

Cooperative Research Units

Policy and Procedures Manual

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I. Graduate Degree Guidelines and Expectations

Most Texas Cooperative Fish and Wildlife Unit (TCFWRU) students are enrolled in the graduate degree programs of the Department of Natural Resources Management, but some may call home other departments such as Biological Sciences or Environmental Toxicology. Each department has its own graduate degree guidelines and expectations and unit students are expected to know and follow their home department's guidelines. Unit students are required to maintain detailed records of their research operations and observations and either the original or copies of their notebooks must be handed over to their unit major advisor prior to their separation from the unit, whether they completed their university graduation requirements or not. Office and laboratory keys and any unit property (e.g., laptop computers, research equipment) assigned to students during their tenure with the unit must also be returned prior to their separation.

II. Unit Equipment and Business Operations

A. Space and Equipment

There are three types of resources available to unit students. First, there is office and laboratory space that is assigned to the unit by the university as well as equipment that belongs to the unit. Most TCFWRU students are given office space at the Fisheries and Wildlife Research Building (FWR building). The assignment of this office space is coordinated through the unit's administrative business assistant. The unit leader is accountable for unit equipment and space, and he or she must enforce federal regulations and guidelines when administering the use of all unit property. Ultimately, decisions regarding the use of unit equipment and space are at the discretion of the unit leader, typically in consultation with the assistant unit leader(s).

Second, there are departmental resources (e.g., computers, printers, and photocopiers) and common areas that unit students and staff may use. In some cases, such as when office space is unavailable at the unit, unit students may be assigned office space within their home department. Decisions about the allocation of all departmental resources are ultimately at the discretion of the department chair, generally in consultation with unit staff.

Third, through research grants and other means, individual unit scientist acquire equipment to support their specific research program. This equipment remains under the direct control of the individual researcher. If you wish to access such equipment, you must receive permission from the individual researcher. Similarly, individual faculty members, both within and outside the unit, are assigned space in support of their research programs. This space is under the direct control of the individual faculty member.

Consult your major advisor to see specifically what resources might be available to you for your project.

B. General Equipment Use

You must follow the appropriate sign-out procedure before borrowing or using most of the equipment available through the unit for research or maintenance purposes. Under no circumstance should unit equipment be taken out of the office or laboratory unless it is first cleared by your major advisor or unit staff. This can be done at the start of a project or at the beginning of a new field season. If you plan on using a particular piece of equipment for your project, be sure your major advisor knows this as far in advance as possible. To borrow a unit vehicle, you must check it out using the use/reservation board in the main office by indicating the period of expected use, destination, and your initials.

When using laboratory/unit equipment, you must make sure that all equipment is returned in excellent condition; in the case of unit vehicles, they must be returned clean and with at least a half-full gasoline tank. It is not acceptable to return non-working equipment, even if you did not break it. A spirit of personal and professional responsibility and ethics is encouraged to make the unit a pleasant place in which to work. All unit personnel should try to ensure that shared equipment is ready for the next user.

If a piece of equipment needs to be repaired, notify your major advisor. Just because you call attention to the repair does not mean that you will be responsible to fix it or that your project funds will be used to cover

the repair costs. Most projects include the resources (time and money) necessary for equipment repair and maintenance. Your major advisor must approve all repair costs for malfunctioning equipment.

Individuals not directly associated with the unit may sign out equipment on a case-by-case basis, provided that one of the unit scientists has given approval.

C. Visual Aids

The unit encourages all students to present their research results at conferences and other meetings. When possible, take digital pictures (or color photos or slides) of your fieldwork activities or laboratory set ups so that images can be included in your presentations as well as the unit's annual/biennial report. The unit owns several digital cameras, which are available for use on unit projects. Please contact your major advisor if you wish to use any of these cameras while conducting your work.

Practicing your talk is extremely important when preparing a presentation. Practice sessions will help you feel comfortable in front of an audience and will also allow other unit members to know what you are doing. To help with your practice, two computer projectors are available for your use through our unit; one is hooked up to a desktop computer in the conference room of the FWR building, and the other is a portable unit which can be checked out from the unit's administrative business assistant.

D. Photocopying

For minor copying needs, you can use the multifunction printer (which includes copying capability) located in the unit's office. To copy moderately large documents you can also use copy machines at the main library using a prepaid copy card charged to a research account (consult with your major advisor to determine if this option is available to you). Unit copy machines and prepaid copy cards should only be used for official business, such as copying sampling sheets, data sheets, and other materials necessary for thesis/dissertation work. You cannot use research or unit funds to copy publications for your personal reprint library. For large copying projects, please use an off-campus vendor after you have received authorization from your major advisor. Contact the unit's administrative assistant for more specific information regarding use of the unit's copying machine, prepaid copy cards, or off-campus vendors.

E. Telephones and Fax Machine

The FWR building has local phone line connections and the main unit office has both local and long distance lines. You may use the phones in the FWR building for local calls and the main office phones for long distance calls during normal working hours. Long distance calls should be restricted to official business and be kept short because the college is charged on a per-minute basis. Under no circumstance can you place a personal long-distance call and reimburse the unit for accrued charges. You may use the main office phone for emergency long-distance calls but you must first seek approval from a unit scientist or office staff.

There is a fax machine in the unit's main office. The rules for the use of the fax machine are the same as for the telephones. When sending a fax, use available cover sheets to identify yourself.

F. Mail

You may use university letterhead, envelopes, or labels only for official business (job inquiries are not allowable). You must receive approval from one of the unit scientists to use university stationery. The use of federal stationary is restricted to unit scientists.

G. Computer Resources

Currently, unit students have access to three computers and a printer to conduct their research activities at the Computer Room of the FWR building. Statistical and GIS software are installed on some of these computers. A plotter to print posters is also available in the Resource Room of the FWR building. The unit owns a small number of laptop computers, but these are usually project-specific and assigned to individuals working on those projects. Consult your major advisor to determine if a laptop computer might be available for your research. If you are assigned a laptop computer, you are responsible for the care of the laptop and must take all precautions to protect it from unauthorized access, theft or damage. Do not leave the computer unattended in

locations where it could be stolen (see *Cooperative Research Units Program: IV. A. Student Responsibilities – Information Security*).

If necessary to avoid scheduling conflicts, priority will be given to the following computer use activities in the order shown:

1. Data entry and analysis and report writing for unit projects.
2. Thesis/dissertation writing.
3. Any other research activities of unit students that are related to departmental assignments.

Although unit computer resources are provided primarily for unit student use, on a case-by-case basis they are also made available to non-unit students after they obtain permission from unit scientists or staff.

The student's academic department may also have computers and printers that can be used for standard academic purposes (e.g., thesis/dissertation data analysis and writing). You must consult with the responsible person in your academic department to determine the availability of computer resources and their use priorities and restrictions.

Regarding computer software and hardware supplies, visit with your major advisor about your software needs. If you receive permission to purchase a software program, provide the unit administrative assistant with the necessary ordering information. You must receive permission from a unit scientist before installing a new program on any unit computer and at no time can you upload non-registered software on a unit computer.

III. Fundamental Science Practices

Even though you are a scientist in training, your graduate research activities are subject to specific standards and policies that are meant to maximize defensibility of your data and findings and to ensure all publicly funded information that you collect is properly stored and maintained for use by others. Given the many logistical and intellectual challenges of completing a graduate degree, most students do not concern themselves with the administrative details of their research projects. Nevertheless, you will enhance the value of your research if you understand key elements of USGS Fundamental Science Practices (FSP). By following steps required under FSP, you will augment the likelihood that your research results will advance the field of fish and wildlife science.

A. Design and Approval of Study Plans

For any scientific investigation, researchers must develop a study plan and have their supervisors approve it before they can initiate any research activity. Study plans serve as a communication and planning tool because they contain information about the research project's objectives, experimental or sampling design, methods, supplies and equipment needs, quality-control procedures, and timeline. Scientists can amend their study plan whenever new information becomes available during the conduct of a research project. During your graduate training, your thesis or dissertation proposal will typically serve as your study plan, and you will submit it to your advisory committee for its review and approval.

Within USGS, all study plans must meet formal peer-review standards, as directed in FSP. Your research proposal also must fulfill these same peer-review standards because a portion, if not all, of your research project is subject to operational control by a federal unit scientist. Fortunately, by subjecting your study plan to graduate committee review and incorporating your advisors' feedback into your finalized research proposal, you will meet the FSP peer-review standards. This step is arguably the most critical one for your research endeavor. Rarely (if ever) will defensible and meaningful results emanate from a study design that is inherently flawed at the outset. Peer-review of your research proposal should preclude you from carrying out inherent flaws, thereby giving you the best chance for success. Take this process seriously because you can count on the fact that others will.

After your advisory committee has reviewed and approved your study plan, you and your major advisor will complete a standardized USGS form that verifies the study plan has been approved via a peer-review process (see *Appendix IV*).

B. Research Products and the Peer-Review Mandate

Your research project within the CRU Program will typically generate four products: your thesis or dissertation, a report to your funding partner(s), and most likely scientific publications as well as presentation abstracts. The primary product is your thesis or dissertation, which you alone will author although typically your major advisor will provide critical editorial assistance. The second product will take the form of whatever deliverable(s) is agreed to in the funding contract that established your research project. In some cases, that deliverable will be a modified version of your thesis or dissertation but will include your major advisor as a co-author because he or she serves as your project's principal investigator. Regarding the third product, although you are not required to publish your findings in a scientific journal, you are strongly encouraged to do so. The publication of your findings is necessary to complete the research cycle and allow the scientific community to build upon your work. There is also the expectation that publicly funded research findings be examined critically through the anonymous peer-review process of scientific journals. Additionally, co-authoring a publication with your major advisor is extremely important to your advisor's standing within the scientific community, as well as your own. Commonly, a fourth product will be abstracts of presentations to scientific conferences. Presentation of your research results at conferences will often precede publication of your work and are a good way of disseminating your findings and receiving feedback from a broader audience before publication.

