
Appendix B: Activity Stressor Matrices

Draft Environmental Impact Statement/Overseas Environmental Impact Statement

Hawaii-Southern California Training and Testing

TABLE OF CONTENTS

APPENDIX B ACTIVITY STRESSOR MATRICESB-1

List of Tables

Table B-1: Stressors by Training ActivityB-3
Table B-2: Stressors by Testing ActivityB-10
Table B-3: Stressors by ResourceB-16

List of Figures

There are no figures in this chapter.

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Appendix B Activity Stressor Matrices

This appendix contains three matrices. The first two matrices in this appendix list the training and testing activities that occur in the Hawaii-Southern California Study Area and their associated stressors. The third matrix lists the resources analyzed in this Environmental Impact Statement/Overseas Environmental Impact Statement and the stressors they are potentially affected by.

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Table B-1: Stressors by Training Activity

| Hawaii-Southern California Training Activity | Biological Resources | | | | | | | | | | | | | | | | | Physical Resources | | | | | Human Resources ³ | | | | | | | | | | | |
|--|---------------------------|--------------|--------------|----------------|---------------|-------------------|---------------------|--------------------------------|----------------------------------|--------------------|---|---------------------------|----------------------------|------------------|------------------------|-------------------------|------------------------------------|---|--|-------------------------|---------------------------------------|--------|------------------------------|------------------------------|-------------------------|--|----------------------------------|---------------------------------|--|--------------------------------|----------------------------|-------------------------------------|---|---|
| | Acoustic Stressors | | | | | Explosives | | Energy Stressors | | | Physical Disturbance and Strike Stressors | | | | Entanglement Stressors | | | Ingestion Stressors | | Air Quality Stressors | Sediments and Water Quality Stressors | | | Cultural Resource Stressors | Socioeconomic Stressors | | Public Health & Safety Stressors | | | | | | | |
| | Sonar & Other Transducers | Pile Driving | Vessel Noise | Aircraft Noise | Weapons Noise | Explosions in Air | Explosions in Water | In-Air Electromagnetic Devices | In-Water Electromagnetic Devices | High Energy Lasers | Vessels & In-water Devices | Aircraft & Aerial Targets | Military Expended Material | Seafloor Devices | Wires & Cables | Decelerators/Parachutes | Biodegradable Polymer ¹ | Military Expended Materials – Munitions | Military Expended Materials – Other than Munitions | Criteria Air Pollutants | Explosives | Metals | Chemicals | Other Materials ² | Explosives ⁴ | Physical Disturbance & Strike ⁵ | Accessibility ⁶ | Airborne Acoustics ⁷ | Physical Disturbance & Strike ⁵ | Underwater Energy ⁸ | In-Air Energy ⁹ | Physical Interactions ¹⁰ | | |
| MAJOR TRAINING EXERCISES – LARGE INTEGRATED ANTI-SUBMARINE WARFARE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Composite Training Unit Exercise | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Rim of the Pacific Exercise | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MAJOR TRAINING EXERCISES – MEDIUM INTEGRATED ANTI-SUBMARINE WARFARE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fleet Exercise/Sustainment Exercise | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Undersea Warfare Exercise | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| INTEGRATED/COORDINATED TRAINING | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Small Integrated Anti-Submarine Training | ✓ | | ✓ | ✓ | | | ✓ | | | ✓ | ✓ | ✓ | | ✓ | ✓ | | ✓ | ✓ | ✓ | | | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Medium Coordinated Anti-Submarine Warfare Training | ✓ | | ✓ | ✓ | | | ✓ | | | ✓ | ✓ | ✓ | | ✓ | ✓ | | ✓ | ✓ | ✓ | | | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Small Coordinated Anti-Submarine Warfare Training | ✓ | | ✓ | ✓ | | | ✓ | | | ✓ | ✓ | ✓ | | ✓ | ✓ | | ✓ | ✓ | ✓ | | | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| AIR WARFARE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Air Combat Maneuver | | | | ✓ | | | ✓ | | | | ✓ | | | | | | | | ✓ | | ✓ | | | ✓ | | | ✓ | ✓ | | | | | | |
| Air Defense Exercise | | | ✓ | ✓ | | | ✓ | | | ✓ | ✓ | | | | | | | | ✓ | | | | | | | | ✓ | ✓ | | | | | | |
| Gunnery Exercise (Air-to-Air) | | | | ✓ | ✓ | | ✓ | | | | ✓ | ✓ | | | | | ✓ | | ✓ | | | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | ✓ |
| Gunnery Exercise (Surface-to-Air) | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | | | | | ✓ | | ✓ | ✓ | ✓ | | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | ✓ |
| Missile Exercise (Air-to-Air) | | | | ✓ | | ✓ | ✓ | | | | ✓ | ✓ | | | ✓ | | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | ✓ |
| Missile Exercise (Surface-to-Air) | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | | | | | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | ✓ |
| Missile Exercise – Man-portable Air Defense System | | | | ✓ | | ✓ | ✓ | | | | ✓ | ✓ | | | | | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | ✓ |

