Shoals Marine Laboratory Underwater Research Course SCUBA Diving Application Instructions

Underwater Research Applicants must follow the steps outlined below in order to receive permission to dive at Shoals Marine Laboratory (SML), Appledore Island, Isles of Shoals, ME.

The forms referenced below are included in this packet.

STEP 1:
APPLICANT/DIVER completes:

- Appendix 3 - SCUBA Diving Medical History
- Shoals Marine Laboratory SCUBA Diving Application Form
- Shoals Marine Laboratory Release/Indemnification

STEP 2:
PHYSICIAN reviews and completes:

- Appendix 1 - Medical Exam Overview,
- Appendix 2 - Medical Evaluation of Fitness
- Appendix 3 - SCUBA Diving Medical History

STEP 3:
Send all original documents* to SML’s diving safety officer at least one month prior to your course!

Becca Toppin
Diving Safety Officer phone: (508) 454-3571
Shoals Marine Laboratory
Morse Hall Suite 113
8 College Rd. email: becca.toppin@unh.edu
Durham, NH 03824

*Keep copies to bring to the island, thank you.

STEP 4:
Review the University of New Hampshire Handbook for Diving Safety

Special Notes:
(1) Acceptance into the Shoals Marine Laboratory diving program is contingent upon a completed SML/UNH medical evaluation of fitness, physician approval and review from the Diving Control Board.
The Shoals Marine Laboratory and the University of New Hampshire reserve the right to require further medical review by a physician specializing or experienced in hyperbaric medicine.

(2) The initial dive medical examination requires a chest x-ray, spirometry, urinalysis, and hematocrit (or hemoglobin) tests. Please speak to your physician or make arrangements to have these tests done before the appointment for your physical.

(3) The following conditions are contraindications for diving: Asthma or lung disease, epilepsy/seizure syndromes, insulin dependent diabetes, dizziness or fainting, recreational drug use, pregnancy, or any other serious medical condition. If you have any one of these conditions, you may not be able to participate in the Shoals Marine Laboratory/University of New Hampshire diving program.

(4) First Aid/CPR/AED training and Oxygen for SCUBA diving injuries training are included as part of Underwater Research Credit Course. All training fees are included in program costs.

Questions? Contact SML Diving Safety Officer, Becca Toppin: becca.toppin@unh.edu
APPENDIX 1
DIVING MEDICAL EXAM OVERVIEW FOR THE EXAMINING PHYSICIAN

TO THE EXAMINING PHYSICIAN:

This person, _____________________, requires a medical examination to assess their fitness for certification as a Scientific Diver for the Shoals Marine Laboratory/University of New Hampshire. Their answers on the Diving Medical History Form (attached) may indicate potential health or safety risks as noted. Your evaluation is requested on the attached scuba Diving Fitness Medical Evaluation Report. If you have questions about diving medicine, you may wish to consult one of the references on the attached list or contact one of the physicians with expertise in diving medicine whose names and phone numbers appear on an attached list, the Undersea Hyperbaric and Medical Society, or the Divers Alert Network. Please contact the undersigned Diving Safety Officer if you have any questions or concerns about diving medicine or the Shoals Marine Laboratory/University of New Hampshire standards. Thank you for your assistance.

Rebecca Toppin      becca.toppin@unh.edu      508-454-3571      Diving Safety Officer, Shoals Marine Laboratory

Scuba and other modes of compressed-gas diving can be strenuous and hazardous. A special risk is present if the middle ear, sinuses, or lung segments do not readily equalize air pressure changes. The most common cause of distress is eustachian insufficiency. Recent deaths in the scientific diving community have been attributed to cardiovascular disease. Please consult the following list of conditions that usually restrict candidates from diving. (Adapted from Bove, 1998: bracketed numbers are pages in Bove)