Each of the above products requires peer-review and adequate reconciliation of peer comments before the product can be published, transmitted to a funding partner, or (an abstract) submitted to a conference. Peer-review is the most fundamental practice of all science business practices. Your advisory committee will provide peer-review for your university thesis or dissertation, which may suffice for the reviews that you will need to meet USGS policy. Before you can submit any manuscript to a scientific journal, or an abstract to a conference, that includes a USGS scientist as a co-author, the unit leader will have to review the paper and usher it through USGS's internal peer-review process. While USGS policy dictates that peer-review must be conducted on certain products in certain ways, retrieving insightful and critical reviews from willing scientists (often called a "friendly review") will save you much time, especially for products that you intend to publish as peer-reviewed literature. Contact your major advisor for additional information about the peer-review process.

IV. Conduct of Research Activities

As you would expect, each study has unique needs; yet, the research experience and quality of all research products can be enhanced if certain steps and considerations are taken during the preparation and conduct of studies regardless of their specific objectives or approaches. It also is important to know and understand standard norms for handling and reporting research data. This section provides a general guideline for preparing and recording research activities, a code of ethics for the management of research data, and other general considerations for the conduct of research activities.

A. Preparing for Research Activities

Some federal agencies, such as the U.S. Environmental Protection Agency and the Food and Drug Administration, require that studies submitted for the purpose of creating or influencing regulations be conducted according to specific management systems. These management systems guide the planning, performance, and monitoring of regulation-oriented studies as well as the recording, reporting, and archiving of data. The guidelines are listed in the federal code of regulations and are known as Good Laboratory Practices (GLP) procedures or standards (www.epa.gov/oecaerth/monitoring/programs/fifra/glp.html; www.fda.gov/ora/compliance_ref/bimo/glp). The full rigor of GLP is beyond what individual units or perhaps even some of their host universities are able to meet. However, GLP standards serve as a good reference for the development of high-quality and reproducible laboratory and field studies and should be followed to the extent possible. An important aspect of GLP is the study plan, which was discussed in the preceding section (III. Fundamental Science Practices – A. Design and Approval of Study Plans). You should always have your study plan available as a reference when conducting research in the field or laboratory.

Most study plans are based on standard operating procedures or established methods. The only major uncertainty of these study plans typically is the validity of their working hypotheses. But if your research calls for the use of a new procedure or technique or for the use of an existing procedure/technique under new

circumstances, you should conduct a preliminary study to test the procedure's/technique's performance capabilities. During this relatively short or simple test, you will learn if you can use the procedure/technique to achieve your research objectives; if the answer is no, you may recognize a way to modify the procedure/technique so it is more useful during the official investigation. You should follow the same advice if you have doubts about the usefulness of an existing research procedure/technique. And remember, do not let methods and equipment limit the direction of your research project and always make certain that you gather the resources to accomplish your objectives in a timely manner.

For some graduate students, it is necessary to perform a "dry run" of sampling protocols before the official data collection process starts. By performing a mock sampling experience with the entire staff, you will train your research assistants and identify potential problems and pitfalls in advance. During your dry run, develop and apply various data recording formats and sample labeling schemes to determine which system you should use during the official study. (Do not confuse this "dry run" with a "preliminary study"; see preceding paragraph.)

Before you start collecting data, determine what type of statistical tests you will perform during the analysis stage. It is critical that you initiate this step at the start of your study to ensure you use a sampling design that has the highest possible statistical power and to prevent the pitfalls of pseudo-replication. Whenever possible, consult a statistician as part of the study design process; this is far better than consulting a statistician after all of the data are in hand. Some universities have free statistical consultation services available to graduate students.

Prior to and during the laboratory experimentation or field season you should test and calibrate your equipment. Do not wait until your crew is in the electroshocker boat or your blood samples are in the centrifuge to turn equipment on for the first time, only to discover that it does not work. Probes, balances, pipettors and other measuring equipment must be calibrated before use according to the manufactures' instructions. Also, have all of the supplies your research requires, and at the needed amounts, before you initiate your tests. It is not uncommon for a beginning laboratory researcher, for example, to run out of supplies in the middle of a study. Always plan ahead.

It is difficult to think of a study where at least one type of "permit" is not required. Use of certain hazardous chemicals or biological materials (typically in the laboratory) requires approval by a university office or committee that oversees chemical or biological safety. Use of animals in field or laboratory research also requires review and approval by the appropriate university committee. To learn more about the permits and approvals your study may require, read section V. Permits and Approvals for Unit Projects.

Health and safety are important considerations when preparing for research. Do not use unfamiliar equipment or supplies without consulting your major advisor or designated responsible person and becoming thoroughly familiar with the material's use and potential hazards. For certain equipment, you may have to obtain certification or training before you can initiate research activities (see section VIII. Safety Programs). The use, transport, and disposal of hazardous chemicals and biological materials need to follow established safety practices. User training and certification are required for certain reagents such as radioisotopes, anabolic steroids, and other regulated chemicals. Flammables and acids require special storage cabinets or refrigerators. Shipment of potentially hazardous materials (e.g., dry ice and sample vials containing formalin or alcohol) is regulated and may require special packaging and declaration documents. In some cases, special authorization is required before substances can be shipped, regardless of the means (see section V. Permits and Approvals for Unit Projects). Laboratory users need to wear adequate attire (e.g., closed footwear, pants, laboratory coats, gloves, face shields, and masks, as appropriate). Field researchers need to pay special attention to "survival" preparations, such as packing enough water, sunscreen, weather-appropriate clothing, first aid kits, and other items that the study site conditions necessitate. All major universities have a Health and Safety Department or an equivalent office that you should consult for health and safety information and procedures while planning your research activities.

B. Recording Research Activities

Whether conducting preliminary or definitive studies, it is important that you record all relevant information in laboratory or field notebooks. At a minimum, you must record the following information for each data collection period:

1. Date (and if necessary the time of day);
2. Your name/initials and those of everyone assisting you;
3. Title of the specific study on which you are working (especially important if you are using the same notebook to record data activities for multiple studies);
4. Description of how you collected data;
5. Description of what you collected, plus all interesting or unexpected observations (they may aid your data interpretation during the analysis stage); and
6. Any intentional or accidental deviation from your pre-planned sampling procedures (i.e., the procedure described in your study plan).

Write all of your research activity notes in a concise yet clear and complete manner using waterproof or solvent-resistant ink to minimize accidental erasure. If you discover any errors in your notes at a later date, GLP procedures dictate that you (1) trace a thin line over the incorrect text so you (or anyone else) can still read the original words and (2) write the replacement text next to the original wording; in the margin write the date of correction, reason for your edit, and your initials. Remember that you are not taking notes simply for your personal use but “for the record.” Research notebooks may be subject to federal and state audits and can even end up as evidence in court proceedings. Thus, if your research notes are poorly written, you may find yourself in an embarrassing situation; even worse, you may invalidate the study and damage your reputation as a research scientist.

Depending on the conditions of your research site, you may find one type of notebook to be more user friendly than another. If you are working in a typical laboratory, you may prefer using a notebook that creates an instant “carbon copy” of the information you write on the original page. If you are working in a wet laboratory or in the outdoors, you should use a waterproof notebook. Alternatively, you could record your data on forms that you design specifically for your project; water-proof printer paper is also available.

Raw (original) data can exist in either print or digital form. Examples of print data forms include notebooks and electronically generated printouts (e.g., data-loggers, spectrophotometers, liquid scintillation counters). Examples of digital data forms include satellite- or aircraft-based imagery and histological microphotographs. Depending on the purpose of your project, your raw data may occur in one or both of the above forms. Regardless of which form you use, it is important that you have an adequate data logging and cross-reference system that allows easy finding and retrieval of specific information (i.e., create a metadata document). Additionally, it is critical that you maintain duplicate records of all raw data and that you store the duplicate data sets in separate locations (e.g., different buildings). This precaution is especially important for managing raw data that cannot be recovered if they are stolen or misplaced; and also for managing derived data that are difficult or time-consuming to generate, such as maps or results of statistical analyses and model simulations. Please be aware that if for any reason you resign or otherwise leave your unit project, the data sets and metadata documents must be left with your major advisor.

Usually raw data are stored “forever,” which can pose a dilemma if you do not employ a good labeling and archiving system. At the start of your study, discuss with your major advisor who will archive all data for your project (e.g., you, the unit, or the funding source) and identify how the data will be archived. If you will be storing your data in an electronic format, consider the nature of the software and hardware you intend to use. Will it be accessible in the future? At a minimum, you should record on the outside of the data source (or in your research notebook) the name of the software/hardware program you used to store the raw data (e.g., Microsoft Excel Version x.x).

C. Code of Ethics for Data Handling and Reporting

The USGS Code of Scientific Conduct (see CRU Student Orientation Manual, *Appendix III*) lists several clauses that generally reflect the opinion of most scientists and professional organizations. Two of the clauses include aspects concerning the handling and reporting of research data and apply to everyone, including unit students:

Clause 1: I will maintain scientific integrity and will not engage in fabrication, falsification, or plagiarism in proposing, performing, or reviewing scientific activities and their products.

Clause 2: I will be diligent in creating, using, preserving, documenting, and maintaining collections and data.

Data fabrication (reporting data that were never collected) and plagiarism (stealing data from someone else) are unethical activities under any circumstance. Data falsification refers to the selective alteration or reporting of data often for the purpose of reaching a biased conclusion. Falsification cannot be justified, even if conclusions generated from falsified data are correct. However, there are times when alteration or exclusion of data may be permitted for scientific or statistical reasons without being considered as falsification. For example, a number of approaches have been proposed for handling values that fall below the “detection limit” of a measured quantitative variable, from censoring (excluding) these data to assigning them a fixed value that is typically below the detection limit. Outlier (extreme) values could be the result of accidental or chance anomalies that occur during the collection or generation of data. You can exclude an outlier(s) from an analysis on statistical or scientific grounds as long as you noted and recorded an anomaly when collecting the datum (or data); that recorded anomaly should reasonably explain the existence of the outlier(s). Additionally, you must describe in your study reports and publications all data that you modified or excluded during the analysis stage and explain why you altered the data in the specified way.

