Environment and Climate Change Canada | Environnement et Changement climatique Canada

DELIVERY OF CRITICAL SERVICES AND LESSONS LEARNED UNDER THE MSC'S BUSINESS CONTINUITY MANAGEMENT PLAN

Presentation to the MSC-LMCC
September 22 2020

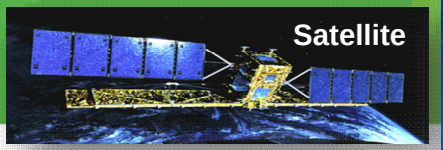
Canada

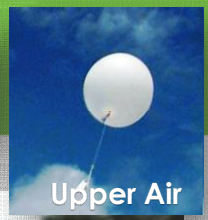
Purpose

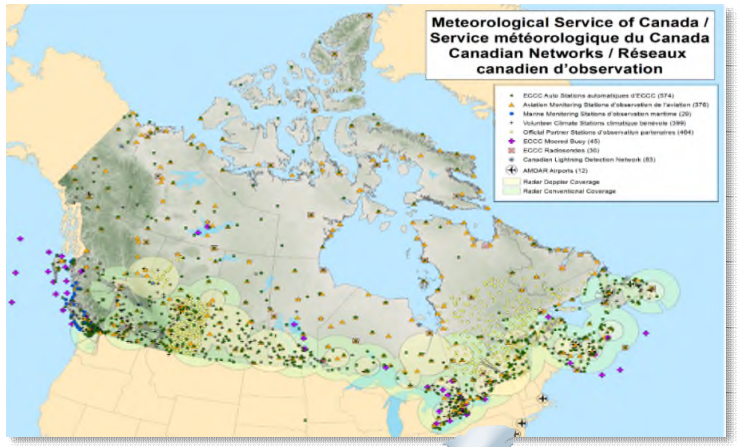
- To summarize **activities to date** under the MSC Business Continuity Management Plan (BCMP) – **Phase 0**

MSC provides Canadians with authoritative information 24 hours/day, 365 days/year…

- Millions of **observations/day from multiple monitoring networks across Canada:** upper air, satellites, radar, hydrometric, surface weather and climate (land and marine), lightning, etc.
- Engineering and technical expertise to support **water quantity management decision-making**, including by supporting **provincial and territorial flood forecasting**, as well as **domestic and international water boards**
- **Models run continuously on a global and Canada-wide scale** providing predictions of the future state of the atmosphere out to 7 days and beyond
- **7 regionally-based prediction centres** monitor the evolving weather 24 h/day, 7 day/week and provide public, marine, UV and Air Quality Health Index forecasts and warnings; Additional centres for aviation (2), DND (3), and ice services (1); **Warning Preparedness Meteorologists**; Several **dissemination** channels







MSC activated its Business Continuity Management Plan in mid-March…

- **Critical services delivered** since the beginning of the pandemic, as per the Business Continuity Management Plan (BCMP) - MSC's **BCMP remains activated** and represents longest period under contingency planning in the organization's history
- MSC worked swiftly with Public Safety and SSC to ensure MSC mission critical services were included for priority support during the pandemic under the National Pandemic Emergency Plan
- Many MSC critical services and operations **must be delivered "on site" (Phase 0)**:
  - **Fieldwork**: essential activities necessary to ensure data is available to sustain critical services; high priority hydrometric field measurements to support flood forecasting by PTs; response to critical network outages
  - **Numerical weather prediction:** 24/7 numerical weather and environmental analyses; modelling and advisory services for volcanic eruptions, nuclear releases, wildfires, and environmental emergencies; health and incident response for data processing and modelling production on HPC, data processing and modelling capacity
  - **Forecast Services**: warnings and forecasts for aviation and mariners; forecasts and meteorological intelligence for Canadian Forces; sea ice information and warnings in support of Canadian Coast Guard; information and interpretations for federal, provincial and municipal EMOs; support to Search and Rescue efforts on land, ice and at sea
- Since mid-March, MSC **has adapted and prioritized** its operations in order to:
  - Follow local public health guidance
  - Ensure safe fieldwork conditions and procedures for staff and contractors
  - Meet priorities of clients and partners
  - Adjust to respond to severe weather and water events and length of operation under contingency planning

Delivery of critical services relied on 739 Phase 0 on-site staff in more than 60 locations with other critical staff working remotely…

