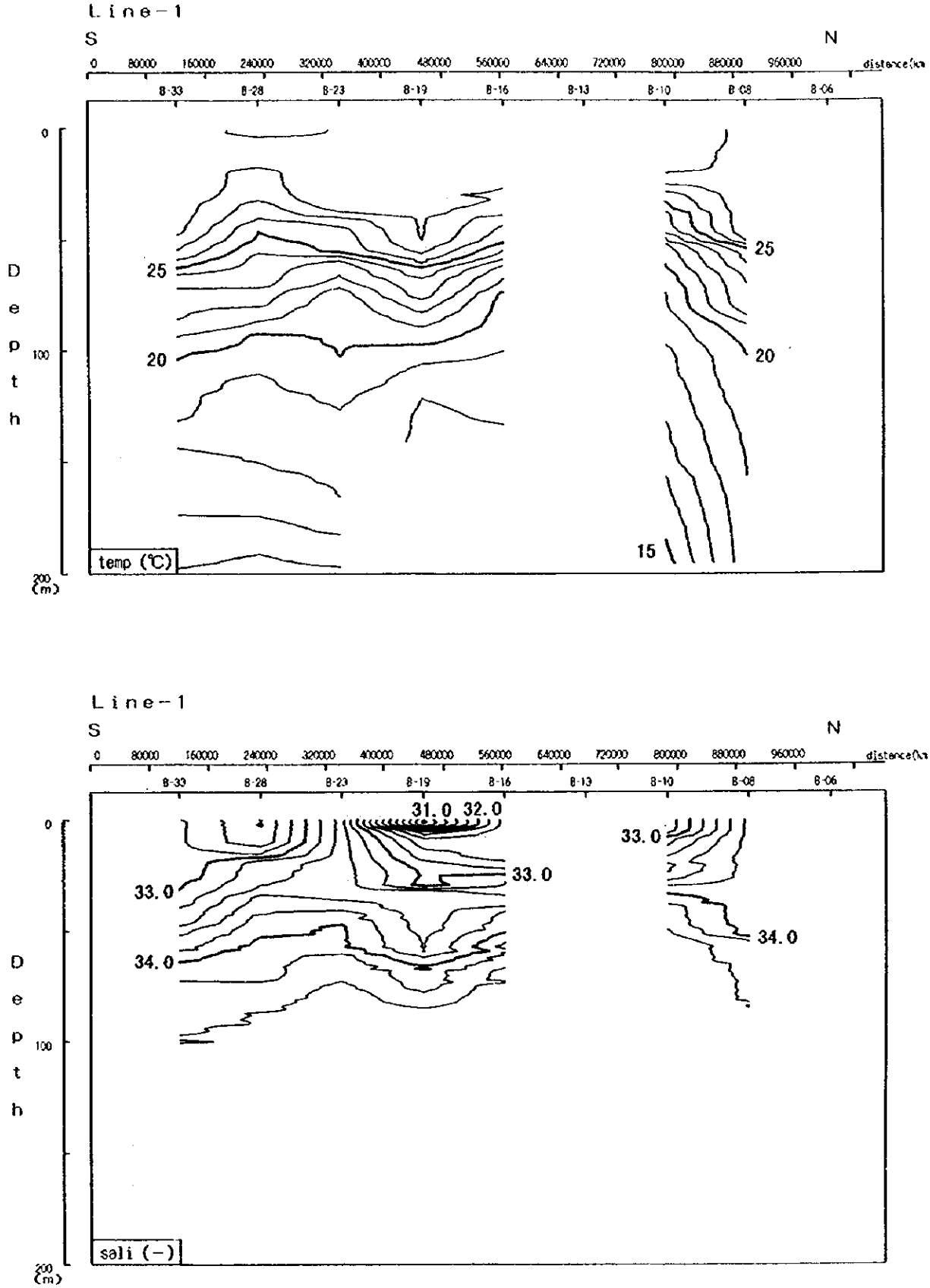
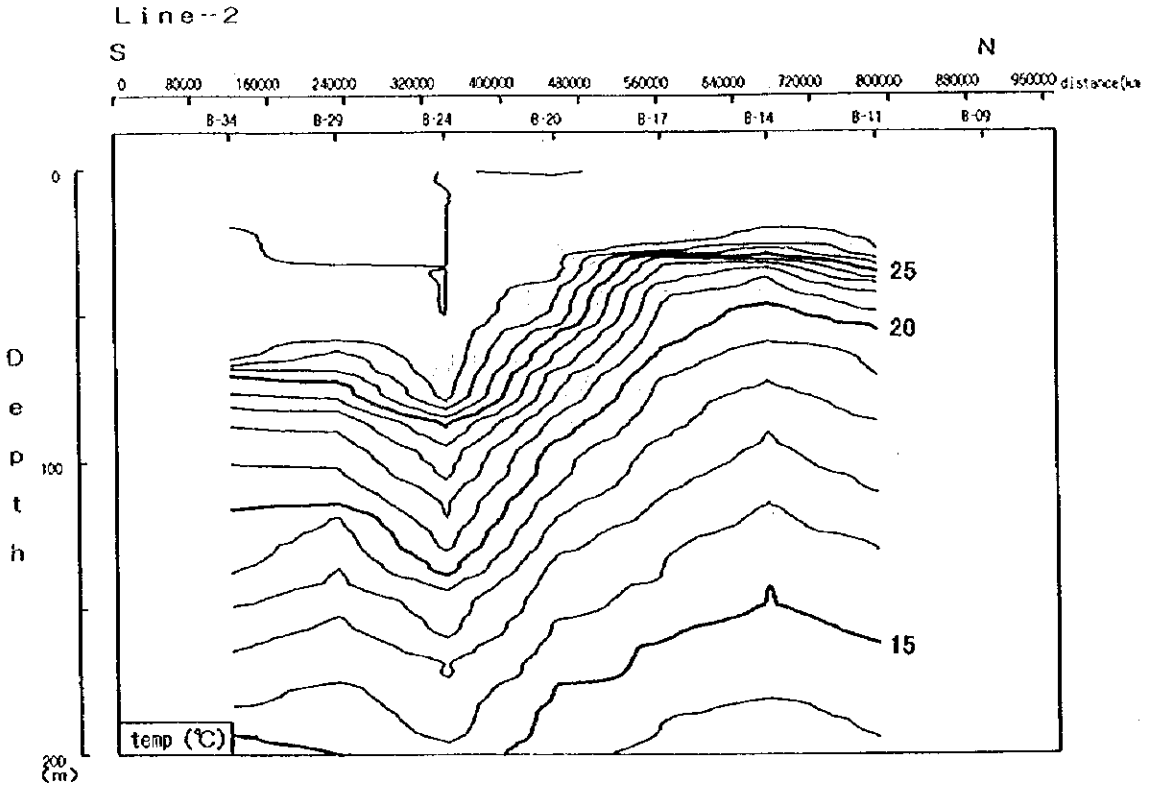
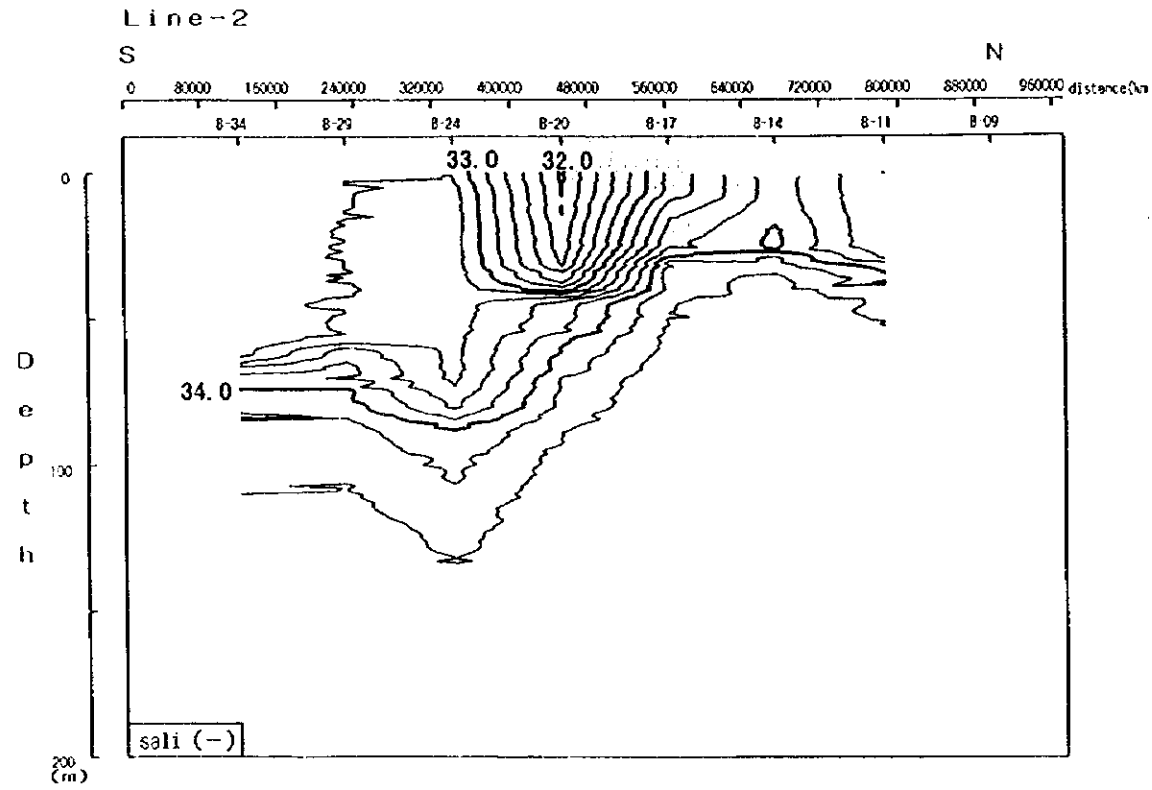
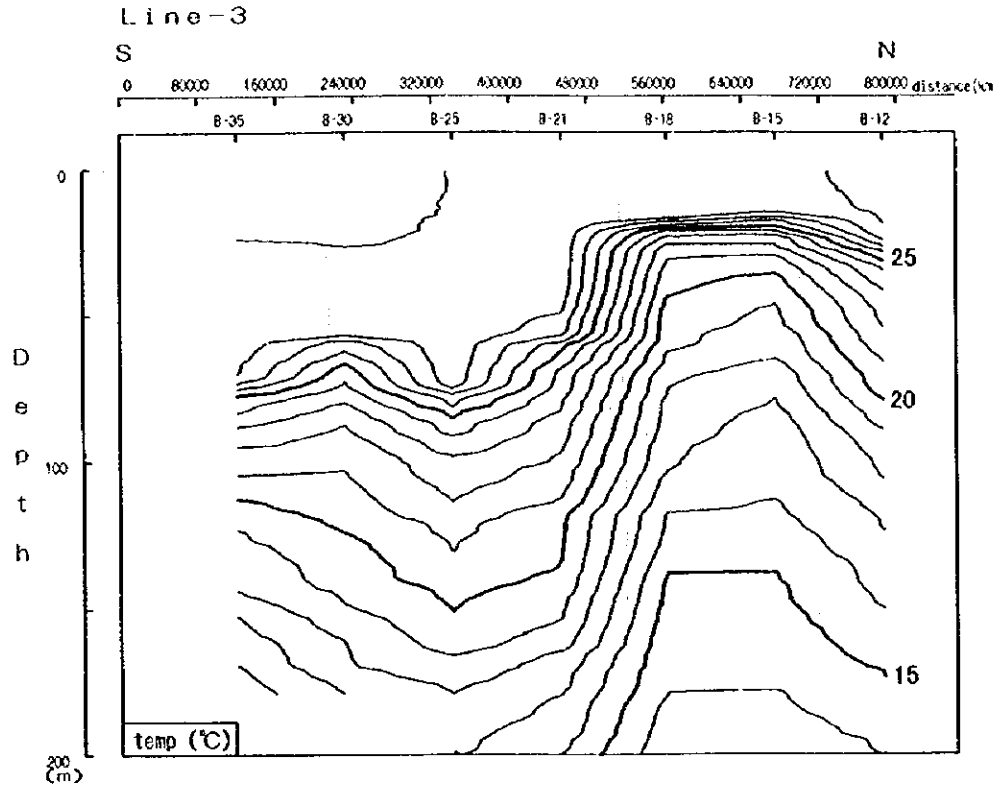