Table B-1: Stressors by Training Activity (continued)

| Hawaii-Southern California Training Activity | Biological Resources | | | | | | | | | | | | | | | | | Physical Resources | | | | | Human Resources ³ | | | | | | | | | |
|--|---------------------------|--------------|--------------|----------------|---------------|-------------------|---------------------|--------------------------------|----------------------------------|--------------------|---|---------------------------|----------------------------|------------------|------------------------|-------------------------|------------------------------------|---|--|-------------------------|---------------------------------------|--------|------------------------------|------------------------------|-------------------------|--|----------------------------------|---------------------------------|--|--------------------------------|----------------------------|-------------------------------------|
| | Acoustic Stressors | | | | | Explosives | | Energy Stressors | | | Physical Disturbance and Strike Stressors | | | | Entanglement Stressors | | | Ingestion Stressors | | Air Quality Stressors | Sediments and Water Quality Stressors | | | Cultural Resource Stressors | Socioeconomic Stressors | | Public Health & Safety Stressors | | | | | |
| | Sonar & Other Transducers | Pile Driving | Vessel Noise | Aircraft Noise | Weapons Noise | Explosions in Air | Explosions in Water | In-Air Electromagnetic Devices | In-Water Electromagnetic Devices | High Energy Lasers | Vessels & In-water Devices | Aircraft & Aerial Targets | Military Expended Material | Seafloor Devices | Wires & Cables | Decelerators/Parachutes | Biodegradable Polymer ¹ | Military Expended Materials – Munitions | Military Expended Materials – Other than Munitions | Criteria Air Pollutants | Explosives | Metals | Chemicals | Other Materials ² | Explosives ⁴ | Physical Disturbance & Strike ⁵ | Accessibility ⁶ | Airborne Acoustics ⁷ | Physical Disturbance & Strike ⁵ | Underwater Energy ⁸ | In-Air Energy ⁹ | Physical Interactions ¹⁰ |
| AMPHIBIOUS WARFARE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Amphibious Assault | | | ✓ | ✓ | | | ✓ | | | ✓ | ✓ | | | | | | | | ✓ | | | | | | ✓ | ✓ | | ✓ | | | | ✓ |
| Amphibious Assault – Battalion Landing | | | ✓ | | | | ✓ | | | ✓ | | | | | | | | | ✓ | | | | | | ✓ | ✓ | | ✓ | | | | ✓ |
| Amphibious Marine Expeditionary Unit Exercise | ✓ | | ✓ | ✓ | | | ✓ | ✓ | | ✓ | ✓ | ✓ | | ✓ | ✓ | | | ✓ | ✓ | | ✓ | ✓ | ✓ | | | | | | | | | |
| Amphibious Marine Expeditionary Unit Integration Exercise | | | ✓ | ✓ | | | ✓ | | | ✓ | ✓ | | | | | | | | ✓ | | | | | | | | | | | | | |
| Amphibious Raid | | | ✓ | ✓ | | | ✓ | | | ✓ | ✓ | | | | | | | | ✓ | | | | | | ✓ | ✓ | | ✓ | | | | ✓ |
| Expeditionary Fires Exercise/Supporting Arms Coordination Exercise | | | ✓ | ✓ | ✓ | | ✓ | | | ✓ | ✓ | | | | | | | | ✓ | | | | | | | ✓ | | ✓ | | | | ✓ |
| Humanitarian Assistance Operations | | | ✓ | ✓ | | | ✓ | | | ✓ | ✓ | | | | | | | | ✓ | | | | | | ✓ | ✓ | | ✓ | | | | ✓ |
| Marine Expeditionary Unit Composite Training Unit Exercise | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Naval Surface Fire Support Exercise – At Sea | | | ✓ | | ✓ | ✓ | ✓ | | | ✓ | | ✓ | | | | | ✓ | | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Naval Surface Fire Support Exercise – Land-Based Target | | | ✓ | | ✓ | | ✓ | | | ✓ | | | | | | | | | ✓ | | | | | | ✓ | ✓ | | | | | | ✓ |
| ANTI-SUBMARINE WARFARE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Anti-Submarine Warfare Torpedo Exercise – Helicopter | ✓ | | ✓ | ✓ | | | ✓ | | | ✓ | ✓ | ✓ | | | ✓ | | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Anti-Submarine Warfare Torpedo Exercise – Maritime Patrol Aircraft | ✓ | | ✓ | ✓ | | | ✓ | | | ✓ | ✓ | ✓ | | | ✓ | | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Anti-Submarine Warfare Torpedo Exercise – Ship | ✓ | | ✓ | ✓ | | | ✓ | | | ✓ | | ✓ | | | | | | ✓ | ✓ | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

Table B-1: Stressors by Training Activity (continued)