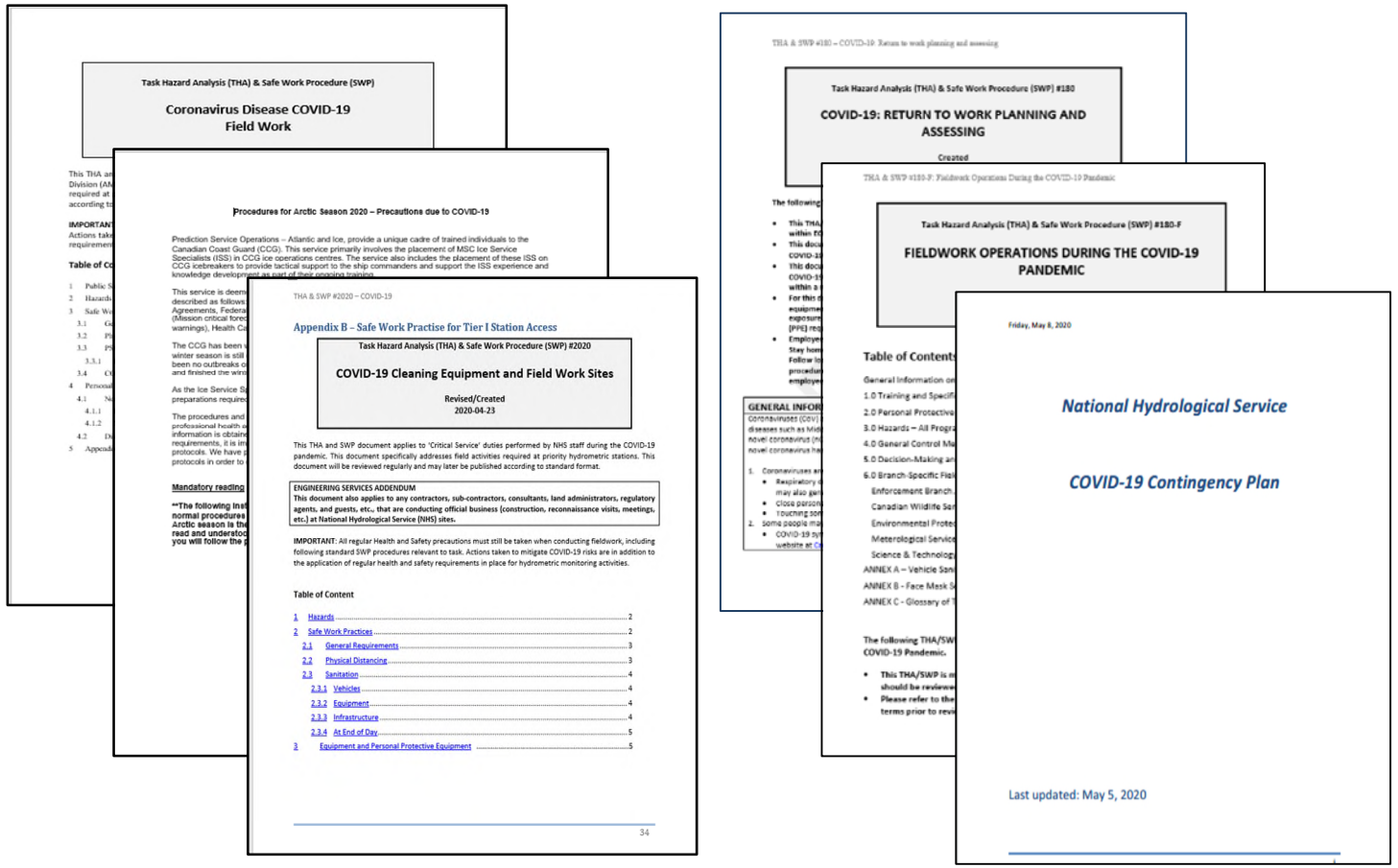
- On-site presence varies over time and is difficult to track:
  - Shift work – in covering 24/7 operations, less than 20% of staff identified as shift workers are in the office at the same time
  - Fieldwork Offices – activities for field staff vary daily with weekly tasks that require time spent at a workstation, in a warehouse, travelling to staging areas by truck or helicopter and working at a field site
  - Staging areas and warehouses – most do not have permanent staff on site, but are visited by program field staff from different branches
  - Field sites – work on site is usually limited to 1-3 staff and can last ½ day to almost a week
  - OGD Facilities – some MSC staff work in client facilities (for example, military bases and on Coast Guard ships