Compliance with Clause 2 can be achieved by following the guidance for data recording (see preceding discussion on *Recording Research Activities*) and by complying with Clause 1.

D. Other Considerations

Depending on the data or samples you are collecting, you may have to handle and/or store your data and samples in a special way. At a minimum, you should write on all data storage labels your name, title of project, and date of collection and/or storage. Make sure these storage labels are legible from the outside of the container. If you must freeze your samples, it is best not to use a modern frostless freezer to prevent desiccation.

V. Permits and Approvals for Unit Projects

A. Scientific Collection Permits

If your research requires the capture or collection of wild animals, you must carry the proper permits with you at all times when you are working in the field. Permit requirements are variable by state and species. Regardless of which animal(s) you are working with, this will include a scientific collecting permit from the relevant state agency. In some states, agencies also may require you to obtain a valid fishing and/or hunting license. In addition to the state scientific collecting permit (and fishing/hunting license, if applicable), you must obtain a Federal Endangered Species Permit from the FWS if you intend to collect or possess any threatened or endangered species. Likewise, you also must obtain a Federal Migratory Bird Permit from the FWS if you will collect or possess a migratory bird. Permits may also be required to conduct research on state and federal lands (e.g., state and national parks, national wildlife refuges). Assisting technicians only need to possess subpermits if they will be required to capture or collect animals alone.

Holders of scientific collecting permits must submit an annual summary of their collecting activities to all permit issuers. These summaries must identify when, where and how each animal was collected; how many individuals of a given species were collected (and for some species, the weight of each specimen); and how the animals were disposed.

It is the policy of the Texas Unit that students engaged in research will be subpermitted under their advisors permits. To ensure you have the required permits before you enter the field, application for subpermits should be submitted as soon as you know your research duties include animal collection. Contact your major advisor for guidance on application for state and federal subpermits and identification of permits necessary for your project.

B. Animal Care and Use

All unit projects involving the direct study of vertebrate animals must comply with several specific requirements as stipulated by the Animal Welfare Act, the Health Research Extension Act of 1985, and subsequent amendments to both statutes. This is university policy and is implemented by the Institutional Animal Care and Use Committee (IACUC). Scientists who use animals are morally and legally obligated to care for and use all research animals in a proper and humane manner. All unit scientists, personnel, and students involved in the use of animals are directly responsible for promoting and protecting the animals' welfare according to the instructional, extension, or research programs of the university.

If you use vertebrates for research, you must abide by the following legal requirements.

1. Research protocol review: The IACUC must review and approve all research projects and educational or extension activities that use vertebrate animals under the jurisdiction or control of either the unit or university. Visit with your major advisor to determine whether or not this review has already been completed.
2. Facility inspection: If you intend to maintain and hold vertebrates in captivity, IACUC must inspect and approve your holding facility during the protocol review process.
3. Personnel training: To work with experimental animals, you must either complete the IACUC's certification training program (which is typically available online and is valid for 3 years) or work under the supervision of an IACUC certified individual. Contact your major advisor for more information.

For additional information about how to conduct animal experiments in a humane and ethical manner, refer to the following sources:

- Louis J. DeTolla, S. Srinivas, Brent R. Whitaker, Christopher Andrews, Bruce Hecker, Andrew S. Kane, and Renate Reimschuessel. 1995. Guidelines for use of fishes in field research. *Institute for Laboratory Animal Research Journal* 37(4).
 - Available online at http://dels.nas.edu/ilar_n/ilarjournal/37_4/37_4Guidelines.shtml
 - Relevant to fish, amphibians and reptiles
- Guidelines for the care and use of ectothermic vertebrates. 1988. Animal Subjects Committee, University of California – San Diego, La Jolla, California.
 - The 2002 revision is available online at <http://iacuc.ucsd.edu/policies/Policy15.02.pdf>
- Abbot S. Gaunt and Lewis W. Oring (editors). Guidelines to the use of wild birds in research. 1997. The Ornithological Council, Special Publication, Washington, D.C.
 - Available online at http://www.nmnh.si.edu/BIRDNET/GuideToUse/Guidelines_2d_edition.pdf
- William L. Gannon, Robert S. Sikes, and the Animal Care and Use Committee. 2007. Guidelines of the American Society of Mammalogists for the use of wild mammals in research. *Journal of Mammalogy* 88(5) 809-823.

C. Research Involving Human Subjects

Research involving the use of human subjects requires the Principal Investigator to address two considerations related to informed consent. The first is specific to research funded with direct federal dollars (typically via the Research Work Order, or RWO, process) which requires approval through the Office of Management and Budget. The second is the general issue of informed consent required for research conducted at any university involving human subjects.

Information Collection under the Paperwork Reduction Act (PRA 44 U.S.C. 3501-3520)

Any information that is collected from the public by a federal agency must comply with the Paperwork Reduction Act of 1995 (PRA). Such information includes data collected by social surveys or other collection methods conducted, funded, or sponsored by the federal government. The Office of Management and Budget (OMB) provides oversight of compliance with PRA, which is applicable to federally supported social surveys whenever identical questions are asked of 10 or more people. The PRA is intended to reduce the paperwork burden the government places on the public as well as minimizing costs of information collection and assuring the information collected has practical utility and meets the specific needs of the agency. The PRA requirement does not apply to research conducted by the University for a state agency or other non-federal entity.

The U.S. Geological Survey outlines information collection clearance requirements in its Service Manual in Section 431.10 - Information Collection Requirements (URL: <http://www.usgs.gov/usgs-manual/410/431-10.html>). Detailed information and requirements for the approval process can be obtained from the designated Information Collection Clearance Officer with the U.S. Geological Survey:

Information Collection Clearance Officer
Fred Travnicek (Acting)
Geospatial Information Office
Phone: 703-648-7231
Contact: atravnic@usgs.gov

Please note that the standard OMB approval process for information collection efforts takes a minimum of 6 to 7 months to complete, with two required public review notices published in the Federal Register. Proposed studies must take these requirements into consideration to assure timely completion of research.

Because RWOs often involve funding conducted for other federal agencies and not the U.S. Geological Survey, the Information Collection Clearance procedure can be initiated either via through the U.S. Geological Survey or the point of contact at other federal agencies for which the research is being conducted. Because CRU scientists and collaborators often conduct research for the U.S. Fish and Wildlife Service and the National Park Service (NPS), URL links describing the contacts and procedures for those agencies are provided below. The National Park Service does have approval for an expedited, programmatic review process and unit scientists are encouraged to use that process when conducted any social research for the NPS.

Paperwork Reduction Act process within the USFWS

281 FW 4 Information Collection Program and Budget <http://www.fws.gov/policy/281fw4.html>

281 FW 5 Information Collection Clearance Procedures <http://www.fws.gov/policy/281fw5.html>

Contact within USFWS:
Hope Grey
Division of Policy and Directives Management
USFWS
Telephone: 703-358-2482/Fax: 703-358-2269
M/S 222, Arlington Square

Paperwork Reduction Act process within the NPS

Expedited review process overview:

<http://www.nature.nps.gov/socialscience/expedited.cfm>

<http://www.nature.nps.gov/socialscience/survey.cfm>

Contact within NPS:
Megan McBride
Senior Research Associate
National Park Service
Academy Place, 4th floor
PO Box 25287
Denver, CO 80225
Phone: 303-969-2814
Fax: 303-969-2822

Human Subjects Review/Institutional Review Board

There are additional human subject's requirements beyond the information clearance procedures required by the PRA. For all research involving human subjects regardless of the funding source all academic research institutions require review of proposed research to ensure that two broad standards are upheld: first, that subjects are not placed at undue risk; second, that they give uncoerced, informed consent to their participation.

With representation from a wide range of scientific disciplines and from outside the academic community, human subjects committees or institutional review boards (IRBs) at most universities give rapid but individualized attention to the numerous research projects at their institutions.

Typically a project is first reviewed in its proposal stage - even before subjects are recruited. Each approved project is reevaluated at least annually. The IRB works with investigators to modify projects to ensure adequate protection for its subjects' welfare and right of self-determination.

Most IRBs' processes for protecting human research subjects reflects federal regulations developed in response to such cases as the Public Health Service syphilis study and the U.S. government radiation experiments. The Department of Health & Human Services (HHS) Office for Human Research Protections (OHRP) oversees the operation of the IRB, and the Food and Drug Administration (FDA) enforces regulations for the use of experimental drugs and devices.

In assessing the adequacy of human subjects' protections in research, IRBs consider a number of basic criteria – specifically whether:

- risks to subjects are minimized;
- risks to subjects are reasonable in relation to anticipated benefits;
- selection of subjects is equitable;
- informed consent is sought from each prospective participant or legally authorized representative, and properly documented;
- adequate preparation is taken to protect the privacy and confidentiality of subjects; and
- adequate provisions are made for the ongoing monitoring of the subjects' welfare.

The assessment also includes additional factors important in the context of the individual proposal. Depending on the nature of the research university IRB's typically have different levels of review. Most research conducted via surveys, interviews, and focus groups on topics related to environment and natural resources management will qualify for an exemption or an expedited review. CRUs scientists and collaborating PI's must contact and determine the appropriate procedure at their universities.

The information provided here was taken from the IRB homepage at the University of Minnesota-Twin Cities. An informative resource concerning IRBs and their procedures can be found in:

Oakes, J.M. 2002. Risks and wrongs in social science research: An evaluator's guide to IRB. EVALUATION REVIEW, Vol. 26 No. 5, October 2002 443-479

<http://www.research.umn.edu/irb/applying/EvaluatorsGuidetoIRB.pdf>

D. Hazardous Chemicals

All universities have an office or department of health and safety that implements federal and state regulations for the use of certain hazardous chemicals and biologicals in research, such as radioisotopes, potential carcinogens, recombinant DNA, and others. The shipment of hazardous materials is regulated by the United States Department of Transportation (DOT; 49 CFR 100-185). According to these regulations, shipment needs to follow proper procedures for packaging, marking, labeling, and mailing, and the person preparing the package must be trained in these procedures. A list of the materials that fall under DOT regulations is provided in 49 CFR 172-101 (http://www.setonresourcecenter.com/transportation/49CFR/172_101tb.pdf). The list includes materials commonly used in research, such as ethanol, formalin, dry ice, and others. As a rule of thumb, consult your university's department of health and safety or your major advisor before you handle or ship any chemical.

