountain	<i>Puma concolor</i> (Linnaeus, 1771)
lynx	<i>Lynx canadensis</i> Kerr, 1792
marmot	
Alaska marmot	<i>Marmota broweri</i> Hall and Gilmore, 1934
hoary marmot	<i>Marmota caligata</i> (Eschscholtz, 1829)
marten	<i>Martes americana</i> (Turton, 1806)
mink	<i>Mustela vison</i> Schreber, 1777
moose	<i>Alces alces</i> (Linnaeus, 1758)
mouse	
house mouse	<i>Mus musculus</i> Linnaeus, 1758
Keen's deer mouse	<i>Peromyscus keenii</i> (Rhoads, 1894)
meadow jumping mouse	<i>Zapus hudsonius</i> (Zimmerman, 1780)
western jumping mouse	<i>Zapus princeps</i> J. A. Allen, 1893
muskox	<i>Ovibos moschatus</i> (Zimmermann, 1780)
muskrat	<i>Ondatra zibethicus</i> (Linnaeus, 1766)
myotis	
California myotis	<i>Myotis californica</i> (Audubon and Bachman, 1842)
Keen's myotis	<i>Myotis keenii</i> (Merriam, 1895)
long-legged myotis	<i>Myotis volans</i> (H. Allen, 1866)
narwhal	<i>Monodon monoceros</i> Linnaeus, 1758
otter	
river otter	<i>Lontra canadensis</i> (Schreber, 1777)
sea otter	<i>Enhydra lutris</i> (Linnaeus, 1758)
pika, collared	<i>Ochotona collaris</i> (Nelson, 1893)
porcupine	<i>Erethizon dorsatum</i> (Linnaeus, 1758)
porpoise	
Dall's porpoise	<i>Phocoenoides dalli</i> (True, 1885)
harbor porpoise	<i>Phocoena phocoena</i> (Linnaeus, 1758)
raccoon	<i>Procyon lotor</i> (Linnaeus, 1758)
rat, Norway	<i>Rattus norvegicus</i> (Berkenhout, 1769)
seal	
bearded seal	<i>Erignathus barbatus</i> (Erxleben, 1777)
elephant seal	<i>Mirounga angustirostris</i> (Gill, 1866)
harbor seal	<i>Phoca vitulina</i> Linnaeus, 1758
harp seal	<i>Phoca groenlandica</i> Erxleben, 1777
hooded seal	<i>Cystophora cristata</i> (Erxleben, 1777)

