

BMP 503 – Managing Livestock Access to Riparian Areas

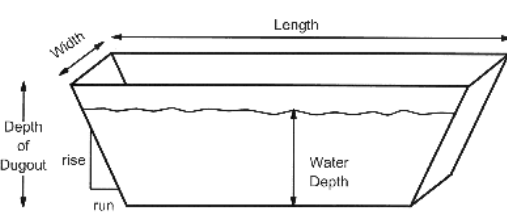
Dugout Construction Guidelines

- Exclusion fencing is required
 - The dugout must be protected from manure contaminated runoff
 - Livestock must be restricted direct access to the dugout
 - Exclusion fence must be a minimum of 15m (50') from the edge of the dugout
 - Spoil piles (from excavation of the dugout) if left at site, must be enclosed within the exclusion fence
- Dugout location
 - The dugout must be far enough away from any stream, river or creek as to not compromise bank stability or impact the riparian area
- Dugout construction requirements
 - End slopes and side slopes must be no steeper than 1.5:1
 - Dugout edge must be stabilized (by excavator) during construction
- Dugout sizing
 - Dugouts must be sized for drought proof standards
 - The total dugout volume must be 3.5x the annual anticipated water usage

$$\text{Dugout size (imp. gal)} = \text{No. of cattle} \times 150 \text{ days on pasture} \times (15 \text{ imp. gal/head/day}) \times 3.5$$

- Dimensions can be calculated using this [Dugout Volume Calculator](#)
 - Leave 'Water depth' at 0
 - Ensure slopes reflect desired ratio (calculator will default to 4 and 1.5)
- Example calculation for 40 head of cattle:
 - $40 \text{ cattle} \times 150 \text{ days} \times (15 \text{ imp. gal/head/day}) \times 3.5 = 315,000 \text{ imp. gal}$
 - Dugout dimensions would be 41m x 16m x 4m (135' x 52' x 13')

Units :	<input type="text" value="ft"/>
Length of dugout:	<input type="text" value="135"/>
Width of dugout:	<input type="text" value="52"/>
Depth of dugout:	<input type="text" value="13"/>
Water depth (optional):	<input type="text" value="0.0"/>
End Slope (run/rise):	<input type="text" value="1.5"/>
Side Slope (run/rise):	<input type="text" value="1.5"/>
<input type="button" value="Calculate"/>	



Dugout /Lagoon Volume Calculator - Results

The total volume of a dugout that is 135 feet long, 52 feet wide, 13 feet deep with a side slope of 1.5, an end slope of 1.5 is

- Alternate water system components
 - Troughs / tanks must supply a minimum of one days water usage based on 15 imp gal/ head/day