E. Private Lands Access

Your affiliation with the university and unit does not provide any special rights of access to private lands. Without permission to access private property, you are trespassing. Legal issues aside, requesting access is the courteous thing to do and helps build a cooperative relationship between you and the landowner. Many landowners have come to the aid of students in need when a unit student was working on the landowner's property. Additionally, private landowners can make significant contributions to a study because of their unique knowledge of their property.

Please be aware that for some types of studies, the U.S. Congress requires written access permission from private landowners. You should consult with your major advisor or other members of your science team to confirm that the appropriate landowner permission has been obtained for your project; if not, seek guidance for how this permission should be obtained. Some states, such as Texas, also may have specific requirements for conducting research on private property.

F. Radio Frequency

Within the United States, the Federal Communications Commission (FCC) retains sole responsibility for managing radio frequency use by non-federal governments and private entities (including universities). If your research involves wildlife tracking, you must apply for an FCC license to use a designated bandwidth in the radio-frequency spectrum. Additionally, you will need to honor all regulatory requirements stipulated in Title 47 of the Code of Federal Regulations, Part 90.248 – “Wildlife and ocean buoy tracking”. Your major advisor will help you receive proper authorization for your wildlife tracking activities.

To learn more about the use of radio-telemetry in wildlife research, read A. Lawrence Kolz's article, “Radio Frequency Assignments for Wildlife Telemetry: A Review of the Regulations,” which was published in 1983 in *Wildlife Society Bulletin* 11(1): 56-59.

VI. Data Ownership and Use

During your graduate training you will conduct research on a specific project. Depending on the source of your project's funding, data you collect are the property of the university, the unit and, if federally derived, the federal government. The general public may access your finalized data under state or federal Freedom of Information Acts; however, generally this is not done until data are interpreted and published. When preparing your thesis/dissertation, you may use all, part, or none of the collected data, but you must make this decision after visiting with your major advisor because your thesis/dissertation may serve as the final report for your project sponsors.

It is your responsibility to type and perhaps even bind your thesis/dissertation. Contact your major advisor to receive complete information on this topic.

VII. Communications with Other Agencies and the Public

Communication procedures are in place for unit students and research staff. The major reason for these procedures is to assure uniformity of correspondence among representatives of the unit and other agencies that fund unit projects, and to assure that all project personnel are apprised of these correspondences. Adherence to these procedures is especially important for unit projects that are controversial in nature.

As a unit student, you represent each cooperating entity of the unit program: Texas Tech University, Texas Parks and Wildlife Department, US Fish and Wildlife Service, USGS, and The Wildlife Management Institute. You cannot speak publicly for any of these cooperators without their written or verbal approval. All formal correspondence from a unit student unit to an agency, whether written or verbal, must be approved by one of the unit scientists. During the conduct of your research activities, it will be necessary for you to more informally communicate via e-mail, phone, or in person with personnel from other agencies. These types of communications are necessary and expected but please keep your major advisor aware of such informal exchanges.

The public often approaches unit students and personnel during routine fieldwork. You are likely to be confronted with a wide variety of general questions, such as, "What are you doing?" "How's the hunting and fishing?" "What is the object of your study?" and the like. You may also be the target of less friendly comments such as "You're unfairly taking our trophy fish with your electroshocker!" When this happens to you, please remember that the primary purpose of your unit program is to conduct scientific research; public relations and education activities play a much smaller role in the unit's mission. It is important for you to maintain that distinction. When responding to public inquiries, you are encouraged to explain the objectives of your study, your affiliation with the unit, your project sponsors, and any finalized results and interpretation – do not speculate about the significance of your results. Always address the public in a polite and courteous manner regardless of their attitude towards you. Be also aware that representatives of the news media may not always identify themselves, and what might appear as innocent conversation could turn up in some newspaper column. Thus, do not express any value judgments about an agency's management program; leave it to the agency's personnel to answer public questions about their programs, future policy decisions, et cetera. In such situations, it is best to refer questioners to your major advisor or the unit leader.

VIII. Safety Programs

Students, non-federal employees, and volunteers associated with the unit must participate in the USGS Volunteer Program and complete an Individual Volunteer Services Agreement Form (see *Appendix V*). Submission of this form will not affect your normal work or research within the unit. Instead it will cover you for purposes of tort claims and injury compensation. From the unit's perspective, your participation in the program makes it easier to justify your use of federal government vehicles and equipment. No one may drive a unit vehicle unless they have filled out an Individual Volunteer Services Agreement Form and have a valid driver's license. Anyone who rides in a unit vehicle also must have filled out a Volunteer Services Agreement Form.

Several of the most common safety programs and policies for the operation of motorized and specialized equipment and for the participation in select activities (e.g. aerial flights, carrying firearms, underwater diving, and electrofishing) are highlighted below. However, this is not an all inclusive list. For example, blasting and rocket netting also have specific training requirements but are not listed below, because they are infrequently used by unit students. All activities requiring specific training or equipment can be found in the USGS Safety Manual (<http://www.usgs.gov/usgs-manual/handbook/hb/445-2-h.html>). In addition to outlining training needs for specific activities, the USGS Safety Manual also provides a lot of helpful "how to" information, making it a valuable reference.

The highlights below are brief and are intended to familiarize you with the most common safety programs. As indicated previously, these safety policies and procedures apply to all USGS employees, volunteers, and individuals supervised by a unit scientist (including unit students). Additionally, these programs and policies apply to all projects for which a unit leader or assistant unit leader has some level of operational control (including cooperative projects with university faculty members).

A. Vehicle Use Procedures

To use a unit vehicle for official research duties, you must sign the vehicle out on the vehicle use calendar in the main office. The vehicle ID, your expected period of use, and your initials must also be indicated on the calendar. If you intend to use the vehicle for more than a few hours, you must submit your request to the unit leader or the designated Unit motor pool manager. If no unit vehicles are available for your requested time period, you may be able to rent a vehicle from the university motor pool or obtain mileage reimbursement for the use of your personal car or truck. Regardless of which vehicle you use to conduct official business, you must complete the following steps before you can initiate your research activities:

1. Complete a defensive driving course through the USGS, National Safety Council, or local American Automobile Association; refresher training is required every 3 years.
2. Provide the unit administrative assistant with an Annual Motor Vehicle Operator's Certification form (see *Appendix II*).
3. Attach a drive-any-vehicle rider attached to your personal vehicle insurance policy. This rider annually costs \$20 or less and extends your liability to any vehicle you drive. If you do have an accident that was your fault while operating a unit or university vehicle, you may be personally liable for incurred damages; however, because you are a university employee, you may receive limited or complete liability coverage from your university.

If you intend to operate an off-highway vehicle (OHV; includes snowmobiles) during your research project, you must complete an operator training course from either the vehicle's manufacturer or another appropriate source (e.g., certified USGS employee). After completing the course, you must submit documentation of your OHV operator training and field instruction to the Unit administrative assistant to file in your personnel records file. Refresher training, including a check ride, is required every 3 years or sooner if you operate the OHV for less than 24-hours over an extended period of time or if you intend to operate a new class of OHV. No one is allowed to operate a 3-wheeled vehicle.

Before you initiate your fieldwork using an OHV, conduct a field risk assessment in partnership with your major advisor. Collectively, the two of you should evaluate your field conditions and circumstances to ensure it is safe for you to proceed with your assignment aboard an OHV. When conducting this assessment, use the Risk Management Worksheet that is found in the USGS Safety Manual (see *References* below). Your major advisor should sign this document and keep it in your research files. Additionally, you should identify a person to accompany you in the field. If you cannot locate a partner, your major advisor can authorize a solo OHV operation as long as you supplement the field risk assessment with a specific ride plan. Lastly, when riding an OHV, always wear the appropriate personal protective equipment to protect your eyes, face, skin, and extremities. This personal protective equipment must include a helmet that is certified by the Department of Transportation or the American National Standards Institute.

References

- Vehicle Safety Chapter of USGS Safety Manual, <http://www.usgs.gov/usgs-manual/handbook/hb/445-2-h/ch16.html>
- The National Safety Council's defensive driving course, <http://4tdds.com/default.aspx>
- Field Risk Assessment Worksheet for OHV use, <http://www.usgs.gov/usgs-manual/handbook/hb/445-2-h/445-2h-app16-3.pdf>
- Eastern Regional Safety Manager: Wayne Martin, (703) 648-5289, wmartin@usgs.gov
- Central Regional Safety Manager: William Andrlle, 303-236-9169, wandrle@usgs.gov
- Western Regional Safety Manager: Terry Fries, 650-329-5281, tfries@usgs.gov

B. Aircraft Policy and Safety Procedures

If your official duties/activities necessitate participation in aerial flight, you must complete the Department of Interior's B3 (Basic Safety) course before initiating any flying activity. This course consists of five training modules that may be taken through online and classroom formats. The Aviation Management

Directorate (AMD) within the Department of the Interior administers the training program. Certification is valid for a 3 year period and you must retake the training course to obtain re-certification.

You are required to follow all aviation safety requirements that are presented in the B3 training modules. If you will be conducting hazardous aviation activity, such as capturing an animal or participating in one-skid landings, you may need to obtain additional training. All flights must be conducted only with AMD certified pilots and aircraft, and pilots must file Flight Plans and ensure Flight Following is conducted. All pilots must process and certify an OAS-23 form for payment. You can search for AMD approved pilots and aircraft online at http://amd.nbc.gov/fc/ara_order.htm.