Ensuring staff safety in the context of COVID-19…

- Ongoing management **review and risk based decision-making** for field work and associated travel

- In addition to updated ECCC THA/SWPs for COVID (180 & 180-F), MSC has developed **program-specific Contingency Plans and SWPs**, including:
  - National Hydrological Service COVID Contingency Plan
  - Atmospheric Monitoring Division COVID Protocols for Fieldwork and Shared worksites
  - Canadian Weather Radar Replacement Project COVID Guidelines for Field Activities
  - Storm Damage Surveys Plan
  - Canadian Ice Service Arctic Ice Season precautions for COVID

- Precautionary approach taken in response to **Place Bonaventure outbreak**



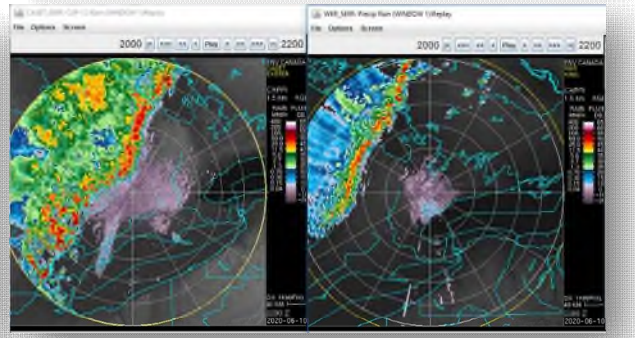
In addition to health and safety protocols…

- **Tabletop exercises** to support contingency planning and emergency scenarios
- **Forecast teams working in bubbles** to minimize risk of cross-infection; disinfection of shared work areas between shifts
- Identification and provision of **PPE/PPM** to critical staff as needed
- **International travel and planned group training cancelled**; virtual alternatives were pursued where possible
- Acceleration of graduation from the Meteorological Operational Training Program (MOTP)
- **Ongoing communications with staff, partners and clients**
  - **MSC Crisis Management Team** activated during the week of March 9, 2020 (HRB, CSFB, SSC participation); supported by MSC BCMP Working Groups and specific Task Teams
  - **Change Management Board with SSC** to prioritize required changes in hardware and software to sustain critical operations throughout all possible contingencies
  - **Engagement with CIO** established priority VPN access for critical staff and bandwidth upgrades
  - **Union engagement** has occurred throughout the pandemic via national and branch labour-management governance and bilateral engagement of union executives
  - Engagement with **provincial and territorial partners** regarding station maintenance and operations and safety protocols e.g. National Administrators Table and Canadian Council for Weather and Climate Monitoring
  - **Engagement of key clients** including NAV CANADA, DND, Canadian Coast Guard, US NOAA
  - **Regular staff communications** through daily standups, town halls, communiqués

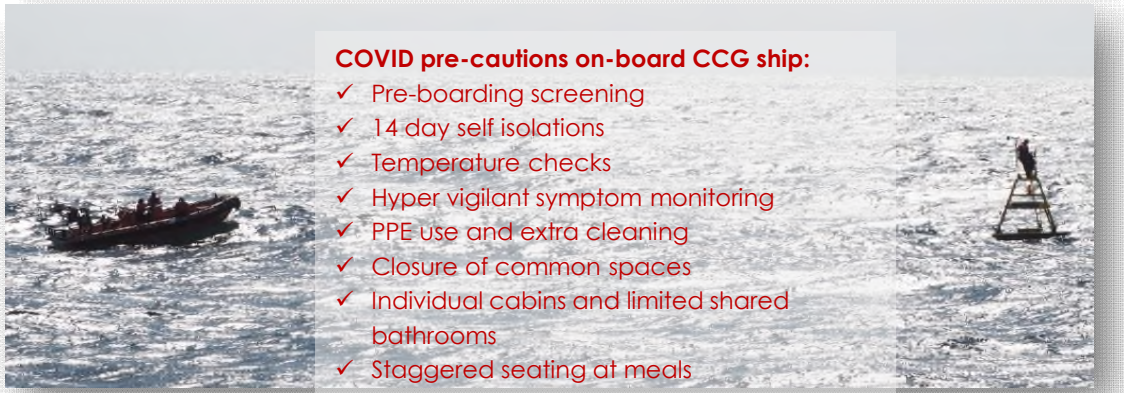
The MSC has responded to urgent maintenance issues in a cautious yet efficient and professional manner…

