The Delaware River Basin

“The Economic Engine of the Delaware Valley”
What do these enterprises have in common?

- Boeing
- Camelback Ski Area
- Campbell’s Soup
- DuPont
- Wawa
- Keystone Brewpub
- Crayola Crayons
- Starbucks
- Del. Water Gap NRA
- Philadelphia Eagles
- New York Yankees
- Yards Creek Hydro
- United States Navy
- Guggenheim Museum

They all depend on the Delaware Basin!
<table>
<thead>
<tr>
<th>Job</th>
<th>Mean Salary</th>
<th>Job</th>
<th>Mean Salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wetland scientist</td>
<td>$45,730</td>
<td>Fisheries Biologist</td>
<td>$60,670</td>
</tr>
<tr>
<td>Research scientist</td>
<td>$45,730</td>
<td>Archeologist</td>
<td>$57,230</td>
</tr>
<tr>
<td>Construction manager</td>
<td>$93,290</td>
<td>Operating Engineer</td>
<td>$44,180</td>
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<tr>
<td>Biologist</td>
<td>$69,430</td>
<td>Environmental Engineer</td>
<td>$80,750</td>
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<tr>
<td>Toxicologist</td>
<td>$70,000</td>
<td>Hydrogeologist</td>
<td>$92,710</td>
</tr>
<tr>
<td>Chemist</td>
<td>$72,740</td>
<td>Environmental Planner</td>
<td>$64,680</td>
</tr>
<tr>
<td>Geologist</td>
<td>$58,000</td>
<td>Plumber/Pipefitter</td>
<td>$69,870</td>
</tr>
<tr>
<td>Helicopter Pilot</td>
<td>$90,000</td>
<td>Carpenter</td>
<td>$43,640</td>
</tr>
<tr>
<td>Information Technology</td>
<td>$70,930</td>
<td>Electrician</td>
<td>$50,850</td>
</tr>
<tr>
<td>Admin. Staff</td>
<td>$32,990</td>
<td>Truck Driver</td>
<td>$39,260</td>
</tr>
<tr>
<td>Mechanics</td>
<td>$37,000</td>
<td>Concrete Workers</td>
<td>$39,410</td>
</tr>
<tr>
<td>Excavator</td>
<td>$38,540</td>
<td>Dredge Operator</td>
<td>$38,330</td>
</tr>
<tr>
<td>Landscape Architect</td>
<td>$65,910</td>
<td>Conservation Scientist</td>
<td>$61,180</td>
</tr>
<tr>
<td>Civil Engineer</td>
<td>$81,180</td>
<td>Biological technician</td>
<td>$41,140</td>
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<tr>
<td>General Laborer</td>
<td>$33,190</td>
<td>Pile Drive Operator</td>
<td>$51,410</td>
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</tbody>
</table>
1961: JFK signs DRBC Compact.
1965: Congress authorizes Delaware Water Gap NRA.
1996: Congress adds Del. Estuary to National Estuary Program.
2011: Delaware River revival is underway.
Bald Eagle Nesting Pairs in the Delaware River Basin

American shad

Bald Eagles
The Delaware River Basin

- 13,000 sq mi
- 8.2 million people
- 11th most populous state
- Drinking water: 5% of U.S.
- 1st, 7th largest metro. economies
- Del. (74% of pop.)
- NJ (35% of pop.)
- NY (55% of pop.)
- Pa. (43% of pop.)
Annual Economic Activity

- Ports – $2.6 billion
- Agriculture – $3.4 billion
- Water Supply – $3.8 billion
- Fish/Wildlife – $1.5 billion
- Recreation - $1.2 billion
Annual Economic Activity

- Property Value - $256 million
- Water Quality - $2.5 billion
- Forests - $5.1 billion
- Parks – $1.8 billion
Skiing

- $325 million
- 1,753 jobs
- 9 ski areas
- 1,005 acres
- 1 mgd
- 1.9 million ski visits

source: PSAA 2010
Paddling

- $362 million
- 4,226 jobs
- Gear: $66 mil
- Trips: $296 mil
- 620,860 paddlers

source: Outdoor Industry Assoc. 2006
Upper Del. & Del. Water Gap NRA

- $41.2 million
- 448 jobs
- 367,000 visitors
- 113 miles Natl. Wild & Scenic River
- Over 70,000 acres

source: Cordet et al. USNPS, USFS 1990
Canoe/Kayak/Rafting

- $9 million
- 225 jobs
- 37 liveries
- 225,000 visits

Powerboating

- $395 million
- 232,000 registrations
- NY, Del., Pa., NJ ranked 3rd, 7th, 17th, and 23rd in sales

source: National Marine Manufacturers Assoc. 2010
Fishing, Hunting, Bird Watching

- Fishing $576 million
  (18 trips/angler, $53/trip)

- Hunting $340 million
  (16 trips/hunter, $50/trip)

- Bird Watching $561 million
  (13/trips/yr, $27 trip)

Source: USFWS 2006
Shad Fishing

- $6.5 million
- 63,000 trips
- $102/trip

Pa. Fish & Boat Commission, 2011
Wild Trout Fishing

- $29 million
- 350 jobs

(Maharaj, McGurrin, and Carpenter, 1998)
Delaware Water Gap Natl. Rec. Area

- $100 million
- 7,563 jobs
- 4,867,272 visits
- 487,727 local trips
- 3,650,455 non-local trips
- 486,727 motel visits
- 243,364 camp overnights

