

# Health Situation of Chilean

## Salmon Industry

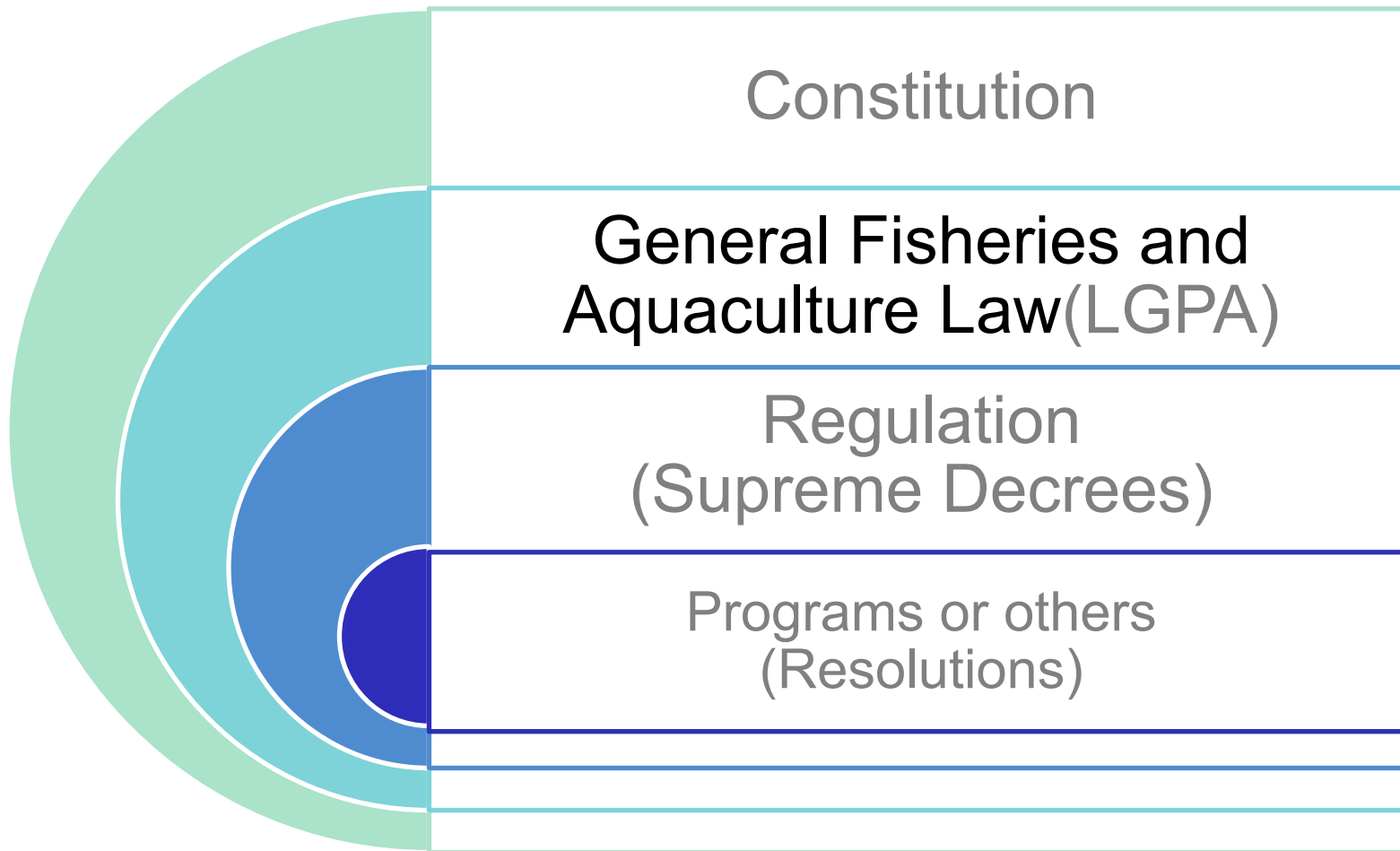


**SERNAPESCA**  
Ministerio de  
Economía, Fomento  
y Turismo

Gobierno de Chile

**Oswaldo Sandoval del Valle**  
**Underdirector of Aquaculture**  
**National Fisheries and Aquaculture Service**  
**August, 2019**

## Legal framework



# Health situation chilean salmon industry

## List of Fish Diseases

- Necrosis hematopoyética epizoótica
- Necrosis hematopoyética infecciosa
- Septicemia hemorrágica viral
- Viremia primaveral de la carpa
- Infección por *Gyrodactylus salaris*
- Iridovirus de la Dorada Japonesa
- Infección por alfavirus de los salmónidos
- Herpesvirosis de la carpa koi
- Síndrome ulcerante epizoótico
- Infección por Totivirus (No OIE )

