Fig. 4. San Antonio. Valores porcentuales relativos del total anual de cada uno de los estados de madurez sexual de la merluza.
Fig. 5. San Vicente. Valores porcentuales relativos del total mensual de cada uno de los estados de madurez sexual de la seriata.
Figs. 4a, 4b y 4c. Valores relativos para cada puerto de los estados de madurez sexual (III a V) indicadores del proceso de desove en la merluza.
Fig. 7. Distribución mensual del total de hembras desovantes (estados de madurez sexual IIIa + IV).
Fig. 8. Coquihue. Valores mensuales promedio del índice gecoesomático (IGE) y del índice gonáfico (IGL) de los grupos de longitud total en merluza.
Fig. 9. San Antonio. Valores mensuales promedio del índice gonadómático --- (IGF) y del índice gonadico --- (IGI) de los grupos de longitud total en merluza.
Fig. 10. San Vicente. Valores mensuales promedios del Índice gonosómítico ——— (IGF) y del Índice gonadico ——— (ILG) de los grupos de longitud total en merluzas.
Fig. 11. Porcentajes mensuales ponderados por grupo de longitud del total de ocellos desovantes.
Fig. 12. Porcentaje de hembras maduras versus longitud total en los tres puertos mostrados. Las curvas se ajustaron a un modelo logístico.
Fig. 12a, b y c. Relación entre la fecundidad y el peso corporal de la merluza con las bandas correspondientes a los extremos de los intervalos de confianza del 95% para una observación futura. Regresión predictiva (línea continua) y regresión funcional (líneas de trazo).
Figs. 44, b y c. Relación entre la fecundidad y la longitud total de la merluza.
Fig. 15. San Antonio. Relación entre el número de oocitos en la zona de tamaño más avanzada y el peso corporal de las hembra. Regresión predictiva (línea continua) y regresión funcional (líneas de trazo).

Fig. 16. San Antonio. Relación entre el número de oocitos de la zona de tamaño más avanzada y la longitud total de las hembra.
Fig. 17. Coeficiente entre el número total de ocítons en vitelogénesis y el número de ocítons en la fase de tamaño avanzado versus la longitud total de cada ejemplar. No hay correlación ($r = 0,05$).
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<th>Estado</th>
<th>Aspecto general</th>
<th>Examen interno</th>
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<td>I</td>
<td>Virginal</td>
<td>Ovarios pequeños, filiformes. Sexo difícilmente discernible macroscópicamente.</td>
<td>Células germinales y/u oogonas trasci-</td>
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<tr>
<td>II</td>
<td>Inmaduro</td>
<td>Ovario claramente diferenciado, de paredes firmes, gruesas. Color rosado claro.</td>
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<tr>
<td>III</td>
<td>En maduración</td>
<td>Ovario de gran volumen, turgente, con escasa vascularización; color amarillo pálido.</td>
<td>Oocitos visibles al ojo desnudo, de diámetro máximo entre 220 y 320 μm; opacos, en vitelogénesis incipiente.</td>
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<td>IV</td>
<td>Maduro</td>
<td>Ovario turgente, con zonas trasciédidas; color anaranjado. Al presionar el ovario fluyen oocitos hidratados.</td>
<td>Oocitos visibles a simple vista. Al final de esta fase se observan oocitos de una amplia gama de tamaños, los más desarrollados alcanzan un diámetro entre 820 y 730 μm. Vitelogénesis avanzada.</td>
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<tr>
<td>IIIa</td>
<td>En maduración, desove parcial reciente</td>
<td>Ovario ligeramente flácido, muy vascularizado; color amarillo obscuro. Este ovario pasa nuevamente a IV.</td>
<td>Oocitos visibles al ojo desnudo; los más desarrollados tienen un diámetro de 820 μm o mayores; inicio del proceso de hidratación de los oocitos o bien ya ha sido completado; con o sin gota oleosa.</td>
</tr>
<tr>
<td>V</td>
<td>En regresión</td>
<td>Ovario flácido, distendido, de paredes muy delgadas y lumen grande; color rojizo. Este ovario pasa a II.</td>
<td>Similar a III, pero además se distingue una pequeña cantidad de oocitos hidratados, algo delapados y con gota oleosa (de color verde-amarillento) que representan restos de un desove parcial reciente.</td>
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(1, desove principal; x, desove secundario).

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Costas de Chile
(Delfín 1903)

Valparaíso y Concepción
(Poulson 1952)

Valparaíso
(De Buen 1958)

Valparaíso (2)
(Fischer 1959)

Concepción
(Sáenz 1959)

Valparaíso
(Miranda 1966)

(1) Datos del presente trabajo
(2) Datos de jézoplanton.
Tabla 4. Longitud total (LT) en cm de las hembras sexualmente inmaduras (I) y maduras (M) en los meses de noviembre para cada área de muestreo.

