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**Title:** Hana Kai II: a 17-day dry saturation dive at 18.6 ATA. I. Objectives, design, and scope

**Authors:** Hong, SK  
Smith, RM  
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saturation  
method  
heliox

**Issue Date:** 1977

**Citation:** Undersea Biomed Res. 1977 Sep;4(3):211-20.

**Abstract:** The dive (Hana Kai II) described in these papers was designed to determine the effects on man of a prolonged exposure to a dry helium-oxygen hyperbaric environment. Comprehensive studies on energy balance, body fluid balance, cardiorespiratory functions, maximal oxygen uptake, psychological performance, and physiological responses to cold were performed at a simulated depth of 580 ft (18.6 ATA) over a 30-day period in March-April 1975. Following a 3-day pre-dive control period at 1 ATA air (period 1), 5 male divers spent 17 days at 18.6 ATA in a helium-oxygen environment (periods 2-6), and returned to 1 ATA air after 7 days of decompression (periods 7-8). They stayed an additional 3 days inside the chamber for post-dive control measurements (period 9). The chamber temperature was maintained at 25-27 degrees C during periods 1 and 9, 30-31 degrees C during periods 2-5, and 27-28 degrees C during period 6. At 18.6 ATA, the PO<sub>2</sub> and PCO<sub>2</sub> of the chamber gas were maintained at approximately 225 and 2 mmHg, respectively. In this introductory paper, physical and physiological characteristics of individual subjects, the major daily activity schedule, and the scope of investigation are presented.

**Description:** Undersea and Hyperbaric Medical Society, Inc. (<http://www.uhms.org>)

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