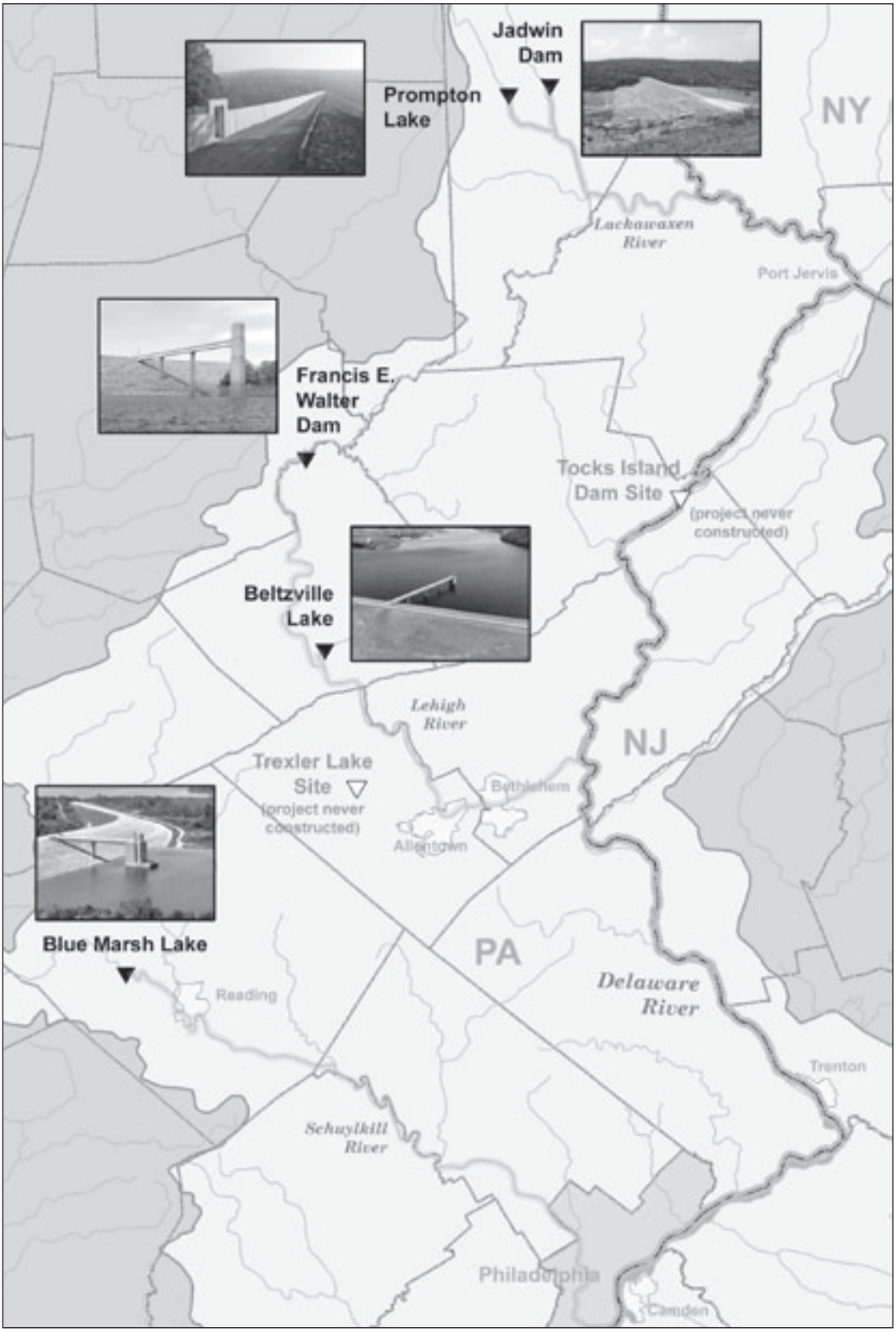
# Appendices

# Philadelphia District Dams and Reservoirs



| Project | | General Edgar Jadwin Dam | Prompton Lake | Francis E. Walter Dam | Beltzville Lake | Blue Marsh Lake |
|---|---|---|---|---|---|---|
| Location | | Honesdale, Pa. | Prompton, Pa. | White Haven, Pa. | Beltzville, Pa. | Leesport, Pa. |
| County | | Wayne | Wayne | Carbon & Luzerne | Carbon | Berks |
| Stream | | Dyberry Creek | West Branch Lackawaxen R. | Bear Creek & Lehigh R. | Pohopoco Creek | Tulpehocken Creek |
| River Basin | | Lackawaxen | Lackawaxen | Lehigh | Lehigh | Schuylkill |
| Upstream Drainage Area | | 65 sq. mi. | 60 sq. mi. | 288 sq. mi. | 96 sq. mi. | 175 sq. mi. |
| Authorized Purposes | | Flood Control | Flood Control | Flood Control Recreation | Flood Control Water Supply Water Quality Recreation | Flood Control Water Supply Water Quality Recreation |
| Start of Dam Operations | | 1959 | 1960 | 1961 | 1971 | 1977 |
| Park Open for Recreation (1) (2) | | | | | 1972 | 1979 |
| **DAM** | | | | | | |
| Dam Structure | | Earthfill | Earthfill | Earthfill | Earthfill | Earthfill |
| Elevation at Top of Dam (3) | | 1,082′ | 1,233′ | 1,474′ | 672′ | 332′ |
| Height above Stream Bed | | 109′ | 147′ | 234′ | 170′ | 98′ |
| Length | | 1,255′ | 1,230′ | 3,000′ | 4,560′ | 1,775′ |
| Top Width | | 30′ | 30′ | 30′ | 30′ | 30′ |
| **OUTLET WORKS** | | | | | | |
| Conduit Cross-Sectional Area | | 50 sq. ft. | 59 sq. ft. | 201 sq. ft. | 38 sq. ft. | 94 sq. ft. |
| Conduit Length | | 530′ | 548′ | 1,150′ | 1,165′ | 440′ |
| Control Gates | | Fixed opening | Fixed opening | 3 @ 5′8″x10′ | 2 @ 2′10″x7′4″ | 2 @ 6′x10′ |
| SPILLWAY | | | | | | |
| Crest Elevation (3) | | 1,053′ | 1,200′ | 1,450′ | 651′ | 307′ |
| Crest Length | | 164′ | 130′ | 450′ | 275′ | 300′ |
| Design Discharge | | 69,000 c.f.s. | 57,890 c.f.s. | 193,721 c.f.s. | 47,000 c.f.s. | 73,900 c.f.s. |
| **RESERVOIR** | | | | | | |
| Surface Area | Normal | Dry dam | 290 acres | 80 acres | 947 acres | 963 acres |
| | Recreation/Summer | | | 574 acres | | 1,147 acres |
| Top of Pool (3) | Normal | | 1,125′ | 1,300′ | 628′ | 285′ |
| | Recreation/Summer | | | 1,370′ | | 290′ |
| Total Storage Capacity | | 8 billion gals. | 17 billion gals. | 36 billion gals. | 22 billion gals. | 16 billion gals. |

(1) Walter is authorized for recreation, but not as a managed park.
(2) Recreation at Beltzville is managed by the Commonwealth of Pennsylvania (Beltzville State Park).
(3) All elevations are relative to the National Geodetic Vertical Datum of 1929 (NGVD 29).