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Tabla 5. Relación entre la fracción absoluta (F) y el peso corporal en gramos (P) en la mancha (b = a + F).

Prueba: regresión lineal; F(1,25) = 0.25, x = 0.10.

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Tabla 6. Relación entre la fracción absoluta (F) y la longitud total en centímetros (L) en la mancha (F = a + bF).

Prueba: regresión lineal; F(1,25) = 0.58, x = 0.10.

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* No se incluyen mediciones de dispersión debido a las características inexactas en la determinación. 
Tabla 7. Tabla de Análisis de Covarianza para determinar la hipótesis de coincidencia de las rectas de regresión para la relación fecundidad y peso corporal del merluza.

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<td>533.490</td>
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<td>894.26</td>
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<td>132.485</td>
<td>10.707</td>
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<tr>
<td>73</td>
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<td>928.961</td>
<td>115.292</td>
<td>12.755</td>
<td>1.565.75</td>
</tr>
<tr>
<td>75</td>
<td>3</td>
<td>663.058</td>
<td>185.964</td>
<td>8.866</td>
<td>2.493.30</td>
</tr>
<tr>
<td>77</td>
<td>2</td>
<td>946.185</td>
<td>29.690</td>
<td>12.407</td>
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</tr>
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<td>81</td>
<td>1</td>
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<tr>
<td>83</td>
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<tr>
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<td>20.481</td>
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<td>23.087</td>
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<td></td>
</tr>
<tr>
<td>Meses</td>
<td>LT</td>
<td>Peso</td>
<td>Occitós de 720 μm y mayores</td>
<td>Total</td>
<td>Cuociente</td>
</tr>
<tr>
<td>-------</td>
<td>----</td>
<td>------</td>
<td>-----------------------------</td>
<td>-------</td>
<td>-----------</td>
</tr>
<tr>
<td>Agosto</td>
<td>50,5</td>
<td>700</td>
<td>76,565</td>
<td>307,173</td>
<td>4,0</td>
</tr>
<tr>
<td></td>
<td>50,5</td>
<td>720</td>
<td>57,686</td>
<td>306,184</td>
<td>5,3</td>
</tr>
<tr>
<td></td>
<td>50,5</td>
<td>700</td>
<td>95,817</td>
<td>361,452</td>
<td>5,8</td>
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<tr>
<td></td>
<td>65,5</td>
<td>1,750</td>
<td>45,109</td>
<td>740,213</td>
<td>16,4*</td>
</tr>
<tr>
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<td>69,0</td>
<td>2,050</td>
<td>180,660</td>
<td>768,245</td>
<td>4,3</td>
</tr>
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</table>

**Mediana:** 4,2

<table>
<thead>
<tr>
<th>Meses</th>
<th>LT</th>
<th>Peso</th>
<th>Occitós de 720 μm y mayores</th>
<th>Total</th>
<th>Cuociente</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nov.</td>
<td>70,0</td>
<td>2,350</td>
<td>50,568</td>
<td>357,108</td>
<td>7,9</td>
</tr>
</tbody>
</table>

**Mediana:** 3,4

* No se incluyeron en el cálculo de la mediana.
| Mes   | Total | 720 | 0.0-1.0 | 1.0-3.0 | 3.0-8.0 | 8.0-20 | 20-40 | 40-80 | 80-200 | 200-400 | 400-800 | 800-2000 | 2000-4000 | 4000-8000 | 8000-12000 | 12000-20000 | 20000-30000 | 30000-40000 |
|-------|-------|-----|---------|---------|---------|--------|-------|-------|--------|---------|---------|----------|----------|----------|-------------|-------------|-------------|
| Junio | 51.0  | 770 | 975.0   | 975.0   | 975.0   | 975.0  | 975.0 | 975.0 | 975.0  | 975.0   | 975.0   | 975.0    | 975.0    | 975.0    | 975.0      | 975.0      | 975.0      |
| Julio  | 65.0  | 730 | 975.0   | 975.0   | 975.0   | 975.0  | 975.0 | 975.0 | 975.0  | 975.0   | 975.0   | 975.0    | 975.0    | 975.0    | 975.0      | 975.0      | 975.0      |
| Agosto | 51.0  | 770 | 975.0   | 975.0   | 975.0   | 975.0  | 975.0 | 975.0 | 975.0  | 975.0   | 975.0   | 975.0    | 975.0    | 975.0    | 975.0      | 975.0      | 975.0      |
| Sept  | 65.0  | 730 | 975.0   | 975.0   | 975.0   | 975.0  | 975.0 | 975.0 | 975.0  | 975.0   | 975.0   | 975.0    | 975.0    | 975.0    | 975.0      | 975.0      | 975.0      |
| Oct  | 51.0  | 770 | 975.0   | 975.0   | 975.0   | 975.0  | 975.0 | 975.0 | 975.0  | 975.0   | 975.0   | 975.0    | 975.0    | 975.0    | 975.0      | 975.0      | 975.0      |
| Nov  | 65.0  | 730 | 975.0   | 975.0   | 975.0   | 975.0  | 975.0 | 975.0 | 975.0  | 975.0   | 975.0   | 975.0    | 975.0    | 975.0    | 975.0      | 975.0      | 975.0      |
| Dic  | 51.0  | 770 | 975.0   | 975.0   | 975.0   | 975.0  | 975.0 | 975.0 | 975.0  | 975.0   | 975.0   | 975.0    | 975.0    | 975.0    | 975.0      | 975.0      | 975.0      |
Tabla 13. San Vicente: relación entre el número total de oocistos en vitelogénicos y el número de oocistos en la zona de tamaño más avanzada (720 μm y mayores) en ovarios en REC IV.