You must provide your major advisor with all documentation that verifies you completed the aviation training program. Your major advisor will maintain your records in the unit office. Your project's official agreement (e.g., research work order, cooperative agreement, grant) must include language that specifies how "all persons onboard aircraft under the operational control of USGS are subject to the directives" in USGS Safety Manual 445-2-H.

This training requirement does not apply to international USGS activities; however, it should be followed to the extent possible. The policy also does not apply to travel on a commercial air carrier.

References

- Appendix VII – USGS Aviation Program Fact Sheet
- Aviation Safety Chapter of USGS Safety Manual, www.usgs.gov/usgs-manual/handbook/hb/445-2-h/ch27.html
- Home page for AMD Aviation Safety program and Online course offerings, <http://amd.nbc.gov/safety/index.htm>
- OPM 06-2 for Flight Plans and Flight Following, <http://amd.nbc.gov/library/opm/06-02.PDF>
- Interagency Aviation Mishap Response Guide and Checklist, <http://amd.nbc.gov/safety/library/iamrp.html>

C. Firearms Policy and Safety Procedures

If you will be handling, carrying, or storing a USGS-owned or personally-owned firearm while conducting official business, you must complete the relevant firearms safety training course. This includes firearms used to collect specimens; discharge blanks, hypodermic darts and cracker shells; and for protection against wild animals. The period of certification and re-certification requirements vary by course type.

When you are responsible for a firearm during the conduct of unit business, you must keep the firearm and its ammunition in a secure location "under lock and key" when you are not using it in the field, when you are transporting it between sites, and when it is not under your direct control. The firearm must be unloaded with its trigger safety lock engaged. If you misplace or lose the firearm or its ammunition, you must contact your advisor/supervisor immediately so he or she can inform the USGS and/or Regional Firearms Manager within 24-hours.

If you will be transporting a firearm and ammunition aboard a commercial plane when traveling to a field site, you must declare the firearm and ammunition when checking in and affix a signed FAA tag to the firearms case that states the firearm is unloaded. You must transport the ammunition in a factory-sealed container and in a location separate from the firearm (ammunition cannot weigh more than 11 pounds). If you will be traveling aboard a field aircraft, inform the pilot or authorized representative about your firearm and ammunition before boarding the aircraft.

When you are carrying/handling a firearm during your fieldwork, always abide by the relevant state and municipal laws that govern (1) the transportation and mode of carry of firearms in a motorized vehicle and (2) the personal carry of firearms. Additionally, there are many state and federal lands that have restrictions on firearms without special permits (e.g., National Parks, university grounds). Under no circumstances will USGS-owned or personally owned firearms be carried in a Unit vehicle unless specifically authorized by the Unit Leader as part of your official duties.

References

- Appendix VIII – USGS Firearms Safety Program Fact Sheet
- Firearms Safety Chapter of USGS Safety Manual, <http://www.usgs.gov/usgs-manual/handbook/hb/445-2-h/ch29.html>
- USGS/National Training Center's course information for firearms safety (Basic Defense Against Wild Animals), http://training.usgs.gov/ntc/courses/Course_Info/course_catalog.cfm?db_course_id=252
- USGS/National Training Center's course information for firearms refresher certification, http://training.usgs.gov/ntc/courses/Course_Info/course_catalog.cfm?db_course_id=253

D. Motorboat Policy and Safety Procedures

If you will be operating a motorized watercraft vessel (65 feet or less in length) when conducting your research, you must complete the Motorboat Operator Certification Course (MOCC). Certification is valid for 5 years; re-certification is available online and in the classroom. In general, this policy does not apply to individuals who are employed by a USGS cooperator or have their work directed entirely by a cooperating entity (e.g., state natural resource agency). However, these individuals must complete MOCC training if they intend to borrow a USGS-owned watercraft.

The only time at which a non-certified individual can operate a watercraft is when he or she is operating the boat to gain experience for motorboat certification. This individual must have a certified motorboat operator overseeing him or her at all times.

In addition to MOCC certification, there are several operational procedures that you must follow when working from any watercraft, including rafts and canoes.

1. You must file a written float plan with a responsible party (e.g., major advisor, project supervisor) before initiating your research activity. This float plan must include your anticipated time of return, location of operation, and boat description. If your trip extends into non-work hours, you must receive verbal commitment from someone who can be aware of your itinerary and actively monitor your return. Example float plans are included in the MOCC manual you will receive upon successfully completing the MOCC course. Copies may also be available in the unit's administrative office.
2. All boats should be outfitted with all safety equipment as required by state law and USGS policy.
3. All boat operations shall consist of at least two people, one of whom is the dedicated boat operator.
4. Everyone aboard a watercraft must wear a US Coast Guard-approved personal flotation device (PFD) at all times. To meet additional USGS safety regulations, the PFDs must be international orange in color and bear retro-reflective tape. Inspect all PFDs before and after each boating activity; replace any PFD that does not meet the required safety code.

If your research requires you to operate a motorboat in a specific situation (e.g., on fast moving water) or to operate special equipment (e.g., airboat or hovercraft), you will need to complete additional training modules. MOCC is a pre-requisite for all of these other training programs.

Protect yourself against carbon monoxide poisoning

Asphyxiation from carbon monoxide can occur during boating activities, but it is easy to overlook because its symptoms typify flu, motion sickness, and other health problems. Before you participate in a boating activity, make sure you understand how carbon monoxide poisoning can be prevented, how to identify its symptoms, and how to address the health concern if a fellow boat passenger does become sick.

References

- Appendix IX – USGS Watercraft Safety Program Fact Sheet
- USGS Motorboat Safety policy, <http://www.usgs.gov/usgs-manual/handbook/hb/445-2-h/ch31.html>

- USFWS/National Conservation Training Center's course information for motorboat operator certification, <http://training.fws.gov/learn/courses.htm>
- Boat Owners Association of the United States (BOAT/US), <http://www.boatus.com>
- National Safe Boating Council, <http://www.safeboatingcouncil.org>
- Reference Guide to State Boating Laws, http://www.uscgboating.org/regulations/boating_laws.htm

E. Electrofishing Procedures and Operations (Boat and Backpack)

Unit staff and students may only conduct electrofishing if at least one person in the sampling party (the team leader) has received electrofishing certification from the U.S. Fish and Wildlife Service. The FWS instructs the electrofishing course (FIS2201) at its National Conservation Training Center. A correspondence version of the course is also available (FIS2C01). Certification is valid for 5 years; re-certification is available through both classroom and online settings. Contact your major advisor to arrange training if electrofishing is required for your research project and you will serve as the project's team leader.

For all electrofishing projects, the operator of a shocking boat must complete the Motorboat Operator's Certification Course (see preceding discussion on *Motorboat Policy and Safety Procedures*). All members of the electrofishing crew must maintain valid first aid/CPR certification, whether they are working from a boat or in a stream.

When using electrofishing equipment, safety is of primary concern and must not be taken lightly. Whether you are using a boat or backpack unit, a potentially fatal situation may arise during your electrofishing event. Potentially hazardous situations include spilled fuel around the generator, fumes from the generator exhaust system, and contact with the electrodes or electrified water. Every electrofishing crew member must abide by the safety requirements when shocking from a boat or in a stream.

References

- USGS Electrofishing Safety Policy, <http://www.usgs.gov/usgs-manual/handbook/hb/445-2-h/ch42.html>
- USFWS/National Conservation Training Center's course information for electrofishing certification, <http://training.fws.gov/learn/courses.htm>

F. Underwater Diving Policy and Safety Procedures

If you will be diving underwater with a breathing apparatus (excluding a snorkel) on a unit-related project, you must complete the required training, physical examinations, and logged dives before diving on the project. Furthermore, your diving operation must comply with the requirements set forth in the USGS Diving Safety Manual. A copy of that manual is available through the CRU Website's Intranet (see *References* at end of discussion). These requirements also apply to all cooperative divers of a project for which a unit leader or assistant unit leader has some level of operational control.

To gain authorization for a diving assignment, you must meet the following requirements:

1. Complete a training course and receive a SCUBA certification card from a nationally (or internationally) approved diving organization; see USGS Diving Safety Manual for certification maintenance requirements.
2. Maintain current certification in first aid/CPR as well as in Emergency Oxygen Administration.
3. Pass a comprehensive physical examination, including a drug test.
4. Demonstrate your proficiency and competency in diving to the USGS dive program manager.
5. Submit a copy of your SCUBA certification card and dive logs through the USGS field dive officer to the agency's Diving Safety Board; the Board must approve your dive.
6. Provide the USGS Human Resources Office with a copy of your original medical examination, medical history, and test results.

Before you participate in an authorized dive, you must test your diving equipment according to industry and/or Occupational Safety and Health Administration requirements. You also must prepare a written diving plan that includes an activity hazard analysis for the diving operation; provide your major advisor with a copy of the plan. Remember that during your dive you must be in constant contact with a fellow diver.

References

- Appendix X – USGS Diving Program Fact Sheet
- USGS Diving Safety Information, <http://internal.usgs.gov/ops/safetynet/diveweb.html>
- Diver's Alert Network, <http://www.diversalertnetwork.org>
- American Academy of Underwater Sciences, <http://www.aaus.org>

G. Other Safety Considerations

Again, the above discussions represent common unit research activities that require specific safety training under USGS policy. Prior to field sampling, please review the USGS Safety Handbook and consult with your major advisor to ensure you have completed the appropriate training to safely and successfully accomplish your research.

IX. Accident Reporting and Emergency Medical Treatment

If you experience an accident while conducting your research in either the field or laboratory, remain mindful of your three responsibilities. First, you must ensure the safety of all people involved or who might become involved in the accident. Second, you must report the accident to the appropriate authorities, including your unit office. Third, remember that you are the public face of the CRU Program. Therefore, you need to act responsibly and cooperatively in all aspects of the accident investigation and resolution process.

A. Responding to Accidents at the Scene

The most common accident among unit students involves the operation of a federal or state vehicle while conducting field research. Many guidelines presented here refer to that specific situation. Accidents, however, also can occur in boats or the laboratory and while hiking, climbing, or teaching. In general, the emergency response procedures to follow are the same and include a cessation of activity, checking for safety, administering or obtaining emergency medical treatment (and any other assistance) if needed, and then recording details of the accident to ensure all critical information is reported to the proper authorities. Consult your major advisor to learn more about your unit's general emergency response procedures.