RETURN-TO-SERVICE FOR RADAR OUTAGES: Cooperation with Contractor Leonardo

- A series of outages of new S-band radars required attention from the Germany-based contractor, Leonardo
- Cooperation between MSC staff and Leonardo resulted in quick solutions to re-establish data flow for operational forecasters and clients, while keeping staff safe
- With Leonardo helping from Germany to organize a plan, MSC staff were able to diagnose problems and restore radars to service until Leonardo staff were able to travel back to Canada to complete the full repair under warranty



CRITICAL BUOY SERVICE AND REPAIR: Cooperation with the Canadian Coast Guard



- On May 13th, four MSC field technicians set sail onboard the Canadian Coast Guard (CCG) Ship Sir Wilfred Laurier for the annual Pacific Buoy service trip to replace and service 10 buoys along the coast of BC
- In cooperation with the Canadian Coast Guard (CCG), staff worked with a comprehensive COVID-19 mitigation plan that allowed this critical buoy service to move forward while minimizing the risk to ECCC and CCG staff

Prioritized attention to health and safety of staff working in isolated areas and responding to severe weather events…

WORKING IN ISOLATED POSTS: Building staff morale in Eureka and Alert

- MSC staff stationed in Eureka and Alert extended their posts to reduce the risk of COVID-19 spread while maintaining critical operations
- Rotations were complex with border closures, limited access/routing and quarantine requirements
- The first crew change was expected around the 3rd week of March, but was quickly extended to the last week of April, and some staff stayed until late May 2020
- Working in isolated posts for extended periods during uncertain times has been stressful for staff
- In early May, a call was organized between ECCC DMs and staff in Eureka and Alert, which boosted staff morale

ICE JAMMING IN NORTHERN SASKATCHEWAN: MSC Responded to a Severe Flooding Event

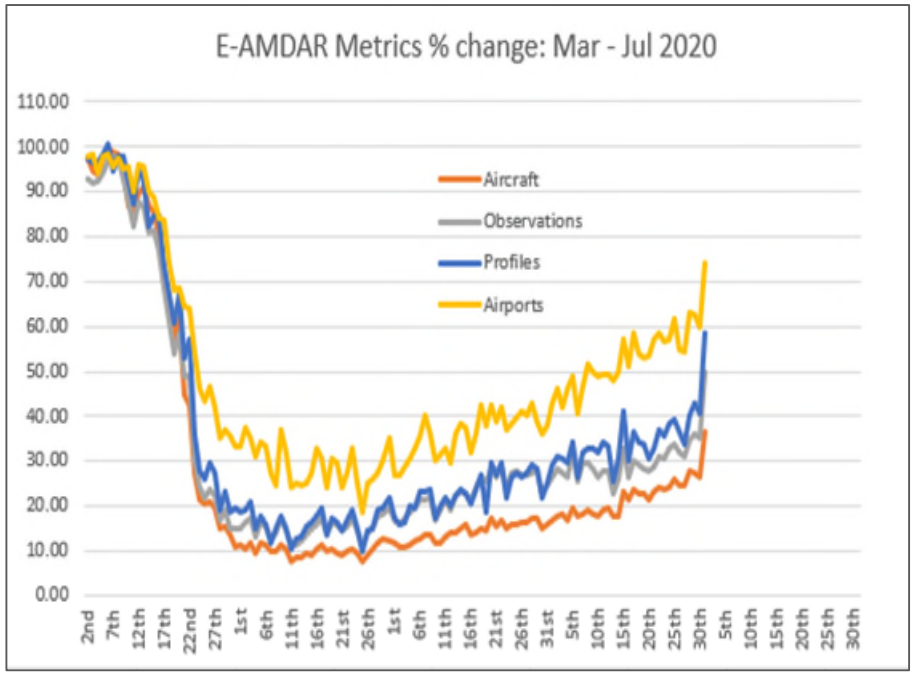
- With unprecedented high water on the upstream ends of Churchill river system in Northern Saskatchewan, the MSC's National Hydrometric Service have mobilized quickly to plan and carry out field work in this area
- National Hydrometric Service staff worked with the provincial agencies to ensure delivery of valid hydrometric data and ensure consistent communication on plans and health/safety protocols
- Priority water gauges were visited based on crew and aircraft availability, with safety of staff was emphasized as the top priority