| Hawaii-Southern California Training Activity | Biological Resources | | | | | | | | | | | | | | | | | Physical Resources | | | | | Human Resources ³ | | | | | | | | | | |
|---|---------------------------|--------------|--------------|----------------|---------------|-------------------|---------------------|--------------------------------|----------------------------------|--------------------|---|---------------------------|----------------------------|------------------|------------------------|-------------------------|------------------------------------|---|--|-------------------------|---------------------------------------|--------|------------------------------|------------------------------|-------------------------|--|----------------------------------|---------------------------------|--|--------------------------------|----------------------------|-------------------------------------|--|
| | Acoustic Stressors | | | | | Explosives | | Energy Stressors | | | Physical Disturbance and Strike Stressors | | | | Entanglement Stressors | | | Ingestion Stressors | | Air Quality Stressors | Sediments and Water Quality Stressors | | | Cultural Resource Stressors | Socioeconomic Stressors | | Public Health & Safety Stressors | | | | | | |
| | Sonar & Other Transducers | Pile Driving | Vessel Noise | Aircraft Noise | Weapons Noise | Explosions in Air | Explosions in Water | In-Air Electromagnetic Devices | In-Water Electromagnetic Devices | High Energy Lasers | Vessels & In-water Devices | Aircraft & Aerial Targets | Military Expended Material | Seafloor Devices | Wires & Cables | Decelerators/Parachutes | Biodegradable Polymer ¹ | Military Expended Materials – Munitions | Military Expended Materials – Other than Munitions | Criteria Air Pollutants | Explosives | Metals | Chemicals | Other Materials ² | Explosives ⁴ | Physical Disturbance & Strike ⁵ | Accessibility ⁶ | Airborne Acoustics ⁷ | Physical Disturbance & Strike ⁵ | Underwater Energy ⁸ | In-Air Energy ⁹ | Physical Interactions ¹⁰ | |
| ANTI-SUBMARINE WARFARE (Continued) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Anti-Submarine Warfare Torpedo Exercise – Submarine | ✓ | | ✓ | | | | | | | ✓ | | ✓ | | ✓ | | | | | | | | ✓ | | | ✓ | | | ✓ | ✓ | | ✓ | | |
| Anti-Submarine Warfare Tracking Exercise – Helicopter | ✓ | | ✓ | ✓ | | | ✓ | | | ✓ | ✓ | ✓ | | | ✓ | | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | |
| Anti-Submarine Warfare Tracking Exercise – Maritime Patrol Aircraft | ✓ | | ✓ | ✓ | | | ✓ | | | ✓ | ✓ | ✓ | | | ✓ | | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | |
| Anti-Submarine Warfare Tracking Exercise – Ship | ✓ | | ✓ | ✓ | | | ✓ | | | ✓ | | ✓ | | | | | | | ✓ | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | | |
| Anti-Submarine Warfare Tracking Exercise – Submarine | ✓ | | ✓ | | | | | | | ✓ | | ✓ | | | | | | | | | | | | | ✓ | | | ✓ | ✓ | | ✓ | | |
| Service Weapons Test | ✓ | | ✓ | ✓ | | ✓ | ✓ | | | ✓ | ✓ | ✓ | | ✓ | | | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | | | ✓ | ✓ | | ✓ | | |
| ELECTRONIC WARFARE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Counter Targeting Chaff Exercise – Aircraft | | | | ✓ | | | ✓ | | | | ✓ | | | | | | ✓ | ✓ | ✓ | | | | ✓ | | | | ✓ | | | | | ✓ | |
| Counter Targeting Chaff Exercise – Ship | | | ✓ | | | | ✓ | | | ✓ | | | | | | | ✓ | ✓ | ✓ | | | | ✓ | | | ✓ | | | | | | ✓ | |
| Counter Targeting Flare Exercise | | | | ✓ | | | ✓ | | | | ✓ | | | | | | ✓ | ✓ | ✓ | | | ✓ | | | | | ✓ | | | | | ✓ | |
| Electronic Warfare Operations | | | ✓ | ✓ | | | ✓ | | | ✓ | ✓ | | | | | | | | ✓ | | | | | | | ✓ | ✓ | ✓ | | | | ✓ | |
| EXPEDITIONARY WARFARE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dive and Salvage Operations | | | ✓ | | | | | | | ✓ | | | ✓ | | | | | | ✓ | | | | | | ✓ | | | ✓ | | | | ✓ | |
| Personnel Insertion/Extraction – Surface and Subsurface | | | ✓ | | | | | | | ✓ | | | | | | | | | ✓ | | | | | | | | | | | | | | |
| Personnel Insertion/Extraction – Swimmer/Diver | | | | ✓ | | | | | | | | | | | | | | | ✓ | ✓ | | | | | | | | | | | | | |
| Small Boat Attack | | | ✓ | | ✓ | | | | | ✓ | | | | | | | ✓ | | ✓ | | | ✓ | | | | | | | | | | | |

Table B-1: Stressors by Training Activity (continued)

| Hawaii-Southern California Training Activity | Biological Resources | | | | | | | | | | | | | | | | | Physical Resources | | | | | Human Resources ³ | | | | | | | | | | | | | | |
|---|---------------------------|--------------|--------------|----------------|---------------|-------------------|---------------------|--------------------------------|----------------------------------|--------------------|---|---------------------------|----------------------------|------------------|------------------------|-------------------------|------------------------------------|---|--|-------------------------|---------------------------------------|--------|------------------------------|------------------------------|-------------------------|--|----------------------------------|---------------------------------|--|--------------------------------|----------------------------|-------------------------------------|---|---|---|---|---|
| | Acoustic Stressors | | | | | Explosives | | Energy Stressors | | | Physical Disturbance and Strike Stressors | | | | Entanglement Stressors | | | Ingestion Stressors | | Air Quality Stressors | Sediments and Water Quality Stressors | | | Cultural Resource Stressors | Socioeconomic Stressors | | Public Health & Safety Stressors | | | | | | | | | | |
| | Sonar & Other Transducers | Pile Driving | Vessel Noise | Aircraft Noise | Weapons Noise | Explosions in Air | Explosions in Water | In-Air Electromagnetic Devices | In-Water Electromagnetic Devices | High Energy Lasers | Vessels & In-water Devices | Aircraft & Aerial Targets | Military Expended Material | Seafloor Devices | Wires & Cables | Decelerators/Parachutes | Biodegradable Polymer ¹ | Military Expended Materials – Munitions | Military Expended Materials – Other than Munitions | Criteria Air Pollutants | Explosives | Metals | Chemicals | Other Materials ² | Explosives ⁴ | Physical Disturbance & Strike ⁵ | Accessibility ⁶ | Airborne Acoustics ⁷ | Physical Disturbance & Strike ⁵ | Underwater Energy ⁸ | In-Air Energy ⁹ | Physical Interactions ¹⁰ | | | | | |
| MINE WARFARE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Airborne Mine Countermeasure – Mine Detection | ✓ | | ✓ | ✓ | | | ✓ | | | ✓ | ✓ | | ✓ | | | | | | ✓ | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | |
| Civilian Port Defense – Homeland Security | ✓ | | ✓ | ✓ | | ✓ | ✓ | ✓ | | ✓ | ✓ | | ✓ | | | | | | ✓ | ✓ | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | |
| Limpet Mine Neutralization System | | | ✓ | | | ✓ | | | | ✓ | | | | | | | | | ✓ | ✓ | | ✓ | | | | | | | | | | | | | | | |
| Marine Mammal System | | | | | | ✓ | | | | | | | ✓ | | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | |
| Mine Countermeasure Exercise – Ship Sonar | ✓ | | ✓ | | | | ✓ | | | ✓ | | | ✓ | | | | | | ✓ | | | | | | | ✓ | | | | ✓ | | ✓ | ✓ | ✓ | | | |
| Mine Countermeasures Mine Neutralization Remotely Operated Vehicle Operations | | | ✓ | ✓ | | ✓ | | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | |
| Mine Countermeasure – Towed Mine Neutralization | | | ✓ | ✓ | | | ✓ | ✓ | | ✓ | ✓ | | ✓ | | | | | | ✓ | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | |
| Mine Laying | | | | ✓ | | | ✓ | | | | ✓ | ✓ | ✓ | | | | | | ✓ | | ✓ | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | |
| Mine Neutralization Explosive Ordnance Disposal | | | ✓ | | | ✓ | | | | ✓ | ✓ | ✓ | ✓ | | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| Submarine-Launched Mobile Mines | | | | ✓ | | | | | | ✓ | ✓ | | ✓ | ✓ | | | | | | | | | | | ✓ | | ✓ | | | | | | | | | | |
| Submarine Mine Exercise | ✓ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Surface Ship Object Detection | ✓ | | ✓ | | | | ✓ | | | ✓ | | | ✓ | | | | | | ✓ | | | | | | | | | | | | | | | | | | |
| Underwater Demolition Multiple Charge – Mat Weave and Obstacle Loading | | | ✓ | | | ✓ | | | | ✓ | | ✓ | ✓ | | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Underwater Demolition Qualification/Certification | | | ✓ | | | ✓ | | | | ✓ | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | |

Table B-1: Stressors by Training Activity (continued)

| Hawaii-Southern California Training Activity | Biological Resources | | | | | | | | | | | | | | | | | Physical Resources | | | | | Human Resources ³ | | | | | | | | | |
|---|---------------------------|--------------|--------------|----------------|---------------|-------------------|---------------------|--------------------------------|----------------------------------|--------------------|---|---------------------------|----------------------------|------------------|------------------------|-------------------------|------------------------------------|---|--|-------------------------|---------------------------------------|--------|------------------------------|------------------------------|-------------------------|--|----------------------------------|---------------------------------|--|--------------------------------|----------------------------|-------------------------------------|
| | Acoustic Stressors | | | | | Explosives | | Energy Stressors | | | Physical Disturbance and Strike Stressors | | | | Entanglement Stressors | | | Ingestion Stressors | | Air Quality Stressors | Sediments and Water Quality Stressors | | | Cultural Resource Stressors | Socioeconomic Stressors | | Public Health & Safety Stressors | | | | | |
| | Sonar & Other Transducers | Pile Driving | Vessel Noise | Aircraft Noise | Weapons Noise | Explosions in Air | Explosions in Water | In-Air Electromagnetic Devices | In-Water Electromagnetic Devices | High Energy Lasers | Vessels & In-water Devices | Aircraft & Aerial Targets | Military Expended Material | Seafloor Devices | Wires & Cables | Decelerators/Parachutes | Biodegradable Polymer ¹ | Military Expended Materials – Munitions | Military Expended Materials – Other than Munitions | Criteria Air Pollutants | Explosives | Metals | Chemicals | Other Materials ² | Explosives ⁴ | Physical Disturbance & Strike ⁵ | Accessibility ⁶ | Airborne Acoustics ⁷ | Physical Disturbance & Strike ⁵ | Underwater Energy ⁸ | In-Air Energy ⁹ | Physical Interactions ¹⁰ |
| SURFACE WARFARE (Continued) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Sinking Exercise | | | ✓ | ✓ | ✓ | | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | | ✓ | | | ✓ | | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| OTHER TRAINING EXERCISES | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Elevated Causeway System | | ✓ | | | | | | | | | | | | | | | | | | | | | | | | | ✓ | | | ✓ | | |
| Kilo Dip | ✓ | | | ✓ | | | | | | | ✓ | | | | | | | | ✓ | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ |
| Offshore Petroleum Discharge System | | | | | | | | | | | | | ✓ | | | | | | ✓ | | | | | | | | | | | | | |
| Precision Anchoring | | | ✓ | | | | ✓ | | | ✓ | | | ✓ | | | | | | ✓ | | | | | | ✓ | ✓ | | ✓ | | | | ✓ |
| Submarine Navigation Exercise | ✓ | | | | | | | | | ✓ | | | | | | | | | | | | | | | | | | | | | | |
| Submarine Sonar Maintenance and Systems Checks | ✓ | | | | | | | | | ✓ | | | | | | | | | | | | | | | | | | | | ✓ | | |
| Submarine Under Ice Certification | ✓ | | | | | | | | | ✓ | | | | | | | | | | | | | | | | | | ✓ | ✓ | | ✓ | |
| Surf Zone Test Detachment/Equipment Test and Evaluation | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Surface Ship Object Detection | ✓ | | ✓ | | | | | | | ✓ | | | ✓ | | | | | | ✓ | | | | | | | | ✓ | | | ✓ | | ✓ |
| Surface Ship Sonar Maintenance and Systems Checks | ✓ | | ✓ | | | | ✓ | | | ✓ | | | | | | | | | | | | | | | | | | | | ✓ | | |
| Unmanned Aerial System Training and Certification | | | | ✓ | | | ✓ | | | | ✓ | | | | | | | | ✓ | | | | | | | | | | | | | |
| Unmanned Underwater Vehicle Training -Certification and Development | ✓ | | ✓ | | | | | | | ✓ | | | | | | | | | | | | | | | | | | | | | | |
| Waterborne Training | | | ✓ | | | | | | | ✓ | | | | | | | | | | | | | | | | | | | | | | |

¹ Testing Activities Only

² Other Materials include marine markers and flares, chaff, towed and stationary targets, and miscellaneous components of other expended objects

³ Area of interest is U.S. Territorial Waters (seaward of the mean high water line to 12 nautical miles and any inshore waters)

⁴ Vibration and shock waves from underwater explosions.

⁵ Physical disturbance and strike stressors resulting from in-water devices, military expended materials, seafloor devices, pile driving, and vibration from sonic booms in U.S. territorial waters (seaward of the mean high water line to 12 nautical miles).

