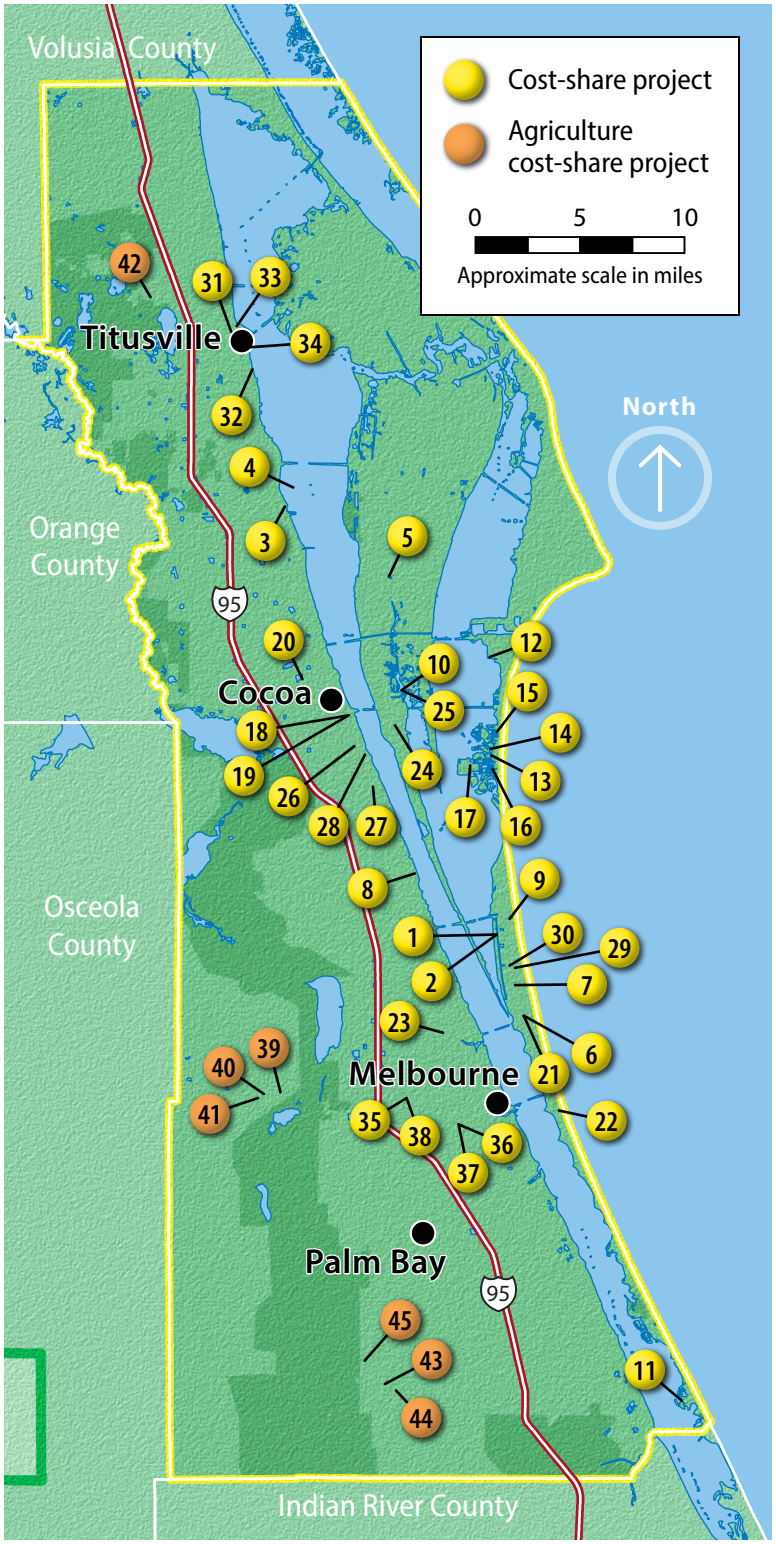
St. Johns River Water Management District

Cost-share and District-led projects in Brevard County

The St. Johns River Water Management District (District) implements a wide variety of projects aimed at protecting water supplies, improving water quality, restoring natural systems, and providing flood protection. A summary of the cost-share projects benefiting Brevard County are described on the following pages. The summary includes a description of benefits for each project, including nutrient load reduction (total phosphorus [TP], total nitrogen [TN] pounds per year [lbs/yr]), alternative water supplied (million gallons per day [mgd]), water conserved (mgd), alternative water storage capacity created (million gallons [MG]), or acres protected from flooding.

