

Cover Page

Name of the Program Hawaii Undersea Research Laboratory (HURL)

Program as used in this prioritization process can be a specialization, section, division, field of study, center, degree program, etc. unit head, in collaboration with others as appropriate, must determine the level of analysis required.

How long has the program existed: 29 years (since 1980)

Department: HURL/SOEST

The program would fall under which of the following Vice Chancellor's offices?

- Academic Affairs
- Student Services
- Organized Research
- Administration, Finance and Operations

How does the program fit into the larger administrative unit? (Describe in two or three sentences.)

HURL is one of a dozen divisions in the School of Ocean and Earth Science and Technology (SOEST). SOEST is a multidisciplinary school consisting of four academic departments, three research institutes and other research units including HURL. SOEST conducts research and teaches about the Ocean, Earth, Atmosphere and Planets. HURL is a UH/NOAA partnership largely running deep diving research submersibles to support both the SOEST and NOAA operational and scientific missions.

Briefly describe the program:

The Hawaii Undersea Research Laboratory (HURL) is a research unit within the School of Ocean and Earth Science and Technology. The unit has a staff of 20 and an average annual budget of \$3.8 million (averaged over the last 9 years) derived from federal grants. HURL specializes in the operation of deep-sea diving research equipment, in particular, manned submersibles. HURL is set up administratively as a Cooperative Agreement between the U.S. National Oceanic and Atmospheric Administration (NOAA) and UH. Not only is HURL a unique program in Hawaii, it operates two of only nine deep diving research submersibles in the world. Only one other academic institution in the U.S. (MIT/Woods Hole) offers this capability. HURL's main goal is to provide the most efficient access to the deep sea for the best-qualified researchers. HURL provides submersibles, an ROV, multibeam bathymetry, a data archive, and a range of supporting scientific equipment to U.S. and international scientists working on NOAA-approved missions. HURL provides a unique support service to other selected scientific groups. Users of HURL facilities are selected by a NOAA-approved proposal process or are NOAA-approved users with other funding sources. HURL's submersibles have recently been refitted and are in excellent condition. Over time, however, major replacement equipment will need to be acquired. This equipment is likely to be acquired with federal funds. There is no similar unit in Hawaii to HURL and only one other similar group in the U.S. The demand for HURL submersible time is high and stays constant. The program is a key component of both the University's mission and the University's vision to be a leader in the area of marine science. Without HURL, submersible operations in the Pacific would be greatly reduced. HURL costs the University nothing as it is federally funded. HURL should be maintained at its current stable resource level.

SOEST PRIORITIZATION

| RESEARCH - Program Name: HURL | | score | % total |
|---|--|-------|---------|
| CENTRALITY AND ALIGNMENT: Max Score = 28 | | | 89.286 |
| UHM Vision/WASC Alignment | | | |
| | UHM vision | 4 | |
| | Strengthen global leadership | 4 | |
| | Advancing area of strength | 4 | |
| Land-Sea-Space Grant | | | |
| | Addressing an area expected in a land/sea/space institutor | 4 | |
| Statute or Regulation | | | |
| | Meets statutory or government regulations | 3 | |
| State Needs | | | |
| | Addressing needs identified as high priority in the state | 3 | |
| | Engages stakeholders that are a priority to UHM | 3 | |

| QUALITY/INTEGRITY: Max Score = 44 | | | 93.182 |
|-----------------------------------|--|---|--------|
| Quality Activities | | | |
| | Training and public service work | 4 | |
| | Accountability metrics and routinely uses them | 4 | |
| Quality Facilities | | | |
| | Good plan for adequate investment in facilities | 4 | |
| | Facilities and equipment availability and conditior | 4 | |
| Quality Research | | | |
| | Obtaining highly competitive contracts/grants | 4 | |
| | Research with prestigious natnl/intn universities | 4 | |
| | Positive impact on UHM research reputation | 4 | |
| Quality Faculty/Staff | | | |
| | Awarded external academic recognition | 3 | |
| | Jointly authored publications | 4 | |
| | Faculty/staff publish high number of reviewed papers | 3 | |
| | Steady increase in number of citations | 3 | |