⁶ Availability of access on the ocean and in the air

⁷ Loud Noises from weapons firing, in-air explosions, and sonic booms

⁸ Active sonar, underwater explosions, air guns, vessel movements, mine warfare training devices, and unmanned underwater systems

⁹ Sources of electromagnetic energy and lasers

¹⁰ Interaction of Navy or Marine Corps aircraft, vessels, and equipment with general public

Note: A check indicates events that take place for Alternative 1 and Alternative 2.

Table B-2: Stressors by Testing Activity

| Hawaii-Southern California Testing Activity | Biological Resources | | | | | | | | | | | | | | | | | Physical Resources | | | | | Human Resources ³ | | | | | | | | |
|---|---------------------------|--------------|--------------|----------------|---------------|-------------------|---------------------|--------------------------------|----------------------------------|--------------------|---|---------------------------|----------------------------|------------------|------------------------|-------------------------|------------------------------------|---|--|-------------------------|---------------------------------------|--------|------------------------------|------------------------------|-------------------------|--|----------------------------------|---------------------------------|--|--------------------------------|----------------------------|
| | Acoustic Stressors | | | | | Explosives | | Energy Stressors | | | Physical Disturbance and Strike Stressors | | | | Entanglement Stressors | | | Ingestion Stressors | | Air Quality Stressors | Sediments and Water Quality Stressors | | | Cultural Resource Stressors | Socioeconomic Stressors | | Public Health & Safety Stressors | | | | |
| | Sonar & Other Transducers | Pile Driving | Vessel Noise | Aircraft Noise | Weapons Noise | Explosions in Air | Explosions in Water | In-Air Electromagnetic Devices | In-Water Electromagnetic Devices | High Energy Lasers | Vessels & In-water Devices | Aircraft & Aerial Targets | Military Expended Material | Seafloor Devices | Wires & Cables | Decelerators/Parachutes | Biodegradable Polymer ¹ | Military Expended Materials – Munitions | Military Expended Materials – Other than Munitions | Criteria Air Pollutants | Explosives | Metals | Chemicals | Other Materials ² | Explosives ⁴ | Physical Disturbance & Strike ⁵ | Accessibility ⁶ | Airborne Acoustics ⁷ | Physical Disturbance & Strike ⁵ | Underwater Energy ⁸ | In-Air Energy ⁹ |
| NAVAL AIR SYSTEMS COMMAND | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AIR WARFARE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Air Combat Maneuver | | | | ✓ | | | ✓ | | | | ✓ | | | | | | | ✓ | ✓ | | | | ✓ | | | | ✓ | ✓ | | | ✓ |
| Air Platform-Vehicle Test | | | ✓ | | | | ✓ | | ✓ | | ✓ | | | | | | | ✓ | ✓ | | | | | | | | ✓ | ✓ | | ✓ | ✓ |
| Air Platform Weapons Integration Test | | | ✓ | | | | ✓ | | | | ✓ | ✓ | | | | | | | ✓ | | | ✓ | | | ✓ | | ✓ | ✓ | | | ✓ |
| Intelligence, Surveillance, and Reconnaissance Test | | | ✓ | | | | ✓ | | | | ✓ | | | | | | | | ✓ | | | | | | | | ✓ | ✓ | | | ✓ |
| ANTI-SUBMARINE WARFARE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Anti-Submarine Warfare Torpedo Test | ✓ | | | ✓ | | | ✓ | | | ✓ | ✓ | ✓ | | ✓ | ✓ | | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Anti-Submarine Warfare Tracking Test – Helicopter | ✓ | | | ✓ | | ✓ | ✓ | | | ✓ | ✓ | ✓ | | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Anti-Submarine Warfare Tracking Test – Maritime Patrol Aircraft | ✓ | | | ✓ | | ✓ | ✓ | | | ✓ | ✓ | ✓ | | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Sonobuoy Lot Acceptance Test | ✓ | | ✓ | ✓ | | ✓ | ✓ | | | ✓ | ✓ | ✓ | | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| ELECTRONIC WARFARE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Chaff Test | | | | ✓ | | | ✓ | | | | ✓ | | | | | | | ✓ | ✓ | | | | ✓ | | | | ✓ | | | ✓ | |
| Electronic Systems Evaluation | | | | ✓ | | | ✓ | | | | ✓ | | | | | | | | ✓ | | | | | | | | ✓ | ✓ | | | ✓ |
| Flare Test | | | | ✓ | | | ✓ | | | | ✓ | | | | | | | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MINE WARFARE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Airborne Dipping Sonar Minehunting Test | ✓ | | | ✓ | | | ✓ | | | | ✓ | | | | | | | | ✓ | | | | | | | | ✓ | ✓ | ✓ | | ✓ |
| Airborne Laser-Based Mine Detection System Test | | | | ✓ | | | ✓ | | ✓ | | ✓ | | ✓ | | | | | | ✓ | | | | | | | ✓ | ✓ | ✓ | | ✓ | ✓ |
| Airborne Mine Neutralization System Test (AMNS) | | | | ✓ | | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