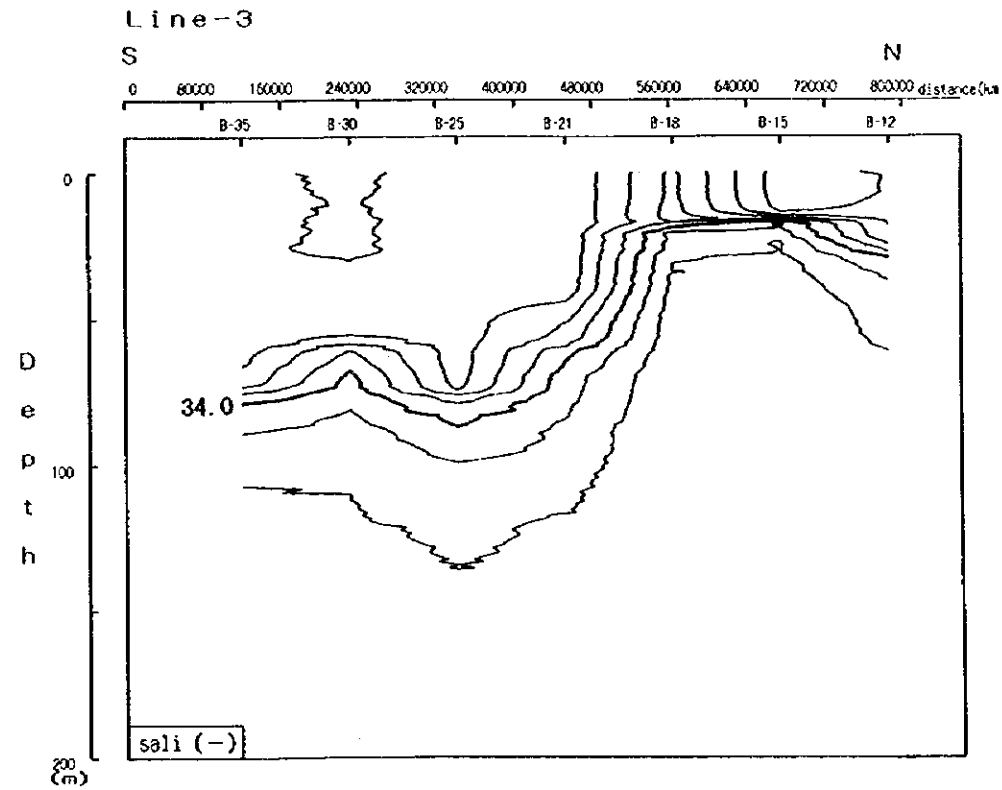
App. Figure 43 Vertical profile of temperature (1℃ interval) and salinity (0.2 interval) at the cross section of LINE-1. (From Sept. to Oct. 1996, 3rd cruise)



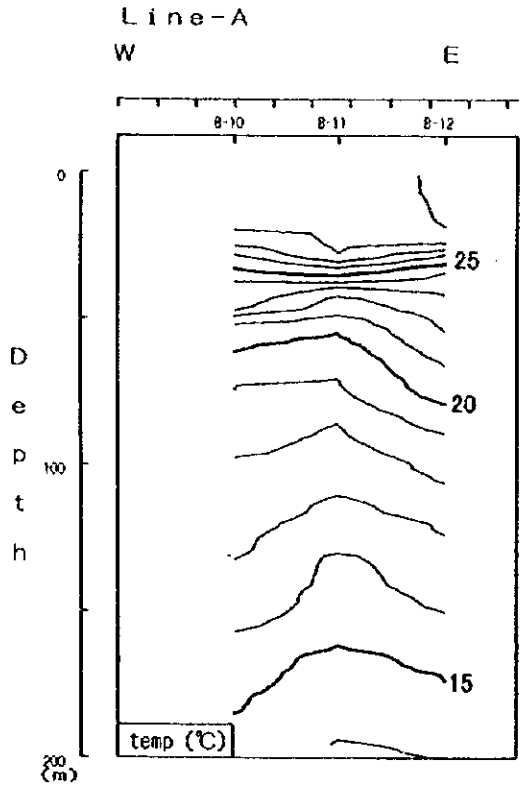


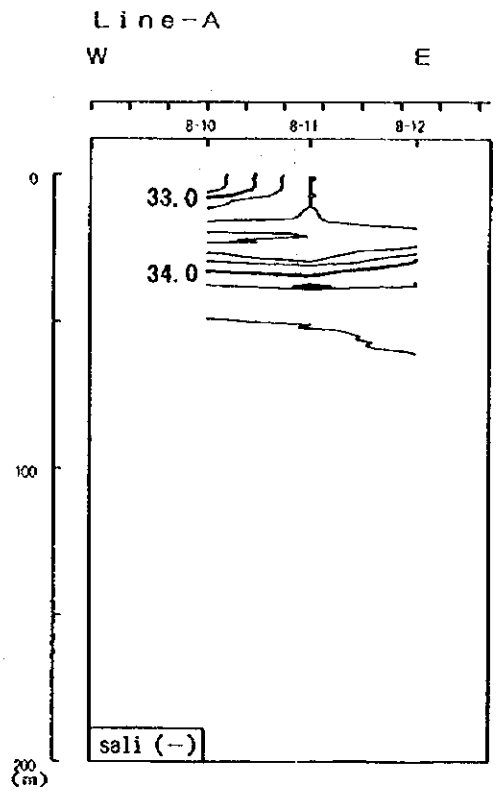
App. Figure 44 Vertical profile of temperature (1℃ interval) and salinity (0.2 interval) at the cross section of LINE-2. (From Sept. to Oct. 1996, 3rd cruise)

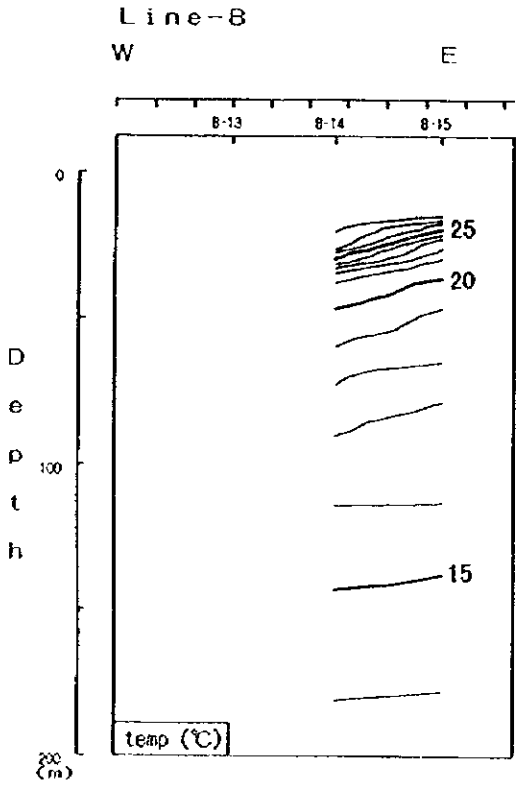


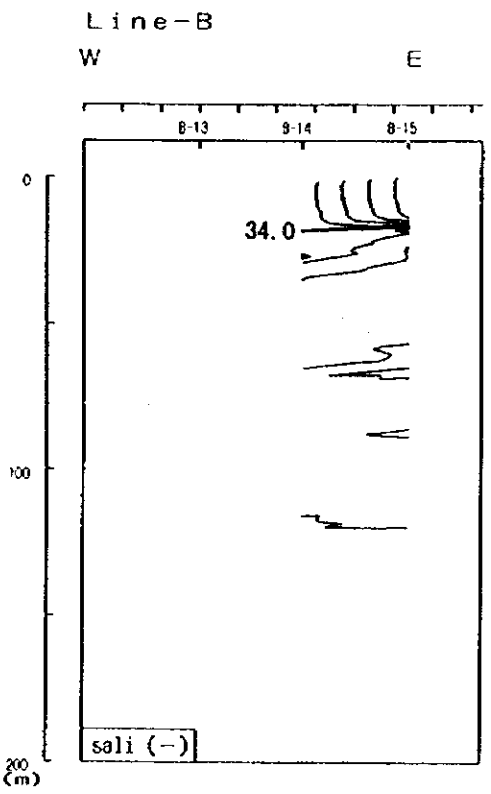


App. Figure 45 Vertical profile of temperature (1℃ interval) and salinity (0.2 interval) at the cross section of LINE-3. (From Sept. to Oct. 1996, 3rd cruise)