# Philadelphia District Major Vessels

**USACE Minimum Fleet Hopper Dredge**

***McFarland***

**USACE Survey Vessel**

***Shuman***

| **Philadelphia District Hopper Dredges (since World War II)** | | |  |  |  |  |
|---|---|---|---|---|---|---|
| | | | ***Goethals*** | ***Comber*** | ***Essayons*** | ***McFarland*** |
| Year Built | | | 1937 | 1947 | 1949 | 1967 |
| Dredge Type | | | Side Drags | Side Drags | Side Drags | Side Drags |
| Power | | | Turbo-Electric | Turbo-Electric | Turbo-Electric | Diesel Electric |
| Length | | | 476′ 0″ | 351′ 9″ | 525′ 2″ | 300′ 0″ |
| Beam | | | 68′ 0″ | 60′ 0″ | 72′ 0″ | 72′ 0″ |
| Depth | | | 36′ 3″ | 30′ 0″ | 40′ 5″ | 33′ 0″ |
| Hopper Capacity | | | 5,000 c.y. | 3,000 c.y. | 8,000 c.y. | 3,140 c.y. |
| Maximum Loaded Draft | | | 25′ 0″ | 22′ 2″ | 28′ 0″ | 22′ 0″ |
| Maximum Dredging Depth | | | 60′ | 62′ | 60′ | 55′ |
| Dragpipes | No. – Size | | 2 – 32″ | 2 – 30″ | 2 – 36″ | 2 – 34″ |
| Dredge Pumps | No. – Size | | 2 – 30″ | 2 – 28″ | 2 – 32″ | 2 – 26″ |
| | Rating (Each) | | 1,300 h.p. | 1,150 h.p. | 1,850 h.p. | 2,800 h.p. |
| Propulsion (All Twin Screw) | Total Shaft Rating | | 4,500 h.p. | 6,000 h.p. | 8,000 h.p. | 6,000 h.p. |
| | Speed | Light | 15.46 m.p.h. | 15.35 m.p.h. | 17.30 m.p.h. | 15.40 m.p.h. |
| | | Loaded | 12.44 m.p.h. | 12.85 m.p.h. | 16.55 m.p.h. | 14.90 m.p.h. |
| Year Retired | | | 1982 | 1983 | 1981 | Active |

## USACE Minimum Fleet Hopper Dredge *McFarland*

| | |
|---|---|
| **Year built** | 1967 |
| **Dimensions** | |
| Length, w/o boom overhang | 300′ |
| Length, w/ boom overhang | 319′ 8″ |
| Boom length beyond side of vessel | 136′ |
| Beam, molded | 72′ |
| Depth amidship, molded | 33′ |
| Length of drag arms | 63′ |
| **Material** | |
| Hull & superstructure | Steel |
| **Dredging depth** | |
| Maximum | 55′ |
| Minimum | 21′ |
| **Design mean draft** | |
| Loaded | 22′ |
| **Hopper capacity** | |
| 1 hopper | 3,140 c.y. |
| Total capacity | 12 doors |
| **Draft** | |
| Loaded – Forward | 23′ 7/8″ |
| Loaded – Aft | 23′ 7/8″ |
| Light – Forward | 15′ 3″ |
| Light – Aft | 16′ 6″ |
| **Displacement** | |
| Loaded | 9,720 T. |
| Light | 6,152 T. |
| **Tonnage** | |
| Loaded | 6,036 T. |
| Light | 5,644 T. |
| **Dredging capabilities** | Hopper, Pipeline, Sidecast |
| **Pumping power** | |
| Total output | 5,600 h.p. |
| Motors, electric (2) | 2,800 h.p. ea. @ 225/425 r.p.m. |
| Engines, diesel (3) | 2,160 h.p. ea. @ 900 r.p.m. |
| Pumps (2) | 225/425 r.p.m. |
| No. of vanes | 5 |
| Suction pipe | 34″ dia. |
| Discharge pipe | 26″ dia. |
| **Propulsion power** | |
| Total output | 6,000 h.p. |
| Engines, direct drive diesel (4) | 1,600 h.p. ea. @ 900 r.p.m. |
| Propellers, 4-blade, variable pitch (2) | 13′ 6″ dia. |
| Bow thruster, electric, reversible | 65″ dia. |
| Thrust | 13,000 lbs. @ 500 h.p. |
| **Direct pumpout** | |
| Discharge line | 26″ dia. |
| Maximum length of discharge line | 20,000′ |
| **Sidecasting** | |
| Discharge pipe | 34″ dia. |
| Length of pipe | 175′ |
| Casting distance from side of dredge | 163′ |
| **Fuel** | |
| Capacity | 270,000 gal. |
| Cruising range | 8,500 mi. |
| **Speed (statute miles)** | |
| Light | 15.4 m.p.h. |
| Loaded | 14.9 m.p.h. |

## USACE Survey Vessel *Shuman*

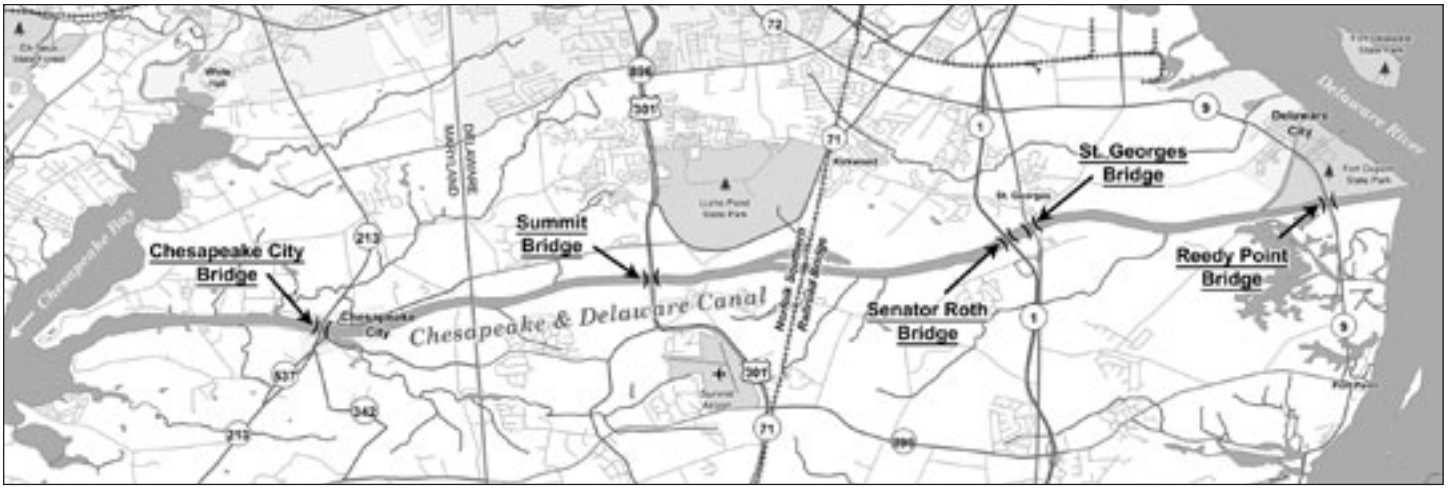
| | |
|---|---|
| **Year built** | 1970 |
| **Dimensions** | |
| Length, overall | 65′ |
| Beam, overall | 26′ |
| Hull depth | 8′ 5″ |
| Clearance, top of mast | 30′ |
| **Vessel type** | Catamaran |
| **Material** | |
| Hull & deckhouse | Aluminum |
| **Draft** | |
| Loaded – Forward | 4′ 9″ |
| Loaded – Aft | 4′ 9″ |
| Light – Forward | 4′ 7″ |
| Light – Aft | 4′ 7″ |
| **Displacement** | |
| Loaded | 53 T. |
| Light | 32 T. |
| **Propulsion** | |
| Total output | 1,480 h.p. |
| Engines, diesel (2) | 740 h.p. ea. @ 2,300 r.p.m. |
| Reduction gears (2) | 3:1 ratio |
| Generators (2) | 38 kW. |
| Propellers, 5–blade, Nibral (2) | 40″ dia. x 42 pitch, 3 ¾″ dia. shaft |
| **Fuel** | |
| Capacity | 1,128 gal. |
| **Speed (statute miles)** | 26 m.p.h. |
| **Hydrographic survey equipment** | |
| Hi-res multibeam sonar system | 240 kHz., 150° swath |
| Position & orientation system | 0.5-2.0 m. DGPS<br>0.02-0.10 m. RTK |
| Digital side scan sonar system | 100 kHz. to 450 m.<br>500 kHz. to 150 m. |
| Single beam sonar system | 0.2-600 m. depth range<br>0.01 m. resolution |