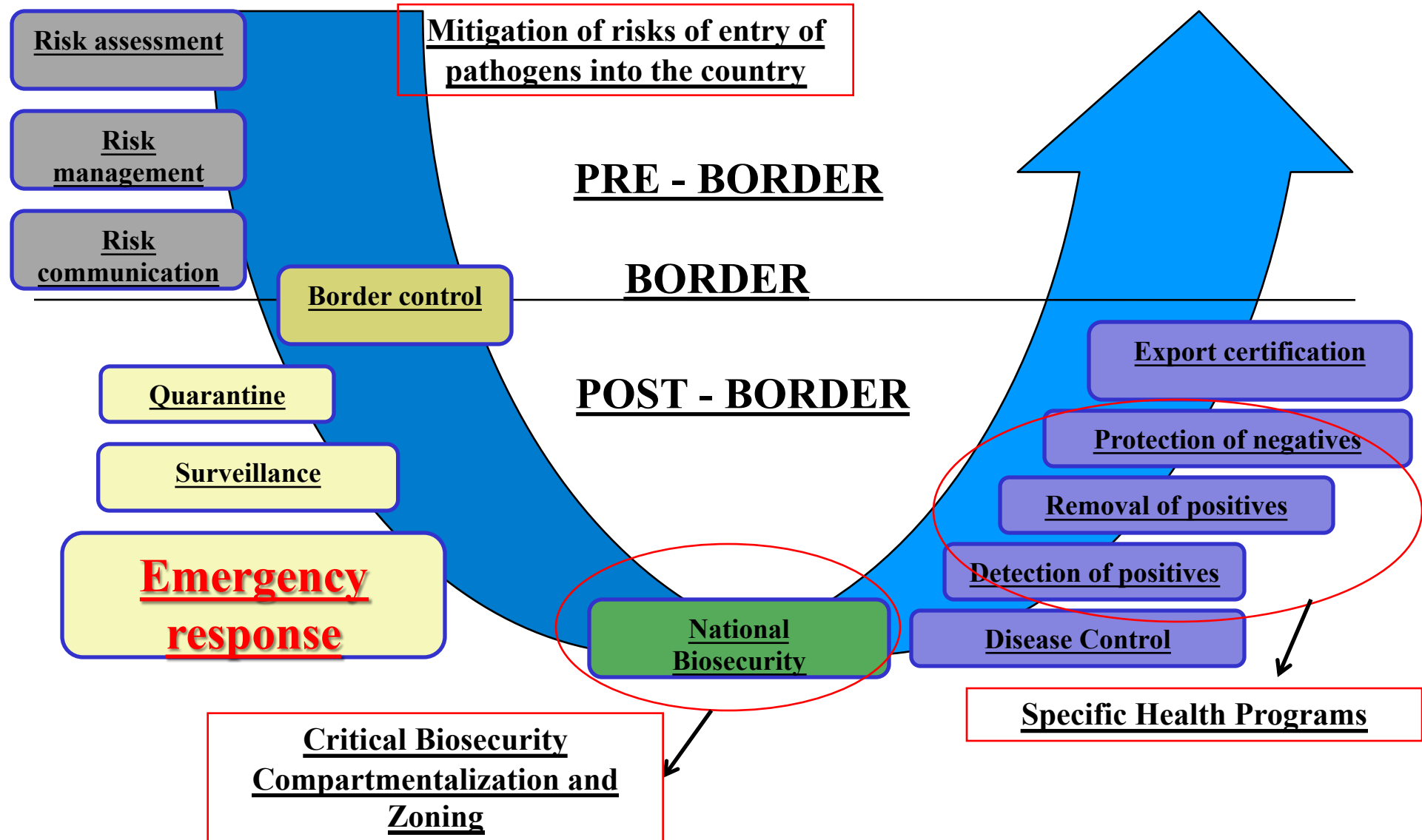
**List 1 EAR FREE**

- Anemia Infecciosa del Salmón (ISA)
- Necrosis Pancreática Infecciosa (IPN)
- **Piscirickettiosis (No OIE )**
- Renibacteriosis (No OIE )
- Caligidosis (No OIE )
- List 3 ( investigación )

**List 2 EAR (Endemic diseases and under official control)**

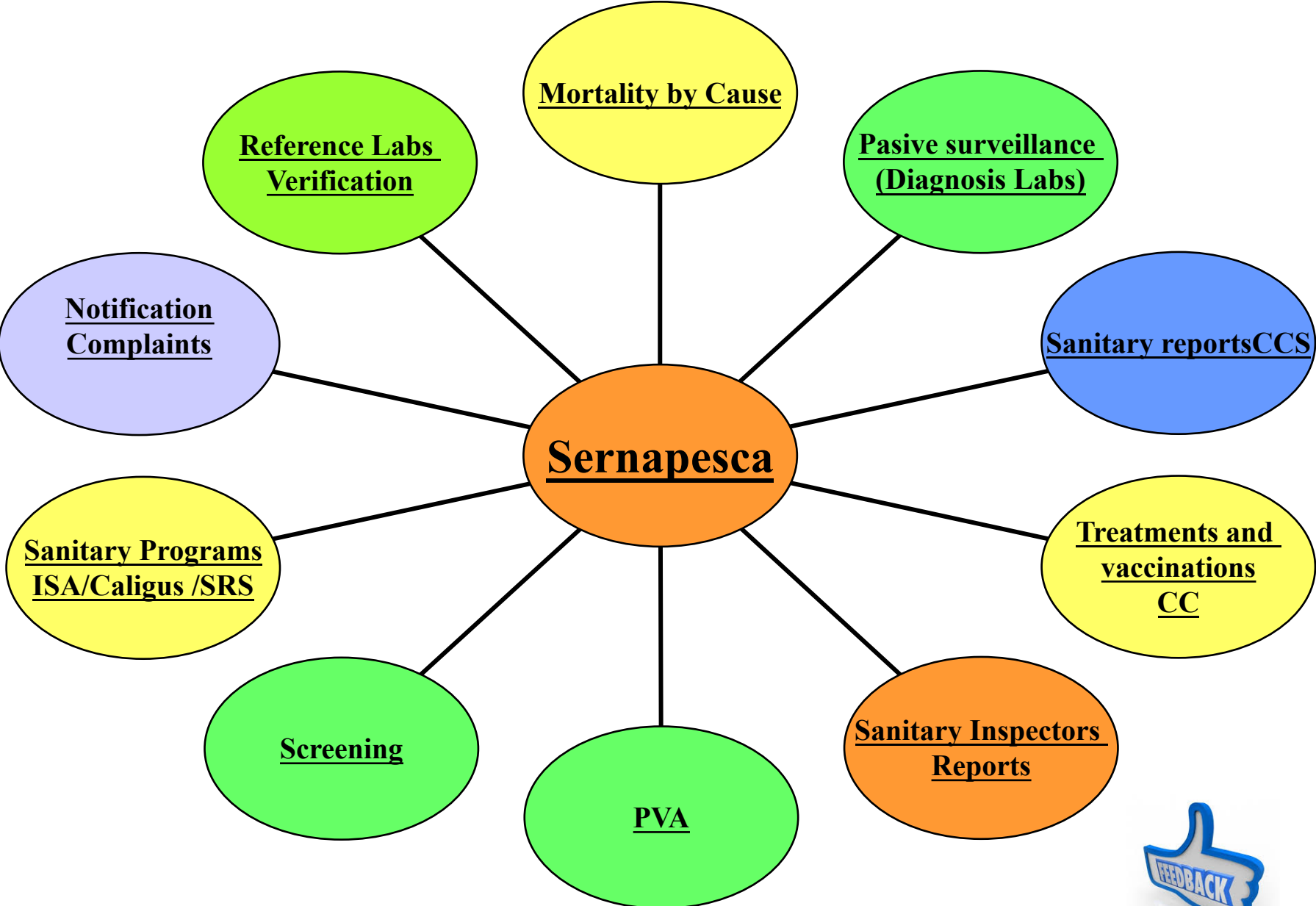
# Health situation of chilean salmon industry

## Health Management Model





# Information sources



# Health situation of chilean salmon industry

## Information sources



## Sistema de Información para la Fiscalización de Acuicultura

[Inicio](#)

### Menú

- Administración RNA
- Solicitud de CSM
- Solicitud Certificado Autorización de Movimiento
- Declaración de Caligus
- Declaración de Mortalidades
- Declaración de Tratamiento y Vacunación
- Declaración de Laboratorio
- Registro de Laboratorio
- Parámetros RESA
- Categorización