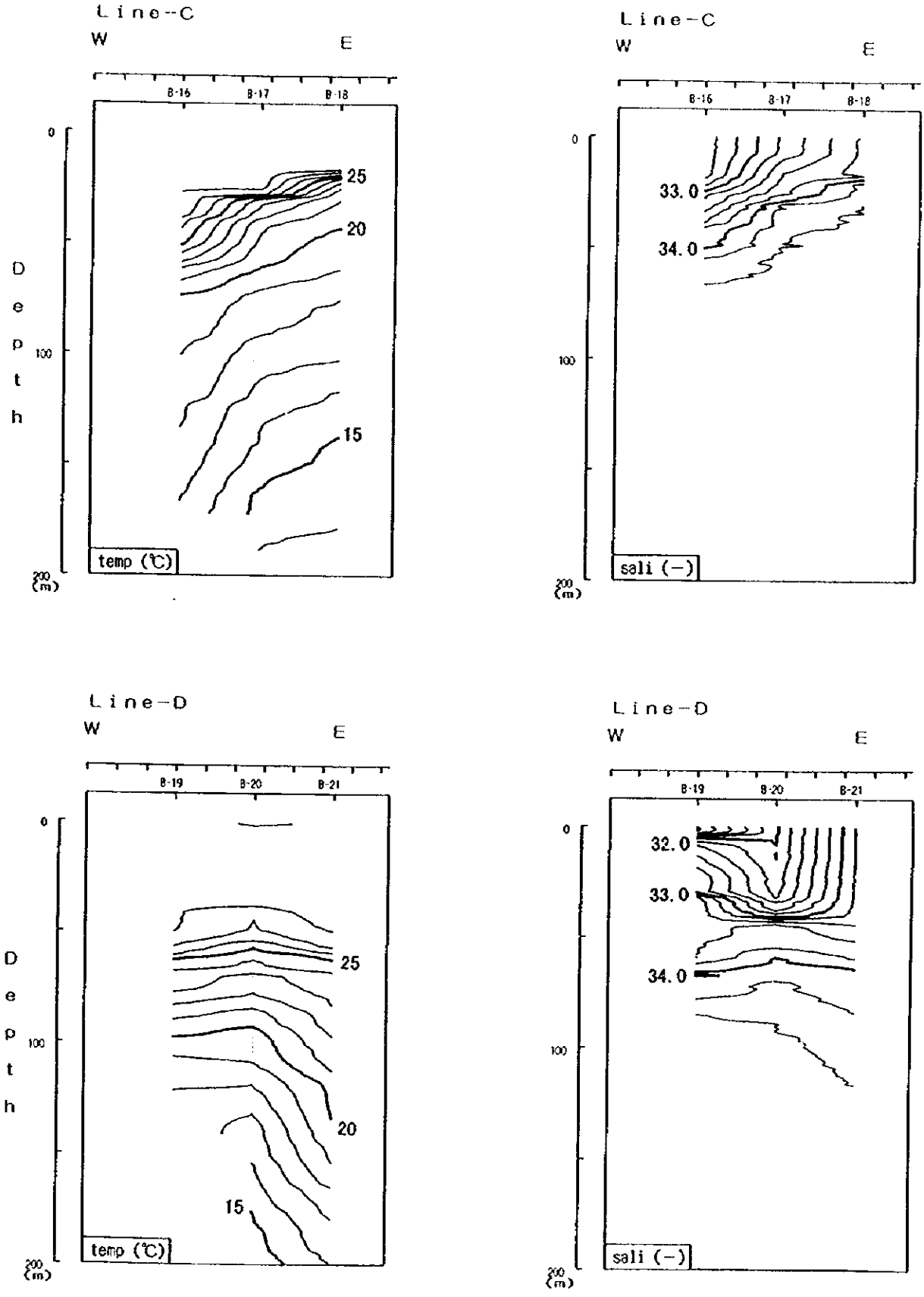




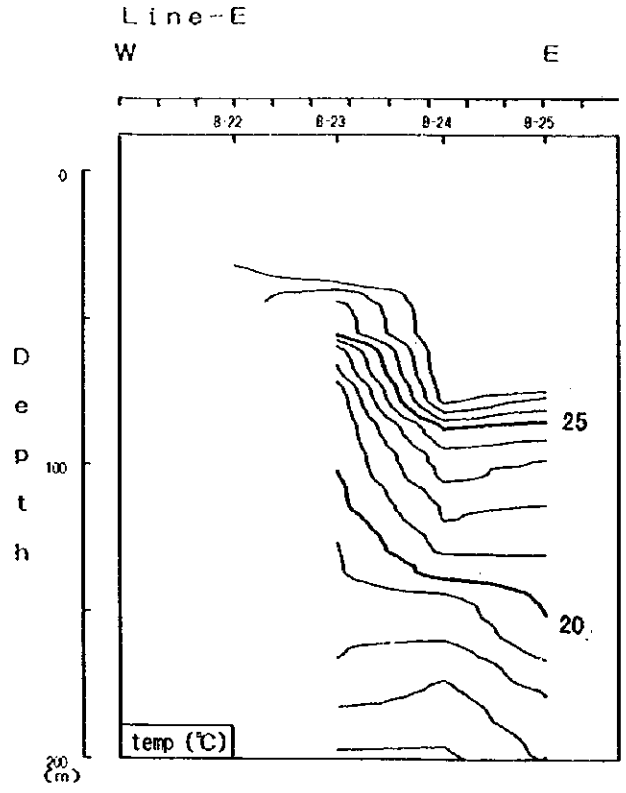


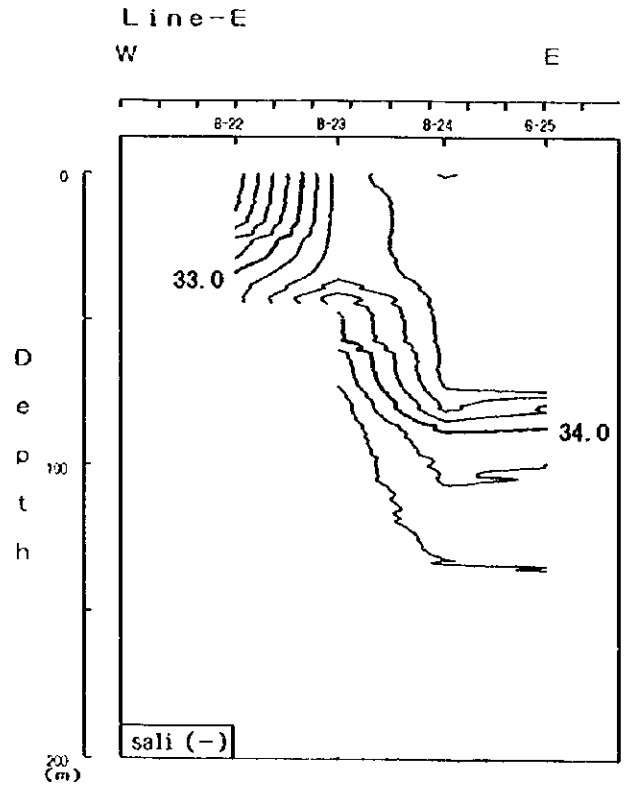


App. Figure 46 Vertical profile of temperature (1℃ interval) and salinity (0.2 interval) at the cross section of LINE-A and B. (From Sept. to Oct. 1996, 3rd cruise)

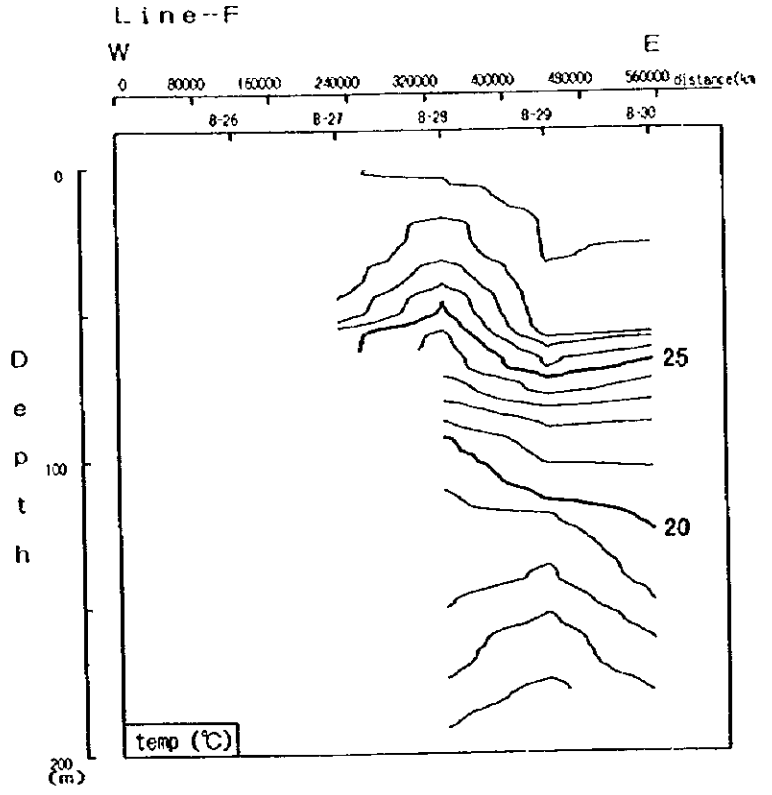


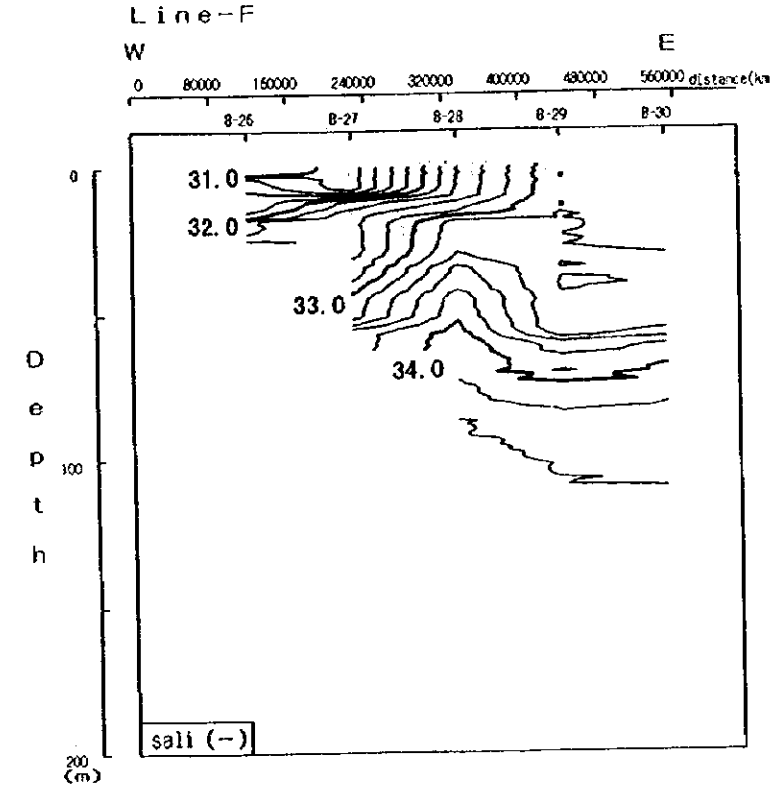
App. Figure 47 Vertical profile of temperature (1℃ interval) and salinity (0.2 interval) at the cross section of LINE-C and D. (From Sept. to Oct. 1996, 3rd cruise)



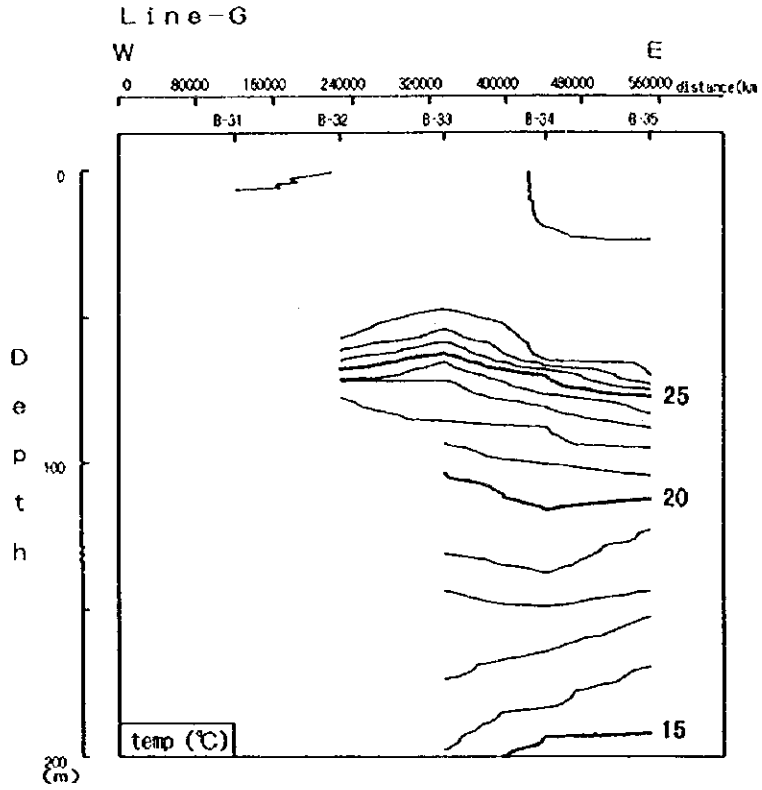


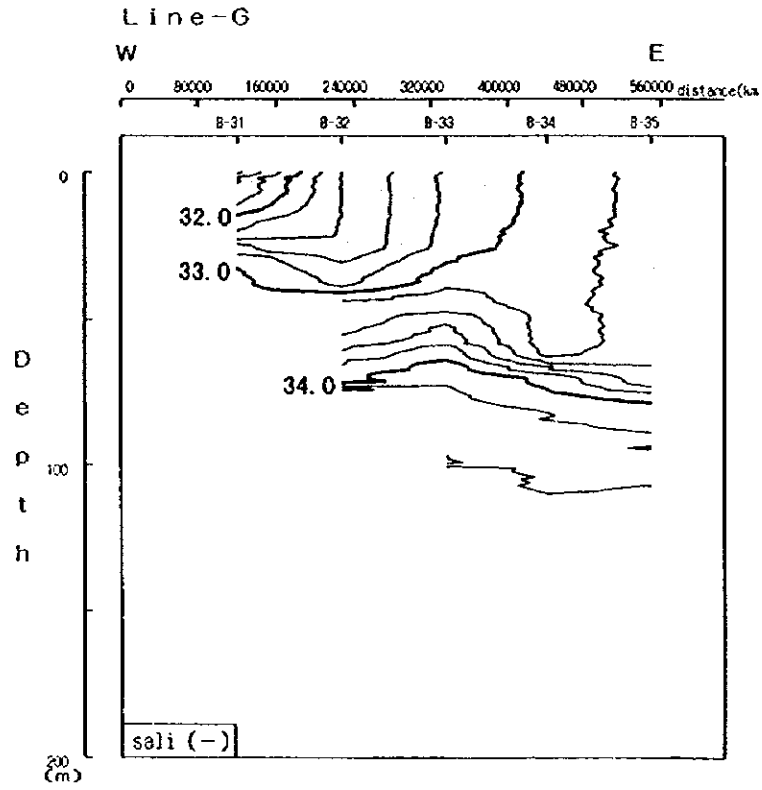
App. Figure 48 Vertical profile of temperature (1℃ interval) and salinity (0.2 interval) at the cross section of LINE-E. (From Sept. to Oct. 1996, 3rd cruise)



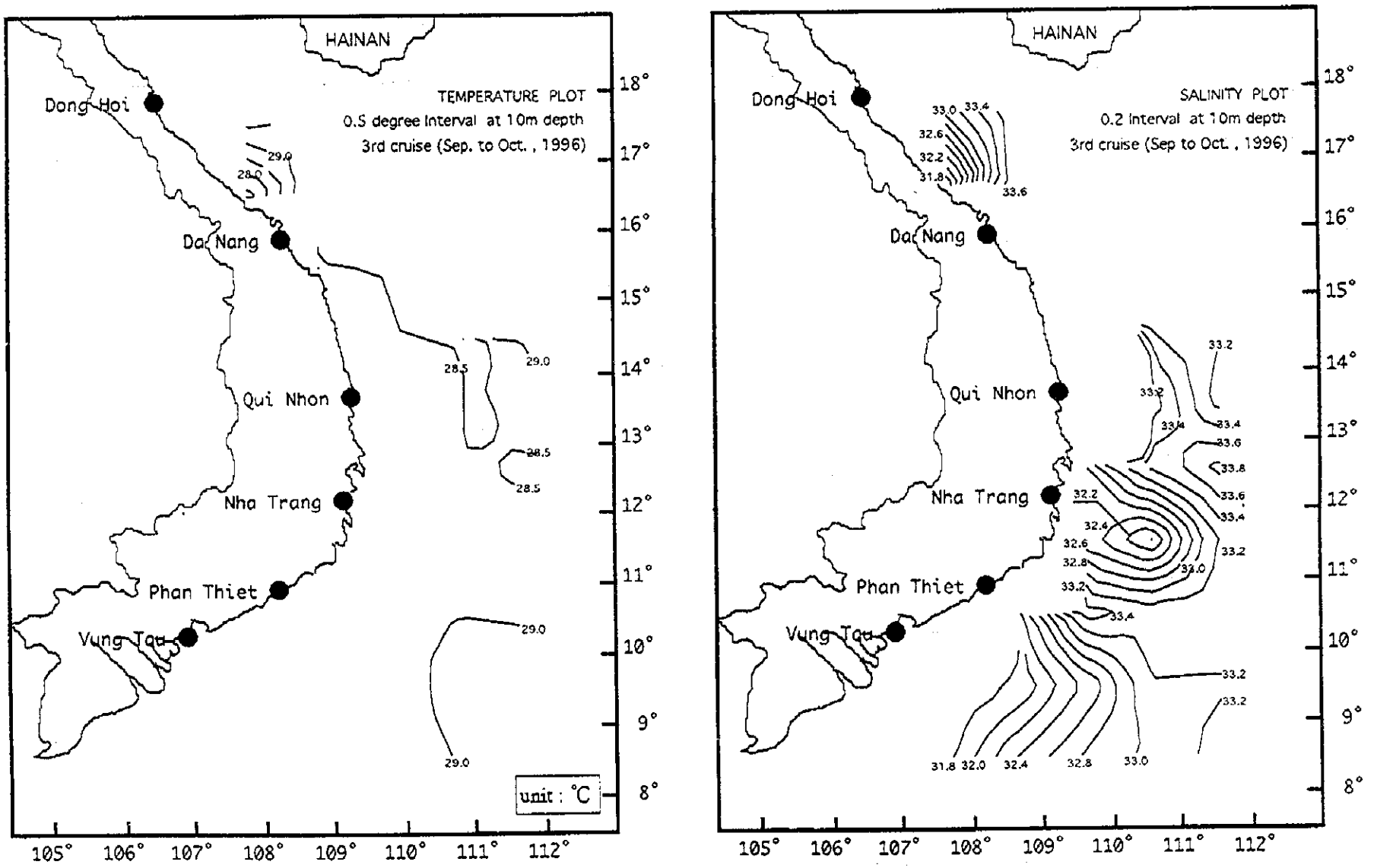


App. Figure 49 Vertical profile of temperature (1℃ interval) and salinity (0.2 interval) at the cross section of LINE-F. (From Sept. to Oct. 1996, 3rd cruise)