CONDITIONS WHICH MAY DISQUALIFY CANDIDATES FROM DIVING

1. Abnormalities of the tympanic membrane, such as perforation, presence of a monomeric membrane, or inability to autoinflate the middle ears. [5 ,7, 8, 9]
2. Vertigo, including Meniere’s Disease. [13]
4. Recent ocular surgery. [15, 18, 19]
5. Psychiatric disorders including claustrophobia, suicidal ideation, psychosis, anxiety states, untreated depression. [20]
6. Substance abuse, including alcohol. [24 - 25]
7. Episodic loss of consciousness. [1, 26, 27]
8. History of seizure. [27, 28]
9. History of stroke or a fixed neurological deficit. [29, 30]
10. Recurring neurologic disorders, including transient ischemic attacks. [29, 30]
11. History of intracranial aneurysm, other vascular malformation or intracranial hemorrhage. [31]
12. History of neurological decompression illness with residual deficit. [29, 30]
13. Head injury with sequela. [26, 27]
14. Hematologic disorders including coagulopathies. [41, 42]
15. Evidence of coronary artery disease or high risk for coronary artery disease. [33 - 35]
16. Atrial septal defects. [39]
17. Significant valvular heart disease - isolated mitral valve prolapse is not disqualifying. [38]
18. Significant cardiac rhythm or conduction abnormalities. [36 - 37]
19. Implanted cardiac pacemakers and cardiac defibrillators (ICD). [39, 40]
20. Inadequate exercise tolerance. [34]
21. Severe hypertension. [35]
22. History of spontaneous or traumatic pneumothorax. [45]
23. Asthma. [42 - 44]
24. Chronic pulmonary disease, including radiographic evidence of pulmonary blebs, bullae, or cysts. [45,46]
25. Diabetes mellitus. [46 - 47]
26. Pregnancy. [56]
SELECTED REFERENCES IN DIVING MEDICINE
Available from Best Publishing Company, P.O. Box 30100, Flagstaff, AZ 86003-0100, the Divers Alert Network (DAN) or the Undersea and Hyperbaric Medical Society (UHMS), Durham, NC

To The Examining Physician: Scientific divers require periodic scuba diving medical examinations to assess their fitness to engage in diving with self-contained underwater breathing apparatus (scuba). Their answers on the Diving Medical History Form may indicate potential health or safety risks as noted. Scuba diving is an activity that puts unusual stress on the individual in several ways. Your evaluation is requested on this Medical Evaluation form. Your opinion on the applicant's medical fitness is requested. Scuba diving requires heavy exertion. The diver must be free of cardiovascular and respiratory disease (see references, following page). An absolute requirement is the ability of the lungs, middle ears and sinuses to equalize pressure. Any condition that risks the loss of consciousness should disqualify the applicant. Please proceed in accordance with the AAUS Medical Standards (Sec. 6.00). If you have questions about diving medicine, please consult with the Undersea Hyperbaric Medical Society or Divers Alert Network.

TESTS: THE FOLLOWING TESTS ARE REQUIRED-Please initial that each required tests have been completed:

DURING ALL EXAMS
- Medical history
- Complete physical exam, with emphasis on neurological and otological components
- Chest X-Ray - required only on initial exam
- Spirometry - required only on initial exam
- Hematocrit or Hemoglobin
- Urinalysis
- Any further tests deemed necessary by the physician

ADDITIONAL TESTS DURING FIRST EXAM OVER AGE 40 AND PERIODIC RE-EXAMS (OVER AGE 40):
- Assessment of coronary artery disease using Multiple-Risk-Factor Assessment¹ (age, lipid profile, blood pressure, diabetic screening, smoking)
- Resting EKG

Note: Exercise stress testing may be indicated based on Multiple-Risk-Factor Assessment²

PHYSICIAN’S STATEMENT:
- Diver IS medically qualified to dive for:
  - 2 years (over age 60)
  - 3 years (age 40-59)
  - 5 years (under age 40)
- Diver IS NOT medically qualified to dive: Permanently Temporarily.

I have evaluated the abovementioned individual according to the American Academy of Underwater Sciences medical standards and required tests for scientific diving (Sec. 6.00 and Appendix 1) and, in my opinion, find no medical conditions that may be disqualifying for participation in scuba diving. I have discussed with the patient any medical condition(s) that would not disqualify him/her from diving but which may seriously compromise subsequent health. The patient understands the nature of the hazards and the risks involved in diving with these conditions.