Table B-2: Stressors by Testing Activity (continued)

| Hawaii-Southern California Testing Activity | Biological Resources | | | | | | | | | | | | | | | | | Physical Resources | | | | | Human Resources ³ | | | | | | | | | | |
|---|---------------------------|--------------|--------------|----------------|---------------|-------------------|---------------------|--------------------------------|----------------------------------|--------------------|---|---------------------------|----------------------------|------------------|------------------------|-------------------------|------------------------------------|---|--|-------------------------|---------------------------------------|--------|------------------------------|------------------------------|-------------------------|--|----------------------------------|---------------------------------|--|--------------------------------|----------------------------|-------------------------------------|--|
| | Acoustic Stressors | | | | | Explosives | | Energy Stressors | | | Physical Disturbance and Strike Stressors | | | | Entanglement Stressors | | | Ingestion Stressors | | Air Quality Stressors | Sediments and Water Quality Stressors | | | Cultural Resource Stressors | Socioeconomic Stressors | | Public Health & Safety Stressors | | | | | | |
| | Sonar & Other Transducers | Pile Driving | Vessel Noise | Aircraft Noise | Weapons Noise | Explosions in Air | Explosions in Water | In-Air Electromagnetic Devices | In-Water Electromagnetic Devices | High Energy Lasers | Vessels & In-water Devices | Aircraft & Aerial Targets | Military Expended Material | Seafloor Devices | Wires & Cables | Decelerators/Parachutes | Biodegradable Polymer ¹ | Military Expended Materials – Munitions | Military Expended Materials – Other than Munitions | Criteria Air Pollutants | Explosives | Metals | Chemicals | Other Materials ² | Explosives ⁴ | Physical Disturbance & Strike ⁵ | Accessibility ⁶ | Airborne Acoustics ⁷ | Physical Disturbance & Strike ⁵ | Underwater Energy ⁸ | In-Air Energy ⁹ | Physical Interactions ¹⁰ | |
| MINE WARFARE (Continued) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Airborne Sonobuoy Minehunting Test | ✓ | | | ✓ | | | ✓ | | | | ✓ | ✓ | | | ✓ | | ✓ | ✓ | ✓ | | | | | | | | | ✓ | ✓ | ✓ | | ✓ | |
| Mine Laying Test | | | ✓ | | | | ✓ | | | | ✓ | ✓ | ✓ | | | | | | ✓ | | ✓ | | ✓ | | ✓ | | ✓ | ✓ | | | | ✓ | |
| SURFACE WARFARE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Air-to-Surface Bombing Test | | | ✓ | | | ✓ | ✓ | | | | ✓ | ✓ | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| Air-to-Surface Gunnery Test | | | ✓ | ✓ | | ✓ | ✓ | | | | ✓ | ✓ | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| Air-to-Surface Missile Test | | | ✓ | | | ✓ | ✓ | | | | ✓ | ✓ | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| High Energy Laser Weapons Test | | | ✓ | ✓ | | | ✓ | | ✓ | ✓ | ✓ | | | | | | | ✓ | ✓ | | | | | | | | ✓ | ✓ | | ✓ | | | |
| Laser Targeting Test | | | ✓ | | | | ✓ | | | | ✓ | | | | | | | | ✓ | | | | | | | | ✓ | ✓ | | ✓ | ✓ | | |
| Rocket Test | | | ✓ | | | ✓ | ✓ | | | | ✓ | ✓ | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| OTHER TESTING ACTIVITIES | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Acoustic and Oceanographic Research | | | ✓ | ✓ | | | ✓ | | | ✓ | ✓ | | | | | | | | ✓ | | | | | | | | ✓ | ✓ | | | | ✓ | |
| Air Platform Shipboard Integrate Test | | | ✓ | | | | ✓ | | | | ✓ | | | | | | | | ✓ | | | | | | | ✓ | ✓ | ✓ | | | | ✓ | |
| Kilo Dip | ✓ | | ✓ | | | | | | | | ✓ | | | | | | | | ✓ | | | | | | | ✓ | ✓ | ✓ | ✓ | | | ✓ | |
| Shipboard Electronic Systems Evaluation | | | ✓ | | | | ✓ | | | | ✓ | | | | | | | | ✓ | | | | | | | ✓ | ✓ | | | | | ✓ | |
| Undersea Range System Test | ✓ | | ✓ | | | | | | | ✓ | | | ✓ | | | | | | | | | | | | | | | | | | | | |

Table B-2: Stressors by Testing Activity (continued)

| Hawaii-Southern California Testing Activity | Biological Resources | | | | | | | | | | | | | | | | | Physical Resources | | | | | Human Resources ³ | | | | | | | | | | | | | | | | | |
|--|---------------------------|--------------|--------------|----------------|---------------|-------------------|---------------------|--------------------------------|----------------------------------|--------------------|---|---------------------------|----------------------------|------------------|------------------------|-------------------------|------------------------------------|---|--|-------------------------|---------------------------------------|--------|------------------------------|------------------------------|-------------------------|--|----------------------------------|---------------------------------|--|--------------------------------|----------------------------|-------------------------------------|---|---|---|---|---|---|---|---|
| | Acoustic Stressors | | | | | Explosives | | Energy Stressors | | | Physical Disturbance and Strike Stressors | | | | Entanglement Stressors | | | Ingestion Stressors | | Air Quality Stressors | Sediments and Water Quality Stressors | | | Cultural Resource Stressors | Socioeconomic Stressors | | Public Health & Safety Stressors | | | | | | | | | | | | | |
| | Sonar & Other Transducers | Pile Driving | Vessel Noise | Aircraft Noise | Weapons Noise | Explosions in Air | Explosions in Water | In-Air Electromagnetic Devices | In-Water Electromagnetic Devices | High Energy Lasers | Vessels & In-water Devices | Aircraft & Aerial Targets | Military Expended Material | Seafloor Devices | Wires & Cables | Decelerators/Parachutes | Biodegradable Polymer ¹ | Military Expended Materials – Munitions | Military Expended Materials – Other than Munitions | Criteria Air Pollutants | Explosives | Metals | Chemicals | Other Materials ² | Explosives ⁴ | Physical Disturbance & Strike ⁵ | Accessibility ⁶ | Airborne Acoustics ⁷ | Physical Disturbance & Strike ⁵ | Underwater Energy ⁸ | In-Air Energy ⁹ | Physical Interactions ¹⁰ | | | | | | | | |
| NAVAL SEA SYSTEMS COMMAND | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ANTI-SUBMARINE WARFARE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Anti-Submarine Warfare Mission Package Testing | ✓ | | ✓ | ✓ | | | ✓ | | | ✓ | ✓ | ✓ | | ✓ | ✓ | | | ✓ | ✓ | | | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | |
| At-sea Sonar Testing | ✓ | | ✓ | ✓ | | | ✓ | ✓ | | ✓ | ✓ | ✓ | | | | | | ✓ | ✓ | | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | |
| Countermeasure Testing | ✓ | | ✓ | | | | ✓ | | | ✓ | | ✓ | | ✓ | ✓ | ✓ | | ✓ | ✓ | | | | | | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | |
| Pierside Sonar Testing | ✓ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | ✓ | | | | | | |
| Submarine Sonar Testing-Maintenance | ✓ | | ✓ | | | | | | | ✓ | | | | | | | | | | | | | | | | | | | ✓ | ✓ | | | | | ✓ | | | | | |
| Surface Ship Sonar Testing-Maintenance | ✓ | | ✓ | | | | ✓ | | | ✓ | | | | | | | | | ✓ | | | | | | ✓ | ✓ | | ✓ | ✓ | | | | | | | ✓ | | | | |
| Torpedo (Explosive) Testing | ✓ | | ✓ | ✓ | | ✓ | ✓ | | | ✓ | ✓ | ✓ | | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | |
| Torpedo (Non-explosive) Testing | ✓ | | ✓ | ✓ | | | ✓ | | | ✓ | ✓ | ✓ | | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | |
| ELECTRONIC WARFARE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Radar and other System Testing | | | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | ✓ | ✓ | ✓ | | | ✓ | | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | |
| MINE WARFARE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mine Countermeasure and Neutralization Testing | ✓ | | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | |
| Mine Countermeasure Mission Package Testing | ✓ | | ✓ | ✓ | | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| Mine Detection and Classification Testing | ✓ | | ✓ | ✓ | | | ✓ | | ✓ | ✓ | ✓ | | ✓ | | ✓ | | ✓ | ✓ | ✓ | | | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| SURFACE WARFARE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Gun Testing – Large Caliber | | | ✓ | | ✓ | ✓ | ✓ | | | ✓ | | ✓ | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| Gun Testing – Medium Caliber | | | ✓ | | ✓ | ✓ | ✓ | | | ✓ | | ✓ | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