# Active Philadelphia District O&M Navigation Projects

| Project | Map No. | Authorized | Last Modified | Authorized Channel Dimensions | | | O&M Length (if less) | Last Dredged |
|---|---|---|---|---|---|---|---|---|
| | | | | Depths | Widths | Length | | |
| Absecon Inlet, NJ | 1 | 1922 | 1946 | 15′-20′ | 200′-400′ | 1.5 mi. | | 2004 |
| Barnegat Inlet, NJ | 2 | 1935 | 1946 | 8′-10′ | 200′-300′ | 4.5 mi. | | 2009 |
| Cedar Creek, DE | 3 | 1981 | | 5′ | 50′-80′ | 1.2 mi. | | 2009 |
| Cohansey River, NJ | 4 | 1907 | 1937 | 8′-12′ | 75′-100′ | 19.5 mi. | | 1990 |
| Cold Spring (Cape May) Inlet, NJ | 5 | 1907 | 1945 | 20′-25′ | 300′-400′ | 2.3 mi. | | 2009 |
| Delaware River at Camden, NJ | 6 | 1919 | 1988 | 18′-40′ | varies | ~4 mi. | | 1992 |
| Delaware River, Philadelphia, PA to Trenton, NJ | 7 | 1930 | 1990 | 25′-40′ | 300′-400′ | ~30 mi. | 23.5 mi. | 2009 |
| Delaware River, Philadelphia to the Sea, PA, NJ & DE (1) | 8 | 1885 | 1992 | 45′ | 400′-1000′ | 102.5 mi. | | Annual |
| Indian River Inlet & Bay, DE | 9 | 1937 | 1945 | 4′-15′ | 60′-200′ | ~13 mi. | ~2 mi. | 2009 |
| Inland Waterway, Delaware River to Chesapeake Bay, DE & MD (Chesapeake & Delaware Canal) | 10 | 1919 | 1990 | 35′ | 450′ | ~46 mi. | | Annual |
| Inland Waterway, Rehoboth Bay to Delaware Bay, DE (Lewes & Rehoboth Canal) | 11 | 1912 | 1990 | 6′-10′ | 50′-200′ | ~12 mi. | ~2 mi. | 2004 |
| Manasquan River, NJ | 12 | 1930 | 1990 | 12′-14′ | 100′-300′ | 1.5 mi. | | 2009 |
| Maurice River , NJ | 13 | 1910 | 1990 | 7′ | 100′-150′ | 21 mi. | | 1996 |
| Mispillion River, DE | 14 | 1907 | 1992 | 6′ | 60′ | 13.6 mi. | ~1 mi. | 2009 |
| Murderkill River, DE | 15 | 1892 | 1990 | 7′ | 60′ | 8.5 mi. | | 2002 |
| New Jersey Intracoastal Waterway | 16 | 1945 | 1990 | 6′-12′ | 100′ | 117 mi. | | 2009 |
| Salem River, NJ | 17 | 1925 | 1990 | 16′ | 100′-150′ | ~5 mi. | | 2007 |
| Schuylkill River, PA, Mouth to University Avenue | 18 | 1917 | 1988 | 22′-33′ | 200′-400′ | 6.5 mi. | ~4 mi. | 2008 |
| Toms River, NJ | 19 | 1910 | 1979 | 5′ | 100′ | 4.5 mi. | | 1998 |
| Tuckerton Creek, NJ | 20 | 1902 | 1916 | 3′-6′ | 40′-80′ | 3.8 mi. | | 1977 |
| Wilmington Harbor, Christina River, DE | 21 | 1896 | 1960 | 7′-38′ | 100′-340′ | 9.9 mi. | ~1 mi. | Annual |

(1) Deepening from 40 to 45 feet per most recent authorization (1992) began in 2010 and was under construction as of this writing.

# High-Level Highway Bridges over the Chesapeake & Delaware Canal




| Chesapeake City Bridge | Summit Bridge | Senator William V. Roth, Jr. Bridge | Saint Georges Bridge | Reedy Point Bridge |
|---|---|---|---|---|
| Structure | | | | |
| Tied Arch | Cantilever Truss | Cable Stay | Tied Arch | Cantilever Truss |
| Constructed | | | | |
| 1947–1948 | 1957–1959 | 1993–1995 | 1940–1941 | 1966–1969 |
| Route Designation | | | | |
| Md. 213 | U.S. 301, Del. 896 | Del. 1 | U.S. 13 | Del. 9 |
| Highway Type | | | | |
| 2-lane | 4-lane, divided | 4-lane, divided, limited access, tolls | 4-lane, divided | 2-lane |
| Average Daily Trips (2008) | | | | |
| 14,538 | 22,801 | 67,564 | 10,208 | 1,742 |
| Overall Bridge Length (between abutments) | | | | |
| 3,954′ | 2,058′ | 4,650′ | 4,209′ | 8,432′ |
| Main Span Length | | | | |
| 540′ | 600′ | 750′ | 540′ | 600′ |
| Maximum Height | | | | |
| 240′ | 196′ | 335′ | 240′ | 190′ |
| Air Gap (ship clearance) | | | | |
| 135′ | 135′ | 138′ | 133′ | 134′ |