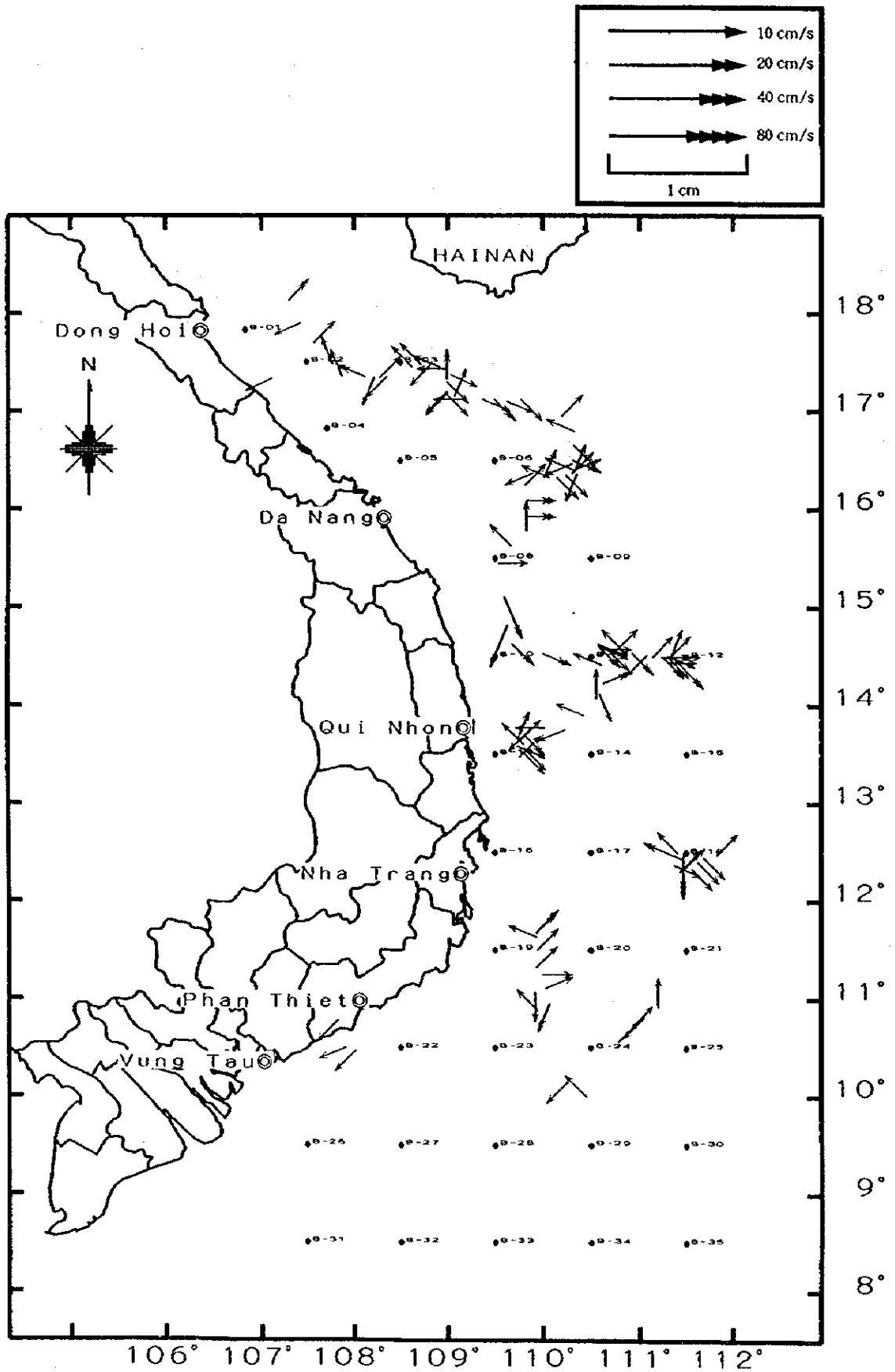




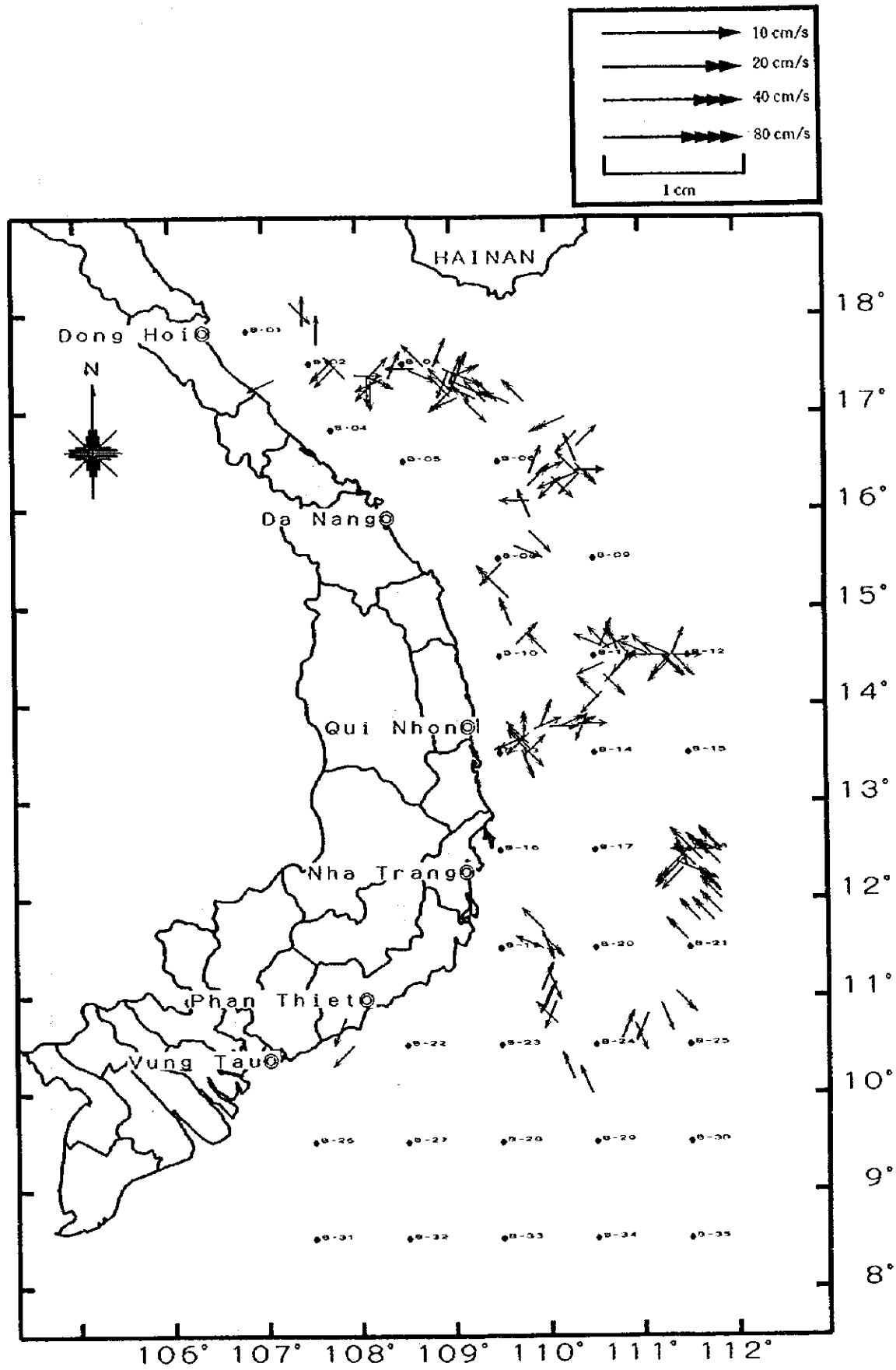
App. Figure 50 Vertical profile of temperature (1℃ interval) and salinity (0.2 interval) at the cross section of LINE-G. (From Sept. to Oct. 1996, 3rd cruise)



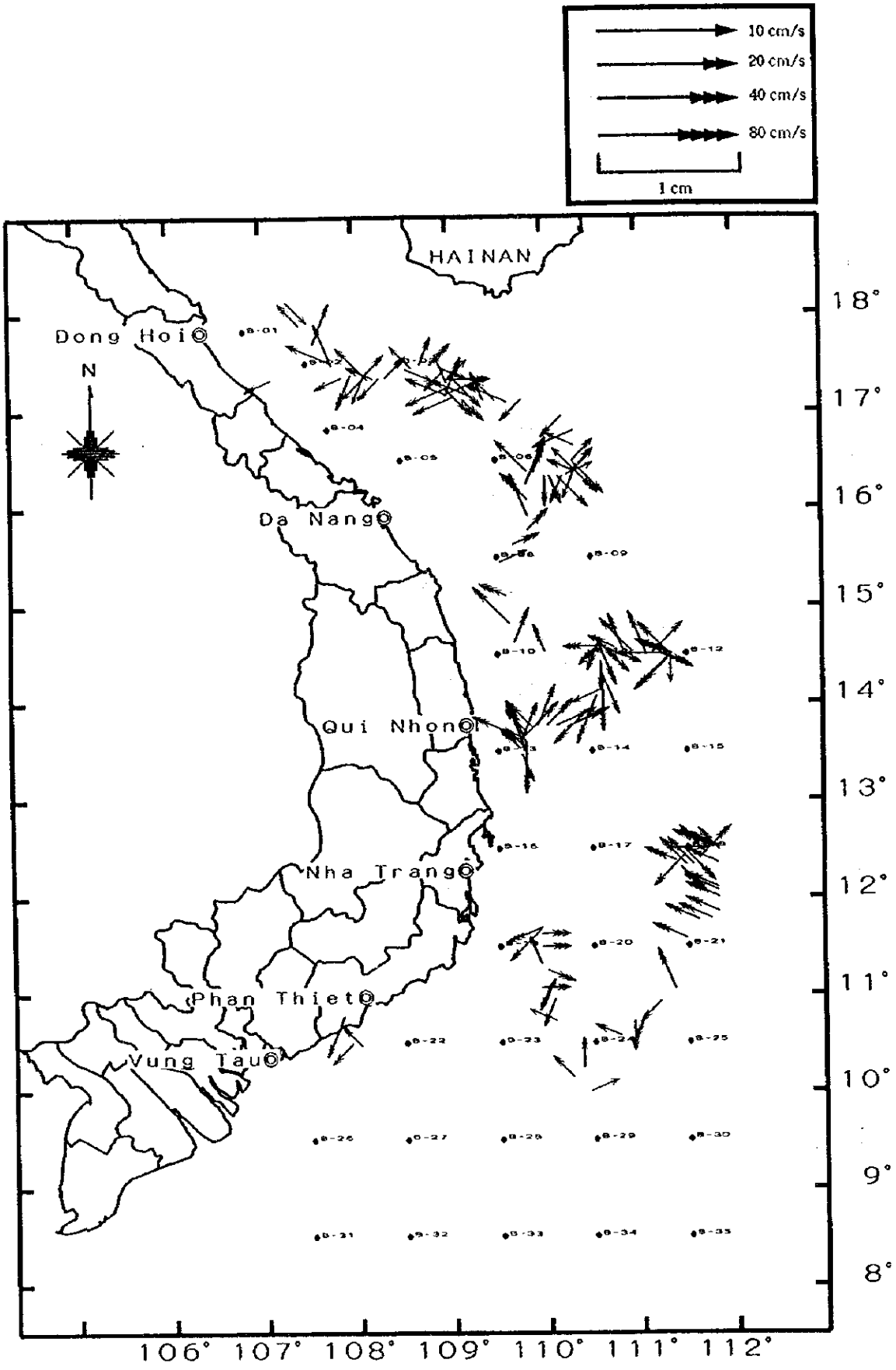
App. Figure 51 Horizontal distribution of temperature (1℃ interval) and salinity (0.2 interval)



