



COLUMBIA RIVER PUBLIC SAFETY CONSTELLATION® PROVIDES A COMPREHENSIVE TURNKEY SOLUTION FOR SAFETY AND FISHING

CHALLENGE

The Columbia River Inter-Tribal Fish Commission (CRITFC) maintains historical fishery resources, treaty rights, and sacred salmon heritage. Their voice and data radio systems for CRITFC officers were outdated, with oversubscribed capacity, gaps in coverage and spotty interoperability with state and local resources.

SOLUTION

CRITFC's solution is a new 14 hop digital microwave system using Constellation® OC-3 radios to control CRITFC's radio systems. The network utilizes backbone microwave repeaters, replacing an aging analog microwave system. Aviat Networks also provided antennas, waveguides, and turnkey services.



“Aviat Networks is giving us the bandwidth and interoperability we need to maximize the effectiveness of our inspection, surveillance and patrolling programs.”

Captain John Johnson

Enforcement Chief at CRITFC

Along the Columbia River in Washington and Oregon states, the Columbia River Inter-Tribal Fish Commission (CRITFC) manages the salmon fishery resources, and protects the treaty and tribal rights and property of the Warm Springs, Yakama, Umatilla, and Nez Perce tribes.

Supporting that effort, CRITFC's enforcement branch patrols 147 miles of treaty-reserved areas along the Columbia River, with inspection, surveillance and patrolling programs. Law enforcement aggressively protect against poachers and environmental misuse along the busy waterway.

CRITFC officers, working from boats and cars, send and receive wireless information using handheld and vehicle radios and mobile computers. Fast and secure wireless exchanges among the officers in the field are vital to law enforcement operations.

OLD TECHNOLOGY AND WEATHER HANDICAP LAW ENFORCEMENT

Before 2008, CRITFC used separate voice and data radio systems. Both systems were old, analog systems with bandwidth and long distance performance issues. The systems interoperated poorly with local and state law enforcement..

For voice traffic, officers could communicate with the CRITFC office, but could not always communicate with each other. A VHF radio base station was connected on a bandwidth-constrained State of Oregon microwave network and then via a narrow-band UHF link back to CRITFC headquarters. The aging microwave links were limiting the throughput for voice traffic communications.

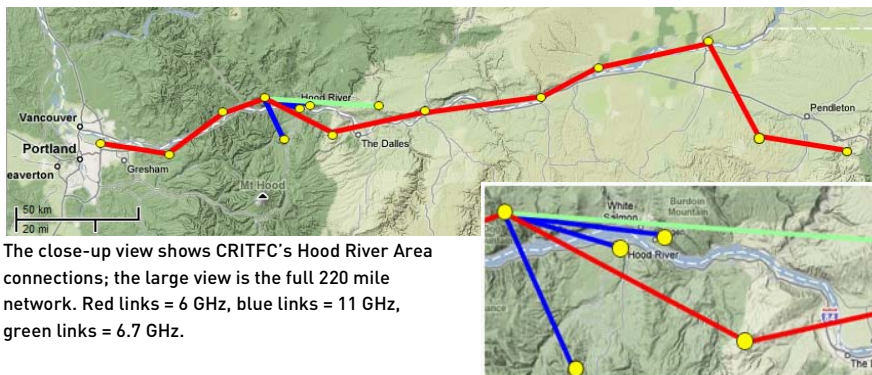
Furthermore, the Columbia River Gorge also has unique geoclimatic challenges for microwave systems. There are steep mountains, wide and narrow gorges, and inclement weather all year long - all contributing to unique conditions for microwave signal transmission.

BROADBAND DELIVERS SECURITY AND RELIABILITY

Harris Stratex network designers recommended combining the voice and data systems with a single backbone network running along the river gorge. The Constellation microwave platform was selected because it has an efficient repeater configuration, and Space Diversity options for ultra-high reliability for long links and inclement weather – ideal for operating in the Columbia River Gorge environment. Improved interoperability will help ensure that state, local and federal resources are optimized to deliver the best response for law enforcement.

HIGH NETWORK RELIABILITY WITH FUTURE EXPANSIONS IN MIND

Aviat Networks designed the backbone network, coordinated the new frequency license filing, and built new site installations. The new network was designed to fit onto existing microwave towers.



Within the backbone network, a single, dedicated channel was assigned across all Constellation OC-3 radios, and connected directly to CRITFC's Hood River office. This provided secure, fixed bandwidth for the new VHF voice communication system as well as for any future deployment of broadband data services including video monitoring and a high speed WiMAX access network. This dedicated channel positioned the networks well for any future expansions.



CRITFC law enforcement requires optimum communication and data exchange.



Officers patrol from boats and vehicles along the Columbia River shores.



Intra-agency microwave radio services must be reliable over water, around mountains, and in difficult weather.

IMPROVED SERVICE AND RESPONSE

CRITFC officers using voice radio now have instant, direct communications with each other over a secure channel covering a 150-mile river corridor area. For data communications, the faster, more reliable transmission together with the additional network bandwidth enable CRITFC offices to access nationwide police database information from vehicles and boats even while on the waterway.

SUCCESSFUL DEPLOYMENT MODEL

Throughout this project, CRITFC has been collaborating with the state of Oregon on radio sites and funding. Six more additional links are scheduled to be added.

The successful deployment of the CRITFC network is a model for showing how broadband technology can deliver a higher level of wireless communication services for government agencies.

Agencies at all levels are cooperating to enhance the Oregon communications network, with the objective of expanding wireless communications services and providing interoperability among law enforcement, transportation and other state organizations.



Constellation® is a highly efficient microwave radio solution. Its technical features and benefits include:

- Scalable low to high capacity in a compact common platform – “pay as you grow”
- Available in the 6, 7/8, and 10/11 GHz frequency bands
- Remote DS1 loop back capability for link validation or fault isolation
- 12 ACU (antenna coupling unit) options facilitate optimal transmission architectures and parallel paths
- OEM/Network flexibility
- User-friendly status readouts, and keypad/PC operation