# Marine Design Center Projects, 1982–2008 (in chronological sequence)

- *Yaquina* Hopper Dredge, Small Class Design
- *Essayons* Hopper Dredge, Medium Class Design, Claim Support
- *Wheeler* Hopper Dredge, Large Class Design
- *Gelberman* Tugboat 85', Design
- *Titan* Crane Barge 96'x48'x8'4"
- LD-707 Shop Barge 140'x36'x9'
- *Brownlee* Standard Floating Crane 90T, 195'x54'x10'
- *Sewell* Standard Floating Crane 75T, 195'x54'x10'
- *Warren* Crane Barge 6CY, 150'x60'
- #869 Dragline Crane Barge 120'x42'x7'
- Standard Floating Crane Barge
- *DeLong A* Kings Bay Jackup DPO
- *Woodie Walden* Floating Crane Design (*Bluestone* Repl.)
- LD 730/731 Deck Cargo Barges (2) 125'x54'x7'
- Deck Barges (3) 120'x30'
- Fish Transport Barge
- *Luckiamute* Emergency Conversion
- *Hurley* Dustpan Dredge (*Burgess* Repl.)
- *Boyd* Surveyboat 45'
- *Azores* Dredge Aid
- SG Cutterhead Dredge
- LD-727 Power Service Barge
- Workboat 50', P&S Review
- Crane Barge Conversion
- *Swath* Surveyboat (*Adams* Repl.)
- *Merritt* Vessel Modifications
- *Roseires* Dredging Plant
- *Racine* Vessel Modifications
- *Peck* Towboat 100'
- *Wallace* Surveyboat 60'
- *Quad Cities* Gatelifter 350T
- USAF Cutterhead Dredge
- HD 290/291 Deck Cargo Barges 150'x50'
- *Warioto* Towboat, Medium Class
- *Bunyan*, Conversion to Diesel-Electric
- *Jadwin*, Conversion to Diesel-Electric
- *Britton* Towboat 100'
- DCB-75/76 Deck Cargo Barges (2) 120'x30'
- #96 Deck Cargo Barge 110'x26'
- SV 101 Service Barge
- *Harvey Hodge* Surveyboat 42'
- *Reynolds* Drift Collection Vessel 60'x20' (*Patapsco* Repl.)
- SLG-3 Spare Miter Gate Barge
- #100 Gate Barge, Deck Cargo 150'x52'
- *Swath* Surveyboat
- HD 250 Deck Cargo Barge 105'x25'x8'
- #906-909 Deck Cargo Barges (4) 150'x35'x6'
- YMN1 Cutterhead Dredge 82'x27'x6' for MINSY (USN)
- *Bettendorf* Towboat 85'x30' (*Andrews* Repl.)
- *Lusk* Tender (*Wailes* Repl.)
- *Dauntless* Salvage Support Services
- #8501 Deck Cargo Barge 200'x50'x8'
- Service Launch (*Moore* Repl.)
- #8601 Deck Cargo Barge 200'x50'x8'
- Dustpan Dredge (*Potter* Repl.)
- M/V *Mississippi* Repl.
- LD 733 Deck Cargo Barge 140'x36'x7'
- #850-853 Deck Cargo Barges (4) 110'x26'x6'
- Spud Barge 150'x35'x9'
- #8601-5/701-5 Deck Cargo Barges (10) 160'x34'x9'6"
- Buoy Barge 90'x30'x6'6"
- #8603 Deck Cargo Barge 260'x45'x7'
- #8604 Ramp Barge, Deck Cargo 120'x30'x7'
- *R.W. Davis* Floating Crane 160'x54'x10'6" (*Upatoi* & *Tallawampe*)
- DB 65 Floating Crane 75'x52'x8.5' (DB 7 Repl.)
- DB 11 Floating Crane 75'7"x52'x8'9" (DB 8 Repl.)
- ND 40 Shop/Spud Barge 150'x52'x9' (DB 10 Repl.)
- HD 251 Deck Cargo Barge 105'x26'x8'
- C: *Bogue* Crewboat (for *Hurley*)
- DD: *Hurley* Drydock # 5801
- PL: *Hurley* Pipeline
- SP: SP1/101-102 Barges (3) (for *Hurley*)
- T: Tender One (for *Hurley*)
- Floating Crane (DB 4401 Repl.)
- #185 Power/Shop Barge
- #910-919 Deck Cargo Barges (10) 150'x35'x6'
- #8801-5\901-5 Deck Cargo Barges (10) 160'x34'x9'6"
- HD 292 Deck Cargo Barge 151'x52'x8'
- #91 Deck Cargo Barge 105'x26'x7'
- #9201 Work Barge 55'x20'x5'
- #869 Barge & Crane Analysis
- Spud Barge 100'x54'
- Towboat 65'
- *Cherneski* Surveyboat 42'

- *Creve Coeur* Tender 1200HP (*Kankakee* Repl.)
- Dredge *Thompson* Repl. Design
- *P. H. Worley* Lock Tender 50’x18’x8’ (Winfield L&D)
- Duluth/Superior Harbor
- M/V *Hatton* Repl.
- *Robinson Bay* Repowering
- DCB-77/78 Stop Log Barges (2), Deck Cargo 120'x30'x7'
- *Rouge* Harbor Tugboat 65’, Repowering
- Dump Scow 200CY
- *Mister Pat* Towboat 1375HP, 82’x35’x10’
- *H. J. Schwartz* Floating Crane (*Coleman* and *Markus* Repl.)
- SES-200 Repowering
- *Moline* Towboat (*Craigel*), Small Size 600–800HP
- Hopper Barge 151'x25'
- *Harrell* Patrol Boat 35’ (*Craney Island* Repl.)
- *Ted Cook* Towboat 1800HP, 82’3”x34’x10’10” (*Anglin* Repl.)
- Utility Barge 30'x12'
- Surveyboat 44'
- *Currituck* Repowering
- Tender (*Marmet*)
- Surveyboat 44'
- Crane Barge 150'x52'x9', R.C. Byrd L&D
- DB-766 Crane Barge 150'x50'x10' (DB-762 Repl.)
- Dredge Pipeline Pontoons (50) 47'6"x16'x4'
- #854-857 Deck Cargo Barges (4) 110'x26'x6'
- #105 Deck Gate Barge 150'x52'x8'
- *Pathfinder* Towboat 75’x30’x8’6” (Repl.)
- *Grand Tower* Towboat Repl.
- *Fisher* Crane Barge (#1 Repl.)
- Deck Cargo Barges
- Deck Cargo Barge (#46 Repl.)
- DB-767 Crane Barge (DB-763 Repl.)
- Surveyboat (*Hickson* Repl.)
- Towboat (*Singleton* Repl.)
- *Fred Lee* Towboat 85’x28’x9’, Red River
- #9502
- Lock Stop Log Barge
- Dam Stop Log Barge
- Utility Boat
- HD 252 Deck Cargo Barge 105'x26'x8'
- *Halcyon* Engineering Support
- *William R. Porter* Tender 50’ (Gallipolis Locks)
- #2256 Crane Barge 150'x50'x8'
- *Wheeler* Repowering
- LCOB *McFarland* Launch Repl.
- *LaSalle* Towboat (*Pekin*)
- Tender (*Cottel* Repl.)
- Stringout Barges
- Floating Crane Barge, Winfield L&D 150'x52'x9'3"
- QB 9401 Quarters Boat, Barge 266'x40'x10'7"
- #9801 Crane Barge
- *Duluth* Tug Repowering
- Floating Crane (*Upatoi* & *Tallawampe*)
- Drift Vessel *Elizabeth* Repl.
- *Tenn-Tom* Towboat 1800HP, 85’x30’x10’
- *Halcyon* Surveyboat 60’ (Swath), Repowering
- M/V *Iroquois* Repl.
- *Tennessee* Towboat 800HP
- USFWS Research Vessel 95'
- QB 9901 CEMVK Quarters/Galley Goat, Mess Barge 301'x40'x11'
- #5801 Casualty to Drydock
- *Henry M. Shreve* Gatelifter Barge, Floating Crane 350T, 300’x100’x14’
- CELMK Fuel Oil Barge 195'x35'x12'
- QB 9501 Quarters/Office Barge 266'x40'x10'7" (Similar to QB 2281)
- HD 294 Deck Cargo Barge 151'x52'x8'
- Olmsted Lock and Dam
- HD 293 Deck Cargo Barge 151'x52'x8'
- *Roger R. Henry* Derrickboat (#49 Repl.)
- *Ossabaw* Surveyboat 32’, Sea Ark (GSA)
- *Donlon* Tug Steel Tender 50’ (*Palmyra/Paulsboro* Repl.)
- Tug Pilot Repl.
- Deck Cargo Barges, 700 Series (2), 150'x35'x6'
- QB 2001 Office/Locker Barge 150'x35'x6'
- *Melvin Price* Docking Barge 150’x48’x9’3”
- #9511 Fuel Oil Barge 125'x26'x7'6”
- ND6 Crane Barge Conversion
- *Sturgeon* Research Vessel Conversion
- Towboat
- Drift Collector 100’x30’x10’ *(Raccoon* Repl.)
- Standard Inland River Crane Barge 150'x50'x10'
- HD 253/254 ORH Deck Cargo Barges 105'x26'x8' with Cargo Box