Also listed at the end of this document are District-led projects and other efforts benefiting the communities in Brevard County.



Cost-Share Program:

Through the Cost-Share Program, the District and Florida Department of Environmental Protection (DEP) together have awarded nearly $22 million for projects in communities throughout Brevard County beginning in fiscal year 2015, leveraging more than $90 million when combined with local matching funds. Brevard County cost-share projects have provided an estimated benefit of 2.5 MG of storage capacity, 0.001 mgd of water conserved, nearly 122,000 lbs/yr TN reduction, over 11,000 lbs/yr TP reduction and 1.13 acres of wetlands improved.

Brevard County Projects

1. **Brevard County Grand Canal Muck Removal: Phase 2** — This project involves muck dredging, dewatering, and upland disposal of 37,300 cubic yards (CY) of muck in 20 acres in the northern finger canals of the Grand Canal. The estimated nutrient load reduction water quality benefit to the Banana River Lagoon is 1,890 lbs/yr of TN and 252 lbs/yr of TP. Project Status: Complete.
2. **Brevard County Grand Canal Muck Removal Project: Phase 4** — The project consisted of the fourth phase of muck dredging, dewatering, and upland disposal of over 26,000 CY of muck in 14 acres in the northern finger canals of the Grand Canal. The estimated nutrient load reduction water quality benefit to the Banana River Lagoon is 1,470 lbs/yr of TN and 293 lbs/yr of TP. Project Status: Complete.
3. **Brevard County Oak Point Park Sewer Conversion** — This project involved the decommissioning of a 61-year-old package plant and connection of wastewater flows to central sewer. The package plant served a 108-unit mobile home property located directly adjacent to the Indian River Lagoon (IRL). The estimated nutrient load reduction water quality benefit to the IRL is 186 lbs/yr of TN and 65 lbs/yr of TP. Project Status: Complete.
4. **Brevard County Oyster Reef Living Shorelines** — This project involved the construction of six oyster reefs totaling 2,360 linear feet in the IRL. The estimated nutrient load reduction water quality benefit to the IRL is 639 lbs/yr of TN and 48 lbs/yr of TP. In addition, 0.54 acres of wetlands will be improved. Project Status: Complete.
5. **Brevard County Passive Nutrient Reduction for Septic Tanks** — This project involved the retrofitting of three residential septic tanks to a Passive Onsite Treatment System, which contains biologically activated media. The estimated nutrient load reduction water quality benefit to the IRL is 115 lbs/yr of TN and 20 lbs/yr of TP. Project Status: Complete.
6. **Brevard County S-17 Slip-Lining** — The project involved rehabilitating older portions of the county's sanitary sewer collection system in the South Beaches sewer service area. The estimated nutrient load reduction water quality benefit to the IRL is 1,374 lbs/yr of TN and 243 lbs/yr of TP. Project Status: Complete.
7. **Brevard County S-9 Slip-Lining** — The project involved rehabilitating older portions of the county's sanitary sewer collection system in the South Beaches sewer service area. The estimated nutrient load reduction water quality benefit to the IRL is 1,374 lbs/yr of TN and 243 lbs/yr of TP. Project Status: Complete.
8. **Brevard County South Central Zone C Septic-to-Sewer** — This project involves the abandonment of 142 residential septic tanks and connection to gravity sewer. The estimated nutrient load reduction water quality benefit to the IRL is 1,641 lbs/yr of TN. Project Status: Complete.
9. **Brevard County Sykes Creek Muck Removal Project Phase 2B** — This project includes muck dredging, dewatering, and upland disposal of 100,000 cubic yards of muck in 15 acres of finger canals and nearby open areas of Sykes Creek. The estimated nutrient load reduction water quality benefit to the Banana River Lagoon is 11,101 lbs/yr of TN and 1,040 lbs/yr of TP. Project Status: Not Started.
10. **Brevard County South Patrick Drive Baffle Box** — This project involved the installation of a second-generation baffle box with the addition of a denitrification bioreactor to treat stormwater runoff from a 74-acre residential area. The estimated nutrient load reduction water quality benefit to the Banana River Lagoon is 243 lbs/yr of TN and 48 lbs/yr of TP. Project Status: Complete.
11. **Brevard Zoo Clam Restoration** — This research project assessed clam viability and involved adult clams and seed clams grown, planted, and monitored throughout the IRL in approximately 100 distinct sites that vary

in size. The estimated natural systems benefit to the Indian River Lagoon is 0.34 acres of wetlands improved. Project Status: Complete.

