

Table 3.4.3 K: Fishing Sinkers – Tungsten

Financial Parameter	Measure/Metric	Source of Information
<i>Required Data</i>		
Initial purchase price for chemical/alternative	<p>In 2005, tungsten prices fluctuated from approximately \$2.72/lb in January to approximately \$9.98/lb in May.</p> <p>Lead raw material price: \$0.65/lb, Platts Metals Week North American producer price, December 2005.</p> <p>A major U.S. fishing sinker manufacturer, Water Gremlin, said that its cost to purchase lead was \$0.30/lb in 2003.</p>	<p>DesLauriers, 2005</p> <p>Gabby, 2006a</p> <p>Myers, 2003</p>
Initial purchase cost for end-product/component	<p>Bullet Weights: Prices range from \$0.54 for a 1/8 oz weight to \$2.15 for a 1 oz weight. Prices are approximately 9 to 12 times the price of lead bullet weights (Bass Pro & Cabela's).</p> <p>Drop Shot Weights: Prices range from \$0.75 for a 1/8 oz weight to \$3.00 for a 1/2 oz weight. Prices are approximately 3 to 7 times the price of lead drop shot weights (Bass Pro & Cabela's).</p> <p>Worm Weights: Prices range from \$0.56 for a 1/8 oz sinker to \$2.25 for a 1-1/2 oz sinker. Prices are approximately 7 to 12 times the price of lead worm weights (Bass Pro & FishUSA).</p> <p>Note: The tungsten sinkers were typically sold in packages with smaller quantities of sinkers than the equivalent lead sinkers, which may affect a per unit price comparison.</p>	<p>Bass Pro, 2006</p> <p>Cabela's, 2006</p> <p>FishUSA, 2006</p>
Availability of chemical/alternative	<p>U.S. consumption of tungsten materials in 2005 was 11,600 metric tons (Shedd, 2006).</p> <p>World tungsten supply is dominated by Chinese production and exports. The Chinese government regulates tungsten production and the total volume of tungsten exports, and the Government has gradually shifted the balance of export quotas towards value-added downstream tungsten materials and products.</p> <p>In 2005, inadequate supplies of tungsten concentrates within China combined with increased demand for tungsten materials in China and elsewhere resulted in steep increases in the prices of tungsten concentrates. The sole Canadian tungsten mine restarted operations. Various companies worked towards developing tungsten deposits or reopening inactive tungsten mines in Australia, China, Peru, Russia, the United States, and Vietnam.</p> <p>Recycling: In 2005, the tungsten contained in scrap consumed by processors and end users represented approximately 40% of apparent consumption of tungsten in all forms.</p>	<p>Shedd, 2006</p>

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Availability of component/end-product	Tungsten bullet weights, drop shot weights and worm weights were available at two major online retailers (Cabela’s & Bass Pro Shops). A Wal-Mart store did not carry tungsten sinkers. Tungsten split shot sinkers are not available.	Bass Pro, 2006 Cabela’s, 2006 FishUSA, 2006 Wal-Mart retail store, Bellingham, MA, March 2006.
Capital costs	While tungsten sinkers can be produced using a molding operation, the 6100° F melting point of tungsten eliminates the possibility of switching lead sinker molding equipment to tungsten sinker production. Therefore a switch from lead to tungsten would require significant capital investment unless the tungsten weights were produced by a supplier. The high melting results in high production costs because of the energy costs and the long cooling times (Duke, 2006).	Duke, 2006