Only those individuals who have training in emergency medical treatment should administer such services at the scene of an accident; however, it may be necessary for you to administer first aid or cardiopulmonary resuscitation (CPR) before an emergency medical team arrives. It is for this reason that all graduate students should obtain basic training in first aid and CPR before commencing their research activities. First aid/CPR training may be available through your university; if not, it could be arranged through the American Red Cross. Also, consider the range of hazards to which you might be exposed in the field or laboratory. Will you be sampling data in locations where a poisonous snake could bite you? Will you be hiking on rugged terrain where you could easily twist an ankle? Will you be working with firearms or noxious chemicals? Regardless of what the unique hazard may be for your research site, make sure you know how to avoid it and how to address a serious accident if one should occur before you enter the field or laboratory. To obtain information about emergency response procedures specific to your field site, consult your major advisor and current and past graduate students who worked in the same area.

When administering first aid, you need not only proper training but also proper supplies. Thus, before you operate a unit vehicle or boat, confirm it has a complete first aid kit. If you will be working a considerable distance from your vehicle or boat, purchase a backcountry first aid kit from a local outdoors store and make sure it is readily available.

In many cases, the administration of first aid is just that – “first” aid intended to stabilize the injured individual(s). Additional treatment is often necessary. Therefore, before you initiate your research activities, familiarize yourself with the local towns so you know how to access emergency medical treatment as fast as possible. Many towns now have urgent care centers that can treat a wide variety of injuries. If the nearest town to your field site has no medical facilities, drive to the nearest police or fire department to seek medical assistance.

When seeking medical help, inform the care providers whether or not your accident was work-related and explain that you are a university employee to ensure you complete the correct medical insurance form. If the medical staff does not have the proper form and the correct form is not in your unit vehicle, contact the unit administrative assistant so the proper form can be faxed to the medical facility. While insurance filing and payment of services are definite concerns, they are secondary to ensuring that you and other injured individuals receive prompt medical attention.

While it is not possible to summarize responses for all accident types, the guidelines below may be of some use. If you are not sure what information needs to be recorded, err on the side of gathering too much data. Consider including both text and photos. Many of us carry digital cameras in the field or cell phones that have a built in camera. Photos of the accident scene, vehicle/boat damage, or obstruction that caused an accident represent valuable pieces of information.

1. In the case of a vehicle accident, stop immediately. In the case of a boat accident, use caution and secure the boat as soon as possible.
2. Check the scene. Prevent danger to yourself and others. In the case of a vehicle accident, it is usually best not to move the vehicle until the police arrive. If necessary for safety purposes, move the vehicle off the road to avoid further damage. If a vehicle is on fire, move away from it immediately then determine if you have the ability to put the fire out (fire extinguisher should be on board). Boat fires are a different situation – moving away from a boat that is on fire is not always easy or safe! If your boat engine is on fire you should try and use the on-board extinguisher to put it out. (Check your on-board extinguisher frequently to make sure it is current and charged.)
3. Dial 911 to enlist emergency services, if necessary. If you are boating you should have contact numbers for the coast guard or local state agency law enforcement officers. Prior to initiating field work, you should request specific emergency contact numbers for your location. For example, dispatchers for state natural resource agencies, U.S. Forest Service districts, or National Park Service lands may be a better ‘first call’ if your location is remote. These contacts often know the area better than a 911 dispatcher might. In a remote setting your first call may need to be via radio, if you are so equipped. Be prepared to sit and wait in remote settings. Do you have emergency supplies like extra water, a space blanket, an emergency whistle, and food bars? Consider packing iodine tabs to purify water if necessary. You can stash all of these in the bottom of your pack or boat.
4. Administer first aid/CPR to injured victims, if applicable. Treat yourself before helping others. Do not move victims until medical assistance arrives, unless there is a life-threatening situation. In a remote setting it is possible that you may be faced with the decision of whether or not to stay with an injured co-worker or leave him or her to seek help. This is obviously not a decision to be made lightly. If you must leave someone to retrieve help, do your best to place the individual in the most stable situation possible. Provide your co-worker with food and water, warm clothes, and shade if necessary. Also use your GPS unit to mark the co-worker’s location or erect a marker that could be seen from a search plane.
5. Notify police.
6. In a vehicle or boat accident, obtain the following basic information:
 - a. License plate or boat registration number, make, model, and year for all vehicles/boats involved in the accident.
 - b. The name, address, phone number, driver’s license number, registration number, and insurance policy name and number for all drivers involved in the accident.
 - c. Date, time, and location of the accident.

- d. The name, badge number, and station of all police personnel reporting to the scene.
7. Locate any witnesses that were present at the time of the accident. If they are willing, have them complete a witness form that is found in your vehicle's accident packet. Do not force witnesses to complete forms and do not rely on the police to find witnesses.
8. Request a police report.
9. Do not sign any papers or make any statements concerning responsibility for blame because any admission may impair the insurer's ability to defend a case of questionable legal liability.
10. Notify the unit staff as soon as possible. If the accident occurs during an evening or weekend, notify unit staff at home.

B. Reporting Accidents

Before operating a state or federal vehicle, confirm the vehicle has a current insurance card from the respective agency in the glove compartment. Additionally, each unit vehicle and boat should have an emergency contact card that lists the names and phone numbers (work, cell, and home) of the unit leader and assistant unit leader, unit administrative assistant and select university staff, such as the department head and his or her administrative assistant. If you ever have an accident, call unit staff as soon as possible, be it day or night, to learn how you should proceed. The unit administrative assistant will likely be your best "first call." Most unit administrative assistants have handled these situations before and will be able to tell you exactly what to do. If you are working in an area near fellow graduate students, it would be wise to carry their contact numbers for they may be able to respond and provide aid or support more quickly than the distant unit scientists.

Whenever an accident occurs that involves you or another member of the unit, it is critical that you report the accident as soon as possible to the unit office; even if you are not at fault or there appears to be no damage to your vehicle, boat, or a person. By informing the unit office as soon as possible, unit scientists will be able to process claims, repairs, and paperwork in a timely and efficient manner. Additionally, prompt accident reporting maximizes the likelihood that you will relay important details to the unit scientists. It is not uncommon, especially for students, to not realize that unit scientists will need a specific detail about the accident when filing an official report to the CRU headquarters or university. Thus the sooner you initiate the official accident reporting process, the easier it will be for the unit scientists to file the necessary forms correctly the first time around. Do not be embarrassed about reporting a "stupid" accident or concerned about being reprimanded. If in doubt as to whether or not you need to report an accident to the unit office, call and ask. Never assume a report is unnecessary.

If you are involved in an accident while operating a state, federal, or university-owned motor vehicle or boat, you must comply with the reporting procedures established by the respective entities. Compliance is also required for accidents occurring in privately-owned vehicles while conducting official business. The accident reporting procedures are presented below and must be followed under all circumstances, regardless of fault or lack of damage to the vehicle. A copy of these procedures and of the accident report forms is available in the vehicle log notebook in each unit vehicle.

1. Federal vehicles: Fill out the appropriate forms in the Department of the Interior "Motor Vehicle Accident Reporting Kit." The information you record at the scene should suffice for filling out the forms. Return the completed forms to the unit office as soon as possible.
2. State and university vehicles: Fill out the "Accident Report Form." An accident report form must be submitted to the state motor vehicle administration within 24 hours of the accident. Your unit administrative assistant will help you complete this form and will handle the additional insurance paperwork for reporting accidents.
3. All vehicles (including privately-owned vehicles): Prepare a written accident report that describes the specific details of the incident (Who? What? Where? When? Why? How?). Submit this report to the unit administrative assistant with the completed state or federal forms.

APPENDIX I

U.S. DEPARTMENT OF THE INTERIOR

U.S. Geological Survey

INDIVIDUAL VOLUNTEER SERVICES AGREEMENT

1a. Name of Volunteer (print or type)	1b. Social Security No.	1c. Date of Birth
1d. Address (include zip code)	1e. Home Telephone No. (include area code)	
2a. Person to Notify in an Emergency	2b. Relationship to Volunteer	
2c. Address (include zip code)	2d. Telephone No. (include area code)	

3. Agreement by Volunteer: I offer and agree to perform the services described below without compensation to assist the U.S. Geological Survey (USGS), in accord with the following understandings:

a. I will contribute my services from _____ (mm/dd/yyyy) to approximately _____ (mm/dd/yyyy).

b. The volunteer service will not confer on me the status of a Federal employee; however, while acting within the scope of this Agreement, I am covered under the provisions of the:

- (1) Federal Tort Claims Act, which protects a Federal employee from liability for injury or damage to others while the employee is acting within the scope of his or her duties, and
- (2) Federal Employees Compensation Act, which authorizes compensation for work-related injury.

c. If I am less than 18 years old, my parent or guardian consents to this agreement by signature below.

d. I understand the health and physical conditions requirements for performing services described in item 4 below, and certify that I know of no physical condition or limitation that may adversely affect my ability to perform these services.

e. Either I or the USGS may terminate this Agreement at any time by notifying the other party in writing.

f. Because volunteers are not Federal employees, their volunteer service will not be creditable for leave accrual, retirement, or other benefit purposes if they later accept a Federal appointment.

Signature of Volunteer _____ Date _____

Signature of Parent
or Guardian _____ Date _____
(If volunteer is under 18)

4. Project Description (Attach an additional sheet as necessary): _____

USGS Project Supervisor _____ Title/ Position _____
Division/Office/Location _____ Telephone _____
Organizational Code: _____

5. Agreement by USGS: Under the authorities of Public Law 99-591, Public Law 100-202, and current Department of the Interior Appropriations Act, the USGS accepts this offer. While this Agreement is in effect:

- a. The volunteer is covered by the provisions of the Federal Tort Claims Act and the Federal Employee Compensation Act.
- b. The USGS will provide for such materials and supplies, equipment, support services, and facilities as are needed and are available to accomplish this project, except as may be specified in
- c. an attachment marked _____.