12. **Cape Canaveral Reclaimed Water Tank Project** — This project involved the construction of a reclaimed water ground storage tank. The estimated water supply benefit is 2.5 MG reclaimed water storage capacity created. The estimated nutrient load reduction water quality benefit to the Banana River Lagoon is 305 lbs/yr of TN and 4 lbs/yr of TP. Project Status: Complete.

13. **Cocoa Beach Convair Cove Low-Impact Development and Living Shoreline** — This project involved the installation of a stormwater low-impact-development treatment train, including permeable pavement, underground rain tanks, a bioactivated media barrier wall, and rain garden bioswales. Additionally, a living shoreline was installed that included mangroves, oysters, and grasses. The estimated nutrient load reduction water quality benefit to the Banana River Lagoon is 168 lbs/yr of TN and 16 lbs/yr of TP. In addition, 0.25 acres of wetlands were improved. Project Status: Complete.

14. **Cocoa Beach Muck Removal: Phase 2A** — This project involved the removal of 22,500 CY of muck from five canals that enter the Banana River Lagoon. The estimated nutrient load reduction water quality benefit to the Banana River Lagoon is 1,586 lbs/yr of TN and 302 lbs/yr of TP. Project Status: Complete.

15. **Cocoa Beach Muck Removal: Phase 2B** — This project involved dredging 12 canals and removing approximately 150,000 CY of muck to benefit the Banana River Lagoon. The estimated nutrient load reduction water quality benefit to the Banana River Lagoon is 6,321 lbs/yr of TN and 842 lbs/yr of TP. Project Status: Complete.

16. **Cocoa Beach Muck Removal: Phase 3** — This project involved dredging of 13 residential canals, removing 44,044 CY of muck to benefit the Banana River Lagoon. The estimated nutrient load reduction water quality benefit to the Banana River Lagoon is 3,906 lbs/yr of TN and 521 lbs/yr of TP. Project Status: Complete.

17. **Cocoa Beach Water Reclamation Facility Upgrade** — This project involved upgrading the city's water reclamation facility. The estimated nutrient load reduction water quality benefit to the Banana River Lagoon is 3,603 lbs/yr of TN and 1,201 lbs/yr of TP. Project Status: Complete.

18. **Cocoa Church Street Stormwater Retrofit** — This project involved installing a Type 2 Nutrient Separating Baffle Box at the Church Street outfall to treat untreated stormwater from an approximate 73-acre drainage basin. The estimated nutrient load reduction water quality benefit to the IRL is 173 lbs/yr of TN and 35 lbs/yr of TP. Project Status: Complete.

19. **Cocoa Factory Street Stormwater Retrofit** — This project involved retrofitting an existing dry detention pond to accommodate a larger drainage area to treat stormwater discharge. The estimated nutrient load reduction water quality benefit to the IRL is 34 lbs/yr of TN and 6 lbs/yr of TP. Project Status: Complete.

20. **Cocoa Toilet Rebate Program** — The project consisted of a toilet rebate program offered to City of Cocoa residents. It included a maximum of two rebates per account. The total project replaced fifty 3.5-gallons per flush (gpf) toilets with 1.28 gpf toilets. The estimated water conservation benefit is 0.001 mgd. Project Status: Complete.

21. **Indian Harbour Beach Big Muddy Baffle Box** — This project involved the installation of a second-generation baffle box, biologically activated media (BAM), and stormwater structures on Yacht Club Boulevard adjacent to the Big Muddy Canal. The project provides treatment for approximately 63.8 acres. The estimated nutrient load reduction water quality benefit to the Banana River Lagoon is 408 lbs/yr of TN and 71 lbs/yr of TP. Project Status: Complete.