MSC also adapted its business processes to ensure quality critical services were delivered…

AIRCRAFT RELAY WEATHER OBSERVATIONS

…AS COVID-19 RESULTED IN THE LOSS OF >80% OF AIRCRAFT OBSERVATIONS

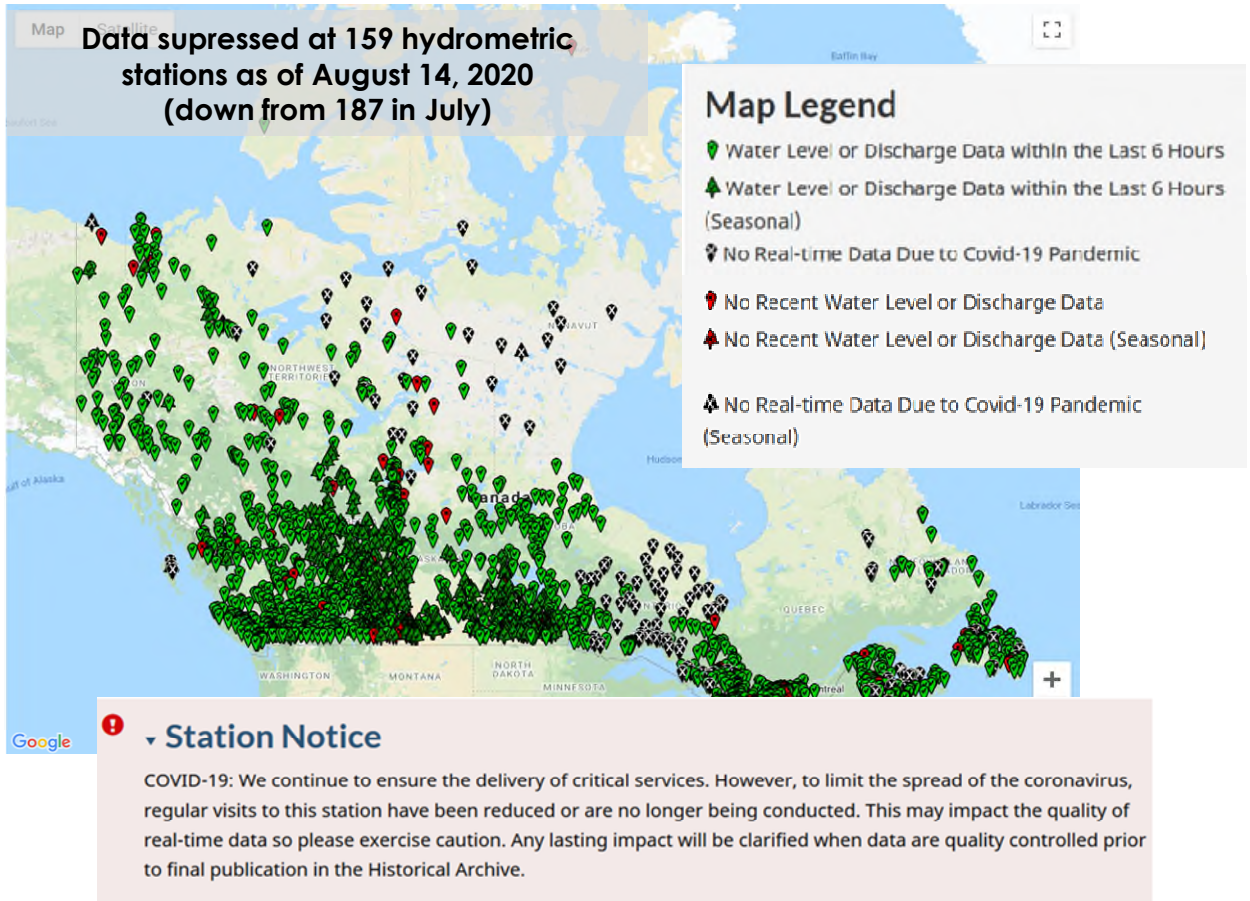
Change in % from March 2nd to July 2020 of number of aircraft observations and ascent/descent profiles.



