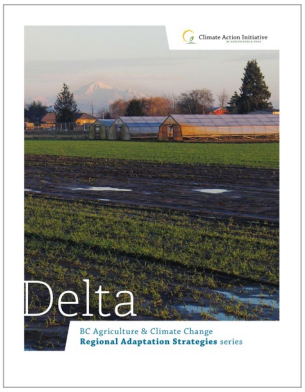
Climate & Agriculture Initiative BC

Delta

Regional Adaptation Program | **AGRICULTURAL IMPACTS** | as assessed in 2013



The changes in climate projected for the Delta region will have a range of impacts on agricultural production. Potential agricultural impacts are summarized the table below.

This table is extracted from the *Delta Adaptation Strategies* full report, published in 2013 by the Climate & Agriculture Initiative BC. To read the full report, visit: *www.ClimateAgricultureBC.ca*

Projected Climate Changes	Projected Effects	Potential Agricultural Impacts
↗ Increasing temperatures ↘ Decrease in snowfall in Fraser River basin ↘ Decrease in summer precipitation ↗ Rising sea level	***Changing hydrology:*** ▪ Earlier river peak flows ▪ Salt wedge moves upstream earlier ▪ Earlier salination of Fraser River water at intake points ▪ Rising water table and soil salinity	– Limited water supply at time of dry conditions in late summer, fall – Increase in management complexity and costs – Increase in demand for irrigation water – Decrease in productivity and quality of crops and livestock under water stress
↗ Increasing growing degree days and frost free days ↗ Increasing annual and seasonal temperature ~ Shifting precipitation patterns ~ Variable timing of frost	***Increase in variability of growing season conditions***	– Inconsistent productivity, quality & therefore prices – Challenges aligning production with processing schedules – Decrease in suitability for some crops ***Potential opportunities:*** + Increase in suitability for new varieties of forage and field vegetable crops + Increase in suitability of new crop types + Decrease in heating costs

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Projected Climate Changes	Projected Effects	Potential Agricultural Impacts
↗ Increase in extreme weather events ↗ Increasing extreme rainfall events	***Increasing intensity/frequency of extreme conditions***	– Decrease in productivity and crop quality; crop losses – Increase in building maintenance and damage costs – Increase in cooling and ventilation costs (crop storage, livestock) – Interruptions to regional infrastructure and supply lines
↗ Increasing precipitation ↗ Increasing variability of precipitation and extreme rainfall events (especially in spring and fall)	***Increase in excessive moisture on fields*** ***Increase in site-specific flood risk*** ***Interruptions to pollination*** ***Decrease in light levels (cloudiness)***	– Crop damage or loss – Interruptions to planting, input application and harvesting (can't get equipment on fields) – Lower prices for product if it has to be picked at wrong time – Inability to pump water off at high tide – Increase in nutrient and input leaching – Increase in pressure on drainage and water management – Increase in management complexity (including labour availability; conflicts with neighbours)
↗ Increasing average temperatures ↗ Rising sea level ↗ Increasing annual precipitation and decreasing snowfall in the Fraser River Basin ↗ Increasing extreme rain events	***Increasing coastal flood risk:*** ▪ Increase in risk of inundation at high tide (dike breach or overtopping) ▪ Increasing annual river flow ▪ Increasing storm surge levels	– Increase in crop and infrastructure damage and loss – Relocation or loss of livestock – Interruptions to supply lines – Salination of soils, and time lag for recovery
↗ Increasing winter temperature and seasonal temperatures ↗ Increasing spring precipitation and extreme rain events ↘ Decreasing summer precipitation	***Changes in pests, diseases & pollinators:*** ▪ Increase in winter survival rates ▪ Increase in number of cycles in a year ▪ Introduction of new pests and diseases	– Increase in existing and new pests and diseases – Increase in management costs, complexity, uncertainty – Increase in delays and/or prevention of pollination in spring
~ Climate change in other growing regions	***Variability of global agricultural production***	– Increase in feed, seed or other input costs ***Potential opportunities:*** + Increase in demand for food production / local food + Increase in prices
↘ Decreasing precipitation as snow ↗ Increasing temperatures	***Possible increase in overwintering water fowl***	– Increase in crop damage and losses ***Potential opportunities:*** + Possible benefits for cleaning up blueberry fields