- *Wildcat* Repl.
- *J. C. Thomas* Towboat 125'
- *Grizzly* Tug, Engineering Support
- *Davenport* Towboat 59'x22'x8.5' (*Monmouth* Repl.)
- #9511 LMK Fuel Oil Barge 125'x26'x7'6"
- *Kenneth Eddy* Towboat Repl. 100'x34'x11'
- Work Layout Barge 230'x68'x12'
- Debris Barge
- *Dobrin* Surveyboat 67'x19'
- *Adams II* Surveyboat 67'x19'
- DB-9 Crane Barge 150'x50'x10'
- DB-10 Crane Barge 150'x50'x10'
- *Hercules* Floating Crane Barge
- *Hiram Downs* Jet Surveyboat 38'
- #9701 Fuel Oil Barge 195'x35'x12'
- Surveyboat 36'-38'
- *Potter* Repowering
- *Goliath* Spud Operating Mechanism
- M/V *Bogue* Crewboat Repairs
- Fuel Oil Barge 130'x35'x12'6"
- Water Barge
- *Bettendorf* Warranty Claim
- *Titan* Floating Crane Barge 205'x108'x17'
- *Evanick* Towboat Repl. 100'x35'x11'
- *Hudson* CENAN Surveyboat/Patrol Boat Repl. 53'
- *Bluestone* Debris Mgt. Vessel 50'x20'
- *Moritz* Surveyboat Repl. 65'
- *Monallo III* Crane Barge 195'x80'x13' *(Monallo II* Repl.)
- *Mckelvey* Steel Workboat 50' (Belleville L&D)
- *Stevens* Steel Workboat 50' (Willow Island)
- Rock Barge, Deck Cargo 150'x35'x8'
- CE 64 Fuel Oil Barge 195'x35'x12'
- CE 407 Fuel Oil Barge 125'x26'x8'
- *Praire Du Rocher* Towboat 880HP, 50'
- *Barron* Launch (*Pittsburgh* Repl.)
- Surveyboat 26'
- Deck Cargo Barges (3) 120'x30'x7'
- *Teche* Surveyboat 55' (M/V *Granada* Repl.)
- *Forney* Tug Repowering
- *Choctawhatcee* Floating Crane (Seatrax)
- *Irvington* Surveyboat Repl. 50'
- PCC Dredge *Mindi* Engineering Support
- *Olmsted* Manuever Barge
- Deck Cargo Barges (3) 105'x26'x7'
- *Redlinger* Surveyboat 32', Truckable (*Rodolf* Repl.)
- *Elton* Surveyboat 65', Deep-Vee (*Hickson* Repl.)
- *Derrick 6* Anchor Handling Barge 75'x35'x5'6"
- Gate Barge 175'x70'x12'
- #37A Maneuver Boat
- Maneuver Boat, Peoria L&D
- MB 2001 & 2002 Maneuver Boat, LaGrange L&D
- *Goetz* Dredge, *Thompson* Dredge Repowering, 595-Old & 659-New
- *Titan* Crane Barge 96'x48'x8'4"
- *Lafourche* (M/V *Alexander* Repl.)
- KIYI Research Vessel
- *Cherneski* Spicer Shaft
- *Shorty Baird* Cooling System Conversion
- *Driftmaster* Boom Repl.
- *Monallo III* Floating Crane Barge
- *Potter* Overhaul & Repair
- Pontoons
- *Channahon* Towboat Repowering
- DB-768 Crane Barge (*Kewanee* Repl.)
- *Essayons* Dredging Control & Automation
- L/D 53 Olmsted Washdown Barge 70'x30'x5'
- *Tanner* Surveyboat *(C.M. Wood* Repl.)
- SG-4 Spare Gate Barge
- *Mike Hendricks* MPLD Floating Crane
- *Yaquina* Repowering
- *Morewood* Drift Control Barge
- CB 11 Crane Barge (*Mazon* Repl.)
- *Bray* Surveyboat, Engineering Support
- #670 Scow, Engineering Support
- *Harvey* Crane Barge
- Barge, Dredge Floating Pipeline 48'x18'x4'
- *William James* Towboat (*Lipscomb* Repl.)
- *Sanderford* (M/V *Wailes* Repl.)
- M/V *Key Woods*
- *Essayons* Launch Repl.
- Fish Stocking Vessel, Jordan Fish Hatchery
- Crane Barge
- *Choctawhatchee* Crane Barge
- *Leitner* Towboat Vibration
- *Yaquina* Hopper Dredge, Crane Repl.
- Rock Island Rock Barges, Deck Cargo (6) 150'x35'x8'
- *Essayons* Repowering
- BD-7 Drift Crane, Floating Crane Barge
- *Kimmswick* Repl.
- *Jadwin* Dredge Repairs
- *Brown* Crane Barge Repl.
- *Gordon M. Stevens* Towboat Repl.

- BD-1 Barge
- *John A B Dillard Jr.,* Debris Vessel
- *City of Ottawa* Towboat 85' (*Peoria* Repl.)
- Workboat for Racine Lock
- *Montgomery Point* Barge
- *Lawson* Towboat 96'x39'x8', (3) screws @ 670 ea. (*Patoka* Repl.)
- *Linthicum* Repowering
- Rock Barge (2) (Peoria)
- Crane Barge
- *Blanchard* Surveyboat 44'
- 934 Deck Barge 150'x35'x6'
- Deck Cargo Barges (6)
- Rock Barges (2)
- *Thompson* Quarters/Galley Boat Barge
- *Gen. Warren* Towboat (*Thompson* Repl.)
- *Shuman* Surveyboat Repowering
- Shallow Draft Dredge Repl., Split Hull
- CN-4 Flat Deck Crane Barge 80'x29'x7' (Existing)
- *Jadwin* Pipeline Repl.
- Anchor Handling Barge Repl. 60'x22'x5'
- *Wheeler* Repowering
- *Breton* Surveyboat Repl. 48'x16'
- M/V *Mississippi* Landing Barge 120'x68'
- Surveyboat
- Pipeline Barges (3)
- ND 45-48 Deck Cargo Barges (4) 120'x28'x7'
- *Yaquina* Launch Repl.
- Crawler Crane
- *Taggatz* Quarters Boat
- Rock Barges (6)
- *Marmet* Workboat (Marmet L&D)
- *Gavins Point* Landing Craft
- *Gordon M. Stevens* Towboat (Olmsted L&D)

# Philadelphia District Gallery of Distinguished Employees

**Nicholas J. Barbieri, P.E.,** joined the District in 1952 as a construction engineer and concluded as Chief of the Planning/ Engineering Division. He served as resident engineer for the widening and deepening of the C&D Canal and supervised completion of planning studies for modification of the F.E. Walter Dam. Moreover, he was the driving force behind successful efforts to restore the Military Construction mission at Ft. Dix and McGuire Air Force Base to the Philadelphia District, soon after plans for Tocks Island Dam had been shelved and at a time when the District's workload was near its all-time low. Also, he encouraged the District's shift toward increased reimbursable work for the EPA and other federal agencies. In 1984, he received the Outstanding Manager of the Year award from the Federal Executive Board in Philadelphia, largely in recognition of his transformational leadership. He retired in 1986, following thirty-five years of service.

**Lewis A. Caccese, P.E.,** joined the District in 1941 as a First Lieutenant active duty with the Army. After being discharged in 1946, he remained with the District as a civil engineer, rising to Chief of Operations Division in 1954. He developed the "direct pumpout" dredging technique, allowing material to be pumped directly into onshore disposal areas. He also launched the District's Long Range Disposal Study to develop new concepts allowing use of distant disposal areas. His leadership in applying environmental considerations to Section 10 of the River and Harbor Act of 1899 helped preserve the District's wetlands. In 1971, he became the first employee of the Philadelphia District to receive the Secretary of the Army's Distinguished Civilian Service Award. He was named Engineer of the Year by the Technical Societies of the Delaware Valley in 1974. He retired in 1979 after thirty-eight years of service.

**Robert L. Callegari** came in as Chief of the District's new Planning Division in 1987 after sixteen years with the North Atlantic Division and New York District. Faced with few active studies and only one project authorized for construction, he reached out to the congressional delegation and to potential non-federal partners to identify the District's civil works capabilities. His efforts led to one of the Corps' largest and most successful coastal programs, including beach nourishment projects for New Jersey's Long Beach Island, Atlantic City, Ocean City, Avalon and Stone Harbor, Cape May, and The Meadows/ Cape May Point, and for Delaware's Lewes, Rehoboth Beach, Bethany Beach, and Fenwick Island. He also made highly effective use of the Corps' Continuing Authorities Program to facilitate small projects for purposes such as aquatic ecosystem restoration and beneficial use of dredged material, and was instrumental in moving the Delaware River Main Channel Deepening from concept to construction.