Signature ___________________________ MD or DO ___________________________

Date

I have evaluated the abovementioned individual according to the American Academy of Underwater Sciences medical standards and required tests for scientific diving (Sec. 6.00 and Appendix 1) and, in my opinion:

- Diver IS NOT medically qualified to dive: Permanently Temporarily.

Dr. Name (Print or Type)
Name of Applicant (Print or Type)

I authorize the release of this information and all medical information subsequently acquired in association with my diving to the Shoals Marine Laboratory and University of New Hampshire Diving Program Officers and Diving Control Board or their designee at the Shoals Marine Laboratory or University of New Hampshire on (date) ______________________

Signature of Applicant ______________________ Date ______________________

REFERENCES

APPENDIX 3
DIVING MEDICAL HISTORY FORM
(To Be Completed By Applicant-Diver)

Name ______________________________________   Sex ____ Age ___ Wt.___ Ht. ___

Sponsor ____________________________________________   Date ___/___/___
(Dept./Project/Program/School, etc.)   (Month/Day/Year)

TO THE APPLICANT:

Scuba diving places considerable physical and mental demands on the diver. Certain medical and physical requirements must be met before beginning a diving or training program. Your accurate answers to the questions are more important, in many instances, in determining your fitness to dive than what the physician may see, hear or feel as part of the diving medical certification procedure.

Should your answers indicate a condition which might make diving hazardous, you will be asked to review the matter with your physician. In such instances, their written authorization will be required in order for further consideration to be given to your application. If your physician concludes that diving would involve undue risk for you, please remember that they are concerned only with your well-being and safety.

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<th>Yes</th>
<th>No</th>
<th>Please indicate whether or not the following apply to you</th>
<th>Comments</th>
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<td>Convulsions, seizures, or epilepsy</td>
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<td>Fainting spells or dizziness</td>
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<td>Been addicted to drugs</td>
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<td>Diabetes</td>
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<td>Motion sickness or sea/air sickness</td>
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<td>Claustrophobia</td>
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<td>Mental disorder or nervous breakdown</td>
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<td>Are you pregnant?</td>
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<td>Do you suffer from menstrual problems?</td>
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<td>Anxiety spells or hyperventilation</td>
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<td>Frequent sour stomachs, nervous stomachs or vomiting spells</td>
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<td>12</td>
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<td>Had a major operation</td>
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<td>13</td>
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<td>Presently being treated by a physician</td>
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<td>14</td>
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<td>Taking any medication regularly (even non-prescription)</td>
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<td>Been rejected or restricted from sports</td>
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<td>16</td>
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<td>Headaches (frequent and severe)</td>
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<td>17</td>
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<td>Wear dental plates</td>
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<td>Wear glasses or contact lenses</td>
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<td>Bleeding disorders</td>
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<td>Alcoholism</td>
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<td>21</td>
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<td>Any problems related to diving</td>
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<td>22</td>
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<td>Nervous tension or emotional problems</td>
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<td>Yes</td>
<td>No</td>
<td>Please indicate whether or not the following apply to you</td>
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<td>Take tranquilizers</td>
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<td>Perforated ear drums</td>
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<td>25</td>
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<td>Hay fever</td>
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<td>26</td>
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<td>Frequent sinus trouble, frequent drainage from the nose, post-nasal drip, or stuffy nose</td>
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<td>Frequent earaches</td>
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<td>Drainage from the ears</td>
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<td>Difficulty with your ears in airplanes or on mountains</td>
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<td>Ear surgery</td>
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<td>Ringing in your ears</td>
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<td>Frequent dizzy spells</td>
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<td>Hearing problems</td>
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<td>34</td>
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<td>Trouble equalizing pressure in your ears</td>
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<td></td>
<td>Asthma</td>
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<td>36</td>
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<td></td>
<td>Wheezing attacks</td>
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<td>Cough (chronic or recurrent)</td>
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<td>Frequently raise sputum</td>
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<td>Pleurisy</td>
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<td>Collapsed lung (pneumothorax)</td>
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<td>Lung cysts</td>
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<td>Pneumonia</td>
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<td>Tuberculosis</td>
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<td>Shortness of breath</td>
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<td>Lung problem or abnormality</td>
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<td>Spit blood</td>
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<td>Breathing difficulty after eating particular foods, after exposure to particular pollens or animals</td>
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<td>Are you subject to bronchitis</td>
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<td>Subcutaneous emphysema (air under the skin)</td>
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<td>Air embolism after diving</td>
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<td>Decompression sickness</td>
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<td>Rheumatic fever</td>
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<td>Scarlet fever</td>
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<td>Heart murmur</td>
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<td>Large heart</td>
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<td>High blood pressure</td>
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<td>Angina (heart pains or pressure in the chest)</td>
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<td>Heart attack</td>
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<td>Yes</td>
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<td>Low blood pressure</td>
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<td>Recurrent or persistent swelling of the legs</td>
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<td>Pounding, rapid heartbeat or palpitations</td>
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<td>Easily fatigued or short of breath</td>
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<td>Abnormal EKG</td>
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<td>Joint problems, dislocations or arthritis</td>
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<td>Back trouble or back injuries</td>
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<td>Ruptured or slipped disk</td>
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<td>Limiting physical handicaps</td>
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<td>Muscle cramps</td>
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<td>Varicose veins</td>
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<td>70</td>
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<td>Amputations</td>
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<td>71</td>
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<td>Head injury causing unconsciousness</td>
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<td>72</td>
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<td>Paralysis</td>
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<td>73</td>
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<td>Have you ever had an adverse reaction to medication?</td>
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<td>Do you smoke?</td>
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<td>Have you ever had any other medical problems not listed?</td>
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<td>If so, please list or describe below;</td>
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<td>Is there a family history of high cholesterol?</td>
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<td>77</td>
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<td>Is there a family history of heart disease or stroke?</td>
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<td>Is there a family history of diabetes?</td>
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<td>Is there a family history of asthma?</td>
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<td>Date of last tetanus shot?</td>
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<td>Vaccination dates?</td>
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Please explain any “yes” answers to the above questions.