- Aircraft observations, an important contribution to the quality of model forecasts, dropped as of March as aircraft were grounded by COVID-19 measures
- MSC maintained daily communication with international partners to monitor the impact of this data loss and implemented mitigation measures, including:
  - Addition of new aircraft observations provided by a private company (FLYGHT)
  - Addition of satellite derived wind vectors and radiance profiles (eg. Kompsat-5, Paz & Metop-C).
  - Implementation of a correction to allow access to an increased vertical resolution of the radiosonde observations
  - Use of additional radiosonde launches provided by upper air networks in Europe since early March
- As a result, no reduction in forecast quality was noted, but the situation continues to be closely monitored

Hydrometric operations and renewal projects have adapted to COVID 19 with some data suppression and delayed work…

HYDROMETRIC



- **Progress on infrastructure and innovation projects has been hindered** by challenges with field safety operation, availability of contractors, supply chain issues, approval and permit delays, shift in procurement priorities, staffing delays for vacant positions
- **Hydrometric renewal infrastructure and innovation project delays** may result in lapse of funding
- **Innovation has shifted focus** to planning and testing software, with some day trips only
- **Infrastructure project spending for 2020/21 will be more than 40% lower then planned**
- **Complex construction projects and majority of decommissioning projects have been postponed**
- Potential solutions being explored include requesting re-profiling of unused resources from 2019/20 (not yet confirmed), adjusting portion of funds from 2020-21 going forward, re-profiling of resources to extend one additional year i.e. 2023/24

COVID-19 has resulted in some real-time data suppression and delayed work for MSC's operational atmospheric network…

ATMOSPHERIC

- **Whitehorse Autosonde Relocation Project delayed** due to travel restrictions on field engineers travelling from the US, which may result in data loss in late November but exploring mitigation with data from an Alaska Upper Air Station
- **GRAW Radiosonde Upgrade Project delayed** at two Northern sites due to strict travel restrictions imposed by regional and local governments, which may result in loss of data at these sites later in the fall/early winter when current radiosonde inventory is depleted
- **Maintenance inspections of 50% of METAREA sites** on hold
- **AVOS inspections in jeopardy** due to restrictions by vessel owners
- **Maintenance of S-band radars delays possible** due to delayed/cancelled training of new staff
- **Maintenance of coastal stations accessed only by helicopter or vessels delayed** while protocols established by external providers
- **Maintenance to all stations on Haida Gwaii on hold** while local state of emergency in place
- **Increased costs for Arctic Operations** due to 14 days self-isolation protocols prior to travel to Eureka and Alert
- **Isolated tours lengths in Eureka increased** from 3 months to 4 months, with no visitors permitted unless conducting critical work

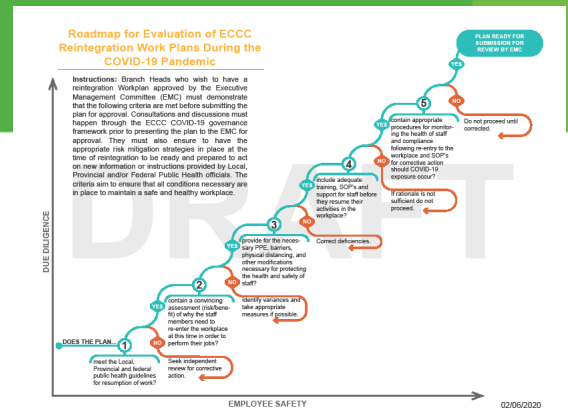
The MSC took rapid action to respond to a COVID outbreak at Place Bonaventure…

- In May 2020, **5 confirmed COVID cases amongst operational meteorologists at Place Bonaventure**. 60 staff were asked to self-isolate from the public and aviation forecasting teams for 14 days. Two forecast centres were closed and operational forecast production responsibilities redistributed across other prediction centres, going beyond existing contingency plans
- ESDC-approval was required on workplace measures implemented to support re-integration of staff at Place Bonaventure including **administrative, engineering and PPE strategies**
- **Largest contingency event MSC has experienced both in scope and duration (17 days)**. Placed considerable stress on the organization and staff
- Lessons learned are informing MSC plans for further phases of workplace re-integration:
  - Highlighted the **sensitivity of Prediction Centres in Edmonton (Eastgate) and Montreal (Place Bonaventure)** given co-location of public and aviation weather centres and the potential increased risk associated with re-integration
  - Measures supporting re-integration at Place Bonaventure were **implemented at all prediction centres** based on local risks and circumstances

