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**The water entry of water** NATHAN SPEIRS, ZHAO PAN, Utah State University, JESSE BELDEN, Naval Undersea Warfare Center, TADD TRUSCOTT, Utah State University — Though water entry has been studied for over a century, there has been a disconnect between solid object water entry and research on liquid impacting on a liquid pool. In addition, few have studied multiple objects impacting a liquid bath sequentially. We show that the impact of multi-droplet streams and liquid jets on a liquid pool display similar behavior to solid body water entry. In particular, the cavities of both droplet streams and jets exhibit three types of cavity seal previously found for hydrophobic spheres at low Bond numbers. Additionally, low-frequency droplet streams create three novel cavity seal types, which can be predicted with a new non-dimensional frequency. The cavity depth for both droplet and jet impact is rationalized by an energy scaling analysis. Finally, we examine the similarities and differences in cavity dynamics for multi-droplet streams and continuous liquid jets.

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