____________________________________________________________________________________________________
____________________________________________________________________________________________________
____________________________________________________________________________________________________
____________________________________________________________________________________________________
____________________________________________________________________________________________________

I certify that the above answers and information represent an accurate and complete description of my medical history.

__________________________
Signature

__________________________
Date
SCUBA Diving Application Form for Underwater Research

Applicant Diver Name: ________________________________
(Please print)

Please Read:
At least one month prior to your arrival on Appledore, SML must receive:

1. Current SML/UNH Medical Evaluation of Fitness for SCUBA Diving and Diving Medical History Form completed within the 12 months prior to your arrival at SML.

2. Signed and witnessed Release/Indemnification of all Claims and Covenant Not to Sue form.

3. Documentation that your diving equipment has been maintained and tested as required by the SCUBA Equipment List.

All divers must supply their own SCUBA equipment except weights and tanks: see SCUBA Equipment List!

All divers must complete and pass an open-water check-out dive with the SML Diving Safety Officer or designee.

Please Complete:

1. Diver Training: Level of certification, name of certifying organization, date and location. List this information in this space AND attach a photocopy of your dive certificate or card to your packet.
(2) **Experience**: Please give a summary of your diving experience during the past twelve months. Include location, depth and purpose of dive.

(3) **Additional Training**: Are you currently certified in CPR, first aid, emergency oxygen, or lifesaving courses? If yes, list names and dates AND provide a photocopy of your certification card(s).

(4) **Dive Equipment**: All SCUBA gear must have been professionally serviced within the past 12 months or per manufacturer’s recommendations. Please provide receipts as documentation of service, or receipts for new gear yet to be serviced (less than a year old). If you have a dive computer that you will be using, please indicate make and model below. Please also provide the make and model of your regulator. If renting gear for use at SML, please indicate the anticipated rental facility. Documentation demonstrating that rented SCUBA gear has been serviced within the last 12 months will be required upon arrival at SML.

(5) **Insurance**: To participate in the SML diving program, you must have health insurance that provides diving-accident coverage. Check your personal health and accident insurance to see if you have coverage for diving accidents in a scientific diving application, pay specific attention to any "exception clauses". DAN (Diver Alert Network) provides affordable and easily obtained insurance for dive accidents and medical emergencies. To ensure coverage, applicants should obtain the highest level DAN plan available (“preferred” or “guardian”) for their state. For more information, call DAN at 1-800 446-2671 or online at [http://www.diversalertnetwork.org/insurance/dive/](http://www.diversalertnetwork.org/insurance/dive/)
Note: Shoals Marine Laboratory employees engaged in working dives, instruction and/or supervision of student divers are additionally covered by Worker’s Compensation Insurance.