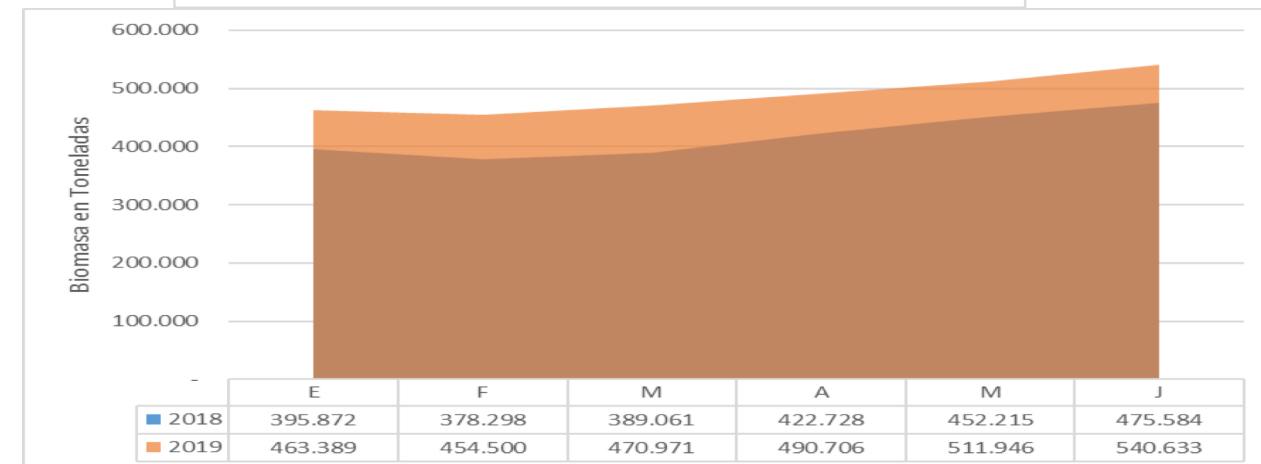
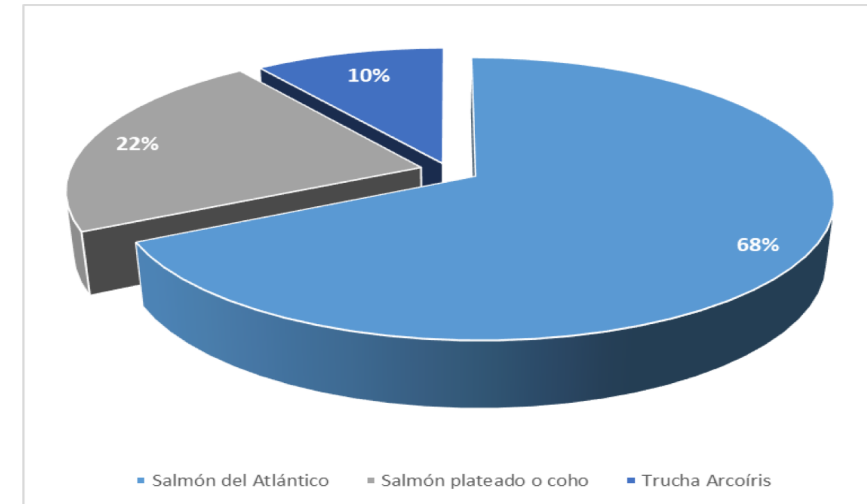
Bienvenido, seleccione una opción del menú lateral



## PRODUCTIVE SITUATION

- **Increase in the number of average active farms compared to the first semester of 2018 (8%).**
- **Compared to 2018, the average cultivated biomass increased by 17%.** The maximum values were in May and June, exceeding 500,000 tons.
- **Distribution by species:** Atlantic salmon (68%), Coho salmon (22%) and Rainbow trout (10%).

|      | E   | F   | M   | A   | M   | J   |
|------|-----|-----|-----|-----|-----|-----|
| 2018 | 308 | 313 | 306 | 324 | 325 | 316 |
| 2019 | 302 | 312 | 329 | 358 | 387 | 355 |



Health situation of Chilean salmon industry

## **Epidemiological surveillance system**

**General Sanitary Programs** establish the operational biosecurity procedures for all farming sites.

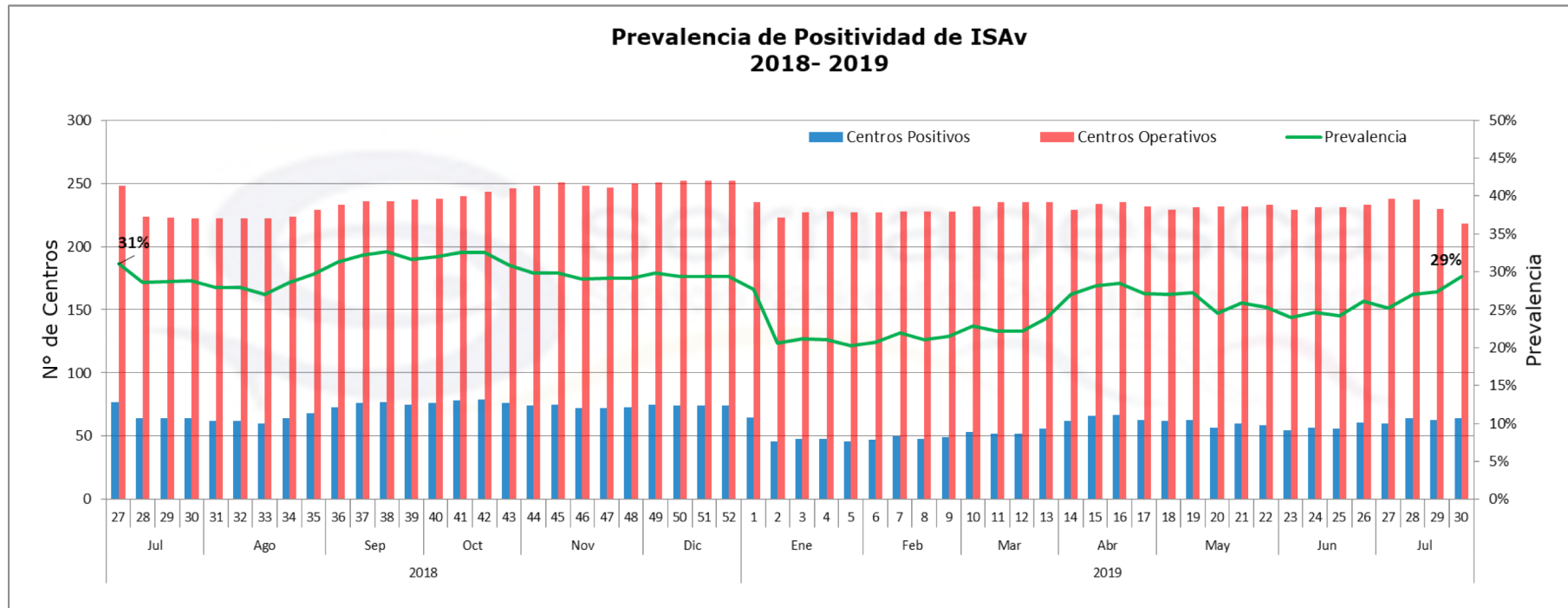
### **Active Surveillance:**

- Exotic diseases (PVA)
- Endemic diseases (ISA-Piscirickettsiosis-Sea lice)

### **Passive Surveillance:**

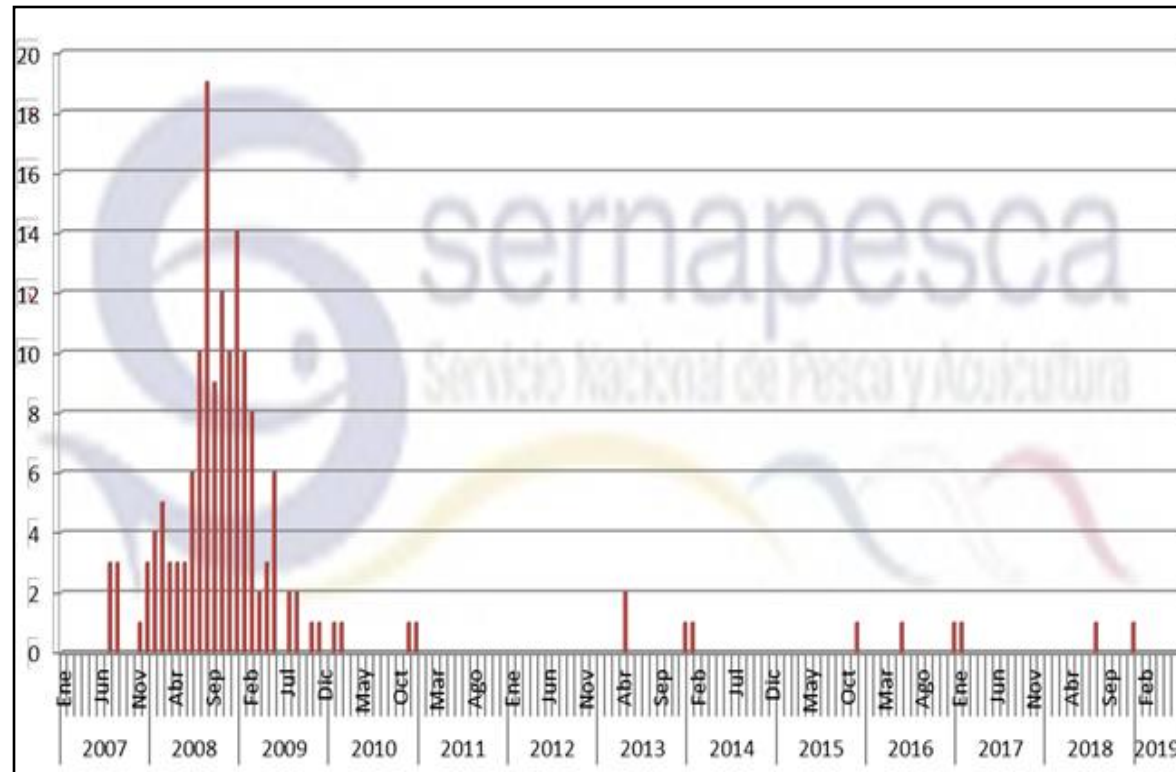
- General Sanitary Registration Data and Laboratory Information Program (PSGDL)-PVP.
- General Sanitary Mortality Management Program (PSGM)