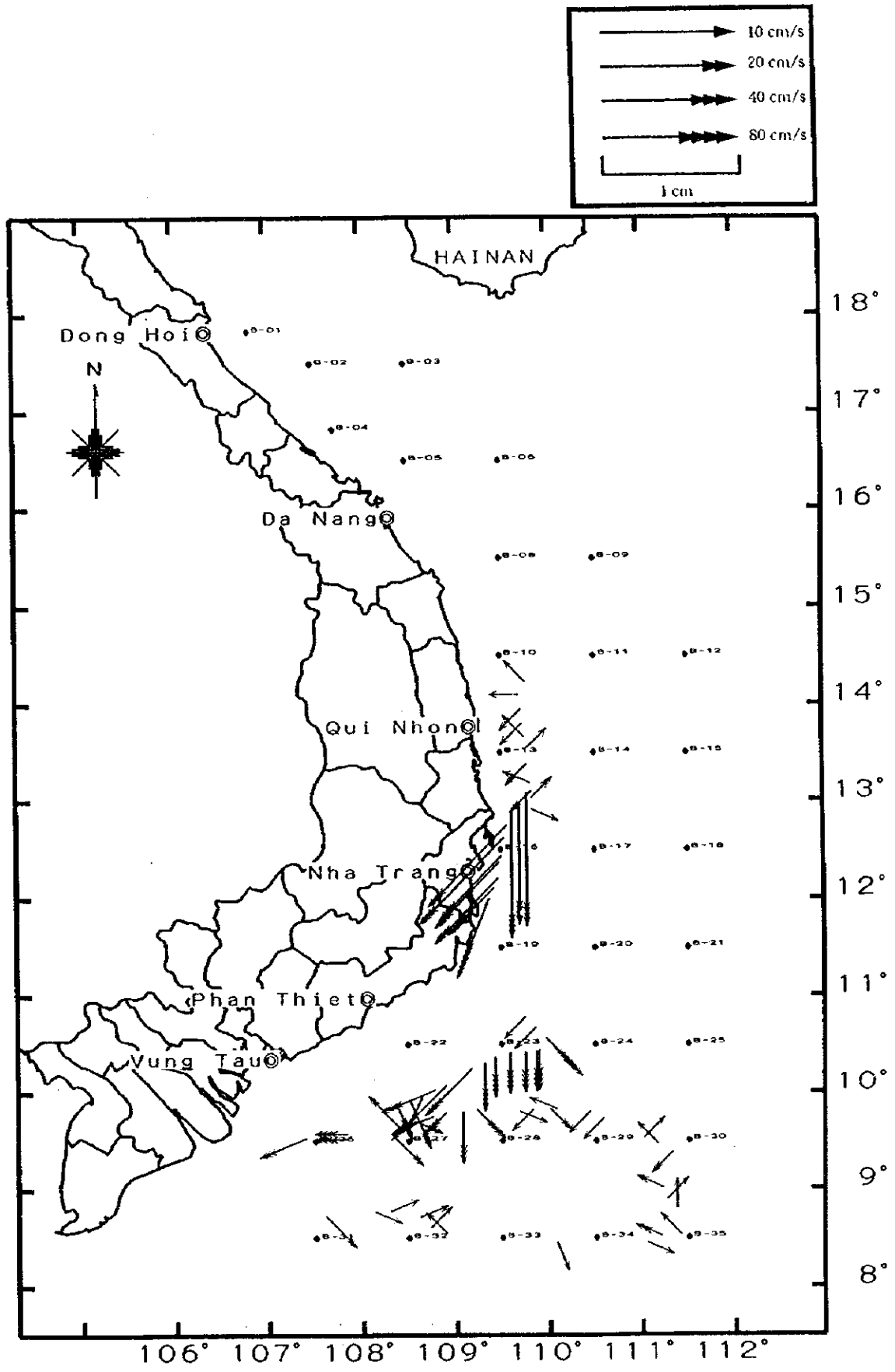
App. Figure 52 Distribution of current direction and velocity at 2m depth (Sept. in 1996)



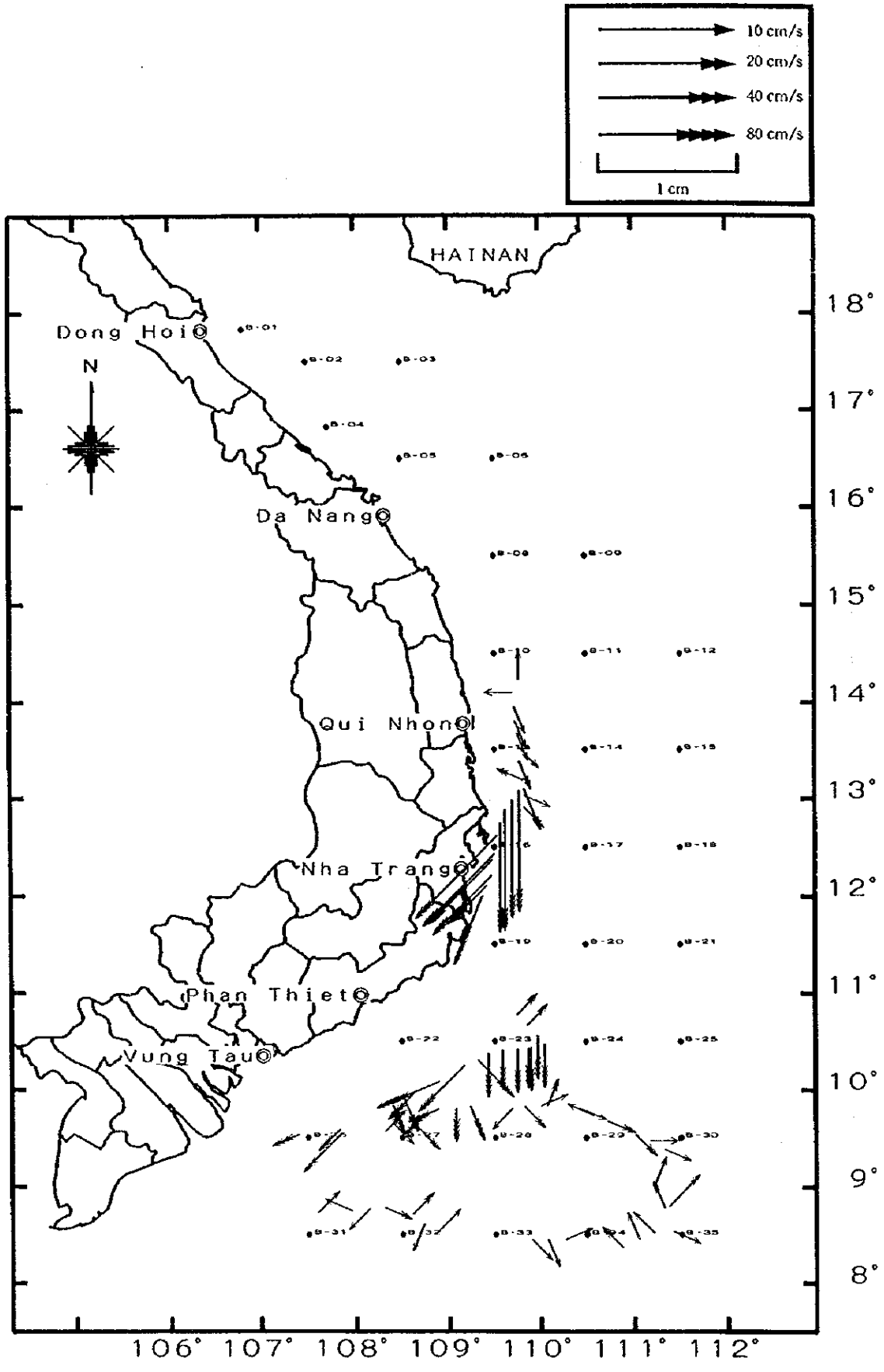
App. Figure 53 Distribution of current direction and velocity at 10m depth (Sept. in 1996)



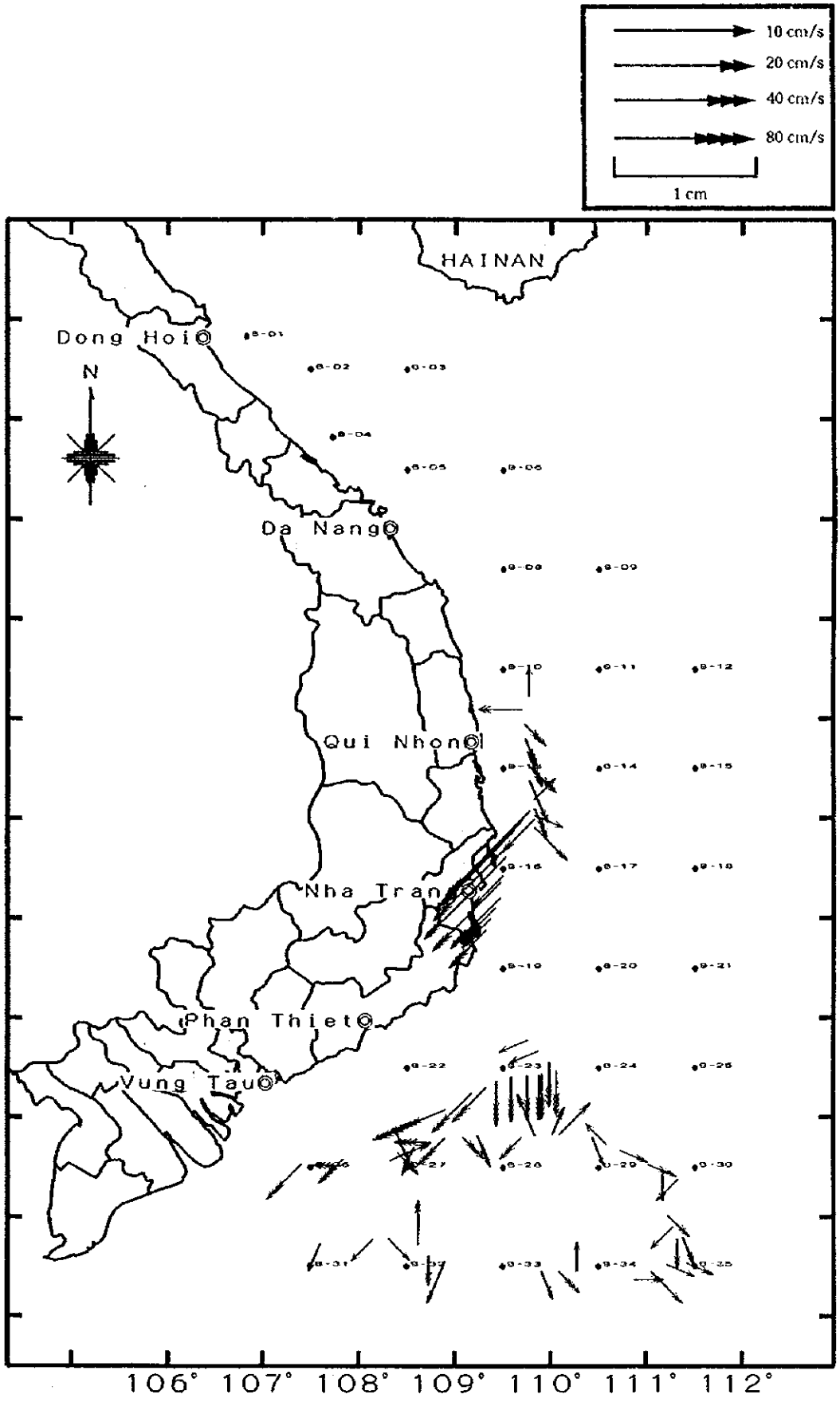
App. Figure 54 Distribution of current direction and velocity at 30m depth (Sept. in 1996)