Signature of USGS Official _____ Name (print or type) _____
Title/Position _____ Office/Location _____ Date _____

1. Time and Attendance: The volunteer must maintain a timesheet to ensure coverage in case of injury and to verify creditable experience for employment purposes.

2. Additional Information:

- a. Volunteer Source (Be specific) _____
- b. USGS Retiree Yes No SAVE Yes No
- c. Scientist Emeritus Yes No
- d. Faculty Yes No School _____
- e. Student Yes No School _____

3. Termination of the Agreement:

- a. Total number of hours contributed by volunteer _____
- b. This Agreement was terminated on _____ (mm/dd/yyyy)

Signature of USGS Official _____ Signature of Volunteer _____

PRIVACY ACT STATEMENT

The following information is provided to comply with the Privacy Act of 1974 (5 U.S.C.552a): 5 U.S.C. 301 authorizes collection of information requested on this form, and Executive Order 9397 authorizes use of social security numbers to identify individual personnel records. The personal data will be used when emergency contact is necessary. Furnishing this information, including the social security number, is voluntary, but failure to provide may result in non-acceptance as a volunteer.

APPENDIX II



U.S. Geological Survey Manual, Appendix 16-1

ANNUAL MOTOR VEHICLE OPERATOR'S CERTIFICATION

I acknowledge that I am required to operate a motor vehicle as part of my employment with the U.S. Geological Survey. I hereby certify that I possess a valid State driver's license for the vehicles that I am required to operate as part of my official duty. I further certify that my State driver's license has not been suspended revoked or cancelled.

I agree to inform my Supervisor if my state driver's license should be suspended, revoked, canceled, or I should be disqualified from motor vehicle operation at any time for 1 year after signing this certification.

I understand that any false statement on this form constitutes a violation of USC 1001 and is punishable by a fine of up to \$10,000 or 5 years imprisonment or both.

Name of Employee _____

Signature of Employee _____

Date Signed: _____

APPENDIX III



Aviation Training and Flight Planning

All USGS personnel who use aircraft for mission work, their supervisors, and their administrative officers need to be familiar with the requirements of 350-354DM, the Aviation Management (AMD--formerly OAS) Operational Procedures Memoranda (OPM) and Handbooks, and the USGS Safety Manual 445-2-H, Chapter 27. The following is a sample of some of the potential problem areas which are critical for management to address.

User Training

Each employee, volunteer, and cooperator must complete the required training before engaging in mission flight activities. It is the responsibility of management to ensure that all personnel have the required training.

The training requirements are outlined in OPM 04-04 (<http://www.oas.gov/library/opm/04-04.PDF>). In most cases USGS people flying special-use missions are classified as an "aircrew member", which requires the Basic Aviation Training modules. Aviation Training is available online at <http://iat.nifc.gov/>. As indicated under "Online Courses" there are 5 modules required for the Basic Aviation Training. All 5 modules must be completed for personnel to be approved for mission aviation operations. In addition, certain critical or hazardous activities such as animal capture, one-skid landings, etc., require additional training.

The Aviation Transport of Hazardous Materials class is required prior to transport of flammable liquids, batteries, explosives, compressed gasses, ammunition, or bear repellent. This class is available online at: <http://iat.nifc.gov/>

Training records for all USGS employees and volunteers can be viewed by following the directions at:

<http://internal.usgs.gov/ops/safetynet/AviationTrainingRecords-Instructions.doc>



Supervisor Training

All first- and second-level supervisors of those who use aircraft are required to complete Aviation Management Training for Supervisors (M3). This class will be available online soon, or is available as an instructor-led class. To set up a class at your center, contact a member of the Aviation Advisory Committee or the nearest Area/Region office of AMD (www.oas.gov). Failure to take this class may leave you blissfully unaware, until something goes wrong, of the personal liability to which you may subject yourself by allowing employees to operate outside the scope of their employment.

Procurement

All aviation procurement must go through AMD, except seat fares on major airlines or end-product contracts. Use of unauthorized aircraft or pilots may incur a \$1000 fine, from AMD as per OPM 04-06. End-product contracts are contracts for a product (i.e., aerial photos), not for aviation services. OPM 04-35 (<http://www.oas.gov/library/opm/04-35.PDF>) details information on end-product contracts and has a table providing guidance in defining an end-product contract. For clarification, if an aircraft is being paid for by flight hour, then you are procuring flight services; this is not an option for an end-product contract. If you have questions, we recommend that all end-product contracts be reviewed by the AMD Contracting personnel to ensure compliance.

Flight Plans and Flight Following

Management must ensure that all aviation operations are conducted in accordance with OPM 04-02 (<http://www.oas.gov/library/opm/04-02.PDF>), and that an aviation mishap response plan (see <http://www.oas.gov/oassafety/library/iamrp.html> for an example) identifies explicit procedures and responsible parties designated to initiate search and rescue operations if necessary.



Reporting Usage

All uses of Government aircraft must be documented, as per 41CFR101-37.407. This is normally accomplished by a Form OAS 23 for contract aircraft or Form OAS 2 for fleet aircraft. In cases where USGS personnel are aboard cooperator aircraft (State, University, or other non-DOI Federal agencies, including military), then a Form OAS 23 must be submitted documenting the hours, but with the comment "Not for Payment Purposes" in the Other Charges/Credits section as per OPM 04-38 (<http://www.oas.gov/library/opm/04-38.PDF>).

Safecomms

Managers and project leaders should encourage all employees to report any unsafe acts via the SAFECOM system (<http://www.safecom.gov/>).

Further Information

The USGS Aviation Advisory Committee comprises members from each region. Contact any of the following for information:

- Alaska Tom Light, tlight@usgs.gov
907-786-7431
 - CR David Johncox, djohncox@usgs.gov
303-236-9171
Bill Christiansen, wdchrist@usgs.gov
303-236-5513
 - ER Larry Gough, lgough@usgs.gov
703-648-4404
Chuck Heywood, cheywook@usgs.gov
 - WR Bobbie Myers, bmyers@usgs.gov
360-993-8940
- Aviation Management (formerly OAS)
www.oas.gov 208-433-5000

Additional resources can be found at the internal USGS Safety Office, Specialized Program website:
<http://internal.usgs.gov/ops/safetynet/aviat1.html>

A sample Center Aviation Plan is at
<http://internal.usgs.gov/ops/safetynet/USGS-CenterAviationMgmtPlan-Template.doc>

A sample Project Aviation Plan is at
<http://internal.usgs.gov/ops/safetynet/projectplanteplate.doc>

This information sheet is at:
<http://internal.usgs.gov/ops/safetynet/AviationFactSheet.doc>

APPENDIX IV



Firearms Safety Program

The USGS provides appropriate firearms safety training for any employee or volunteer, or others that work under USGS funding/direction, who uses, handles, carries, or stores a firearm as a part of their official duties. Firearms are used by Survey employees for defense against potentially dangerous wild animals and for specimen collecting for biological research. Firearms may also be used for signaling and survival in emergency situations.

In 1978, the USGS developed firearms safety training for defense against wild animals following a near-fatal attack on a Survey geologist during the 1977 field season in Alaska. The firearms safety training for personnel involved in specimen collection (biological research) was developed following the National Biological Service being integrated into the USGS as the Biological Resources Division (BRD) in 1997.

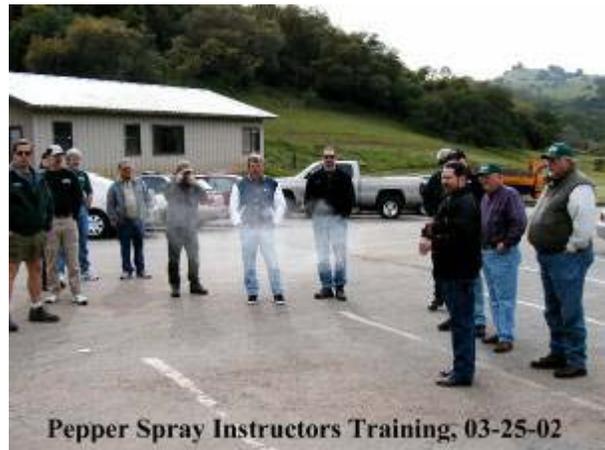
Although firearms safety remains a constant emphasis and is a key element of any firearms safety training program, there are substantial differences in the two programs. In the USGS Defense Against Wild Animals (DAWA) training program, the firearms are restricted to those action and model types that can handle powerful, large-caliber cartridges. The firearm is a tool of last resort and is only used when other deterrents are exhausted or impractical. The Specimen Collection (SC) training program deals with a broad range of firearm types, from rimfire to large-bore calibers and includes almost every type of firearm action, make, and model.



The Survey's current firearms policy and training methodology have continually improved since the tragic incident in 1977. Current doctrines are the result of extensive field experience by Survey personnel and many of the training concepts have been adapted from professional firearms training programs. Both the DAWA and the SC firearms training programs are constantly

changing as new information from actual field experiences are incorporated into the curriculum and firearms training techniques from other professional training programs are reviewed and tested.

A number of more-specialized USGS Firearms Safety curriculums are being developed to better satisfy the firearms training demands in the USGS. In addition to the DAWA course, separate curriculums and courses are being developed that include: Wild Animal (Bear, Cougar, etc.) Behavior, Bear Pepper Spray and Other Less-lethal Deterrents for Wild Animals, Collection of Waterfowl, Precision Shooting, and Small-Caliber Firearms for Trapping. Others will be added as needed.



These curriculums will have specific instructor certifications and Survey personnel and managers will soon be able to pick and choose which type(s) of training will best satisfy their science program needs.

Obtaining Firearms Authorization

With supervisory permission, any employee or volunteer can be authorized to carry a firearm while on official duty once they have completed the following requirements as specified in Chapter 29 of the Occupational Safety and Health Program Requirements Handbook, SM 445-2-H:

- 1) Successful completion of the appropriate Basic or Refresher Firearms Safety Training Course as listed in Ch. 29.3, part B, Firearms Training, <http://www.usgs.gov/usgs-manual/handbook/hb/445-2-h/ch29.html>.