## INFECTIOUS SALMON ANEMIA (ISAv)



- Sernapesca performs audits and disease surveillance of all the farms.
- Early detection and quick control measures are key to avoid disease dissemination
- The HPR0 strain concentrates the detected cases, maintaining a stable prevalence during the last years.

## INFECTIOUS SALMON ANEMIA (ISAv)



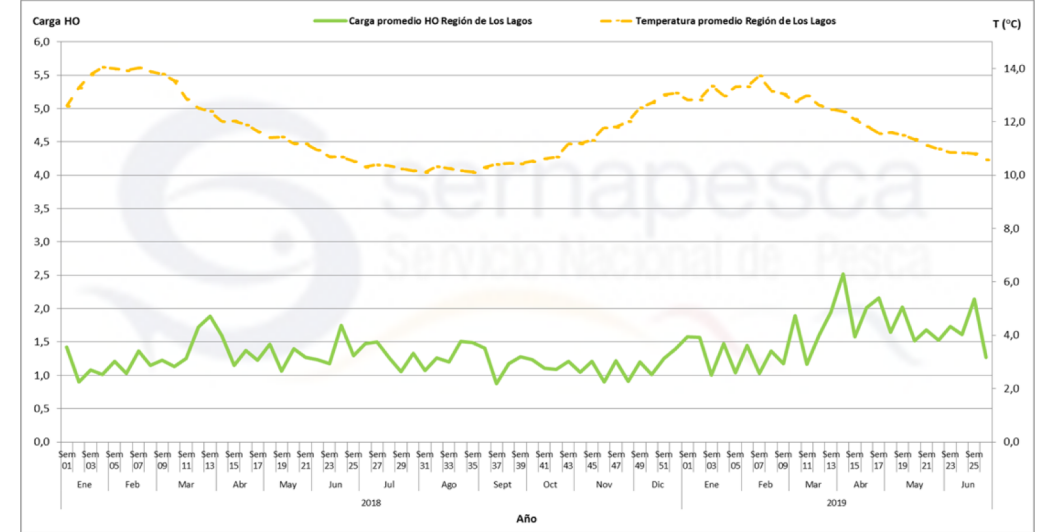
- During the first half of 2019 there have been no outbreaks of the disease. In the month of April, 1 case confirmed Other HPR in the Magallanes Region was presented.
- Sernapesca performs inspection, verification samples and monitoring of health situation on farm.

# Health situation of Chilean salmon industry

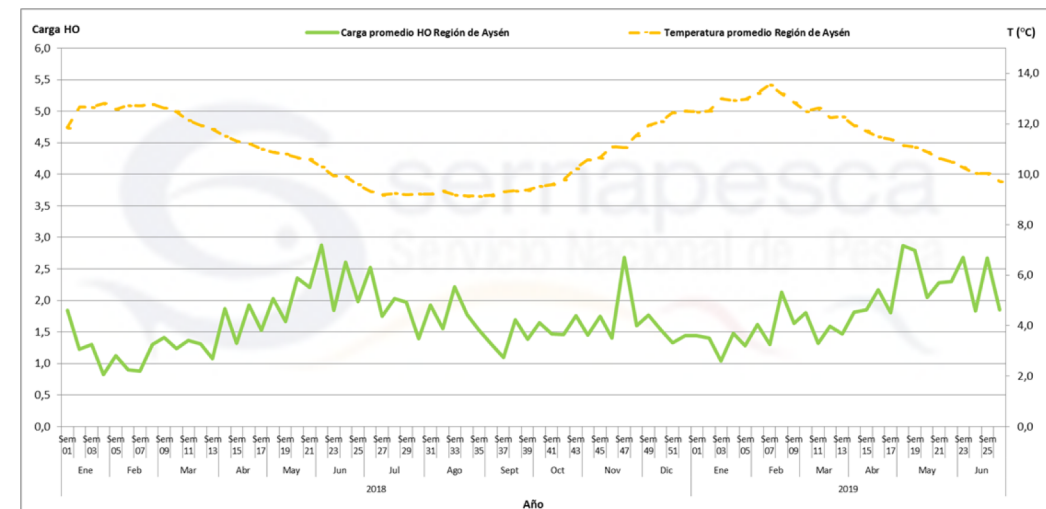
## Sea Lice

- Farms report their parasitic counts weekly.
- In comparison to 2018, there has been an increase in parasite loads.
- Due to a change in the environmental conditions there's presence of sea lice in new areas where it wasn't before
- The above is associated with the increase of biomass in the water, reduction of caligus sensitivity to available antiparasitics and difficulty in the execution of baths due to weather conditions.
- Sernapesca maintains surveillance and control protocols: inspection of farms framed in sanitary campaigns, inspection for the good use of treatments, rotation of antiparasitics, verification of reported parasite counts, coordination of treatments and mandatory harvest.

Average weekly load HO and T° in Los Lagos region, January 2018 to June 2019.