_____ I have coverage in case of a diving accident.

Company: ________________________________________________________________

Policy No: _______________________________________________________________

_____ I do not have coverage at this time but will provide the company name and policy number(s) to the Diving Safety Officer to complete my requirements before arriving on Appledore. I understand that I will not be able to dive until this information is provided.

(6) Medical: You and your physician must complete the SML/UNH Medical Evaluation of Fitness for SCUBA Diving Report. Your physical must be current. This form along with your Diving Medical History must be submitted to the SML/UNH diving program at least 1 month before your arrival on island. Please make a copy of the completed forms for yourself and bring them with you to Appledore. (Questions? Contact Becca Toppin; phone: 508-454-3571 / email: becca.toppin@unh.edu)

(7) Emergency Contact Information: Please list the name, address, and phone number of a person to contact in case of an emergency while at Shoals Marine Laboratory

Name:__________________________ Relationship:__________________________

Phone:_________________________ Address:__________________________

(8) Diver Responsibilities and Certifications: Please initial each item to verify you have read and understood it.

I understand that responsibility while diving rests with the individual and, that in requesting SCUBA diving privileges at the Shoals Marine Laboratory/University of New Hampshire, I will be responsible for and ensure that:

____(1) I am in good physical condition and physically prepared for the rigorous diving conditions at the Isles of Shoals.

____(2) I am certified by a nationally recognized diver training organization.

____(3) My equipment is in safe operating condition and maintained according to the requirements of the University of New Hampshire Handbook for Diving Safety.

____(4) I do not violate the dictates of my diver training.
Additionally, I certify that:

(5) I have read, understood, and agree to follow the *University of New Hampshire Handbook for Diving Safety*.

(6) I understand that all SCUBA diving at the Shoals Marine Laboratory/University of New Hampshire is voluntary.

(7) I have sufficient health and accident insurance coverage for any injury incurred while diving.

(8) To the best of my knowledge, the information in this Diver Application is correct.

________________________________________________________________________

Applicant / Diver Signature                          Date

________________________________________________________________________

Witness Name (print or type)                          Witness Signature
Release/Indemnification of All Claims and Covenant Not to Sue

Notice: This is a legally binding agreement. By signing this agreement you give up your right to bring a court action to recover compensation or obtain any other remedy for any injury to yourself, damage to your property, or your death, however caused arising out of your participation in SCUBA Diving or related activities at Shoals Marine Laboratory. You must initial each item to verify you have read and understood it.

Acknowledgement of Risk

I hereby acknowledge and agree that SCUBA diving has inherent risks. I have full knowledge of the nature and the extent of all the risks associated with SCUBA diving, including but not limited to:

1. Drowning
2. Decompression illness - including DCS and lung over-pressure syndromes
3. Marine animal attacks
4. Failure of equipment
5. Injuries resulting from contact with underwater objects and/or the sea bottom
6. Boats, boat motors and propellers, docks, wharves, and diving platforms
7. Remote access to a medical facility and hyperbaric treatment

I further acknowledge that the above list is not inclusive of all possible risks associated with SCUBA diving in and around the Isles of Shoals and that the above list in no way limits the extent or reach of this release and covenant not to sue.

Release/Indemnification

I, the undersigned diver, hereby do agree on behalf of myself, heirs, representatives, executors, administrators and assigns, to release University of New Hampshire, Cornell University and the Shoals Marine Laboratory, their officers, agents, and employees (herein collectively referred to as the Universities) from any cause of action, claims, demands of any nature whatsoever, including but not limited to a claim of negligence, which I, my heirs, representatives, executors, administrators and assigns may now have, or have in the future against the University of New Hampshire and Cornell University on account of personal injury, property damage, death or accident of any kind, arising out of or in any way related to my participation in a Shoals Marine Laboratory diving activity, whether that participation is supervised or unsupervised, howsoever the injury or damage is caused, including but not limited to the negligence of the University of New Hampshire and Cornell University.