Common Name	Scientific Name
seal (continued)	
northern fur seal	<i>Callorhinus ursinus</i> (Linnaeus, 1758)
ribbon seal	<i>Phoca fasciata</i> Zimmermann, 1783
ringed seal	<i>Phoca hispida</i> Schreber, 1775
spotted seal	<i>Phoca largha</i> Pallas, 1811
sea lion	
California sea lion	<i>Zalophus californianus</i> (Lesson, 1828)
Steller sea lion	<i>Eumetopias jubatus</i> (Schreber, 1776)
sheep	
Dall sheep	<i>Ovis dalli</i> Nelson, 1884
shrew	
barrenground shrew	<i>Sorex ugyunak</i> Anderson and Rand, 1945
common shrew	<i>Sorex cinereus</i> Kerr, 1792
dusky shrew	<i>Sorex monticolus</i> Merriam, 1890
Glacier Bay water shrew	<i>Sorex alaskanus</i> Merriam, 1900
Pribilof Island shrew	<i>Sorex hydrodromus</i> Dobson, 1889
pygmy shrew	<i>Sorex hoyi</i> Baird, 1857
St. Lawrence Island shrew	<i>Sorex jacksoni</i> Hall and Gilmore, 1932
tiny shrew	<i>Sorex minutissimus</i> Zimmermann, 1780
tundra shrew	<i>Sorex yukonicus</i> Dokuchaev, 1996
water shrew	<i>Sorex palustris</i> Richardson, 1828
squirrel	
arctic ground squirrel	<i>Spermophilus parryii</i> (Richardson, 1825)
northern flying squirrel	<i>Glaucomys sabrinus</i> (Shaw, 1801)
red squirrel	<i>Tamiasciurus hudsonicus</i> (Erxleben, 1777)
vole	
long-tailed vole	<i>Microtus longicaudus</i> (Merriam, 1888)
meadow vole	<i>Microtus pennsylvanicus</i> (Ord, 1815)
northern red-backed vole	<i>Clethrionomys rutilus</i> (Pallas, 1779)
singing vole	<i>Microtus miurus</i> Osgood, 1901
southern red-backed vole	<i>Clethrionomys gapperi</i> (Vigors, 1830)
St. Matthew Island vole	<i>Microtus abbreviatus</i> Miller, 1899
tundra vole	<i>Microtus oeconomus</i> (Pallas, 1776)
yellow-cheeked vole	<i>Microtus xanthognathus</i> (Leach, 1815)
walrus	<i>Odobenus rosmarus</i> (Linnaeus, 1758)
wapiti	<i>Cervus elaphus</i> Linnaeus, 1758
weasel, least	<i>Mustela nivalis</i> Linnaeus, 1766
whale	
Baird's beaked whale	<i>Berardius bairdii</i> Stejneger, 1883
blue whale	<i>Balaenoptera musculus</i> (Linnaeus, 1758)
bowhead whale	<i>Balaena mysticetus</i> Linnaeus, 1758
Cuvier's beaked whale	<i>Ziphius cavirostris</i> G. Cuvier, 1823
fin whale	<i>Balaenoptera physalus</i> (Linnaeus, 1758)
gray whale	<i>Eschrichtius robustus</i> (Lilljeborg, 1861)

Common Name	Scientific Name
whale (continued)	
humpback whale	<i>Megaptera novaeangliae</i> (Borowski, 1781)
killer whale	<i>Orcinus orca</i> (Linnaeus, 1758)
long-finned pilot whale	<i>Globicephala macrorhynchus</i> Gray, 1846
minke whale	<i>Balaenoptera acutorostrata</i> Lacépède, 1804
northern right whale	<i>Eubalaena glacialis</i> (Müller, 1776)
sei whale	<i>Balaenoptera borealis</i> Lesson, 1828
sperm whale	<i>Physeter catodon</i> Linnaeus, 1758
Stejneger's beaked whale	<i>Mesoplodon stejnegeri</i> True, 1885
white whale	<i>Delphinapterus leucas</i> (Pallas, 1776)
wolf, gray ⁴	<i>Canis lupus</i> Linnaeus, 1758
wolverine	<i>Gulo gulo</i> (Linnaeus, 1758)
woodchuck	<i>Marmota monax</i> (Linnaeus, 1758)
woodrat, bushy-tailed	<i>Neotoma cinerea</i> (Ord, 1815)

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- ¹ The glacier bear *Ursus americanus emmonsii* is a subspecies of the black bear *Ursus americanus*.
- ² The brown bear *Ursus arctos* is also referred to as a grizzly or Kodiak bear.
- ³ The Sitka black-tailed deer *Odocoileus hemionus sitkensis* is a subspecies of the mule deer *Odocoileus hemionus*.
- ⁴ In Alaska the gray wolf (often called the timber wolf) has 2 subspecies, *Canis lupus arctos* and *Canis lupus nubilus*. *C. lupus nubilus* inhabit Yakutat Bay south to Dixon entrance, including all islands (except Admiralty, Baranof, and Chichagof, which have no wolves). All other wolves in Alaska are classified as *C. lupus arctos*.

NOTES

Appendix A: Basic Printing Standards

83.060 — Basic Printing Standards for Publications

- A. AS 44.99.200 requires the Department of Administration to establish standards for the production of state agency publications. These standards apply to publications of a state agency intended for an internal and external audience.

Basic Printing Standards are intended to promote simplicity, low cost, and consistency for all publications while effectively conveying information that serves the needs of the intended audience.