22. **Melbourne Beach Drainage Improvements** — This project involved the construction of dry stormwater treatment swales and exfiltration trenches. The estimated nutrient load reduction water quality benefit to the IRL is 492 lbs/yr of TN and 98 lbs/yr of TP. Project Status: Complete.
23. **Melbourne Lime Drive Stormwater Enhancement** — This project involved the construction of a second-generation baffle box with BAM to reduce nutrients in runoff discharging directly into the Eau Gallie River and to the IRL. The estimated nutrient load reduction water quality benefit to the IRL is 139 lbs/yr of TN and 248 lbs/yr of TP. Project Status: Complete.
24. **Merritt Island Septic Phaseout** — This project involved abandoning 83 residential and commercial septic tanks, connecting to public sewer, and constructing a stormwater treatment train to improve water quality. The estimated nutrient load reduction water quality benefit to the Banana River Lagoon is 2,501 lbs/yr of TN and 822 lbs/yr of TP. Project Status: Complete.
25. **ORCA Satellite Algae Bloom and Nutrient Source Tracking** — This research project was a pilot study to identify interpreted satellite images with water quality data to attempt to identify nutrient sources and algal blooms. Project Status: Complete.
26. **Rockledge Septic to Sewer** — This project involved abandoning 139 septic tanks and installing central sewer. The estimated nutrient load reduction water quality benefit to the IRL is 4,433 lbs/yr of TN and 715 lbs/yr of TP. Project Status: Complete.
27. **Rockledge Flow Equalization Basin Project** — This project involves the addition of a new 1.4-million-gallon (MG) influent equalization basin, associated pump station, and supporting facilities at the Rockledge wastewater treatment plant. The estimated nutrient load reduction water quality benefit to the IRL is 29,106 lbs/yr of TN. Project Status: Complete.
28. **Rockledge Gus Hipp Ditch Denitrification Improvements** — This project involved the installation of BAM along approximately 1,700 linear feet of the bottom of the Gus Hipp Boulevard ditch. The estimated nutrient load reduction water quality benefit to the IRL is 5,185 lbs/yr of TN and 790 lbs/yr of TP. Project Status: Complete.
29. **Satellite Beach Lori Laine Trunk Line Improvement Project** — This project consisted of piping and earthwork to reroute a stormwater conveyance to BAM-filled trenches for nutrient removal. The estimated nutrient load reduction water quality benefit to the Banana River Lagoon is 129 lbs/yr of TN and 28 lbs/yr of TP. Project Status: Complete.
30. **Satellite Beach Stormwater Improvement Projects** — This project involved the construction of four stormwater treatment areas within the city to address untreated stormwater discharge. The estimated nutrient load reduction water quality benefit to the Banana River Lagoon is 664 lbs/yr of TN and 117 lbs/yr of TP. Project Status: Complete.
31. **Titusville Draa Stormwater Park** — This project involved the construction of a four-acre stormwater wet detention pond to treat currently untreated stormwater runoff. The estimated nutrient load reduction water quality benefit to the IRL is 915 lbs/yr of TN and 202 lbs/yr of TP. Project Status: Complete.
32. **Titusville High School Baffle Box** — This project involved the installation of a second-generation baffle box with up-flow filter and nutrient reducing media within a 258-acre watershed. Stormwater within the basin had been discharged to the IRL without treatment. The estimated nutrient load reduction water quality benefit to the IRL is 502 lbs/yr of TN and 86 lbs/yr of TP. Project Status: Complete.
33. **Titusville Osprey Water Reclamation Nutrient Removal Upgrade** — This project involved the construction of biological, chemical, and physical process upgrades

throughout the Osprey Water Reclamation Facility, providing a higher level of treatment. The estimated nutrient load reduction water quality benefit to the IRL is 26,475 lbs/yr of TN. Project Status: Complete.

34. **Titusville South Street Basin Baffle Boxes** — This project involved the installation of three second-generation baffle boxes with up-flow filters and nutrient-reducing media within the 202-acre South Street basin. The estimated nutrient load reduction water quality benefit to the IRL is 720 lbs/yr of TN and 125 lbs/yr of TP. Project Status: Complete.

35. **West Melbourne Ray Bullard Water Reclamation Facility Upgrades** — The project includes biological nutrient removal upgrades to the Ray Bullard Water Treatment Facility. The estimated nutrient load reduction water quality benefit to the Indian River Lagoon is 10,822 lbs/yr of TN and 2,405 lbs/yr of TP. Project Status: Not Started.