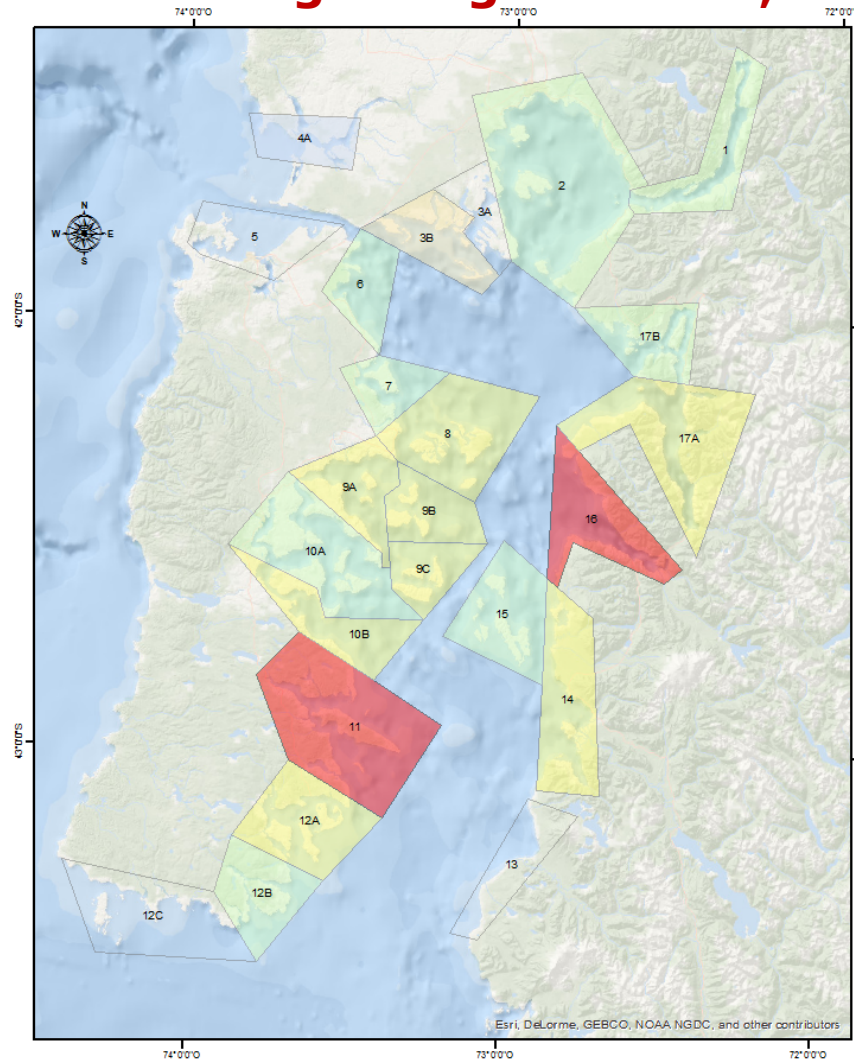
Average weekly load HO and T° in Aysén region, January 2018 to June 2019.







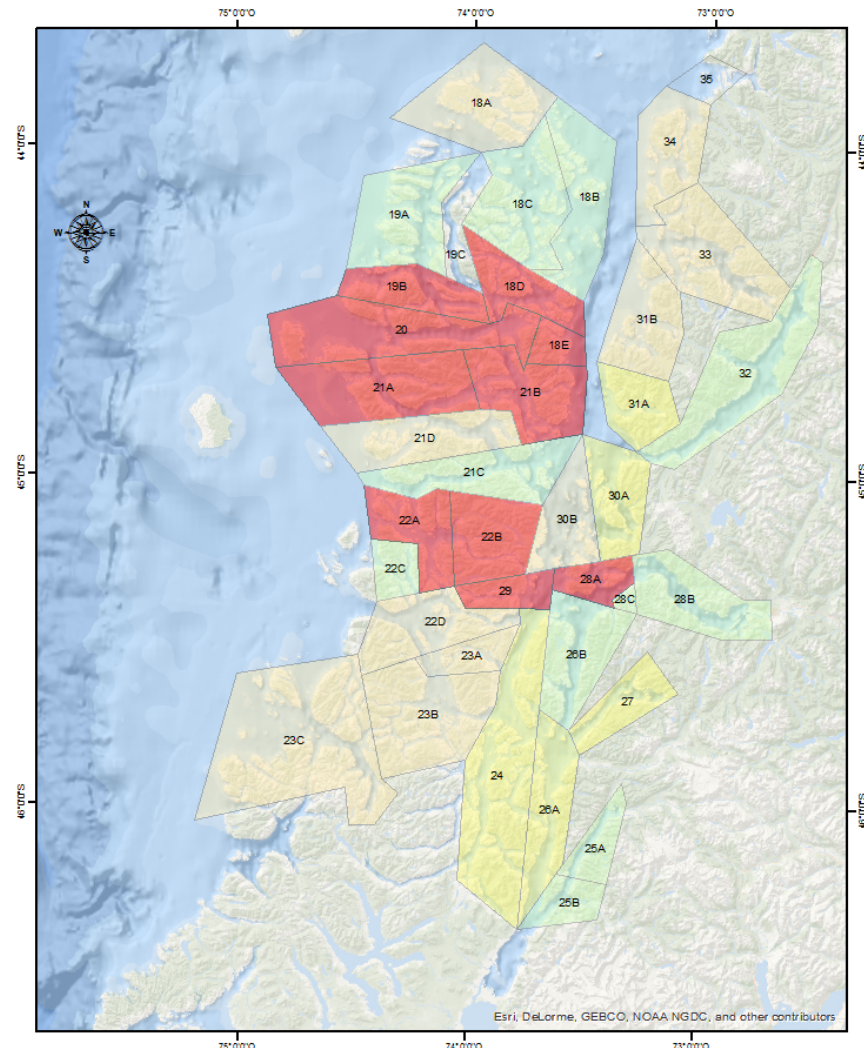
## Average caligus counts, 1° semestre 2019



- Leyenda**
- ACS Cargas parasitarias < 1.0 HO
  - ACS Cargas parasitarias ≥ 1.0 HO y < 2.0 HO
  - ACS Cargas parasitarias ≥ 2.0 HO y < 3.0 HO
  - ACS Cargas parasitarias ≥ 3.0 HO

0 3.75 7.5 15 22.5 30 Km

Fuente cartografía  
IGN 2002  
Datum WGS 84 1983  
Elaboración BERNAPESCA



- Leyenda**
- ACS Cargas parasitarias < 1.0 HO
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0 5 10 20 30 40 Km

Fuente cartografía  
IGN 2002  
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Elaboración BERNAPESCA

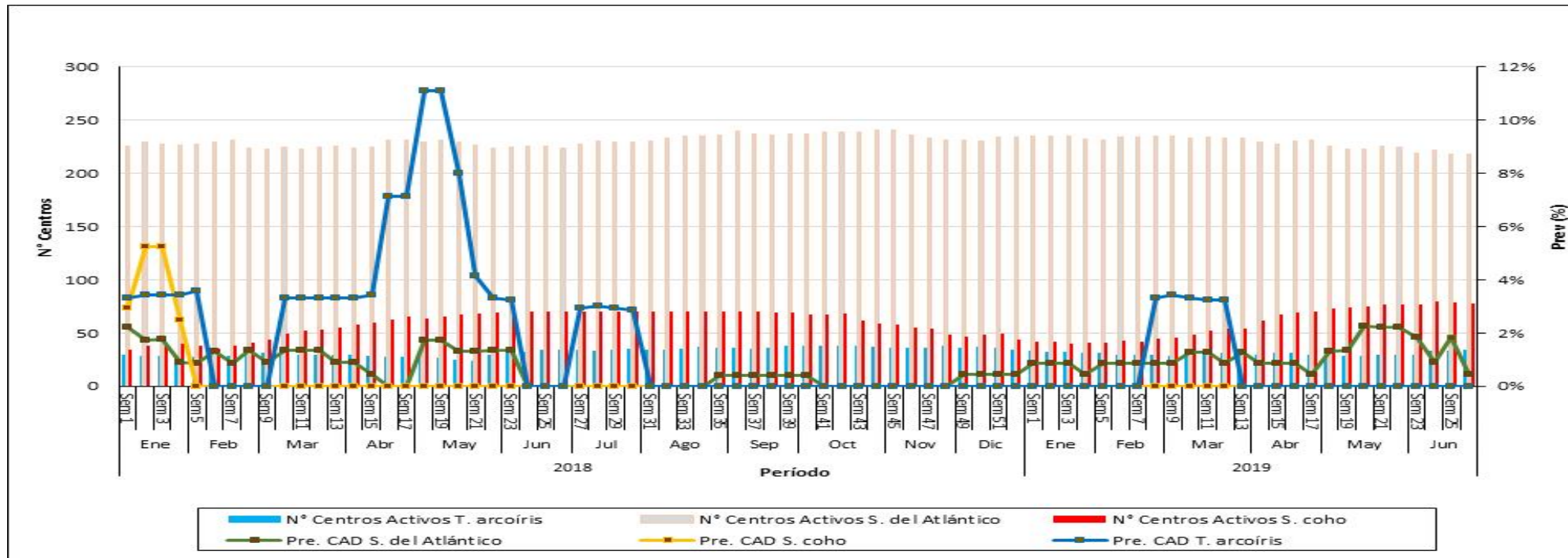




# PISCIRICKETTSIOSIS



Prevalence of CAD, January 2018 to June 2019.