| CRITICAL MASS: Max Score = 16 | | | 87.5 |
|-------------------------------|--|---|------|
| Peer Comparisons | | | |
| | National/international recognition/visibility | 4 | |
| Fundamental Trends | | | |
| | Award amounts and number of contracts/grants | 3 | |
| Faculty/Staff Size | | | |
| | Number of staff associated with ORU | 4 | |
| Ability to Deliver | | | |
| | Staff expertise adequate to meet program needs | 3 | |

| EXTERNAL DEMAND: Max Score = 48 | | | 81.25 |
|---------------------------------|--|---|-------|
| Needs/Trends | | | |
| | Current trends show demand for research | 4 | |
| | Call on staff to provide expert opinions in past 3 yrs | 2 | |
| | Policy impact on state/nation | 4 | |
| | Increase in economic well-being of state/nator | 3 | |
| | Enriching training and public service | 3 | |
| | Responding to scientific needs of state/nation | 4 | |
| | Work has resulted in products with external demand | 4 | |
| | Work resulting in technology commercialization/patents | 3 | |

| EXTERNAL DEMAND: Continued | | score | % total |
|----------------------------|---|-------|---------|
| Partnerships | | | |
| | Partnerships with key external stakeholders | 4 | |
| | Partnerships with native Hawaiian communities | 2 | |
| | Work used by corporate/business interests | 3 | |
| | Work used by government interests | 3 | |

| INTERNAL DEMAND: Max Score = 28 | | | 85.714 |
|---------------------------------|---|---|--------|
| Reliance of Others | | | |
| | Collaboration with faculty/staff from other units | 4 | |
| | Symposia/workshops/seminars value/attendance | 4 | |
| | Experiential Learning/research opportunities for students | 3 | |
| Facilities and Services | | | |
| | Use of facilities, tools/labs by other units | 3 | |
| Enhance Research | | | |
| | Opportunities for faculty/staff in other units | 4 | |
| | Supports graduate students and postdocs | 3 | |
| | New areas of academic expertise | 3 | |

| COST/REVENUE GENERATION (PRODUCTIVITY): Max Score = 36 | | | 88.889 |
|--|---|---|--------|
| Revenue Generation | | | |
| | Generates more revenue vs. expenses | 4 | |
| | Leveraging substantial external funding | 4 | |
| Operating Expenses | | | |
| | Favorable operating expense/costs | 4 | |
| | Core labs/facilities support by external funds | 4 | |
| Administrative Costs | | | |
| | ORU typically funded by agencies with higher indirect cost: | 3 | |
| Efficiency/Productivity | | | |
| | Research/scholarship as compared to other units | 3 | |
| | Participation in educational and public service | 3 | |
| | Amount/number of awards as compared to other units | 4 | |
| | Support of Graduate students on external funds | 3 | |

| SPECIALIZED NICHE/COMPETITIVE ADVANTAGE: Max Score = 20 | | | 85 |
|---|---|---|----|
| Uniqueness/Signature | | | |
| | Uniqueness in state/nation | 4 | |
| | Area of excellence or emerging area of excellence | 3 | |
| | Record in meeting needs of Hawaii and indigenous people | 3 | |
| Reputation/Peers | | | |
| | National or international recognition | 4 | |
| Competitive Advantage | | | |
| | Scholarship level as compared to similar programs | 3 | |

| | |
|--------------------------------|---------------|
| Grand Total Score (%) = | 87.273 |
|--------------------------------|---------------|

Comments

Centrality and Alignment

HURL contributes to the University's vision of being "a premier research institution" and HURL advances the study of marine science, which has been identified as an "area of strength". Our research program takes advantage of our natural environment (Hawaii and the Pacific Islands). We support the NOAA mission and State needs. We are actively supporting NOAA's new mission to fully investigate the Northwest Hawaiian Islands National Monument and brand new Western Pacific reserve areas. Our research themes (oceanographic processes, ecosystems, volcanology and deep sea geological processes, deep water corals, climate and environmental change, fisheries, and marine biotechnology) all are of major importance to the State of Hawaii and Pacific Islands. HURL's mission is intimately intertwined with the University's mission to provide leadership in the area of marine sciences in Hawaii. Without HURL's unique technology and international renown, this UH claim of marine leadership would certainly be less valid.