- B. Definitions — For the purpose of these standards the following definitions shall apply:
1. *Newsletter*: Any printed material published and distributed on a regular basis to inform readers about the agency's activities in a particular area of interest during a specific period.
 2. *Internal*: A publication containing information for use by the agency's own staff, other government agencies, or the legislature.
 3. *External*: A publication designed to create awareness of an agency's activities and enhance public relations for a specific audience relevant to that agency outside of government.
- C. Newsletters
1. *External Newsletters*: The following standards are recommended guidelines. Variations do not require a waiver, but the cost of the newsletter shall be consistent with the intended purpose.
 - a. using no more than 2 colors of ink;
 - b. using uncoated paper;
 - c. duplex (printed on both sides) printing, if applicable; and
 - d. embossing, foil stamping, and/or die cuts may not be used.

2. *Internal Newsletters*: The following standards are recommended guidelines. The cost of the newsletter shall be consistent with the intended purpose.
 - a. using no more than one color of ink;
 - b. using uncoated recycled paper;
 - c. duplex (printed on both sides) printing, if applicable; and
 - d. embossing, foil stamping, and/or die cuts may not be used.

- D. *Softbound Books, Manuals, Catalogs, Reports, and Pamphlets* — Softbound books, manuals, catalogs, reports, and pamphlets shall be printed according to the following standards:
 1. using no more than one color of ink for text;
 2. using no more than 3 colors of ink for cover;
 3. using uncoated recycled paper;
 4. using no more than 80-pound cover stock;
 5. duplex printing, if applicable;
 6. embossing, foil stamping, and/or die cuts may not be used; and
 7. maps, road signals, color-coordinated legends, and graphs are exempt from coloration restrictions.

- E. *Brochures*
 1. *External Brochures*: External brochures shall be printed according to the following standards:
 - a. using no more than 3 colors of ink;
 - b. using uncoated recycled paper is recommended;
 - c. duplex printing, if applicable; and
 - d. embossing, foil stamping, and/or die cuts may not be used.

 2. *Internal Brochures*: Internal brochures shall be printed according to the following standards:
 - a. using no more than one color of ink;

- b. using uncoated recycled paper;
 - c. duplex printing, if applicable; and
 - d. embossing, foil stamping, and/or die cuts may not be used.
- F. Printed Pages — Printed pages shall be printed according to the following guidelines:
1. use no more than one color of ink for text;
 2. use no more than uncoated 20-pound bond or 70-pound text stock;
 3. duplex printing, if applicable; and
 4. recycled paper is recommended.
- G. General Exemption to Standards for Publications
1. Publications that are used by a state agency to develop a market for the agency's services or products.
 2. Publications intended primarily for foreign or out-of-state use.
 3. Programs for a public ceremony of a state agency.
 4. Posters.
 5. Printed matter or graphic products not defined as a publication.

83.065 — Standards for Printed Matter Not Defined as a Publication

A. Business Cards Standards

Embossed gold printing is reserved for the Governor's Office. Embossed silver is reserved for the Office of the Lieutenant Governor.

The following format is recommended only as a guideline for executive branch agencies. Actual format, logo, ink, and stock are within the discretion of the ordering agency and do not require any form of waiver. Whenever ordering business cards, the cost shall be consistent with the intended purpose.

Format: 3 1/2" x 2", with 9/16"-diameter Alaska State Seal in the upper left corner; recycled symbol in the lower left or right corner; printed in any color of ink with no more than 2 colors.

Stock: 80-pound recycled stock, minimum 50% recycled content.

