

instruments are common alternatives that can be utilized in conditions where wall-plug power may not be easily available and are easily deployable in field recovery contexts [19].

This project has now brought the use of LIBS as a tool for the re-association of commingled remains to a new standard:

- It has been evaluated on 62 individuals
- It shows that LIBS can associate commingled remains in a supervised classification scheme with an accuracy of 87%

A. SAMPLE SET

The project utilized the John A. Williams Documented Human Skeletal Collection, casually known as the JAW Collection, currently housed in the Western Carolina Human Identification Lab (WCHIL) within the Department of Anthropology and Sociology at Western Carolina University (WCU). The JAW Collection was officially established in 2009 when the skeletal remains of the first donor at the Forensic Osteology Research Station (FOREST) arrived at the WCHIL for processing and curation. The collection was named for its founder John Allen Williams, a board-certified forensic anthropologist.

Sixty-two sets of skeletal remains were tested. In all phases, skeletons were chosen based on an equal ratio of males and females (biological sex based on death certificate, biological questionnaire completed by donor or his/her next of kin, and visual identification at intake), date of deposition, and recovery (occurring sometime during 2012 through 2022). Age at death continued to broaden with the addition of more individuals expanding the range to 28 to 100 years at death. Donor specific data of all donors sampled is provided in Annex 1. Donor #/Numbers are used to protect the privacy of the donor. Sex, date of birth, and date of death were all cross-checked with the death certificate and the biological questionnaire when possible. Placement and recovery dates were