36. **West Melbourne Ray Bullard Water Reclamation Facility Stormwater Management Area** — This project involved the construction of an offline wet detention pond to treat the first flush of stormwater flows from approximately 450 acres that flow to Crane Creek and the IRL. The pond treats stormwater runoff with a combination of wet detention and media-based filtration. The estimated nutrient load reduction water quality benefit to the IRL is 1,317 lbs/yr of TN and 400 lbs/yr of TP. Project Status: Complete.

37. **West Melbourne Lake Ashley Septic-to-Sewer** — The project includes the installation of approximately 7,100 linear feet of gravity sewer, two lift stations, installation of a force main, construction of laterals from existing residences, and the abandonment of approximately 106 septic tanks. The estimated nutrient load reduction water quality benefit to the Indian River Lagoon is 1,256 lbs/yr of TN. Project Status: In Progress.

38. **West Melbourne Sylvan Drive Septic-to-Sewer Conversion** — This project involved the construction of a gravity sewer system in the Sylvan Drive right-of-way, lift station, sewer laterals from 59 homes to the gravity mains, and abandonment of all existing septic systems. The estimated nutrient load reduction water quality benefit to the IRL is 642 lbs/yr of TN. Project Status: Complete.

Agricultural Cost-Share Program:

The Agricultural Cost-Share Program provides funding to agricultural operations to conserve water and reduce offsite nutrient loading. Since 2015, the District and DEP have provided $1.2 million in funding for agricultural projects in Brevard County. Brevard County agricultural cost-share projects have provided an estimated benefit of 0.64 mgd of water conservation, 63,000 lbs/yr TN reduction, and 6,000 lbs/yr TP reduction. The following cost-share project list provides a description for each project and its benefits, including nutrient load reduction (total phosphorus [TP], total nitrogen [TN] pounds per year [lbs/yr]) or water conserved in million gallons per day [mgd]).

39. **Deer Park Ranch Irrigation Drain Tile Field 1** — This project involved the installation of irrigation drain tile with discharge to tailwater ditches and canals with reuse via surface water pumps on approximately 75 acres of sod benefitting the Upper St. Johns River Basin. The estimated water conservation benefit is 0.08 mgd. The project also provides an estimated nutrient load reduction water quality benefit of 2,340 lbs/yr of TN and 257 lbs/yr of TP. Project Status: Complete.

40. **Deer Park Ranch Irrigation Drain Tile Field 2** — This project involved performing an irrigation conversion from seepage irrigation to irrigation drain tile on approximately 74.5 acres of sod benefitting the Upper St. Johns River Basin. The estimated water conservation benefit is 0.18 mgd. The project also provides an estimated nutrient load reduction water

quality benefit of 408 lbs/yr of TN and 45 lbs/yr of TP. Project Status: Complete.

41. **Deer Park Ranch Irrigation Drain Tile Field 3** — This project involved performing an irrigation conversion from seepage irrigation to irrigation drain tile on approximately 70 acres of sod benefitting the Upper St. Johns River Basin. The estimated water conservation benefit is 0.17 mgd. The project also provides an estimated nutrient load reduction water quality benefit of 924 lbs/yr of TN and 102 lbs/yr of TP. Project Status: Complete.
42. **J. Patrick Schirard Filtration System and Fertigation Injection System** — This project involved the installation of a fertigation system on approximately 37 acres of citrus benefitting South Lake. The estimated nutrient load reduction water quality benefit is 272 lbs/yr of TN and 74 lbs/yr of TP. Project Status: Complete.
43. **Triple J. Farms Fertilizer Project** — This project involved purchase and implementation of fertilizer application equipment with GPS for 2,865 acres of row crops benefitting the Upper St. Johns River Basin. The estimated nutrient load reduction water quality benefit is 41,702 lbs/yr of TN and 2,865 lbs/yr of TP. Project Status: Complete.
44. **Triple J. Farms Global Positioning System** — This project involved the purchase of GPS-controlled equipment for approximately 4,050 acres of mixed row crops benefitting the Upper St. Johns River Basin. The estimated water conservation benefit is 0.22 mgd. The project also provides an estimated nutrient load reduction water quality benefit of 2,475 lbs/yr of TN and 371 lbs/yr of TP. Project Status: Complete.
45. **Triple J. Farms Precision Fertilizer Equipment** — This project involved the purchase and implementation of precision agriculture equipment on approximately 2,865 acres of row crop benefitting the Upper St. Johns River Basin. The estimated nutrient load reduction water quality benefit is 15,261 lbs/yr of TN and 2,253 lbs/yr of TP. Project Status: Complete.