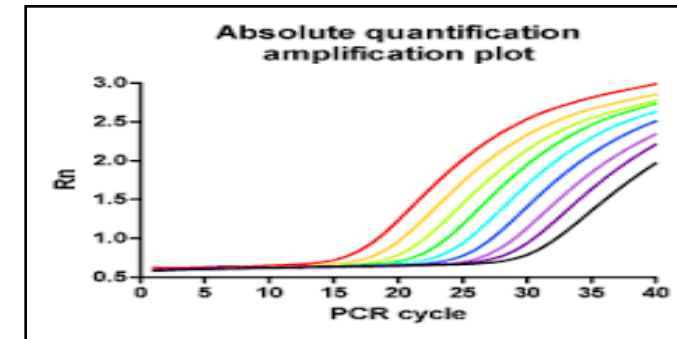
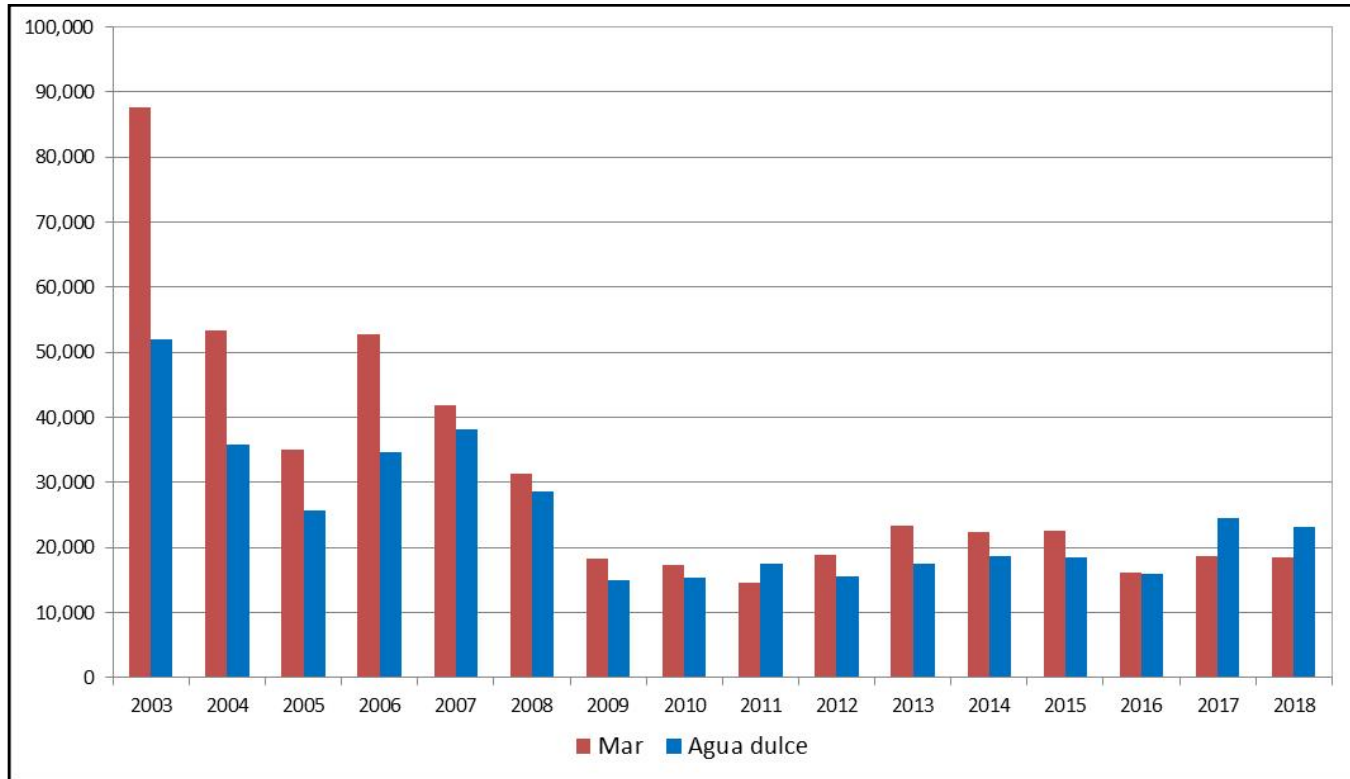


- According to the mortality levels of the disease, the farms are categorized in Surveillance, Alert or High Dissemination (CAD).
- During the first half of 2019, a CAD prevalence of 4.5% (15 farms) was presented.
- Maximum weekly prevalence: Rainbow Trout 3.4% (March), Atlantic salmon 2.2% (May). Coho salmon has not submitted CAD. Only CAD has been submitted in sites near harvest.
- Sernapesca supervises the application of action plans.



## PVA SURVEILLANCE

Graph. N° fish sampled in seawater and freshwater.



- Chile maintains its status as an EAR free of List 1 with respect to High Risk Diseases (EARs) notifiable to the OIE.
- Active surveillance for Totivirus.
- February 2018 (VHS-IHN), September 2018 (EHN).