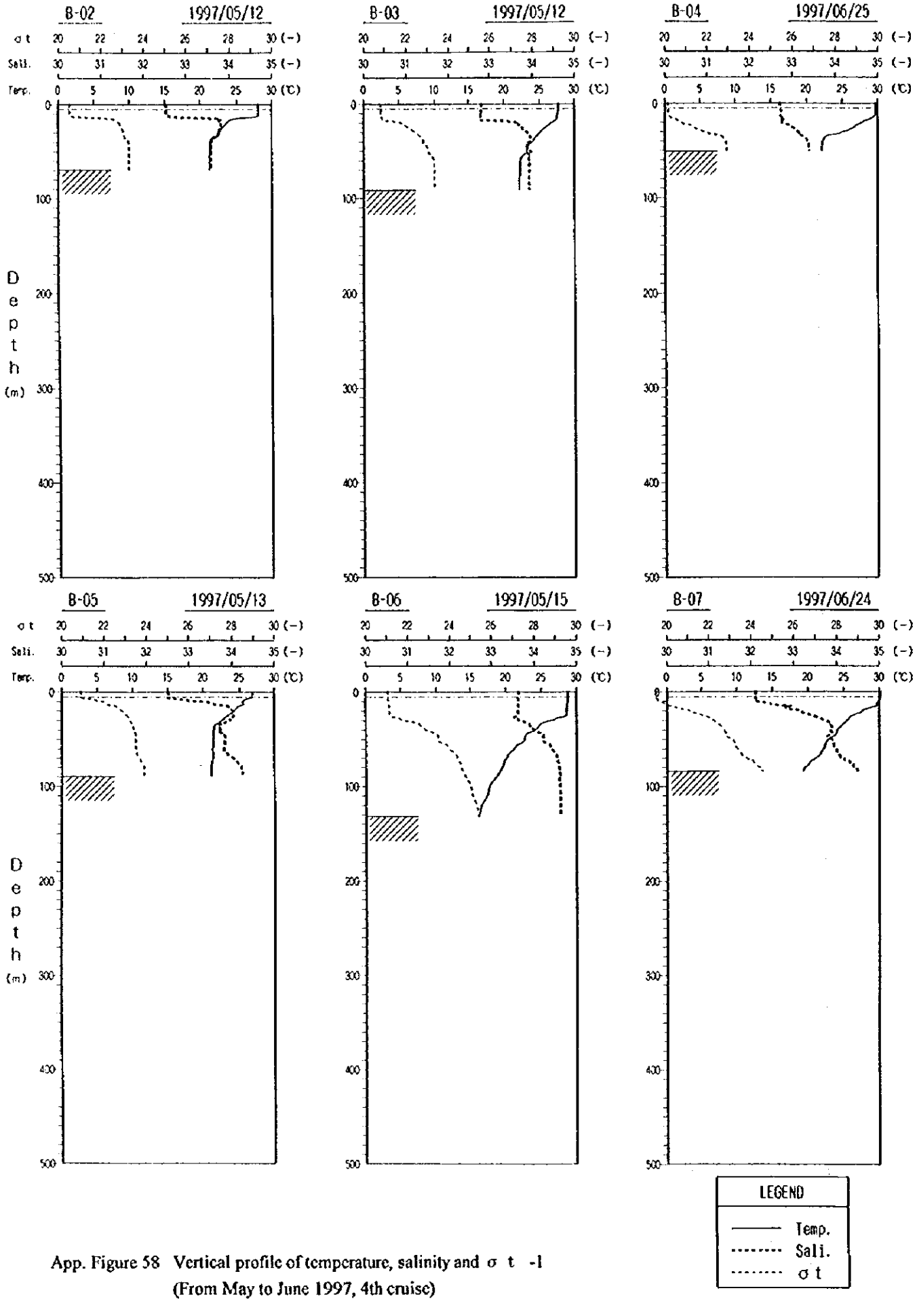
App. Figure 55 Distribution of current direction and velocity at 2m depth (Oct. in 1996)



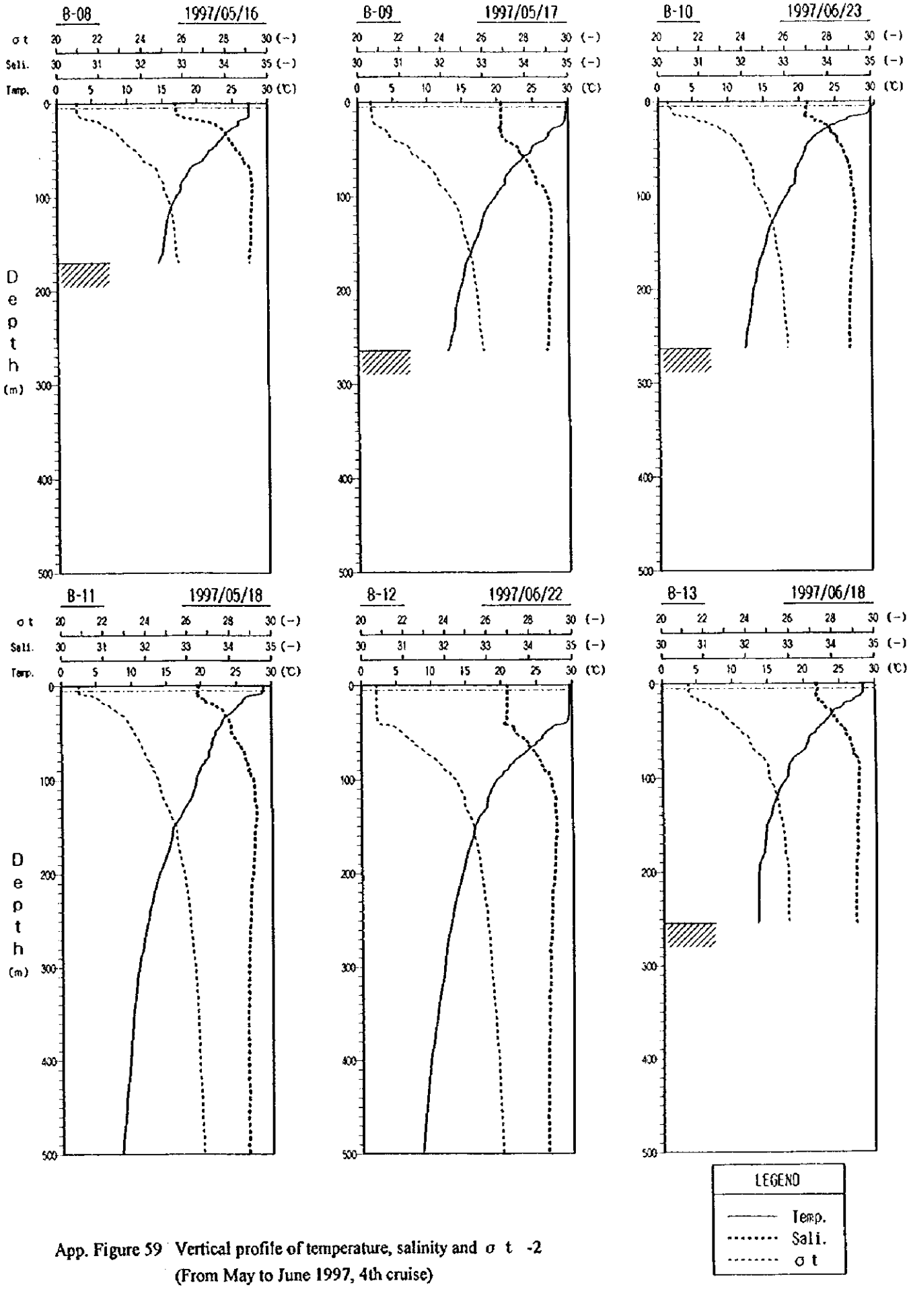
App. Figure 56 Distribution of current direction and velocity at 10m depth (Oct. in 1996)



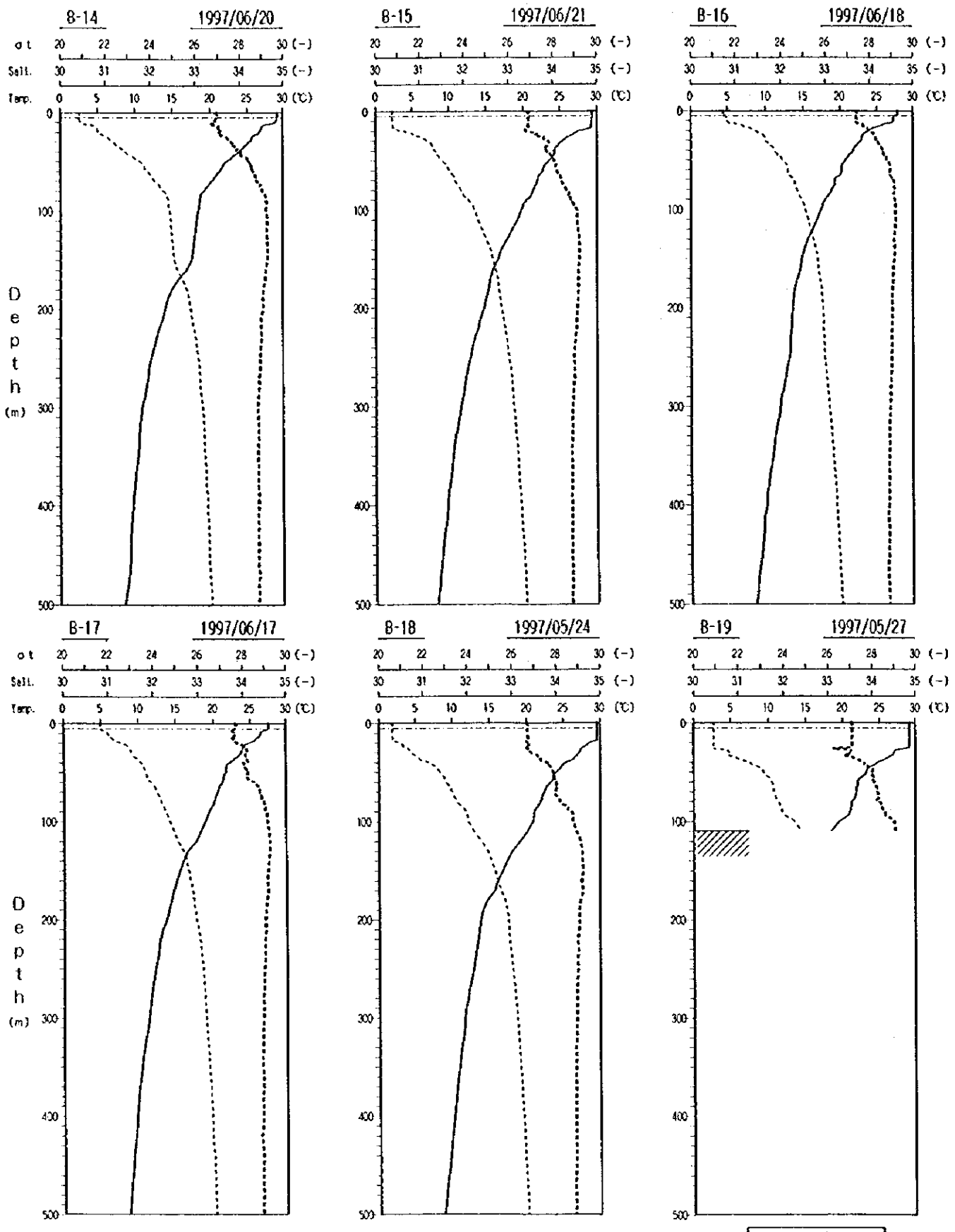
App. Figure 57 Distribution of current direction and velocity at 30m depth (Oct. in 1996)