**Vincent L. Calvarese, P.E.,** began his long career with the District in 1962 as a civil engineer and rose to become Chief of the Design Branch in the Engineering Division. His achievements include the redecking and rehabilitation of the St. Georges and Chesapeake City Bridges; the Tocks Island study; and the construction of the Barnegat Inlet South Jetty. He worked on the construction of the Blue Marsh Dam, the relocation of Gruber Wagon Works, the selective water withdrawal tower at Beltzville and the F.E. Walter Dam modification, all the while serving as a teacher and advisor to others. He was instrumental in Philadelphia becoming the first East Coast District to utilize concrete dolosse, which was done during the reconstruction of the Manasquan Inlet jetties. His insistence on using steel reinforcing rods in that project, contrary to the advice of some experts, proved sound.

**Albert J. Depman, C.P.G.,** joined the District in 1948 as a civil draftsman, having earned his bachelor's degree in geology from the University of Pennsylvania in 1947. As Supervisory Engineering Geologist during the mid-1960s, he supervised a team of geologists sudying the Beltzville and Tocks Island dam sites and conducted subsurface investigations of the Blue Marsh and Trexler sites. He also worked on subsurface investigations for the Chesapeake & Delaware and Point Pleasant canals. Promoted to branch-level Supervisory Geologist in 1968, he was honored by the Corps and by many external customers for his exceptional work as a geologist. He served as president of the Association of Engineering Geologists. He retired in 1978 after nearly thirty-three years of federal service, including active duty with the U.S. Navy during World War II and the Korean conflict.

**Elaine H. Dickinson** began her career with the District in 1966 and became the District's Equal Employment Opportunity (EEO) officer in 1978. She started a proactive EEO program that included an effective affirmative action plan to recruit minorities and women. Her work with ethnic heritage month celebrations did much to increase employee awareness of different cultures. She founded PRIME, a program designed to encourage minority students to pursue careers in mathematics, science, and technology, in the District. She participated in the Urban League and was a member of the Federal Executive Board's EEO Officers' Council. She reached out to all areas of the District from field offices to the decks of the Dredge *McFarland,* providing sound and valuable advice to District employees. She retired in 1994 with thirty-six years of federal service, leaving a legacy of an innovative EEO program that continues to this day.

**Harry F. Flynn** served with the U.S. Army Corps of Engineers for nearly twenty-four years, from 1910 to 1933, in the Seattle, Wilmington, and Philadelphia Districts. His government career began with the Coast and Geodetics Survey, in 1892, and included a tour of duty with the Bureau of Public Lands in the Philippine Islands. While with the Philadelphia and Wilmington Districts he introduced tidal hydraulics processes that still are used. He designed and built the first tidal model of a portion of the Delaware River and influenced the decision to lower the Chesapeake & Delaware Canal to sea level.

**Ernest P. Fortino, P.E.,** joined the District's Operations Division in 1939 as a student engineer. He transferred to the Marine Design Division and served in various positions, becoming Assistant Chief in 1961 and Chief of the Division in 1975. He was a leader in the division's effort to improve dredge equipment and develop instrumentation that improved efficiency aboard hopper dredges. He personally directed the design of three of the Corps' hopper dredges. He advised several foreign governments on design and construction of floating plant and served as a consultant to the Corps of Engineers' Marine Engineering Board. He retired in 1979 after almost forty years of federal service.

**Paul B. Gaudini, P.E.,** joined the District in 1971, after earning his bachelor's and master's in civil engineering from Drexel University and the University of Missouri, respectively, and serving two years active duty with the U.S. Army. He took on increasing levels of responsibility, from his role as a resident engineer during the Hurricane Agnes response in 1972 to serving as Chief of the Project Development Branch and as Acting Chief of the Planning Division before his retirement in 2004. Throughout a career that covered all aspects of the District's workload, in planning, engineering and project management, he provided technical advice and senior leadership for such diverse projects as the Advanced Tertiary Wastewater Facility, the National Airport Pavement Test Machine, and the Delaware River Basin Study. Known for his dependable and disciplined approach in managing all available resources to accomplish the mission, he also dedicated himself as a mentor and coach to many others who worked for or with him.

**T. Brian Heverin,** throughout his thirty-seven years of service to the nation, was a dedicated, talented, and valued engineer, friend, and public servant in the Engineering-Construction and Operations Divisions. At various times he served as District Negotiator, Project Engineer, and Chief of the Recreation and Relocation section; Chief of the General Design Section; Chief of the Specification and Estimates Section; and first Chief of the Superfund and Construction Branches. He served on the negotiation team for Israeli air bases as part of the Camp David Accord, and accomplished many notable firsts in the Superfund program. Among his most notable accomplishments were the relocation and restoration of the historic Gruber Wagon Works and the oversight of military construction activities at Fort Dix and McGuire and Dover Air Force Bases. He retired in 2000 as Chief of the Technical Support Branch.

**Captain Jerome H. Jackson** joined the District in 1931 as Master of a survey boat. He subsequently served as Master or Deck Officer aboard the Corps Dredges *Clatsop, Rossell, Davison, Comber,* and *Essayons*. He is best remembered for his long service with the Philadelphia District as Master of the Dredge Goethals. He served in the Korean theater as a Major in the U.S. Army, engaged in dredging operations. He retired in 1972 after thirty-nine years of service.

**George A. Johnson** joined the District as a Naval Architect in 1945, after six years in the same capacity with the U.S. Navy. He became Chief, Marine Design Division, in 1958. He participated in the design and construction of the Hopper Dredges *McFarland* and *Markham* and the Sidecasting Dredge *Fry,* and directed the design of a floating nuclear plant and the conversion of a Navy vessel into a sidecasting dredge for duty in Vietnam. He was involved with designing floating plant for Korea, Australia, and the Panama Canal. He retired in 1975 after nearly thirty-six years' federal service.

**Wesley E. Jordan** joined the Corps in 1937 as a deck hand on the Pipeline Dredge Delaware. He served as Master and Deck Officer aboard the Dredges *Delaware, Rossell, Goethals,* and *Raritan,* and the Sump Rehandler *New Orleans.* As Resident Engineer of the Edgemoor, Del., office, he carried out many innovative projects to improve hopper dredge operations. He participated in direct pumpout operations in the Delaware River and the District's first beach nourishment by direct pumpout at Sea Girt, N.J. He served in the Army during World War II as a captain aboard the Hopper Dredge *Barth.* He retired in 1965 and continued working on dredging projects, serving as a special consultant to the Corps on beach nourishment projects in Norfolk, Va., and Jacksonville, Fla.

**Arthur A. Klein, P.E.,** joined the District in 1947 as a Supervisory Hydraulic Engineer in the Design Branch, having served earlier in both the Huntington and Pittsburgh Districts. He became Chief of the Design Branch in 1960 and retired in that capacity in 1966. He twice served in France in the 1950s as a consultant on military construction. He assisted the U.S. House Appropriations Committee in its 1961 investigation of construction by non-military federal agencies. He contributed to the design and construction of many structural projects in the District and is remembered for his interest in the development of young engineers.

**Stephen A. Krajnik, P.G.,** joined the District in 1965 as a geologist and retired in 1990. During this time he was personally and significantly involved in almost every major project the District planned, constructed, or operated, including Beltzville Dam, Blue Marsh Dam, Barnegat Inlet New South Jetty, Delaware River Main Channel Deepening, Chesapeake & Delaware Canal, Molly Ann's Brook, and the Lipari and Vineland Superfund sites. Despite a heavy workload he always made time to teach those around him, thus aiding the development of scores of professionals, many of whom rose to senior Corps positions. He staunchly advocated repair rather than replacement of instrumentation. By devising and fabricating simple but effective tools out of commonly available materials he saved the government tremendous downtime and tens of thousands of dollars in replacement costs.