NOTES

Delegations of Procurement Authority for the Department of Fish and Game
(as of 6/11/97)

Requirements

1. Purchases <\$5,000, except credit cards, require reasonable and adequate solicitation effort from Alaska vendors before out-of-state solicitation.
2. Solicitations >\$5,000 to \$25,000 require soliciting at least 3 Alaska vendors for a verbal response before out-of-state solicitation.
3. Solicitations >\$25,000 to \$50,000 require written solicitation of 3 Alaska vendors for a written response before out-of-state solicitation.
4. For all purchases, an Alaska Bidder Preference of 5% and applicable preferences in AS 36.30.322 – 338 shall be considered when awarding contracts.
5. For professional services contracts, the Alaska Offerors Preference of 10% must be considered.
6. All printing services shall be purchased in accordance with AS 36.30, 2 AAC 12, and AAM 83.010 – 83.065.
7. Procurements >\$50,000 may not be solicited outside Alaska without Department of Administration approval that Alaska solicitation only is not practicable.
8. For Alaska Correctional Industries purchases >\$1,000, the purchaser must make a written determination that the product/service
 - a. meets marketability standards,
 - b. meets agency needs, and
 - c. is available at a reasonable cost.
9. Computer hardware and software must be approved by the divisional computer coordinator prior to purchase.
10. Overly restrictive specifications should not be used in solicitations. They should, to the extent possible, be performance-oriented.
11. Fragmentation is defined as separating the purchase of items that would normally be purchased at the same time and from the same vendor.
12. A purchase cannot be fragmented to avoid the solicitation effort required for the solicitation dollar value.
13. Contract awards must be adhered to when they exist. Some are mandatory and some are discretionary.

Notices and Restrictions

1. Any employee knowingly making a false statement supporting a determination is guilty of a Class A misdemeanor.
2. For a protest of a small procurement solicitation to be timely, it must be done before the bid opening.
3. A vendor must protest a formal solicitation 10 days before the bid opening.
4. A vendor must protest a procurement <\$25,000 within 10 days of date of award.
5. A vendor must protest a procurement >\$25,000 within 10 days from the date of notice of intent to award is made.
6. A vendor must protest a formal solicitation 10 days prior to the bid due date unless a prebid conference is held within 12 days of the bid due date.
7. All force account work requires prior engineering approval.
8. All facility leases must be on the standard form or prior approval to modify must be obtained from the Regional Administrative Manager or Headquarters procurement staff.
9. Emergency purchases are limited to those needed to meet emergency conditions and shall be with solicitation, if possible.
10. Purchase of rifles and shotguns must be made by procurement staff. Purchase of handguns and handgun ammunition are not permitted.
11. Cooperative agreements do not include cooperative purchasing, which requires Department of Administration approval.

Reports Required

1. Procurement report forms must be submitted to the Department of Administration for single-source, limited solicitation or emergency purchase within 5 days of purchase.
2. Copies of department-approved single-source and limited solicitation Request for Proposals will be submitted to the Department of Administration by headquarters procurement staff.
3. Determinations of emergency conditions must be submitted to headquarters procurement staff within 5 days of determination.

NOTES

Conversion Table
Temperatures — Centigrade to Fahrenheit
(to nearest 0.1°F)