## Health situation of Chilean salmon industry

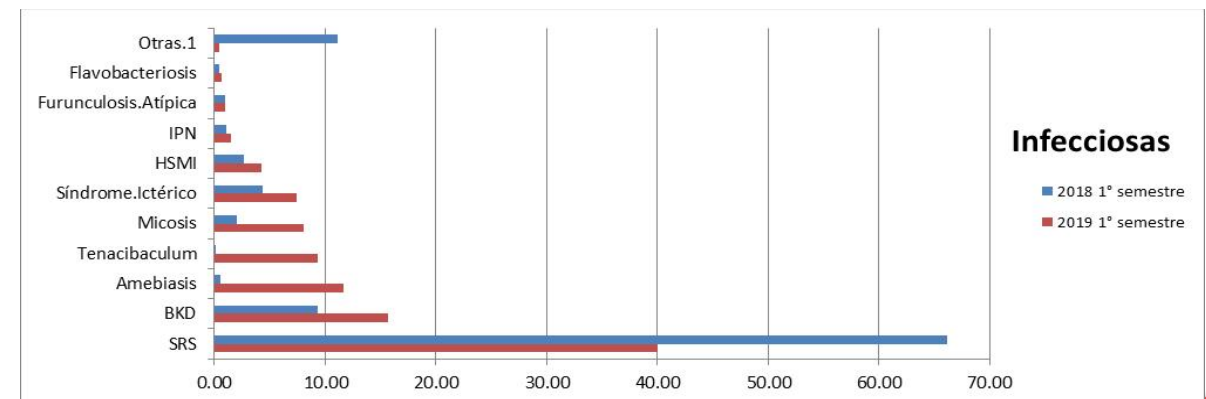
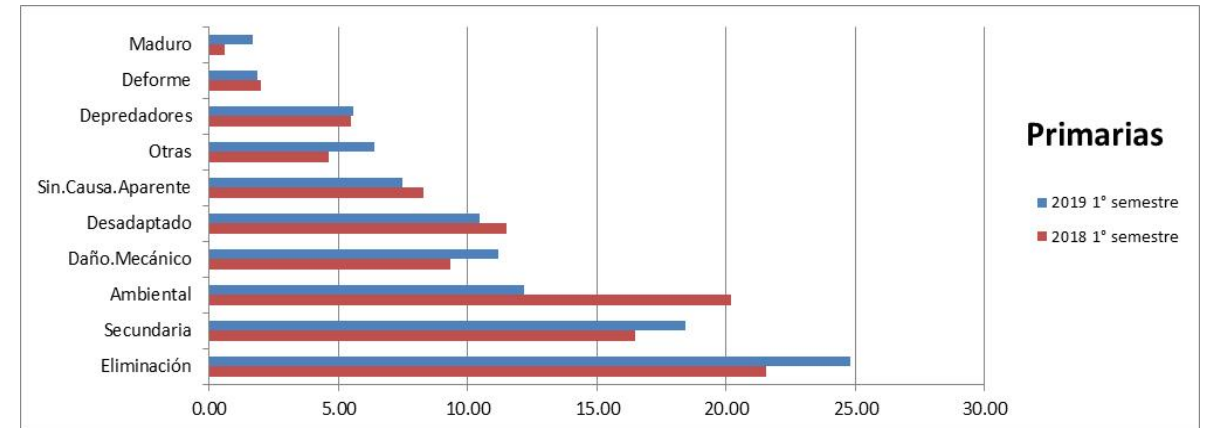
### MORTALITIES

- During the 1st half of 2019, total monthly mortality averaged 0.79%, with a maximum of 0.97% in May and a minimum of 0.59% in March.

- Magallanes is the region with the lowest average mortality (monthly average 0.46%), meanwhile Los Lagos has 0.85% and Aysén 0.86%.

- Despite mortalities due to *P. salmonis* have decreased, it has been an increase of 2% of mortality due to infectious diseases related with emerging diseases as *Tenacibaculum* and AGD.

- Mortalities due to environmental causes have decreased by 8% compared to the same period in 2018. Though this cause of mortalities is more common every year (Oxygen drops and HABs)

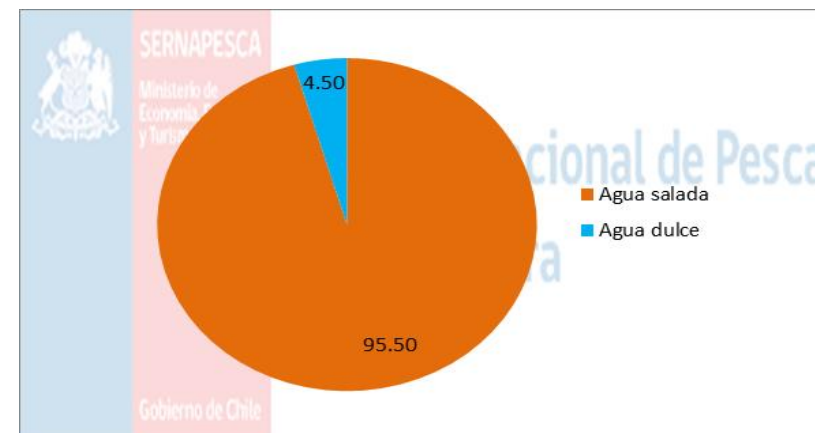
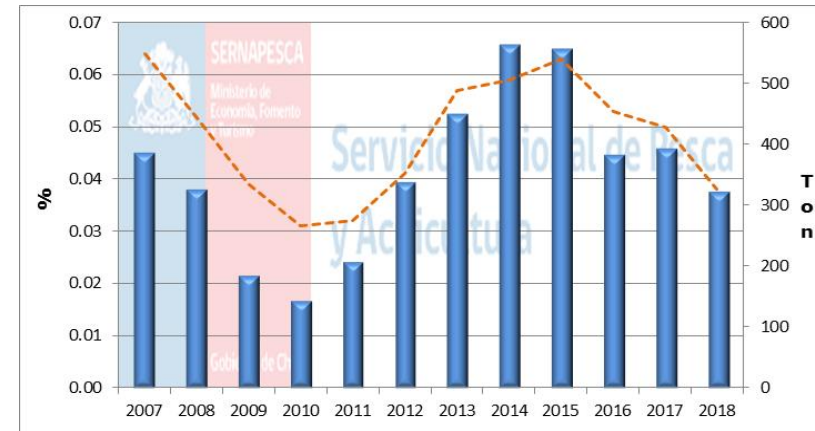


## Antibiotic Use

| Año  | Cantidad antibiótico (t) | Biomasa cosechada de salmonídeos (t) | Índice Consumo Antimicrobianos ICA (gr AM/Ton cosechada) |
|------|--------------------------|--------------------------------------|--|
| 2007 | 385,6                    | 600.862                              | 642  |
| 2008 | 325,6                    | 630.647                              | 516  |
| 2009 | 184,5                    | 474.174                              | 389  |
| 2010 | 143,2                    | 466.857                              | 307  |
| 2011 | 206,8                    | 649.492                              | 318  |
| 2012 | 337,9                    | 826.949                              | 409  |
| 2013 | 450,7                    | 786.091                              | 573  |
| 2014 | 563,2                    | 955.179                              | 590  |
| 2015 | 557,2                    | 883.102                              | 631  |
| 2016 | 382,5                    | 727.812                              | 526  |
| 2017 | 393,9                    | 791.793                              | 497  |
| 2018 | 322,7                    | 842679                               | 380  |