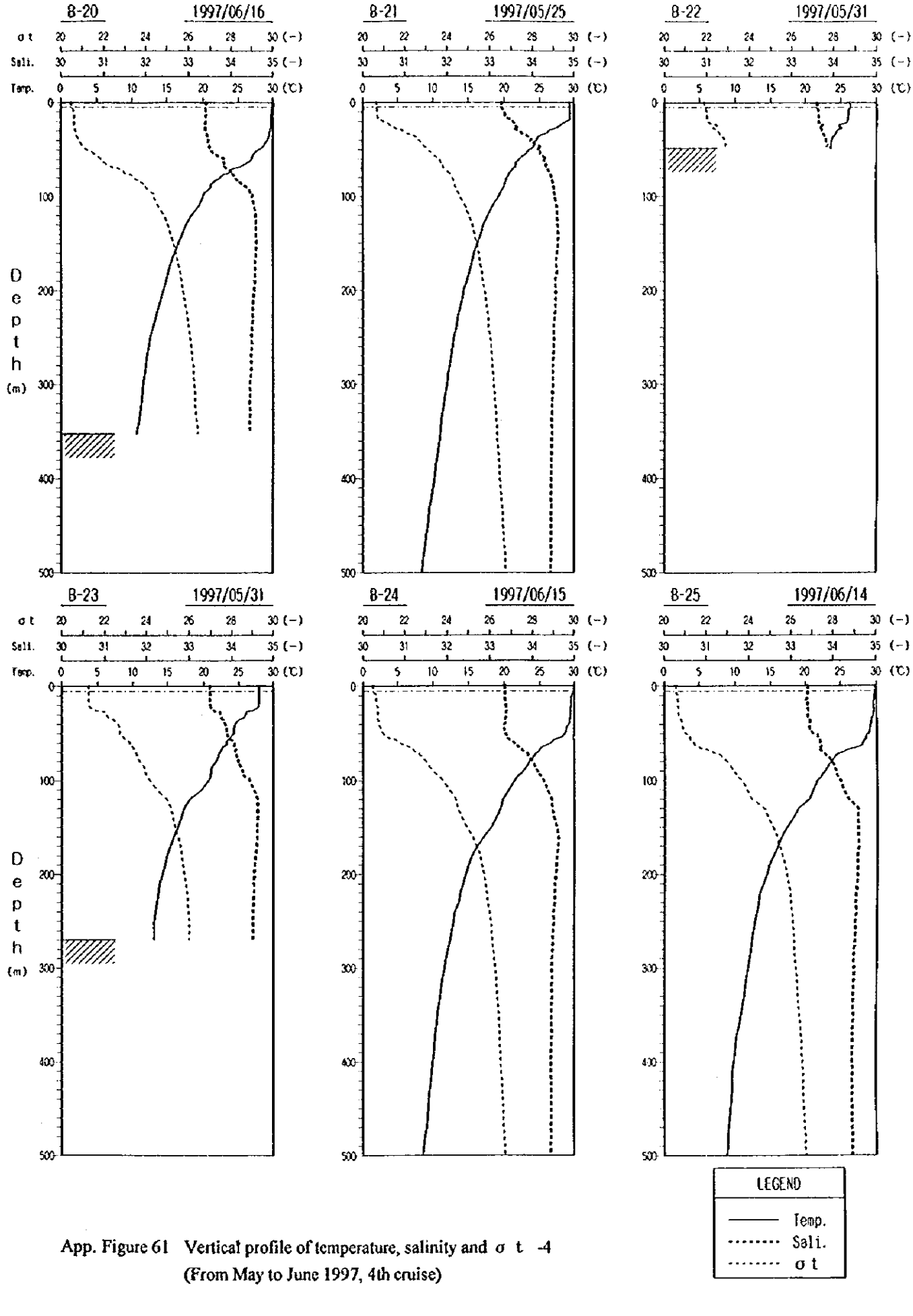
App. Figure 58 Vertical profile of temperature, salinity and σ t -1
(From May to June 1997, 4th cruise)



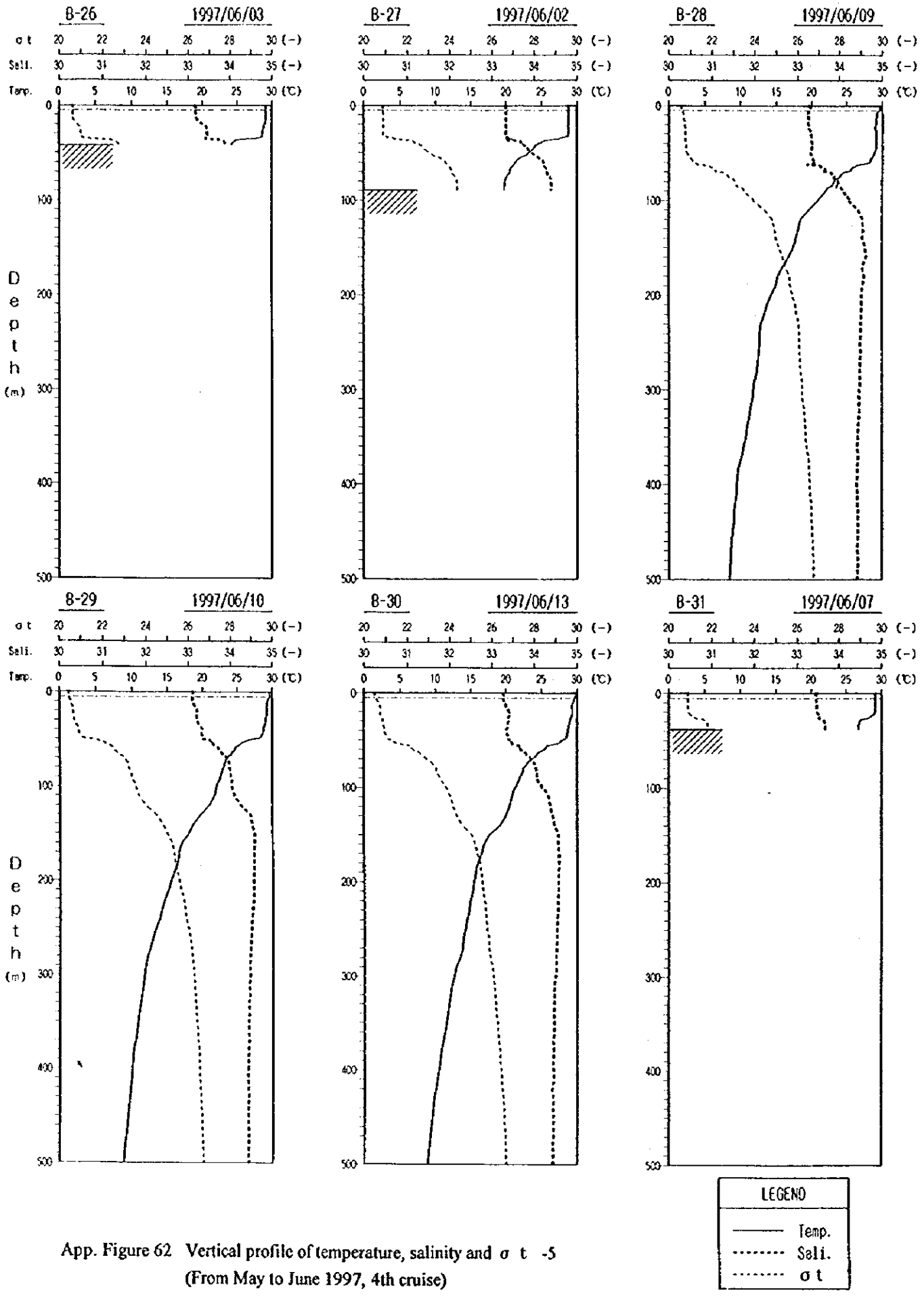
App. Figure 59 Vertical profile of temperature, salinity and σ t -2
(From May to June 1997, 4th cruise)



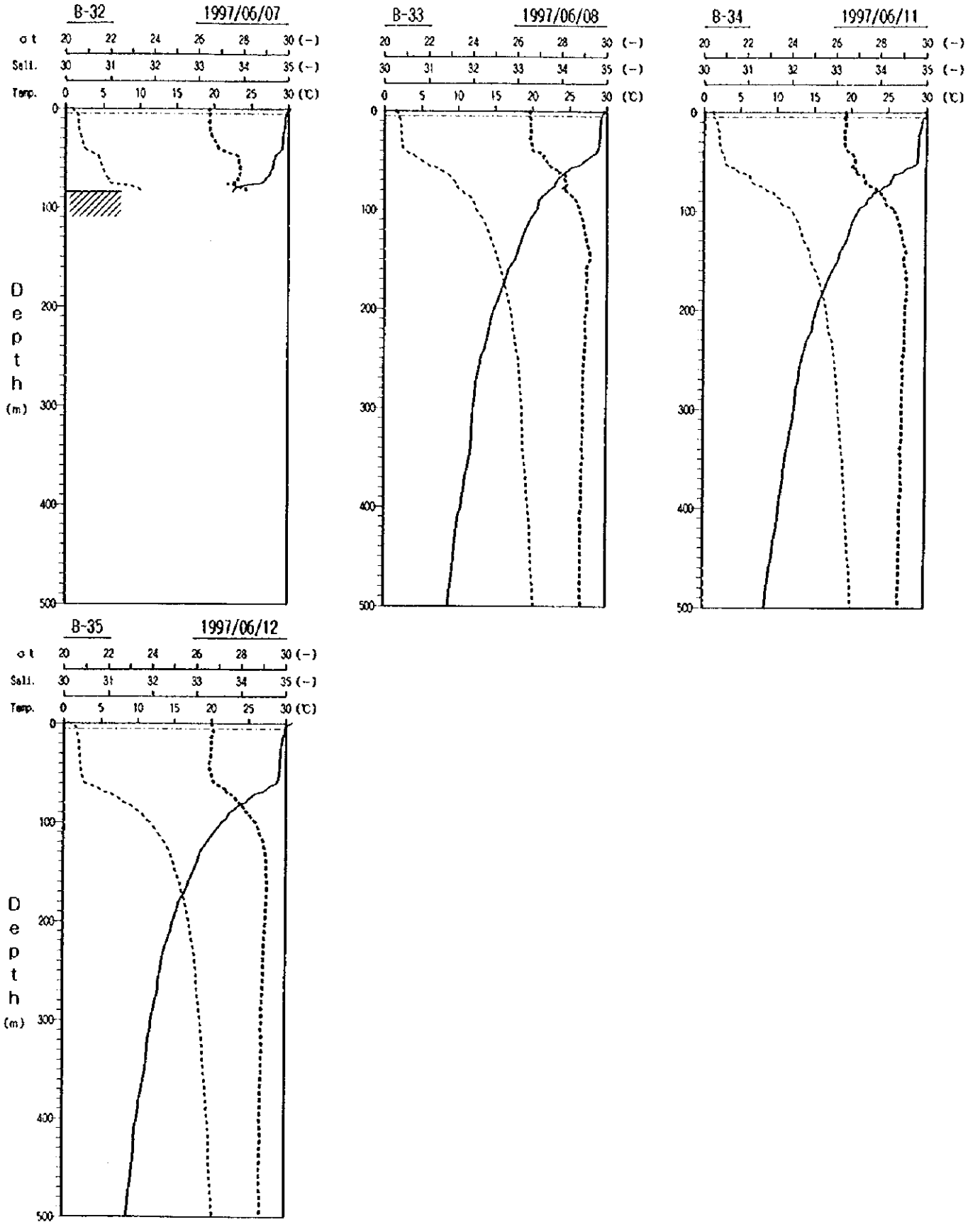
App. Figure 60 Vertical profile of temperature, salinity and σ t -3
(From May to June 1997, 4th cruise)



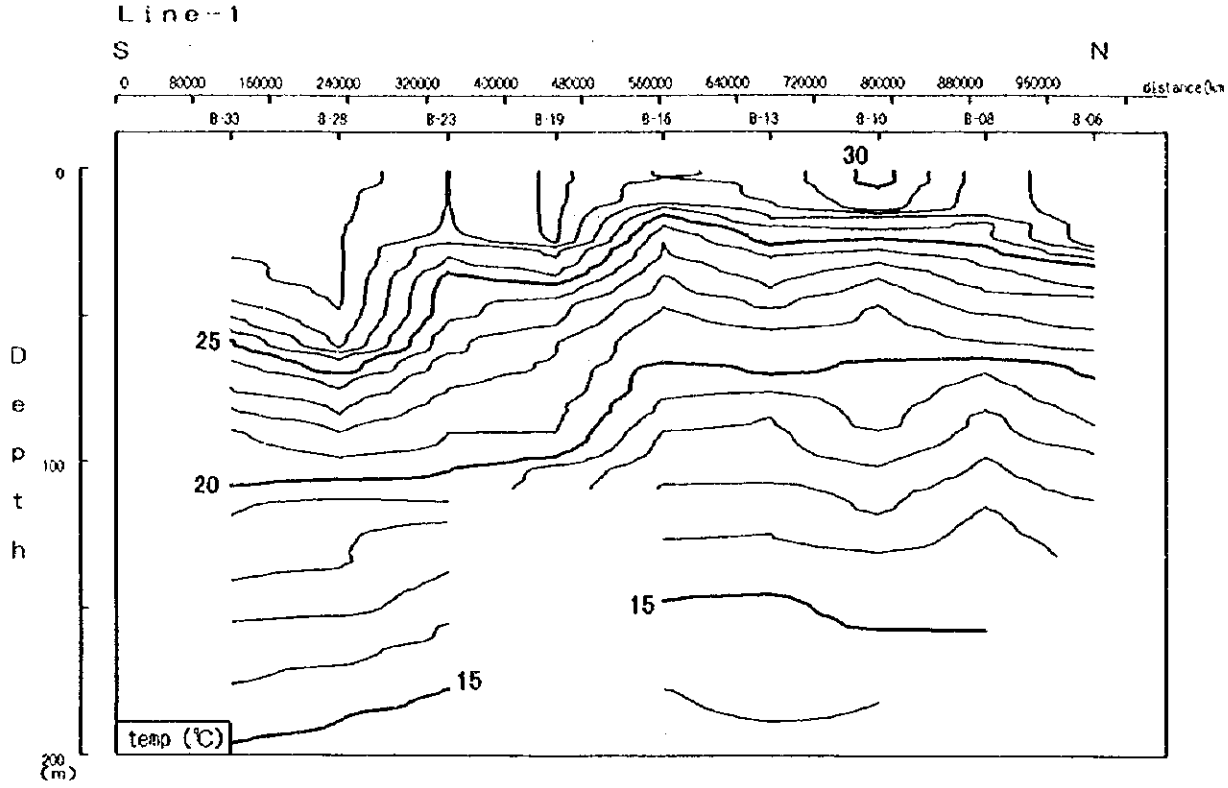
App. Figure 61 Vertical profile of temperature, salinity and σ t -4
(From May to June 1997, 4th cruise)