°C	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
0.	32.0	32.2	32.4	32.5	32.7	32.9	33.1	33.3	33.4	33.6
1.	33.8	34.0	34.2	34.3	34.5	34.7	34.9	35.1	35.2	35.4
2.	35.6	35.8	36.0	36.1	36.3	36.5	36.7	36.9	37.0	37.2
3.	37.4	37.6	37.8	37.9	38.1	38.3	38.5	38.7	38.8	39.0
4.	39.2	39.4	39.6	39.7	39.9	40.1	40.3	40.5	40.6	40.8
5.	41.0	41.2	41.4	41.5	41.7	41.9	42.1	42.3	42.4	42.6
6.	42.8	43.0	43.2	43.3	43.5	43.7	43.9	44.1	44.2	44.4
7.	44.6	44.8	45.0	45.1	45.3	45.5	45.7	45.9	46.0	46.2
8.	46.4	46.6	46.8	46.9	47.1	47.3	47.5	47.7	47.8	48.0
9.	48.2	48.4	48.6	48.7	48.9	49.1	49.3	49.5	49.6	49.8
10.	50.0	50.2	50.4	50.5	50.7	50.9	51.1	51.3	51.4	51.6
11.	51.8	52.0	52.2	52.3	52.5	52.7	52.9	53.1	53.2	53.4
12.	53.6	53.8	54.0	54.1	54.3	54.5	54.7	54.9	55.0	55.2
13.	55.4	55.6	55.8	55.9	56.1	56.3	56.5	56.7	56.8	57.0
14.	57.2	57.4	57.6	57.7	57.9	58.1	58.3	58.5	58.6	58.8
15.	59.0	59.2	59.4	59.5	59.7	59.9	60.1	60.3	60.4	60.6
16.	60.8	61.0	61.2	61.3	61.5	61.7	61.9	62.1	62.2	62.4
17.	62.6	62.8	63.0	63.1	63.3	63.5	63.7	63.9	64.0	64.2
18.	64.4	64.6	64.8	64.9	65.1	65.3	65.5	65.7	65.8	66.0
19.	66.2	66.4	66.6	66.7	66.9	67.1	67.3	67.5	67.6	67.8
20.	68.0	68.2	68.4	68.5	68.7	68.9	69.1	69.3	69.4	69.6
21.	69.8	70.0	70.2	70.3	70.5	70.7	70.9	71.1	71.2	71.4
22.	71.6	71.8	72.0	72.1	72.3	72.5	72.7	72.9	73.0	73.2
23.	73.4	73.6	73.8	73.9	74.1	74.3	74.5	74.7	74.8	75.0
24.	75.2	75.4	75.6	76.7	76.9	76.1	76.3	76.5	76.6	76.8
25.	77.0	77.2	77.4	77.5	77.7	77.9	78.1	78.3	78.4	78.6
26.	78.8	79.0	79.2	79.3	79.5	79.7	79.9	80.1	80.2	80.4
27.	80.6	80.8	81.0	81.1	81.3	81.5	81.7	81.9	82.0	82.2
28.	82.4	82.6	82.8	82.9	83.1	83.3	83.5	83.7	83.8	84.0
29.	84.2	84.4	84.6	84.7	84.9	85.1	85.3	85.5	85.6	85.8
30.	86.0	86.2	86.4	86.5	86.7	86.9	87.1	87.3	87.4	87.6
31.	87.8	88.0	88.2	88.3	88.5	88.7	88.9	89.1	89.2	89.4
32.	89.6	89.8	90.0	90.1	90.3	90.5	90.7	90.9	91.0	91.2
33.	91.4	91.6	91.8	91.9	92.1	92.3	92.5	92.7	92.8	93.0
34.	93.2	93.4	93.6	93.7	93.9	94.1	94.3	94.5	94.6	94.8
35.	95.0	95.2	95.4	95.5	95.7	95.9	96.1	96.3	96.4	96.6
36.	96.8	97.0	97.2	97.3	97.5	97.7	97.9	98.1	98.2	98.4
37.	98.6	98.8	99.0	99.1	99.3	99.5	99.7	99.9	100.0	100.2
38.	100.4	100.6	100.8	100.9	101.1	101.3	101.5	101.7	101.8	102.0
39.	102.2	102.4	102.6	102.7	102.9	103.1	103.3	103.5	103.6	103.8
40.	104.0	104.2	104.4	104.5	104.7	104.9	105.1	105.3	105.4	105.6

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NOTES

Appendix D: Hyphenation Help

Use this guide only when you cannot find the spelling in the dictionary or in Section 4 of this manual. Determine the usage for the compound you are contemplating — noun, adjective, verb. For nouns and adjectives, see below; for verbs and participles see Section 8 of the Gregg manual.

Contemporary style minimizes hyphen use when unnecessary and that is reflected here.

Nouns and Adjectives:

Is the compound a noun or an adjective? For example (underlines denoting compounds), in the expression *positive level shifts*, is *positive level* modifying *shifts* or is *positive* modifying *level shifts*? In this case the compound is a noun, *level shifts*, but in *level-shift outlier* the adjective *level-shift* is the hyphenated compound.

