{rokbox title=|Images of dataset four. 256 colors only :: Image: Authors| thumb=|images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-full-customization-color-maps-fisheries-acoustics-visualizing-every-target-pena-2021-thumb.jpg|}images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-full-customization-color-maps-fisheries-acoustics-visualizing-every-target-pena-2021.jpg{/rokbox}

MarianPeña, 2021. **Full customization of color maps for fisheries acoustics: Visualizing every target.** Fisheries Research. Volume 240, August 2021, 105949. https://doi.org/10.1016/j.fishres.2021.105949

Abstract: One of the first steps in evaluating fisheries acoustic data is to explore an echogram of the data. Echograms are a visual representation of reflected sound with range or distance from the echosounder on the y-axis, time on the x-axis, and the intensity of the reflected sound displayed through a mapped color scale. Many of the traditional color scales used in fisheries acoustic echograms have not changed in the last few decades and have been previously discussed in the literature. However, little research has been conducted on how the number of colors used, and color thresholds and limits influence our perception of patterns in acoustic data. Understanding how color maps influence out perception bias is particularly important when the analyst is unfamiliar with the dataset, the dataset has areas of dense, overlapping target aggregations, or the data are noisy. This study collected feedback on four different datasets from fisheries acoustics experts to understand how colormap settings influence perception of echograms. The datasets included a simulated, noisy echogram, an echogram with both volume and point targets, an echogram with layers of different intensities, and a high-frequency echogram affected by background noise. Colormap settings based on data quantiles, both for thresholds and color limits, were chosen by most of the experts as the echograms that best represented the data for the given task. This study recommends histogram-equalized colormaps for initial data exploration. General recommendations are provided based on results.

Keywords: Echogram visualization, Colormap, Thresholds, Color limits, Quantiles