<table>
<thead>
<tr>
<th>MES</th>
<th>LT</th>
<th>Peso</th>
<th>Oocistos de</th>
<th>Total</th>
<th>Coeficiente</th>
<th>MEs</th>
<th>LT</th>
<th>Peso</th>
<th>Oocistos de</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mayo</td>
<td>57,0</td>
<td>1,195</td>
<td>73,696</td>
<td>468,832</td>
<td>6,4</td>
<td>Agosto</td>
<td>44,5</td>
<td>655</td>
<td>45,210</td>
</tr>
<tr>
<td>Junio</td>
<td>65,5</td>
<td>1,950</td>
<td>209,952</td>
<td>947,304</td>
<td>4,5</td>
<td>54,0</td>
<td>1,045</td>
<td>151,370</td>
<td>506,779</td>
</tr>
<tr>
<td>Julio</td>
<td>51,0</td>
<td>0,895</td>
<td>40,760</td>
<td>469,389</td>
<td>11,5*</td>
<td>55,0</td>
<td>1,075</td>
<td>159,814</td>
<td>813,279</td>
</tr>
<tr>
<td></td>
<td>55,0</td>
<td>1,145</td>
<td>123,392</td>
<td>511,689</td>
<td>4,1</td>
<td>56,0</td>
<td>1,035</td>
<td>133,529</td>
<td>326,631</td>
</tr>
<tr>
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<td>57,5</td>
<td>1,060</td>
<td>66,283</td>
<td>246,929</td>
<td>5,8</td>
<td>57,0</td>
<td>1,200</td>
<td>148,620</td>
<td>627,282</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>68,0</td>
<td>1,025</td>
<td>149,639</td>
<td>489,995</td>
<td>3,3</td>
<td></td>
</tr>
</tbody>
</table>

* No se incluyó en el cálculo de la mediana.
Tabla 14. San Antonio: potencial de desove por grupo de longitud.

<table>
<thead>
<tr>
<th>Grupo de longitud (cm)</th>
<th>36-41</th>
<th>42-47</th>
<th>48-53</th>
<th>54-59</th>
<th>60 y mayores</th>
</tr>
</thead>
<tbody>
<tr>
<td>% promedio de peces</td>
<td>35,79</td>
<td>34,64</td>
<td>21,24</td>
<td>7,18</td>
<td>1,15</td>
</tr>
<tr>
<td>Fecundidad promedio</td>
<td>129,450</td>
<td>221,630</td>
<td>226,590</td>
<td>463,070</td>
<td>647,750</td>
</tr>
<tr>
<td>Potencial de desove</td>
<td>4,633,020</td>
<td>7,677,260</td>
<td>6,936,770</td>
<td>3,324,840</td>
<td>744,910</td>
</tr>
<tr>
<td>Porcentaje</td>
<td>19,87</td>
<td>32,93</td>
<td>29,75</td>
<td>16,26</td>
<td>3,20</td>
</tr>
</tbody>
</table>

Tabla 15. San Vicente: potencial de desove por grupo de longitud.

<table>
<thead>
<tr>
<th>Grupo de longitud (cm)</th>
<th>36-41</th>
<th>42-47</th>
<th>48-53</th>
<th>54-59</th>
<th>60 y mayores</th>
</tr>
</thead>
<tbody>
<tr>
<td>% promedio de peces</td>
<td>21,86</td>
<td>26,23</td>
<td>27,13</td>
<td>19,03</td>
<td>7,77</td>
</tr>
<tr>
<td>Fecundidad promedio</td>
<td>66,890</td>
<td>171,330</td>
<td>298,900</td>
<td>389,330</td>
<td>679,630</td>
</tr>
<tr>
<td>Potencial de desove</td>
<td>1,417,200</td>
<td>4,296,710</td>
<td>8,109,160</td>
<td>7,408,950</td>
<td>5,280,730</td>
</tr>
<tr>
<td>Porcentaje</td>
<td>5,35</td>
<td>16,21</td>
<td>30,59</td>
<td>27,94</td>
<td>19,92</td>
</tr>
</tbody>
</table>