Group A: Typical

Hyphens connect many compound adjectives but not all (see Groups B-D). Hyphens are not used for compound nouns unless the noun is normally hyphenated (e.g., *by-product*, *clerk-typist*).

Noun	Adjective
<i>a gifted public orator</i>	<i>a slow-talking orator</i>
<i>a bifurcated cross section</i>	<i>cross-section diagram</i>
<i>an expensive by-product</i>	<i>a high-priced product</i>

Group B: Established Compound Nouns

In some cases, a compound adjective is an established compound noun (i.e., it stands alone as a well-known compound word). In keeping with the trend to avoid unnecessary hyphens, established compounds are not hyphenated, unless it would cause confusion.

Noun	Adjective
<i>a large high school</i>	<i>a high school diploma</i>
<i>the federal income tax</i>	<i>an income tax refund</i>
<i>the high ebb tide</i>	<i>an ebb tide sample</i>
<i>targeted mixed stocks</i>	<i>the mixed stock fishery</i>
<i>the sea ducks were</i>	<i>sea duck regulations</i>
<i>in this time series</i>	<i>the time series analysis</i>
<i>the standing crop</i>	<i>standing crop estimates</i>
<i>common property</i>	<i>a common property fishery</i>
<i>each brood year</i>	<i>brood year returns</i>
<i>the continental shelf</i>	<i>continental shelf break</i>
<i>sea ice in</i>	<i>sea ice edge</i>

A compound noun of this type is usually one that is found in the dictionary as a compound noun. However, if the compound is not in the dictionary but is a technical compound word commonly used by your audience, treat it as an established compound noun and drop the hyphen, unless it would cause confusion.

Group C: Meaning-Dependent

Some combinations can be read either way and the correct hyphen use is essential to the meaning.

Noun	Adjective
<i>a long term assignment</i> <i>(the term assignment is long)</i>	<i>a long-term assignment</i> <i>(the assignment is long term)</i>
<i>large vessel catch</i> <i>(the vessel catch was large)</i>	<i>large-vessel catch</i> <i>(catch by large vessels)</i>

This sort of problem can occur with established compound nouns as well. Although this occurs infrequently, you still must be careful.

Compound Adjective

high-school attendance^a
(attendance in high school)

greater-scaup nesting^a
(nesting by greater scaup)

small-game reserves^a
(reserves for small game)

Compound Noun

high school attendance^a
high attendance at school

greater scaup nesting^a
(greater nesting of scaup)

small game reserves^a
(small-sized game reserves)

Group D: Irrelevant

This group is composed of word combinations in which the compound could be the noun or the adjective without affecting the meaning and without certainty as to which 2 words actually form the compound. For example: in the combination *fuel flow meter*, does *fuel* modify *flow meter* or does *fuel-flow* modify *meter*? Either interpretation could be made and neither interpretation would affect the meaning. Therefore, in keeping with elimination of unnecessary hyphens, the hyphenless option is recommended. A few more examples:

coded wire tag
thermal mark code
smolt biomass production
scale pattern analysis

salmon run failures
peak noise level
run timing information
population model predictions

For word groups like these, the hyphen is unnecessary and should usually be dropped; however, the hyphen can be added if the author or editor believe it would simplify reading. Once a decision is made, that decision should carry throughout the document and, if possible, in all other documents thereafter (the notes section following Section 4 may be a convenient place to record those words). Also, before dropping the hyphen, be sure the hyphen is truly irrelevant, i.e., it does not create a different meaning. For example, ocean age determination (regarding salmon) could be interpreted as determining the ocean's age, so it is probably better to include the hyphen (ocean-age determination).

^a Although the usage format is technically necessary, the hyphenated forms look odd and the unhyphenated form probably would confuse your readers. Therefore, it would normally be better to avoid the confusion by rephrasing similar to the parenthetical explanation.

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