Table B-2: Stressors by Testing Activity (continued)

| Hawaii-Southern California Testing Activity | Biological Resources | | | | | | | | | | | | | | | | | Physical Resources | | | | | Human Resources ³ | | | | | | | | | | | | | |
|---|---------------------------|--------------|--------------|----------------|---------------|-------------------|---------------------|--------------------------------|----------------------------------|--------------------|---|---------------------------|----------------------------|------------------|------------------------|-------------------------|------------------------------------|---|--|-------------------------|---------------------------------------|--------|------------------------------|------------------------------|-------------------------|--|----------------------------------|---------------------------------|--|--------------------------------|----------------------------|-------------------------------------|---|---|---|---|
| | Acoustic Stressors | | | | | Explosives | | Energy Stressors | | | Physical Disturbance and Strike Stressors | | | | Entanglement Stressors | | | Ingestion Stressors | | Air Quality Stressors | Sediments and Water Quality Stressors | | | Cultural Resource Stressors | Socioeconomic Stressors | | Public Health & Safety Stressors | | | | | | | | | |
| | Sonar & Other Transducers | Pile Driving | Vessel Noise | Aircraft Noise | Weapons Noise | Explosions in Air | Explosions in Water | In-Air Electromagnetic Devices | In-Water Electromagnetic Devices | High Energy Lasers | Vessels & In-water Devices | Aircraft & Aerial Targets | Military Expended Material | Seafloor Devices | Wires & Cables | Decelerators/Parachutes | Biodegradable Polymer ¹ | Military Expended Materials – Munitions | Military Expended Materials – Other than Munitions | Criteria Air Pollutants | Explosives | Metals | Chemicals | Other Materials ² | Explosives ⁴ | Physical Disturbance & Strike ⁵ | Accessibility ⁶ | Airborne Acoustics ⁷ | Physical Disturbance & Strike ⁵ | Underwater Energy ⁸ | In-Air Energy ⁹ | Physical Interactions ¹⁰ | | | | |
| SURFACE WARFARE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Gun Testing – Small Caliber | | | ✓ | | ✓ | | | ✓ | | | ✓ | | ✓ | | | | | ✓ | ✓ | ✓ | | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ | | | ✓ | | |
| Kinetic Energy Weapon Testing | | | ✓ | | ✓ | | ✓ | ✓ | | | ✓ | ✓ | ✓ | | | | | ✓ | ✓ | ✓ | | | | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | | ✓ | | ✓ | | |
| Missile and Rocket Testing | | | ✓ | | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | | | | | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | | ✓ | |
| UNMANNED SYSTEMS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Unmanned Surface Vehicle System Testing | ✓ | | ✓ | | | | | | | | ✓ | | | | | | | | | ✓ | | | | | | ✓ | ✓ | | ✓ | | | | | ✓ | | |
| Unmanned Underwater Vehicle Testing | ✓ | | ✓ | | | | | | | | ✓ | | ✓ | | | | | | | | | | | | | | | | | | | | | | | |
| VESSEL EVALUATION | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Air Defense Testing | | | ✓ | ✓ | ✓ | ✓ | | ✓ | | | ✓ | ✓ | ✓ | | | | | ✓ | ✓ | ✓ | | | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | ✓ | |
| In-port Maintenance Testing | | | | | | | | | | | | | ✓ | | | | | | | | | | | | | | | | | | | | ✓ | | | |
| Propulsion Testing | | | ✓ | | | | | ✓ | | | ✓ | | | | | | | | | ✓ | | | | | | ✓ | ✓ | | ✓ | | | | | | | ✓ |
| Submarine Sea Trials – Propulsion Testing | | | | | | | | | | | | | | | | | | | | | | | | | | ✓ | | ✓ | | | | | | | | ✓ |
| Submarine Sea Trials – Weapons System Testing | ✓ | | ✓ | | | | | | | | ✓ | | | ✓ | | | | | | | | | | | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | | | | | ✓ |
| Surface Warfare Testing | | | ✓ | ✓ | ✓ | | ✓ | | | ✓ | ✓ | ✓ | | | | | | ✓ | ✓ | ✓ | | | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | ✓ |
| Undersea Warfare Testing | ✓ | | ✓ | ✓ | | | | ✓ | | | ✓ | ✓ | ✓ | | ✓ | ✓ | | | ✓ | | | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ |
| Vessel Signature Evaluation | | | ✓ | ✓ | | | | ✓ | ✓ | | ✓ | ✓ | | | | | | | ✓ | | | | | | ✓ | ✓ | | ✓ | | | | | | | | ✓ |