In consideration of my participation, I, the undersigned, agree to indemnify and Hold Harmless, University of New Hampshire, Cornell University, Shoals Marine Laboratory, its officers, directors, trustees, agents, and employees from any and all causes of action demands, losses, costs of any nature whatsoever arising out of or in any way relating to my participation in a Shoals Marine Laboratory course.

I hereby certify that I have full knowledge of the nature and the extent of the risks inherent in diving at the Shoals Marine Laboratory, and that I am voluntarily assuming the risks. I understand that I will be solely responsible for any loss or damage (including death) that I sustain while participating.

(continued on next page)
and that by this agreement I am relieving the University of New Hampshire and Cornell University of any and all liability for such loss, damage or death.

I further certify that I am in good health and that I have no physical limitations, which would preclude my safe participation. I further certify that I hold a valid SCUBA certification, and that my equipment is in safe operating condition.

I further certify that my date of birth is ______ (month/day/year) and that my present age is __________, and that I am therefore of lawful age (18 years or older) and otherwise legally competent to sign this agreement. I further understand that the terms of this agreement are legally binding and I certify that I am carefully signing this agreement, after carefully reading the same, of my own free will.

WITNESS WHEREOF, this instrument is duly executed at: (location)____________________

this _____________ day of ________________ , 20___.

______________________________________
Applicant / Diver Signature               Applicant / Diver Printed Clearly

______________________________________
Witness Signature                        Witness Name Printed Clearly
SCUBA Diving Equipment List for SCUBA Divers

Equipment List for Underwater Research SCUBA Divers

Please note: Prior experience using all of your gear is preferred—in other words—use your gear before you get to SML/Appledore Island. For example, if you’ve never worn a wetsuit hood before—we strongly encourage you to give it a test dive!

Required Items for All SCUBA Divers (diver must provide items in **bold**)

1. **Full Wetsuit for Cold Water Diving**: at least 1/4 inch (6mm) thick. This should include: “farmer-john” bottoms; jacket with either attached or separate hood; booties; and mitts or gloves.
   [Note: A 3/16 inch (5mm) wetsuit augmented with a vest with attached hood is a less preferred, but acceptable alternative. Anything less than 5mm will not be sufficient.]

2. Mask, Snorkel, and Fins

3. Weight Belt and Weights (*SML provides*). IF diver provides their own weight belt – please bring only those with metal buckles (no plastic buckles please).

4. Aluminum or steel Tank (*SML provides – you don’t need to bring a tank!*).

5. **Buoyancy Compensator** (BC) equipped with a power inflator and exhaust valve is required for all divers, including those using dry suits.
   *Maintenance requirement:* Must have been functionally inspected within the past 12 months.

6. **Regulator** equipped with, pressure gauge, power inflator hose, and an octopus or safe second.
   *Maintenance requirement:* This equipment must have undergone inspection and service within the previous 12 months (or the equivalent of the manufacturer’s maintenance requirement).

7. **Depth Gauge and Bottom Timer or Diver Computer.** Be sure to bring replacement batteries, if applicable, and your user manual for reference.
   *Maintenance requirement:* Must have been inspected within the previous 12 months.

8. **Dive Knife**

9. **Compass** – **Required**

10. **Maintenance Records for Diving Equipment**: A copy of the written record, including the date and nature of work performed and the name of the person performing the work. You must provide such records for buoyancy compensators and regulators.

   (Note: If you are using rental equipment, you must get a letter from the dive shop indicating the dates of equipment inspections/maintenance and certifying that the equipment has been appropriately serviced.)

**Recommended Items for SCUBA Diving at SML:**
- Extra sweats (etc.) for pre and post dive wear
- Large bath or beach towel for the dive site (separate from your shower towel)
- Extra fin and mask straps
- Old running shoes, sneakers of any kind to wear to/from the dive site
- Dry suits are acceptable with proper training and experience (at least 20 dives); they must be equipped with an air-inlet and an exhaust valve.

Optional Items for SCUBA Diving at SML:
- Digital camera (with charger, cables, etc.).
- Catch bag and/or dive bag