MSC's pandemic response builds on a risk management and continuous improvement culture…

- Benefit of **regular review and update of BCMPs, operational contingency plans, and tabletop exercises**
- Importance of **strong working relationship with SSC and CSFB** to ensure access to IM/IT solutions, including hardware, firmware, and software, to support a nationally distributed, operational organization
- Benefit of **clear and transparent communication between management and staff** to work together to define effective solutions under challenging circumstances
- **Responsive decision-making by senior management** that reflected MSC's risk assessment and tolerance

MSC re-integration will be gradual, with decisions grounded in assessment of risk to critical services…

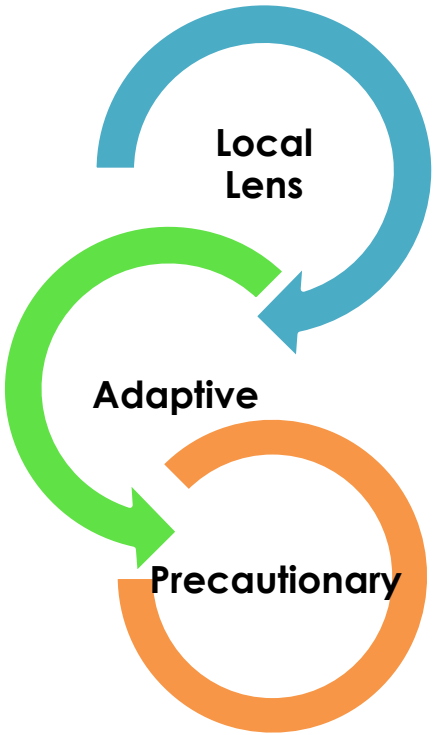


- MSC re-integration plan has been tailored to reflect the scope and complexities of maintaining critical services across Canada while ensuring staff health and safety
- Additional activities and services will **safely resume on a phased, priority basis, aligned with the Departmental framework** to address full-time 699 (technology), requirement for safe handling of Cabinet document, staff health considerations, etc.

	Management model and BCMP	Staff presence on-site
Phase 0 Full Pandemic State – sustain critical services and critical support services	Crisis management mode; BCMP activated	Minimum complement of critical services staff allowed on site, everyone else teleworking
Phase 1 Focus on protecting sustained critical services with limited return of additional employees	Crisis management mode; BCMP activated	Larger complement of critical services employees and those supporting critical services returning to the workplace Limited return of other staff with prioritization of non-critical programs that cannot be performed remotely and staff who have not been able to telework due to IT and/or remote work issues
Phase 2 Focus on incremental workplace access across the Branch with increased flexibility	Risk management mode - returning to normal; BCMP de-escalation	Incremental increases to the presence of critical and non-critical employees in the workplace. Physical distancing practices maintained with use of PPE where physical distancing is not feasible Increased number of employees returning to the workplace to varying extents , some alternating schedules and telework on a case-by-case basis.
Phase 3A COVID-latent environment, focus on measures to keep employees safe while providing all staff with regular workplace access	New normal mode; BCMP not activated	All staff are able to access workplace, continued alternating schedules if needed (depending on public health advice), telework agreements on a case-by case basis (although likely more widespread adoption than previous). Physical distancing practices maintained.
Phase 3B All restrictions removed.	New normal mode; BCMP not activated	Full access to workplace, without the need for scheduling. Telework likely more widespread than previous Physical distancing no longer required

MSC re-integration will be guided by key principles…

- Phase 1 will focus on staff providing critical services, direct support to critical services, and address full time 699, policy staff, mental health and ergonomic considerations
- **Ensure continued delivery of critical activities and services remains the priority for Phase 1**, which will be guided by:



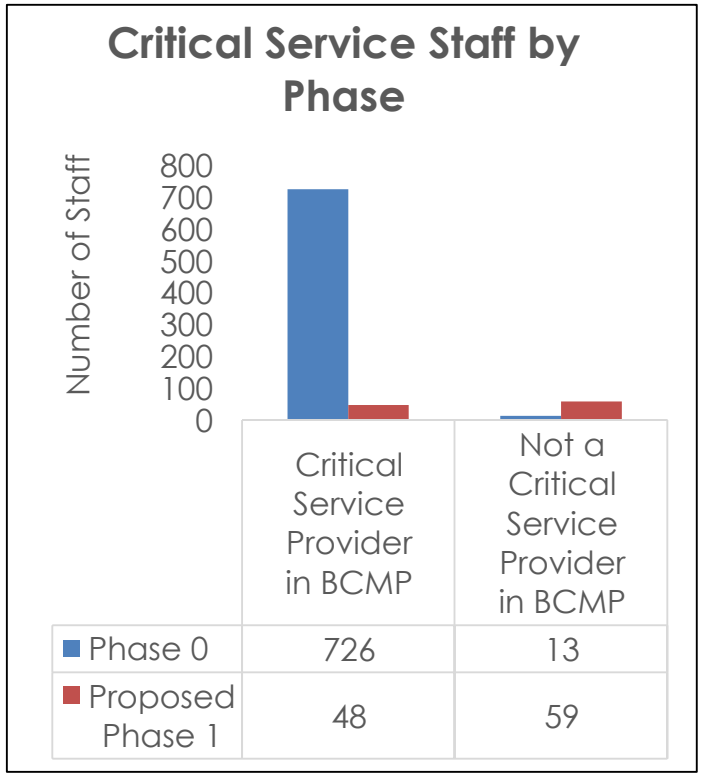
- Diverse operating contexts and local conditions
- Respect Government of Canada direction and public health guidance
- Consultation with local unions and SBO
- Collaboration with PTs and other local partners

- Phases can be toggled forward or backward as context changes
- Risk with return of other Branches and presence of contractors in shared space
- Surge capacity (ECCC and SSC) may be required
- Prioritize productivity, including ergonomics

- Health and safety, including implementation of enhanced measures and training for Phase 0 and 1 staff
- PPM/PPE needs and availability (MSC currently able to source PPE for Phase 1)
- Human-centered approach (mental health, etc.)

MSC Transition from Phase 0 to Phase 1 is modest…

- Consisting of an **incremental increase** of potentially 107 staff for a total of 846 staff in over 75 locations
- Phase 1 additions includes both **critical** (48) **and non-critical** (59) staff functions
  - Critical functions staff working from home during Phase 0 who can be **more productive** with access to workstations and tools
  - **Policy staff** to support access to GCSI infrastructure and appropriate handling of Cabinet documents
  - 2 staff previously on **FT 699** leave
- Not all staff is on-site at same time (shifts and field work; part or full time access requirements)
- MSC **proposed Phase 1 numbers are still being refined** and assessed in the full ECCC analysis and may change



Buildings with Larger Presence	Phase 0***
Edmonton Eastgate Office	89
Place Bonaventure	84
Winnipeg Via Rail	60
Downsview	47
Queen square - 45 AlderneyDr. NS	44
401 Burrard	28
Sir Leonard Tilley Building	28
CMC -Dorval	36
Gander NLWO *	17
CCIW	21
MOC - Richmond	26
105 McGill/400 d'Youville	19
Harry Hays Building	21
Michael J. Greenwood Centre	18
Nova Plaza	8
North Bay - 187 Booth Road	13
Thunder Bay	12
Combined Services - Whitehorse	9
Place Vincent Massey	3
River Road	5
Mount Pearl	8
Nat'l Hydrology Research Centre	3
Frederick Square	5
DND-MetOc Halifax	10
CFB Winnipeg	8
CFB Esquimalt	10
CFB Gagetown JMC	22

**** Total number of employees accessing each site. Because of shift and field work the number of employees at any given time is smaller*

Continued vigilance will be required to manage known risks during re-integration…

- ECCC **Phase 1 plans to return staff (multiple branches and OGDs) to locations where MSC critical services delivered**. MSC will monitor the resulting risk of exposure to staff delivering critical services

- MSC will **work with CSFB to document facility use in order to manage risk** through PPM, traffic pattern management, minimizing shared infrastructure, managing entrance/exit timing
  - Working with CSFB to find ways to **adapt App solution to complexities of field and shift work operations**
- **BCMP will continue to be activated** to ensure the continuity of critical services, including the operations of prediction centres
- Ability to **deliver upcoming mandatory training** to Phase 0 staff in a manner that supports critical services delivery and in the context of limited redundancy
- Potential for **concurrent emergency** (beginning of pandemic – flooding; summer wildfire season; now hurricane season)
- Special cases including **move within 401 Burrard Street facility and Place Bonaventure move** to Rene Levesque Blvd.
  - Potential use of CMC Dorval as swing space for Place Bonaventure staff

Questions?