**H. Ronald Kreh, P.E.,** began his career with the Army Corps in 1955 after receiving his bachelor's degree from the University of Delaware. He rose to become Chief of Operations in 1978. Under his leadership, Operations and Maintenance programs thrived. He expanded routine testing of sediments to prevent damage to the environment. He was a key member of the Corps' Dredging Research Program and Minimum Fleet Study, and was deeply involved with maritime labor union negotiations. Under his management, the Regulatory Branch became a model for the North Atlantic Division, executing more than 2,500 permit actions annually. His expertise led to his selection on many Corps-wide committees as well as an intergovernmental task force to Africa. His ability to direct a large staff and accomplish complex missions while dealing with the public, media, Congress, and other agencies became legendary. He retired in 1993 after a thirty-seven-year career that, except for the short period as a Lieutenant in the U.S. Army, was spent entirely with the District.

**Keith W. Lawrence, P.E.,** joined the Army Corps as a summer hire in the Detroit District in 1956 and concluded his career as Director of the Marine Design Center in 1990. He consistently distinguished himself in a wide variety of significant marine projects for the Corps. He was responsible for maintaining the three largest seagoing dredges in the Corps' fleet (the *Comber, Goethals,* and *Essayons*) at a time when the Corps performed most of the nation's hopper dredging. He was also responsible for the development of a number of pump-ashore and beach nourishment procedures. He implemented the concepts of individual project management and mentoring prior to their general adoption by the Corps and led the Corps in developing state-of-the art marine design capabilities to satisfy customers' needs.

**Leonard J. Lipski, P.E.,** joined the District in 1957 and obtained his civil engineering degree from Villanova University in 1958. After the Delaware River Basin's 1965 record drought, he helped determine the required level of reservoir releases to prevent the salt line from reaching Philadelphia's water supply. He also studied the effects of shore structures on beach erosion, and employed his own improved analysis techniques in the design of flood control structures. After earning his master's degree from Stanford University in 1973, as chief of the Hydrology & Hydraulics Branch he played a key design role in proposed Walter and Prompton Dam modifications, the Delaware River Main Channel Deepening, Barnegat Inlet New South Jetty, the Molly Ann's Brook flood risk reduction project, several EPA Superfund cleanups, and the Delaware and New Jersey shore protection studies. Later as Chief of the Design Branch, he combined his extensive technical background with a disciplined approach and effective management of all available resources to accomplish the District's missions.

**Captain Joseph D. Mahoney** served for thirty-seven years in the Philadelphia District, working on the Pipeline Dredges *Raymond* and *Gillespie* and the Sump Rehandler *New Orleans,* of which he was captain. Born in 1899, he died February 14, 1959, while on duty as Master of the *New Orleans.* He died while directing operations and emergency repairs during a storm. Although frequently cautioned by his physician against over-exertion, his devotion to duty proved to be greater than his regard for his personal safety.

**Anthony L. Marolda,** a 1931 graduate of Rensselaer Polytechnic Institute, began his career with the Army Corps of Engineers in the Nashville District in 1935. A year later he transferred to the Philadelphia District, where he remained until he became part of the New York District in 1960. He became Resident Engineer for McGuire Air Force Base and the Fort Dix Infantry Center in 1952 following the outbreak of hostilities in Korea. Serving in this assignment, he oversaw hundreds of millions of dollars worth of construction as the twin bases became a major military installation.

**Douglas C. Moore** joined the District in 1962, advancing steadily to become Chief of the Survey Section. He became recognized worldwide—in both government and industry—as an authority in field of hydrographic surveying. Always keeping abreast of technology, he procured and implemented the District's first global positioning system for hydrographic work, followed by its first multibeam system. He was frequently called as an expert witness to resolve disputes on dredging contracts, in once case helping save the government about a quarter of a million dollars. For years he has taught the Corps' Hydrographic Survey course, and helped update the *Hydrographic Survey Manual* in 1998 and 2002. He serves on the American Congress of Surveying and Mapping's five-member board that certifies hydrographic surveyors. After the 9/11 attacks, he deployed to Ground Zero to personally supervise the establishment and operation of a constant building monitoring system. This served to verify the stability of the surviving structures and ensured the safety of the response crews.

**Frederic Mullineaux** contributed thirty-one years of engineering work to the Wilmington and Philadelphia Districts during his outstanding career. He served as Chief of Construction Division, Chief of Operations Division, and Special Assistant to the District Engineer. He exhibited exceptional leadership and engineering ability during the Korean conflict and in dealing with the floods of 1955 and 1962. He served in the Army Reserve, retiring with the rank of colonel. An engineering graduate of the University of Delaware, he was affiliated with the American Institute of Electrical Engineers. He retired in 1962.

**Alfred Padula, P.E.,** joined the Corps as a Delaware River boatman in the hydrographic survey party. He became Chief of Surveys and then Chief of the Research and Development Branch, Engineering Division. He was instrumental in improving the Corps' dredging techniques and in developing the "harpoon" and "liquid mud" methods of sampling river sediments. He served as Project Engineer for many military projects during the Korean War. He supervised construction at the F.E. Walter, Prompton, Jadwin, and Beltzville Dams. He supervised the dredging of the 40-foot Delaware River navigation channel from Philadelphia to Morrisville, PA, and the widening and deepening of the C&D Canal. He retired in 1969 after a forty-two-year career with the Corps of Engineers.

**George W. Padula** began his forty-seven-year career with the Corps in 1929 as a survey aide. He subsequently performed in a variety of increasingly responsible positions, including Fiscal Accountant and Administrative Officer. He is best remembered for his long and dedicated service as Financial Manager. His outstanding leadership and fund management substantially contributed to the Corps' accomplishment of its mission.

**Charles F. Ruff** began his thirty-four-year career with the Corps in 1939 as a junior Clerk Typist. He subsequently held a variety of increasingly responsible positions, including Placement Officer and Employee Utilization Officer. He is best remembered for his long and dedicated service as the District's Personnel Officer. He was responsible for establishing the Corps in a leadership role in developing and implementing a labor management relations program within the Department of the Army. He served as a Captain in the United States Army during World War II and subsequently attained the rank of Lieutenant Colonel in the U.S. Army Reserve. He retired from federal service in 1973.

**Thomas Schina** joined the District in 1969 as a junior engineer in training and within three years took on the challenge of expanding the old Permit Section, Navigation & Maintenance Branch into what is now the Regulatory Branch following passage of the Clean Water Act in 1972. In 1980 he became Chief, Programs Section, Navigation & Maintenance Branch, where he was essentially the sole project manager for Operation and Maintenance (O&M) navigation projects. In 1989 he took over as Chief, Program Management Branch, Programs & Project Management Division, just before a twofold increase in the District's civil construction workload. He also led a major rehabilitation of the St. Georges Bridge and took on the duties of congressional liaison. He returned to Operations as Assistant Chief in 1996, overseeing an O&M budget that would reach $7.1 million. He worked closely with the states in obtaining multiyear water quality certificates for the Delaware River, Philadelphia-to-Sea and other navigation projects.

**Leigh D. Shuman** began his federal career in 1903 at the Bureau of Navigation in the Philippines. After six years there he transferred to the Philadelphia District. From January 1918 to January 1919 he had the distinction of being the only civilian to hold the position of Philadelphia District Engineer. He was recognized as a foremost authority on dredging techniques, equipment and organization, and during World War II he was a consultant on port rehabilitation to the commander of the European Theater of Operations. An individualist and a forceful and dedicated leader, he retired in 1950 as Chief of the Operations Division.