- 2) Completion of a Certificate of Need as listed in Ch. 29.3, part A, Certificate of Need and Qualification Inquiry: <http://www.usgs.gov/usgs-manual/handbook/hb/445-2-h/a291.doc>.
- 3) Completion of a Qualification Inquiry, as listed in Ch. 29.3, part A, Certificate of Need and Qualification Inquiry: <http://www.usgs.gov/usgs-manual/handbook/hb/445-2-h/a292.doc>.

USGS Firearms Instructors must be able to independently and effectively teach the fundamentals of firearms safety and safe firearms handling. Instructor certification requires approximately 150 hours of formal training including a USGS Instructor Firearms Class and apprenticing as an assistant instructor. Detailed requirements for USGS Firearms Instructorship are listed in Ch. 29.3, Part D, Firearms Instructors, <http://www.usgs.gov/usgs-manual/handbook/hb/445-2-h/ch29.html>.



USGS Firearms Instructor Course for Defense Against Wild Animals, Santa Clara CA 2002

Storage, Security, and Transport

Details for firearms storage, security, and transport can be found in Chapter 10, Section C of the Physical Security Handbook, 440-2-H at http://www.usgs.gov/usgs-manual/handbook/hb/440-2-h/440-2-h-ch10.html#chapter10_C.

- (1) All firearms shall be held in a secure, locked, and safe storage area.
- (2) A Department of the Interior memo on Child Safety Locking Devices for Handguns specifically implies that any firearm (government- or personally-owned) used by USGS personnel shall be under lock and key when (1) not being used in the field, (2) in transit, or (3) the firearm is not under the direct control of the cognizant person.
- (3) Firearms and ammunition transported on commercial airlines must be declared and a Federal Aviation

Administration (FAA) tag must be signed stating that the firearm is unloaded. For field aircraft, the firearm must be declared to the pilot or authorized representative prior to boarding.

(4) Any personnel authorized to use a firearm must follow the State and municipal laws concerning the transportation and mode of carry of firearms in motor vehicles.

(5) Any personnel authorized to use a firearm must follow the State and municipal laws concerning the personal carry of firearms. Only Bureau-authorized firearms may be carried. State permits authorizing concealed carry are not recognized by the USGS.

Contact Information

The USGS Firearms Safety Program is overseen by both Bureau and Regional management. Contact any of the following for further information:

BUREAU

Charles D. Blome
Program Manager
cblome@usgs.gov
Denver, CO Firearms
303-236-1278

EASTERN REGION

Wayne E. Martin
Eastern Region Firearms Manager
wmartin@usgs.gov
Reston, VA
703-648-5289

CENTRAL REGION

Ronald K. Kuzniar
Central Region Firearms Manager
rkuzniar@usgs.gov
Denver, CO
303-445-4650

WESTERN REGION (minus Alaska)

W. Karl Gross
Western Region Firearms Manager
kgross@usgs.gov
Menlo Park, CA
650-329-4845

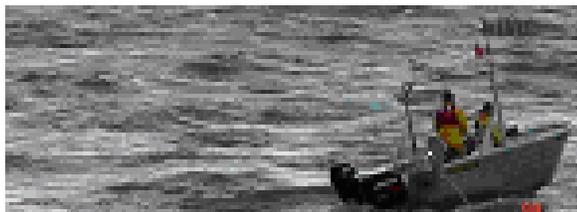
ALASKA REGION

Chad Smith
Alaska Firearms Manager
cwsmith@usgs.gov
Anchorage, AK
907-786-7103

APPENDIX V



Watercraft Safety Program



Watercraft of all sizes, ranging from canoes to ocean going Research Vessels, are used by the USGS in collection of data that is essential for the completion of our science mission. Estimates are that there are as many as 10,000 watercraft used within the Department of Interior. The safety and well being of the vessel operator and crew members of these vessels is of primary concern.

Agency owned or leased vessels are to be mechanically sound and maintained in seaworthy fashion to provide the safest possible work platform. Watercraft must be equipped as required by the US Coast Guard, as well as the state in which the craft is being operated. In addition, the watercraft will be equipped with all the appropriate additional safety equipment necessary to affect the use of the craft in a safe and seaworthy manner to protect the crew and craft to the maximum extent possible.

All USGS personnel who operate a motorized watercraft vessel less than 26 feet in length for mission work must successfully complete the Department of the Interior Motorboat Operator Certification Course (MOCC).

The DOI MOCC Course is certified by the National Association of State Boating Law Administrators (NASBLA) and is accepted by most states as approved training for those states requiring boat safety training.

Motorboat Operator Certification Course (MOCC)

The MOCC Course is a 24 hour minimum class similar to the U.S. Coast Guard Auxiliary course, differing in that there is extensive hands-on training on the water as well as classroom activities. First Aid and CPR training is also required to maintain certification.



MOCC Course Curriculum

MOCC Course Curriculum summary:

- Required and recommended safety equipment
- Boat orientation and Maintenance
- Emergency Procedures
- Boat Trailer and Trailer Maintenance
- Aids to Navigation and Rules of the Road
- Emergency Procedures
- Marlinspike
- Fire Suppression and Pyrotechnics
- Anchoring
- Slow speed and High speed maneuvering
- Launching and Loading techniques



Special Use Watercraft Training Modules

“Special Use Modules” have been and are currently being developed within DOI to provide Safety Training in areas of special concern or when using special use watercraft.

- Fast Water Module
- Moving Water Module
- Non-Motorized Watercraft Module
- Hovercraft Module
- Airboat Module

Certification

MOCC Certification is valid for 5 years and re-certification is available either on-line or in combination with a MOCC Instructor. See [Appendix 31-4 Motorboat Operator Refresher Training](#).

Available Courses

Course information is available at the [DOI Calendar Year 2004 Safety & Health Events](#).

Further Information

For more information about watercraft training, contact your Bureau Watercraft Safety Program Manager or Regional Watercraft Safety Manager for availability of these courses.

Bureau Watercraft Safety Program Members

BUREAU LEVEL

Gary L. Hill, Bureau Watercraft
Safety Program Manager 727-803-8747

Bill Miller, Bureau Safety
Manager 703-648-7552

Beth Demith, Bureau Safety
Council Representative 703-648-7553

WESTERN REGION

Byron Richards, GD, Regional Watercraft
Safety Program Manager 650-369-2365

John Beeman, BRD, Technical
Representative 509-538-2299

CENTRAL REGION

Ron Kuzniar, WRD, Regional Watercraft
Safety Program Manager 303-445-4650

Zach Bowen, BRD, Technical
Representative 970-226-9218

EASTERN REGION

Bob Winowitch, WRD, Regional Watercraft
Safety Program Manager 631-736-0783

Terry Kelley, GD, Technical
Representative 727-803-8747

Website Information

[USGS SM 445-2-H CHAPTER 31 Watercraft Safety](#)

[USGS Watercraft Safety Information](#)

[DOI 485 DM 22 Chapter 22: Watercraft Safety](#)

[DOI Watercraft Safety Working Group \(WSWG\)](#)

APPENDIX VI



Dive Safety Program

The USGS Dive Safety Program provides the guidance for the Bureau's scientific diving operations. Scientific diving supports a diversity of research projects within the USGS including investigations on: water quality, marine mammal biology, geochemistry, coral reef ecology, water movements and fisheries research.

The Dive Safety Program operates under the Occupational Safety and Health Administration (OSHA) Scientific Diving exemption from commercial diving standards¹, is overseen by the Bureau Dive Safety Board and follows the guidelines set forth in the USGS Dive Safety Manual and USGS Safety Manual 445-2-H, Chapter 28.

¹ (OSHA) in 29 Code of Federal Regulations (CFR) 1910.401, Subpart T - Commercial Diving Operations

Obtaining USGS Dive Authorization

With supervisory permission, an employee or volunteer may become authorized to dive with the USGS after completing the following requirements as specified in the USGS Dive Safety Manual:

- Hold a current open water dive certification from a national training agency and have dive logs.
- Pass a comprehensive medical examination.
- Have current training in First Aid, CPR and Emergency Oxygen Administration for diving.
- Perform an open-water check-out dive and working dive.

Details of these requirements can be found in the USGS Dive Safety Manual.

Further Information

Additional resources including the USGS Dive Safety Manual, Forms and information can be found on the USGS intranet website listed under Safety and Specialized Programs or directly via the following link:

<http://internal.usgs.gov/ops/safetynet/diveweb.html>



Contact Information

The USGS Dive Safety Board is comprised of members from each region. Contact any of the following for information:

EASTERN REGION

Marc Blouin - Dive Safety Officer, Ann Arbor, MI
mblouin@usgs.gov 734-214-7248

Don Hickey - St. Petersburg, FL
tdhickey@usgs.gov 727-803-8747

Chuck Worley - Woods Hole, MA
cworley@usgs.gov 508-457-2250

WESTERN REGION

Tom Reiss - Dive Safety Officer, Santa Cruz, CA
treiss@usgs.gov 650-329-5087

Jim Bodkin - Anchorage, AK
james_bodkin@usgs.gov 907-786-3550

CENTRAL REGION

Marcus Gary - Dive Safety Officer, Austin, TX
mogary@usgs.gov 512-927-3570

Alan Riggs - Denver, CO
ariggs@usgs.gov 303-236-5183

BUREAU SAFETY OFFICE

Bill Miller - Bureau Safety Manager
wrmiller@usgs.gov 703-648-7552

Wayne Martin - ER Safety Manager
wmartin@usgs.gov 703-648-5289

Clyde Sholar - WRD Management. Rep.
cjsholar@usgs.gov 502-493-1911

Kris Bancroft - SEMB Representative
kbancroft@usgs.gov 703-648-7554

Additional resources can be found at the internal
USGS Safety Office, Specialized Program website:
<http://internal.usgs.gov/ops/safetynet/diveweb.html>