Stynes and Sun (2002)
## Public Water Supply

<table>
<thead>
<tr>
<th>State</th>
<th>Supply (mgd)</th>
<th>Value ($4.78/1000 gal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Del.</td>
<td>40</td>
<td>$70</td>
</tr>
<tr>
<td>NJ</td>
<td>284</td>
<td>$495</td>
</tr>
<tr>
<td>NY</td>
<td>800</td>
<td>$1,396</td>
</tr>
<tr>
<td>Pa.</td>
<td>679</td>
<td>$1,185</td>
</tr>
</tbody>
</table>

1,803 mgd $3,146 million
Marcellus Shale (potential)

- $3.3 billion/yr (residential), $1.2 billion/yr (wellhead)
- 84 tcf total, 7 tcf in DRB (mean)
- $11.21/1000 cf (residential), $4.16/1000 cf (wellhead)
- 4,700 sq mi (36% of DRB), 8.7% total Marcellus in DRB
- Assumes 25 year extraction period

Annual Residential Value
Marcellus Shale Natural Gas
Delaware River Basin

USGS 2011, EIA 2010
Ecosystem Goods and Services

- Wetlands - $6.8 billion
- Farms - $4.8 billion
- Forests – $8.6 billion
>600,000 jobs ($10 billion in wages)

- Marine & Water-related Construction
- Fishing & Aquaculture
- Ship/Boat Building
- Tourism/Recreation
- Marine Transportation
- Hunting/Fishing/Wildlife Recreation-related
- Farming
- Water/Wastewater Utility
- Ports
- Watershed Protection/Management
<table>
<thead>
<tr>
<th>Sector</th>
<th>Jobs</th>
<th>Wages ($ million)</th>
<th>Data Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indirect Basin Related</td>
<td>288,745</td>
<td>4,000</td>
<td>U.S. Census Bureau, 2009</td>
</tr>
<tr>
<td>Coastal</td>
<td>44,658</td>
<td>947</td>
<td>National Coastal Economics Program, 2009</td>
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<tr>
<td>Farm</td>
<td>45,865</td>
<td>1,880</td>
<td>USDA Census of Agriculture, 2007</td>
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<tr>
<td>Fishing/Hunting/Birding</td>
<td>44,941</td>
<td>1,476</td>
<td>U.S. Fish and Wildlife Service, 2008</td>
</tr>
<tr>
<td>Water Supply Utilities</td>
<td>8,750</td>
<td>485</td>
<td>UDWRA and DRBC, 2010</td>
</tr>
<tr>
<td>Wastewater Utilities</td>
<td>1,298</td>
<td>61</td>
<td>UDWRA and DRBC, 2010</td>
</tr>
<tr>
<td>Watershed Organizations</td>
<td>201</td>
<td>10</td>
<td>UDWRA and DRBC, 2010</td>
</tr>
<tr>
<td>Ski Area Jobs</td>
<td>1,753</td>
<td>$88</td>
<td>Penna. Ski Areas Association</td>
</tr>
<tr>
<td>River Recreation</td>
<td>448</td>
<td>$9</td>
<td>U. S. Forest Service/Nat’l. Park Service, 1990</td>
</tr>
<tr>
<td>Canoe/Kayak/Rafting</td>
<td>225</td>
<td></td>
<td>Canoe Liveries and UDWRA, 2010</td>
</tr>
<tr>
<td>Wild Trout Fishing</td>
<td>350</td>
<td>$4</td>
<td>Maharaj, McGurrin, and Carpenter, 1998</td>
</tr>
<tr>
<td>Port Jobs</td>
<td>12,121</td>
<td>772</td>
<td>Economy League of Greater Phila., 2008</td>
</tr>
<tr>
<td>Delaware Basin Total</td>
<td>&gt; 600,000</td>
<td>&gt;$10 billion</td>
<td></td>
</tr>
</tbody>
</table>
The Delaware River Basin in Del., NJ, NY, and Pa. contributes:

1. $25 \text{ billion}$ in annual economic value from recreation, water quality, water supply, ecotourism, forest, agriculture, open space, and port benefits.

2. Ecosystem goods and services worth $21 \text{ billion}$ per year, net present value (NPV) = $683 \text{ billion}$.

3. Over 600,000 jobs with $10 \text{ billion}$ in wages.
HOUSE APPROVES DELAWARE PACT

Federal-State Agreement on Basin Development Passes After Debate

POWER ISSUE IS RAISED

Action by Senate Is Only Remaining Obstacle to New Agency

Special to The New York Times.

WASHINGTON, June 29—

WASHINGTON, Sept. 15 (AP)—The Senate unanimously passed today a bill to create a four-state compact for the development of Delaware River Basin water resources. Differences with the House bill, passed on June 29, were expected to be ironed out promptly.

The only major change in the Senate version stipulates that any project undertaken by the interstate agency to be set up by the compact must have authorization of Congress if Federal funds are involved.

After House and Senate agreement the measure will go to President Kennedy for signing, ending a generation of study, negotiation and planning for the compact.

Four States Sign Delaware Pact

President Joins in Approving Vast Program for Basin Backed by Governors

COMMISSION IS SET UP

Developing of River Valley Will Use, Conserve and Protect Vital Supply

By RUSSELL BAKER

Special to The New York Times.