18%

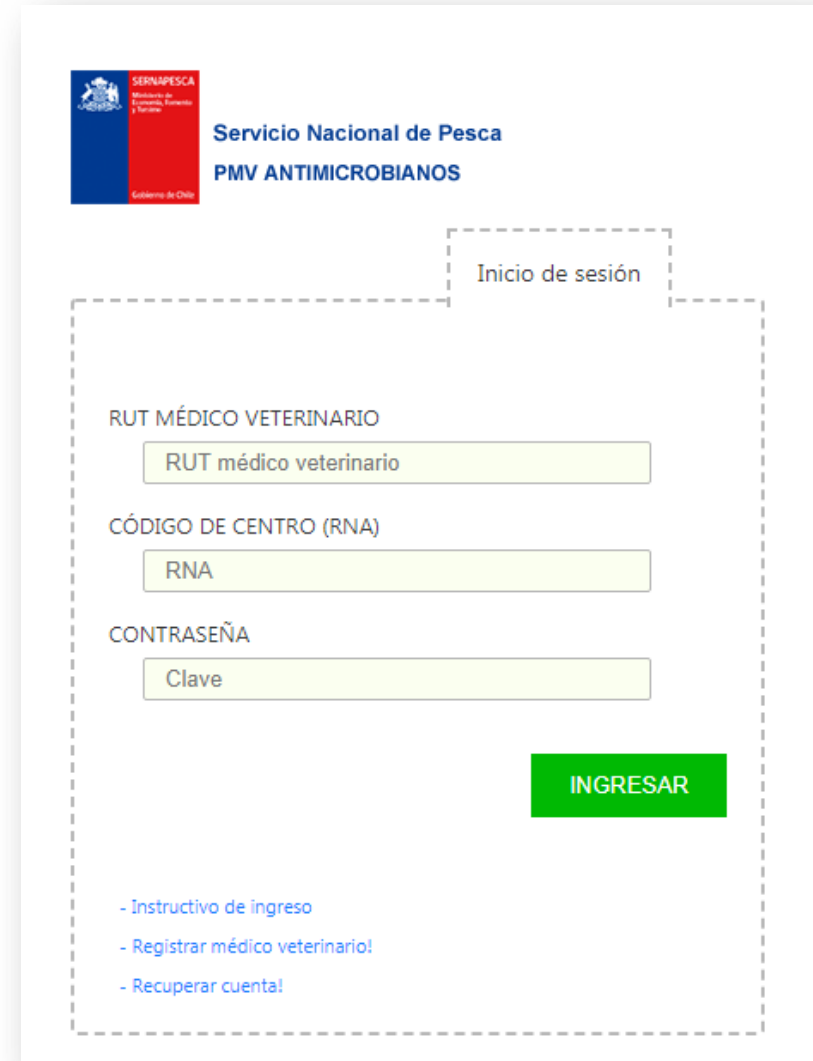
24%



- From 2017 to 2018 there has been a **18% decrease** in the total amount of antibiotic use and the national “**ICA**” **decreased in 24%** in the same period.
- Public-Private association improving piscirickettsiosis control.
- PGSA project results

## Online Veterinary Prescriptions System

- Initiative inserted in the National Plan Against Antimicrobial Resistance.
- It allows obtaining information in real time, improving control.



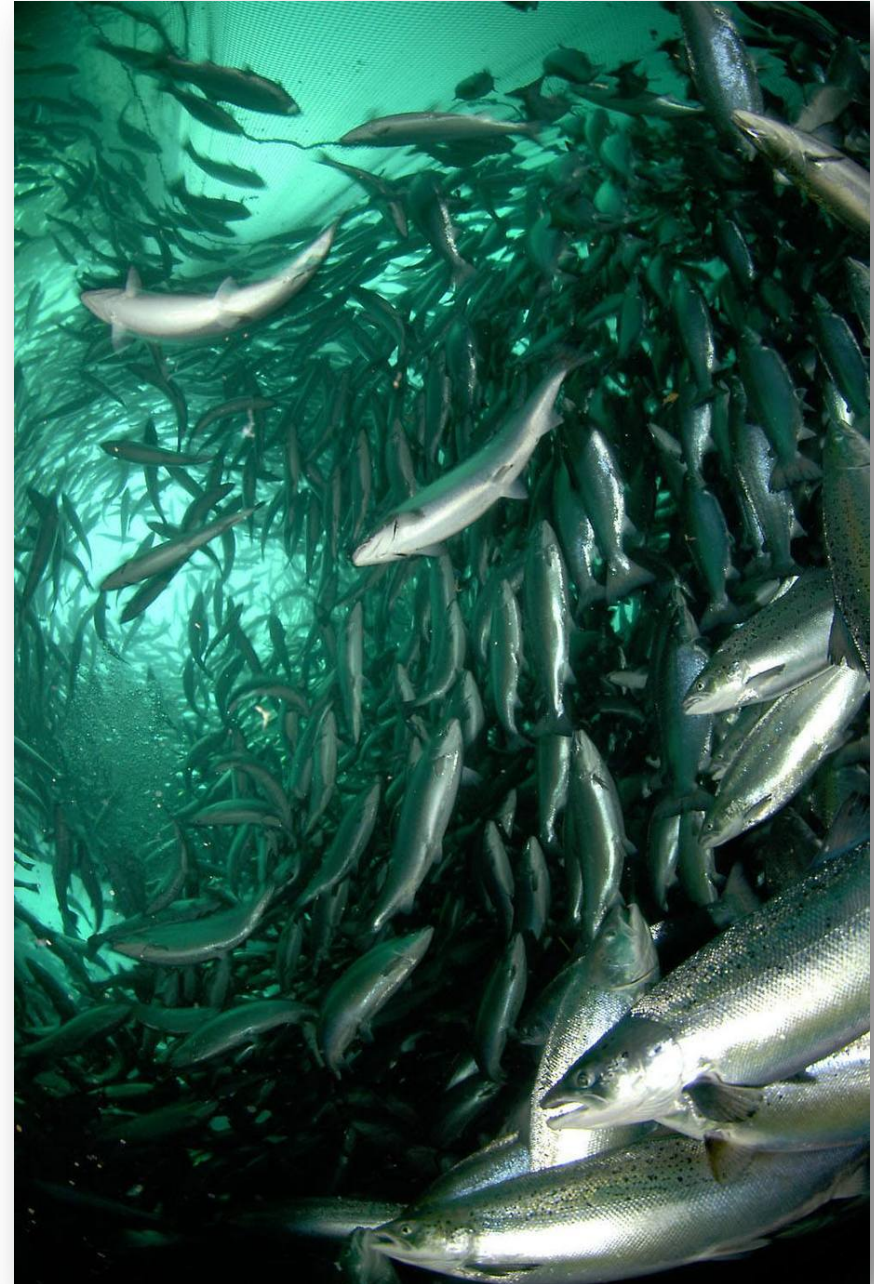
The screenshot shows the login interface for the 'Servicio Nacional de Pesca PMV ANTIMICROBIANOS'. At the top left is the logo of SERNAPESCA, which includes the Chilean coat of arms and the text 'SERNAPESCA Ministerio de Economía, Fomento y Turismo Gobierno de Chile'. To the right of the logo, the text 'Servicio Nacional de Pesca' and 'PMV ANTIMICROBIANOS' is displayed. The main content area is enclosed in a dashed box and contains the following elements:

- A link labeled 'Inicio de sesión' at the top right of the dashed box.
- A label 'RUT MÉDICO VETERINARIO' above a text input field containing the placeholder 'RUT médico veterinario'.
- A label 'CÓDIGO DE CENTRO (RNA)' above a text input field containing the placeholder 'RNA'.
- A label 'CONTRASEÑA' above a text input field containing the placeholder 'Clave'.
- A green button labeled 'INGRESAR' positioned to the right of the password field.
- At the bottom of the dashed box, three links: '- Instructivo de ingreso', '- Registrar médico veterinario!', and '- Recuperar cuenta!'.



## CONCLUSIONS

- Chile maintains its free of OIE List 1 diseases status.
- ISAv program based on early detection and quick control measures is successful. During the present year, 1 case of a ISAv deleted strain has been presented, which was timely controlled. No outbreak.
- An increase in the parasitic counts of Caligus has been evidenced, so the different control measures are being evaluated.
- Sea lice is present in areas where it wasn't before.
- There is a decrease in mortalities by Piscirickettsiosis and emerging diseases such as Tenacibaculosis and AGD have become relevant.
- Even though mortalities due to environmental causes have decrease this year, it's more common to have this mortalities .
- There has been a decrease in the total amount of antimicrobial use and in the Antimicrobial Consumption Index (ICA).
- PGSA public-private association to improve standarts



# Thank you



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