**Frank Snyder,** a graduate of the Fine Arts Academy in Rome, began his career in 1951 as an illustrator, and eventually became the illustrator for the NAD Commander. His knowledge of Corps' missions and projects contributed to his excellent portrayals of District assets. His sketches and paintings greatly enhanced public appreciation of the Corps' many roles. He achieved a virtually flawless record of dependability depicting Corps' plant and projects with exacting detail. Under his direction, the District history team produced an exhaustive, detailed, finely written and illustrated book, *District History, 1866 to 1972.* He participated in the efforts to preserve the Gruber Wagon Works and was effective in providing the renderings that were used by area congressmen to secure funding. After retiring he directed the efforts to preserve the Old Pump House at the C&D Canal as a museum and constructed a scale model of the pump house on his own time.

**Henry R. Spies, C.L.S.,** started his career with the District as a Supervisory Survey Technician in the early 1950s and was promoted to Assistant Chief of Survey Branch in the early 1960s. In 1971, he was promoted to Chief of Surveys and served in that capacity until 1983. His expertise in hydrographic surveying placed him in great demand not only at the District level but nationally. He was the prime developer and coordinator for microwave positioning systems and automated hydrographic data collection and processing. Under his leadership, Philadelphia became one of the first Districts to successfully automate hydrographic surveys. The author of numerous papers on hydrographic surveying, he also served as an instructor of Corps' Prospect courses.

**Lee H. Trader** began his forty-five-year career with the Corps of Engineers in 1927 as a laborer at the Pedricktown Basin. In 1942, he was promoted to Labor Foreman in charge of maintenance of disposal areas, in which position he directed personnel who assembled and changed the locations of pipelines. He also supervised construction and repairs to trestles, sluices, spillways, and drainage pipe. He completed these assignments under difficult conditions and in the most expeditious manner, receiving many commendations and awards for his proficiency. His leadership contributed immensely to the effective operation of the Fort Mifflin Project Office.

**Captain Joseph P. Vilord,** following seven years in the Coast Guard, started with the District in 1965 as 3rd Mate of the *Goethals* and eventually served as Master or Assistant Master of all four of the District's hopper dredges. Aboard the *McFarland* from 1982 to 1999, and as Master from 1994, he earned the respect and admiration of all his crew. He was never too busy to discuss a problem or offer guidance, and he always encouraged self-development to supplement the many hours he spent training them. Known Corps-wide for his superb ship handling skills, he also trained the officers of the new *Essayons* in 1983 and helped save the life of a *McFarland* crew member during a 1984 pump room fire. He led the *McFarland* on emergency dredging assignments along both the Atlantic and Gulf Coasts from Maine to Louisiana, including a post-hurricane response in 1997 to reopen the federal channel serving Fort Bragg, N.C. In leadership, customer service, professionalism, and technical expertise, he set a standard for Army Corps of Engineers dredge masters that prevails to this day.

**Frank W. Vinci, P.E.,** joined the District in 1953 after receiving his bachelor's degree in civil engineering from Villanova University. He became Assistant Chief of the General Design Branch in 1963 and was responsible for the engineering and design of the Chesapeake & Delaware Canal expansion, the Beltzville Dam and Reservoir, rehabilitation of the Cold Spring Inlet jetties at Cape May, and ship anchorages in the Delaware River. As Chief of the Engineering Branch from 1974 until his retirement in 1984 he was involved in the design and construction of Blue Marsh Dam and the Bernville Protective Works; rehabilitation of the Manasquan Inlet jetties, using precast concrete armor units; reconstruction of Wilmington Harbor; and a major rehabilitation and upgrade of the Chesapeake City Bridge. He also headed the District's first inspections of non-federal dams, and helped the emerging African nation of Gabon develop its transportation infrastructure.

**Eli K. Wells** served as a Marine Engineer for thirty-four years prior to his retirement in 1959 from his position as Chief Engineer aboard the Dredge *Goethals.* His entire career was spent in the Philadelphia District except for brief periods of service with the Wilmington and Norfolk Districts. He served as Chief Engineer aboard the *Goethals, Delaware,* and *Clatsop* and acquired a Corps-wide reputation as a top marine engineer both in steam and diesel-powered vessels. His skill frequently enabled the dredges to operate under the most adverse conditions, thus saving the government incalculable hours of labor and substantial sums of money.

**Clarence F. Wicker** was Chief of the Engineering Division from 1944 to 1962, in which position he provided outstanding direction to numerous military and civil engineering projects. He was recognized internationally as an authority on tidal hydraulics and was engaged as a consultant on a number of programs overseas. As chairman and member of the Corps' Tidal Hydraulics Committee, he contributed enormously to the documentation of knowledge in the field of tidal hydraulics. A Penn State graduate, he retired in 1962 after thirty-three years of federal service.

**Mary A. Wilson** began her federal career in 1934 with the National Housing Agency and joined the Philadelphia District's Marine Design Division in 1942. In 1951, she was assigned to the Supply & Procurement Division and in 1961 she became Chief of the Division, a position she held until her retirement. She provided procurement support for the Chief of Engineer's worldwide military construction program and became Contracting Officer for the Susquehanna District in 1972 when that District was temporarily established in the wake of Tropical Storm Agnes. She retired in 1973 with thirty-nine years of service.

## Lifetime Customer Care Award

**Anthony S. Bley** began his career with the District as a staff photographer in 1971. His first-rate photographic services covered every major District project and numerous internal and external events. He would work at odd hours or in less than ideal weather to meet tight deadlines, and took many of his pictures from an open helicopter to capture large project areas or post-flood damages. As testament to the superb quality of his photography, some of his project shots are included in the Library of Congress's historical photograph collection. He combined technical mastery with the rare sensibilities of an artist, whether understanding what types of shots best represented the complex design of a facility as realized in construction, or knowing how to orchestrate special "people" ceremonies. Most important, he anticipated needs, knew how to meet them, and did so with total professionalism. He retired in 1973 with thirty-six years of service, having set a high standard for Corps project photography.

# Bibliography

The story of the Philadelphia District's history since 1972 emerges from an extensive range of sources. The district itself provided many of these sources, including files and documents housed in its different divisions, active files of current district personnel, reports and publications from the district's library, and a variety of materials from the Marine Design Center. We also reviewed older primary source material currently stored at the Federal Records Center in Philadelphia, Pa. In addition, we consulted records held by the Corps' Office of History in Alexandria, Va. These materials included correspondence, press releases, policy directives, reports such as environmental assessments and feasibility studies, maps, photographs, and charts. Historical Research Associates (HRA) also researched numerous government documents, congressional hearings, and Internet and electronic sources to add to, and provide context for, the district's materials.

Another important source was the Philadelphia District's newsletter, *The District Observer*. The newsletter provided important information regarding administrative changes in the district, contemporary discussions about the district's various divisions and personnel, and updates on projects as they progressed through time. A column written by the district engineer in each issue addressed significant topics pertinent to the district. The newsletter was a useful resource for the perspective of the district and supplied a valuable reference for projects as they developed.

Oral histories collected by HRA were an essential component in composing this history. HRA interviewed a number of people (with the recommendation of the district) who had tremendous knowledge of the district over time and were familiar with a wide array of projects under the district's purview. These persons (listed in the bibliography below) supplemented factual information about district projects with personal perspective,

allowing a more comprehensive understanding of the district's work over time. Others provided highly useful information through personal communication to supplement areas of interest not recorded in print.

As with any history, secondary sources provided background for a variety of topics, ranging from national environmental policy and water resource management to the perspective of environmentalist organizations, allowing a broader understanding of the issues at hand. Previous Philadelphia District histories and other general Corps histories supplied a foundation from which to launch this one.

A complete bibliography of sources used and consulted follows.

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