

(1) Critical Control Point (CCP)	(2) Significant Hazard(s)	(3) Critical Limits for each Preventive Measure	(4) What	(5) Monitoring How	(6) Frequency	(7) Who	(8) Corrective Action(s)	(9) Records	(10) Verification	
Brining	C. <i>botulinum</i> toxin formation in finished product	Minimum brining time 6 hours	Length of brining process	Visual	Start and end of brining process	Brine room employee	Extend brining process	Production record	Documentation of brining/drying process establishment	
			Minimum salt concentration of brine at start of brining 60° salinometer	Salt concentration of brine	Salinometer	Start of brining process	Brine room employee	Add salt	Production record	Review monitoring, corrective action, and verification records within one week of preparation
			Minimum ratio of brine:fish 2:1	Weight of brine (as determined by volume)	Visual to mark on tank	Start of brining process	Brine room employee	Add brine	Production record	Monthly calibration of scale
				Weight of fish	Scale	Each batch	Brine room employee	Remove some fish and reweigh	Production record	
			Maximum fish thickness 1 1/2"	Fish thickness	Caliper	Each batch (10 fish)	Brine room employee	Hold and evaluate based on finished product water phase salt analysis	Production record	Quarterly water phase salt analysis
(Note: Above CLs are designed to produce a minimum water phase salt level in the loin muscle of 3.5%)										
Smoking/ drying/ heating	C. <i>botulinum</i> toxin formation in finished product	Minimum time open vent 2 hours	Time of open vent	Visual	Each batch	Smoker employee	Extend drying process, and	Production record	Documentation of brining/drying process establishment	
			Internal temperature of fish held at or above 145°F for at least 30 minutes	Internal temperature of fish and time at that temperature	Digital data logger with probes in 3 of thickest fish in cold spot of oven	Continuous with visual at end of batch	Smoker employee	Extend heating process, and	Data logger printout	Review monitoring, corrective action, and verification records within one week of preparation
								Make repairs or adjustments to the smoking chamber, and	Smoking log	
								Hold and evaluate		
							Quarterly water phase salt analysis			
Cooling after hot smoking	C. <i>botulinum</i> toxin formation	No more than 4 hours between end of smoking process and placement of	Length of time between end of smoking process and placement of	Visual observation of end of smoking process and time of	Each batch	Smoker employee	Place product in cooler, and	Production record	Review monitoring and corrective action records within one week of preparation	
							Hold and evaluate based on			

Finished product storage	C. <i>botulinum</i> toxin formation during finished product storage	racks under refrigeration Maximum cooler temperature 40°F (based on growth of vegetative pathogens)	racks under refrigeration Cooler air temperature	placement in cooler Digital data logger	Continuous, with visual once per day	Production employee	time/temperature of exposure Adjust or repair cooler, and Hold and evaluate based on time/temperature of exposure	Digital logger printout	Review monitoring and corrective action, and verification records within one week of preparation Daily check of data logger accuracy
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Note: The critical limits in this example are for illustrative purposes only, and are not related to any recommended process.

FDA. 1998. *Clostridium botulinum* Toxin Formation (A Biological Hazard). Ch. 13, In *Fish and Fishery Products Hazards & Controls Guide: Second Edition*. 151-173. Department of Health and Human Services, Public Health Service, Food and Drug Administration, Center for Food Safety and Applied Nutrition, Office of Seafood, Washington, DC.