Table B-2: Stressors by Testing Activity (continued)

| Hawaii-Southern California Testing Activity | Biological Resources | | | | | | | | | | | | | | | | Physical Resources | | | | | Human Resources ³ | | | | | | | | | |
|---|---------------------------|--------------|--------------|----------------|---------------|-------------------|---------------------|--------------------------------|----------------------------------|--------------------|---|---------------------------|----------------------------|------------------------|----------------|-------------------------|------------------------------------|---|--|---------------------------------------|------------|------------------------------|-----------------------------|------------------------------|-------------------------|--|----------------------------|---------------------------------|--|--------------------------------|----------------------------|
| | Acoustic Stressors | | | | | Explosives | | Energy Stressors | | | Physical Disturbance and Strike Stressors | | | Entanglement Stressors | | | Ingestion Stressors | | Air Quality Stressors | Sediments and Water Quality Stressors | | | Cultural Resource Stressors | Socioeconomic Stressors | | Public Health & Safety Stressors | | | | | |
| | Sonar & Other Transducers | Pile Driving | Vessel Noise | Aircraft Noise | Weapons Noise | Explosions in Air | Explosions in Water | In-Air Electromagnetic Devices | In-Water Electromagnetic Devices | High Energy Lasers | Vessels & In-water Devices | Aircraft & Aerial Targets | Military Expended Material | Seafloor Devices | Wires & Cables | Decelerators/Parachutes | Biodegradable Polymer ¹ | Military Expended Materials – Munitions | Military Expended Materials – Other than Munitions | Criteria Air Pollutants | Explosives | Metals | Chemicals | Other Materials ² | Explosives ⁴ | Physical Disturbance & Strike ⁵ | Accessibility ⁶ | Airborne Acoustics ⁷ | Physical Disturbance & Strike ⁵ | Underwater Energy ⁸ | In-Air Energy ⁹ |
| OTHER TESTING ACTIVITIES | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Chemical and Biological Simulant Testing | | | ✓ | ✓ | | | ✓ | | | ✓ | ✓ | | | | | | ✓ | | ✓ | | | ✓ | ✓ | | | ✓ | ✓ | ✓ | | | ✓ |
| Insertion/Extraction | ✓ | | | | | | | | | | | | | | | | | | ✓ | | | | | | | | | | | | |
| Non-Acoustic Component Testing | | | ✓ | ✓ | | | ✓ | | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | | | | | |
| Signature Analysis Operations | ✓ | | ✓ | | | | ✓ | | | ✓ | | | | | | | | | ✓ | | | | | | | | | ✓ | | | ✓ |
| OFFICE OF NAVAL RESEARCH | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ACOUSTIC AND OCEANOGRAPHIC SCIENCE AND TECHNOLOGY | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Acoustic and Oceanographic Research | ✓ | | ✓ | ✓ | | | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | ✓ | | | | | | ✓ | | | ✓ | | ✓ | ✓ |
| Large Displacement Undersea Vehicle Testing | ✓ | | ✓ | | | | | | | ✓ | | | | | | | | | | | | | | | ✓ | | | ✓ | | | ✓ |
| Long-Range Acoustic Communications | ✓ | | | | | | | | | | | | | | | | | | | | | | | | | | | | ✓ | | |
| SPACE AND NAVAL WARFARE SYSTEMS COMMAND | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Anti-Terrorism/Force Protection (AT/FP) Fixed Sensor Systems | ✓ | | | | | | | | | ✓ | | | ✓ | | | | | | | | | | | | | | | | | | |
| Communications | ✓ | | ✓ | | | | | | | ✓ | | | ✓ | ✓ | | | ✓ | ✓ | | | | | | | | | | | | | |
| Energy and Intelligence, Surveillance, and Reconnaissance/Information Operations Sensor Systems | ✓ | | ✓ | | | | | | | ✓ | | | ✓ | ✓ | | | | | | | | | | | | | | | | | |
| Vehicle Testing | ✓ | | ✓ | ✓ | | | | | | ✓ | ✓ | | | | | | | | | | | | | | ✓ | | ✓ | | | | ✓ |

¹ Testing Activities Only

² Other Materials include marine markers and flares, chaff, towed and stationary targets, and miscellaneous components of other expended objects

³ Area of interest is U.S. Territorial Waters (seaward of the mean high water line to 12 nautical miles and any inshore waters)

⁴ Vibration and shock waves from underwater explosions.

⁵ Physical disturbance and strike stressors resulting from in-water devices, military expended materials, seafloor devices, pile driving, and vibration from sonic booms in U.S. territorial waters (seaward of the mean high water line to 12 nautical miles).

⁶ Availability of access on the ocean and in the air

⁷ Loud Noises from weapons firing, in-air explosions, and sonic booms

⁸ Active sonar, underwater explosions, air guns, vessel movements, mine warfare training devices, and unmanned underwater systems

⁹ Sources of electromagnetic energy and lasers

¹⁰ Interaction of Navy or Marine Corps aircraft, vessels, and equipment with general public

Note: A check indicates events that take place for Alternative 1 and Alternative 2.