District-led projects and other efforts

The District constructs large, regional projects that often benefit multiple counties and benefit more than one of the District's core missions. Some of the efforts in Brevard County include:

Upper St. Johns River Basin Project — The District and the U.S. Army Corps of Engineers (USACE) embarked on an ambitious, long-term flood control project in 1977 to revitalize the upper basin. Extending from the headwaters of the St. Johns River in Indian River and Brevard counties to the confluence of the St. Johns and Econlockhatchee rivers in Brevard County, the project reclaimed drained marshlands by creating reservoirs and replumbing canals that had been diked and drained in the early 1900s for agriculture. The goals of this award-winning project are numerous: to improve water quality, reduce freshwater discharges to the Indian River Lagoon, provide for water supply, and restore or enhance wetland habitat. The project is now in long-term maintenance.

Crane Creek / M-1 Canal Flow Restoration Project — The M-1 Canal diverts stormwater flow from 5,300 acres of drainage area in Melbourne, West Melbourne, Melbourne Village and portions of unincorporated Brevard County and sends the water east to the Indian River Lagoon via Crane Creek. Elevated levels of nutrients within runoff from this currently diverted watershed degrade water quality in the Indian River Lagoon and provide fuel for algal blooms. This project will help reduce nutrient flows into both the Indian River Lagoon and the St. Johns River while also providing a potential water supply benefit by restoring 7 million gallons of freshwater flow per day to the St. Johns River.

Canal 1 Rediversion Project — Decades of drainage into Turkey Creek in southern Brevard County degraded water quality, habitat and the fisheries in the central Indian River Lagoon estuary, draining

runoff carrying soils and nutrients from the Palm Bay area. The District and Melbourne-Tillman Water Control District re-diverted a portion of the canal's drainage to a retention area west of I-95 where it is filtered in a wetland treatment system before draining to the St. Johns River.

C-10 Water Management Area —A flow re-diversion project that consists of a proposed 1,300-acre reservoir, pump station and discharge structures that will reduce freshwater discharges and nutrient loads to the Indian River and help restore historic surface water flows to the Upper St. Johns River.

Taylor Creek Reservoir (TCR) Improvements Project — This District project along the Brevard/Osceola County boundary includes raising and extending the TCR embankment dam (L-73), modifying the S-164 structure and raising the maximum regulation schedule an additional 3 ft to store more water and increase alternative water supply availability within TCR. Funding of the project will be both by the District and several Central Florida utilities.

Central Springs/East Coast water supply planning region — The District works in partnership with the Southwest and South Florida water management districts, DEP, the Withlacoochee Regional Water Supply Authority, local utilities and other stakeholders in the region to implement a data-driven, proactive approach to ensure effective and consistent water resource and water supply planning and development. Learn more about this regional water supply planning region at *www.sjrwmd.com/water-supply/planning/csec-rwsp*.

Minimum flows and levels (MFLs) program — The District establishes MFLs for priority water bodies within its boundaries. MFLs define the limits at which further water withdrawals would be significantly harmful to the water resources or ecology of an area. MFLs is an effective tool to assist in making sound water management decisions and preventing significant adverse impacts due to water withdrawals.

Hydrologic and water quality data collection — The District operates a network of data collection sites for hydrologic conditions and water quality in many lakes, wetland restoration areas, streams, springs, and wells.

District conservation areas

The District buys land in the course of its work to protect and preserve water resources. These lands also protect plant and wildlife habitat and provide areas for public recreation and environmental education. Virtually all District property is open to the public for activities that are compatible with conservation, though some may be closed during ongoing construction or restoration projects. In Brevard County, District properties include Buck Lake Conservation Area, Micco Water Management Area, River Lakes Conservation Area, Seminole Ranch Conservation Area and Three Forks Conservation Area. For a current listing of District conservation areas, visit *www.sjrwmd.com/lands*.

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