Quality/Integrity

HURL supports research incorporating NOAA and University researchers from the U.S. as well as international researchers. HURL manages part of NOAA's coral reef program awards to individual UHM scientists. Our program sponsors interchanges with national and international scholars. Our productivity is high and is rigorously externally reviewed to insure it meets the highest standards. HURL undergoes a Recertification Review by NOAA every five years. This is a detailed process initially involving the convening of HURL's advisory panel to provide guidance to the program. This guidance is used to craft a process of continual improvement in facilities, personnel and processes. HURL conducts a 100+ page self study, which is forwarded to the recertification committee. This international blue ribbon committee then holds a weeklong site visit culminating in a recommendation to NOAA for recertification (or not) for another five-year period. HURL is currently certified through 2010 when the next panel will be held. Independent of this process, the submersibles are also certified for dive worthiness on a three-year schedule by the American Bureau of Shipping (ABS).

Critical Mass

HURL has an international reputation developed over the years through the accomplishments of our researchers. The unit has a staff of 20 and an average annual budget of \$3.8 million (averaged over the last 9 years) derived from Federal grants. Annual award amounts vary slightly because of the peculiarities inherent in the NOAA funding cycle. HURL is a soft-money program. The majority of our staff are RCUH employees. We have adequate staff to handle the increasing workload.

External Demand

The deep diving equipment provided by HURL is in great demand. It is not available elsewhere in Hawaii and it is difficult to access elsewhere in the U.S. HURL does make this unique equipment available to both the military and the private sector in Hawaii to support work of key State interest, such as maintenance of the deep water pipes at the Natural Energy Lab of Hawaii, measuring sand in-fill on the Honolulu sewer outfall, replacing anode protectors on deep water installations, doing bottom surveys for power cable routes, investigation of the state of sunken chemical munitions, etc.

The NOAA mission, supported by HURL, in the Pacific is growing. The issues of climate (variability and change), natural hazards, sustainable fisheries, and preservation remain critical to Hawaii and the Pacific. HURL fisheries research directly supports management decisions required of the Western Pacific Fisheries Management Council. Many of these management issues become State concerns.

Internal Demand

HURL staff collaborate closely with faculty/staff of many units particularly Oceanography, ORE and a range of fisheries groups. We support a number of student and graduate assistants. The unit is essentially a stand-alone operation although critical support is provided by the University Marine Center in the operation of sea going vessels. HURL is self-sustaining from external funds.

Costs/Revenue Generation (Productivity)

UH provides one FTE Position to HURL as matching funds, which is much less than the normal State match on similar cooperative agreements. It would probably be difficult to make such an arrangement now with NOAA, but HURL was set up 29 years ago under terms highly favorable to UH. Because of this low match, HURL generates considerably more overhead than it consumes, thus serving as a profit-generating center for UH. We also receive about \$80K in RTRF annually. With this, we are now generating about \$4.0M in Federal awards. This should compare favorably with any unit on campus. Our research and scholarship derived from our dives compares favorably with other UHM units. The research is intertwined with other SOEST units, especially Oceanography, ORE and a variety of fisheries units.

Specialized Niche/Competitive Advantage

HURL operates two of only nine deep diving research submersibles in the world and is the *only* such deep diving laboratory in the Pacific. Comparisons among NOAA's National Undersea Research Centers show HURL to be at the top in funding success. HURL facilitates the success of many scientists around the U.S. and internationally using its decades of vast and unique experience in deep diving submersible research, a role that doesn't always receive full recognition for the contributions made.