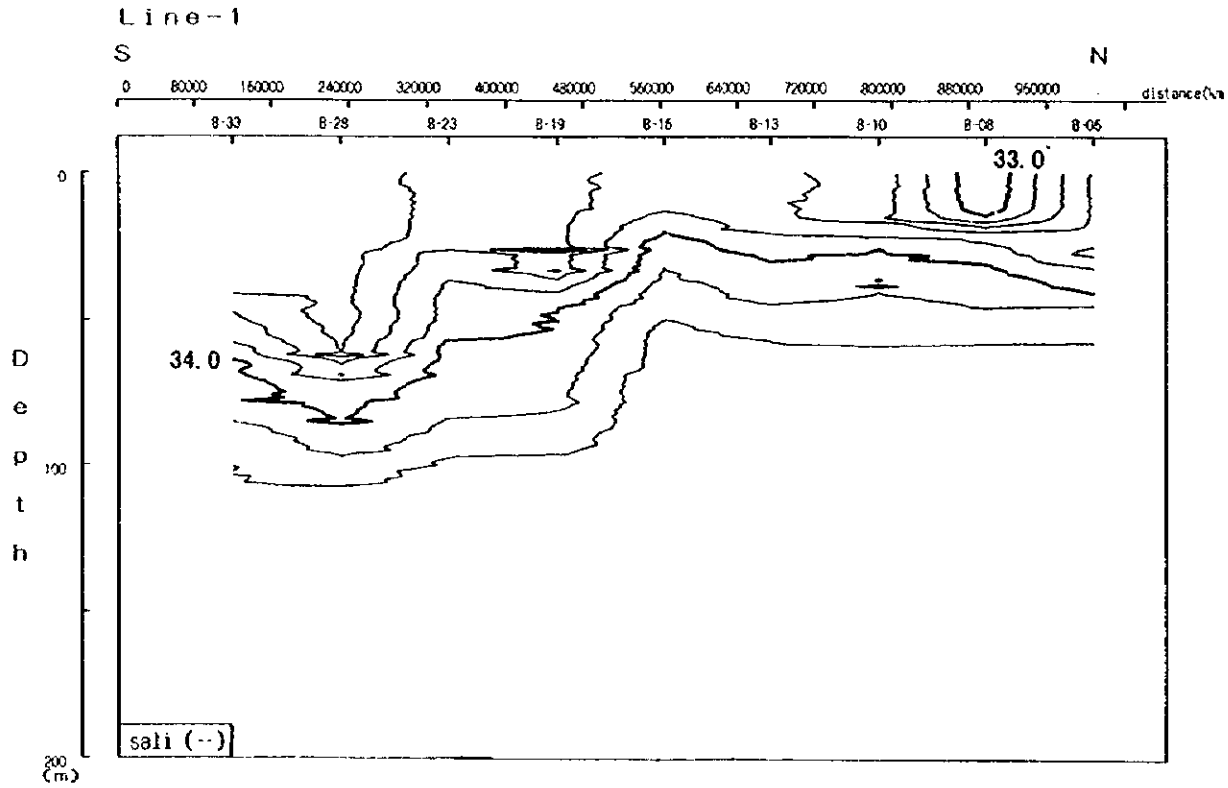


App. Figure 62 Vertical profile of temperature, salinity and σ t -5
(From May to June 1997, 4th cruise)

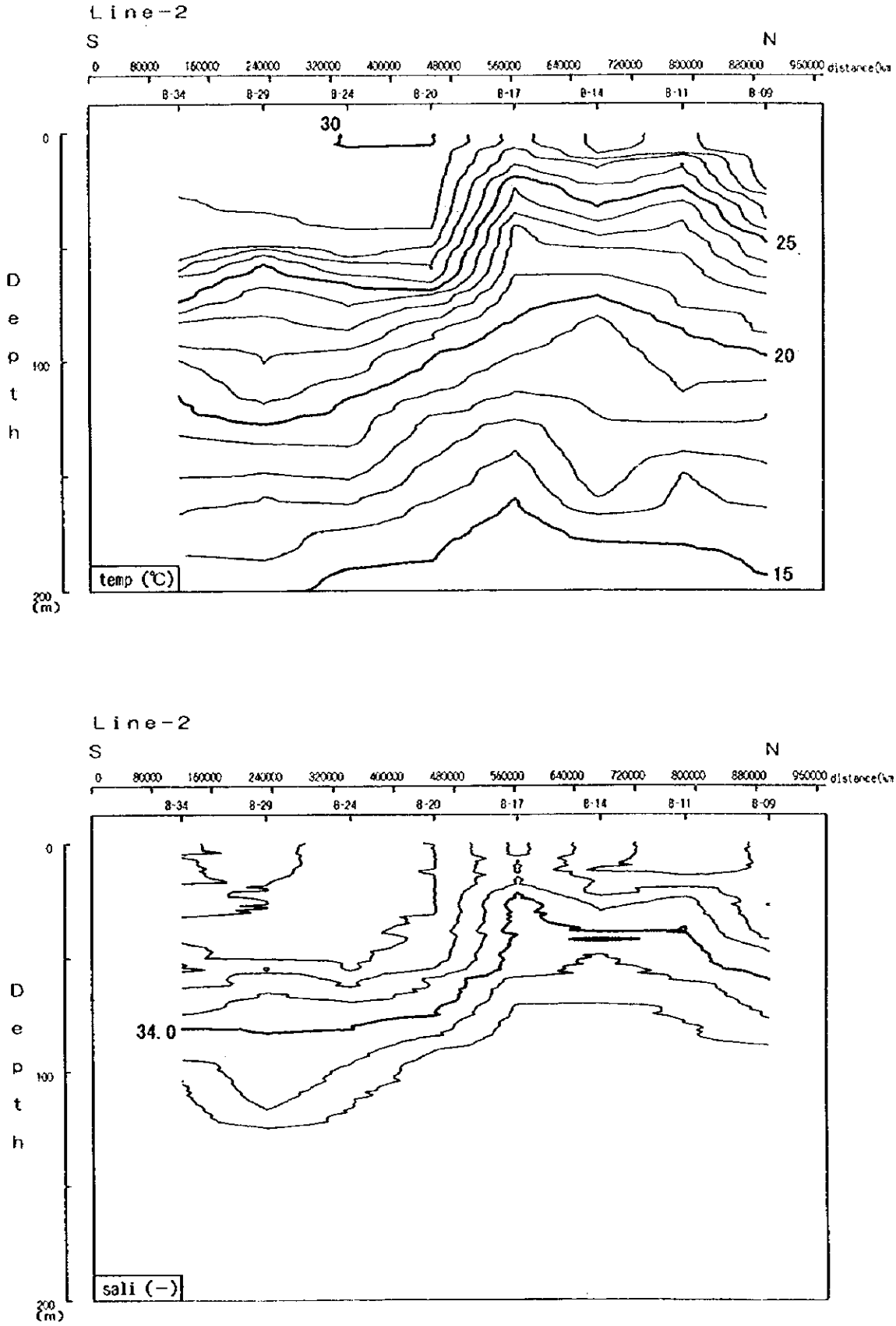


App. Figure 63 Vertical profile of temperature, salinity and σ t -6
(From May to June 1997, 4th cruise)

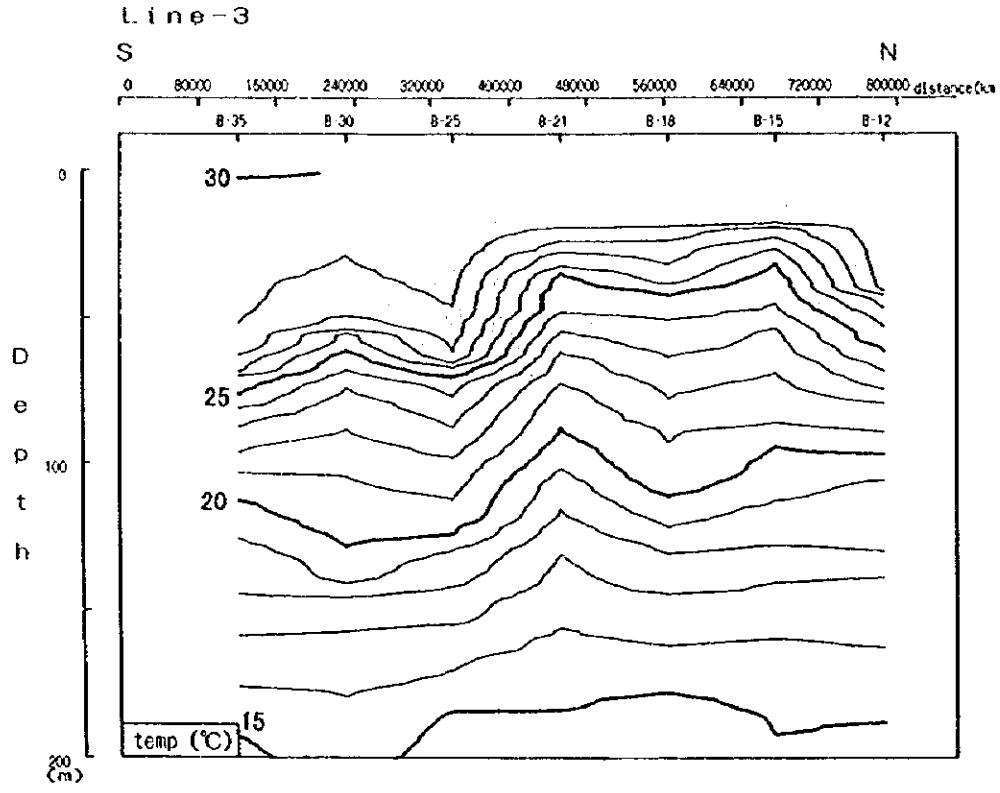


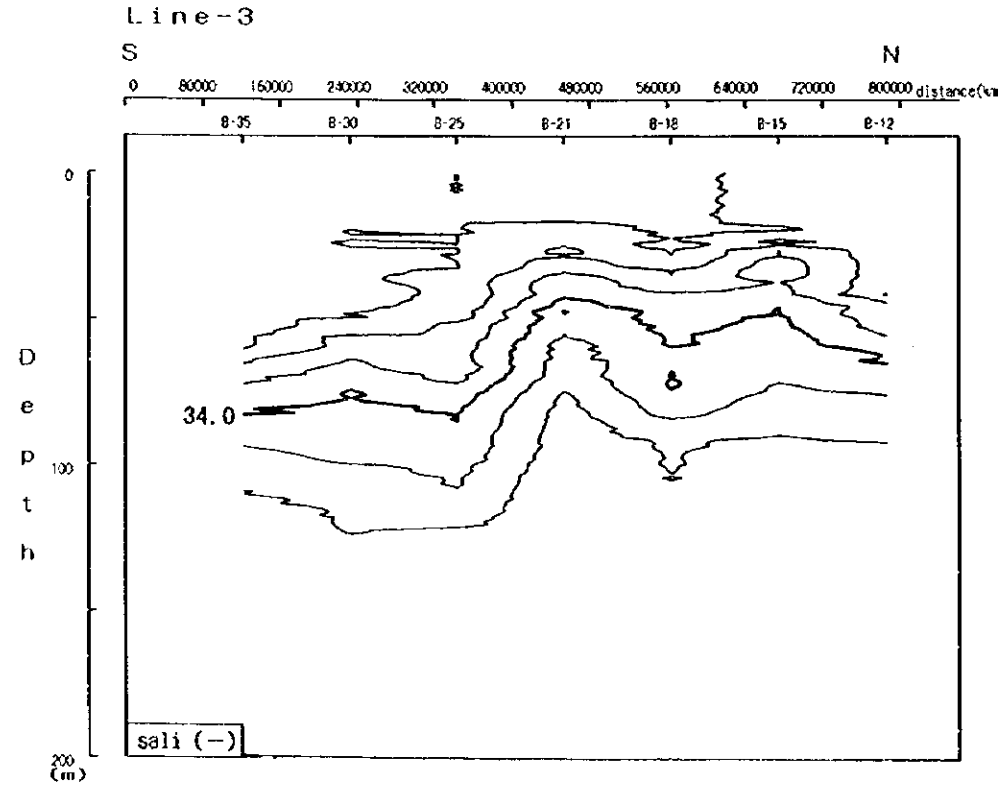


App. Figure 64 Vertical profile of temperature (1℃ interval) and salinity (0.2 interval) at the cross section of LINE-1. (From May to June 1997, 4th cruise)

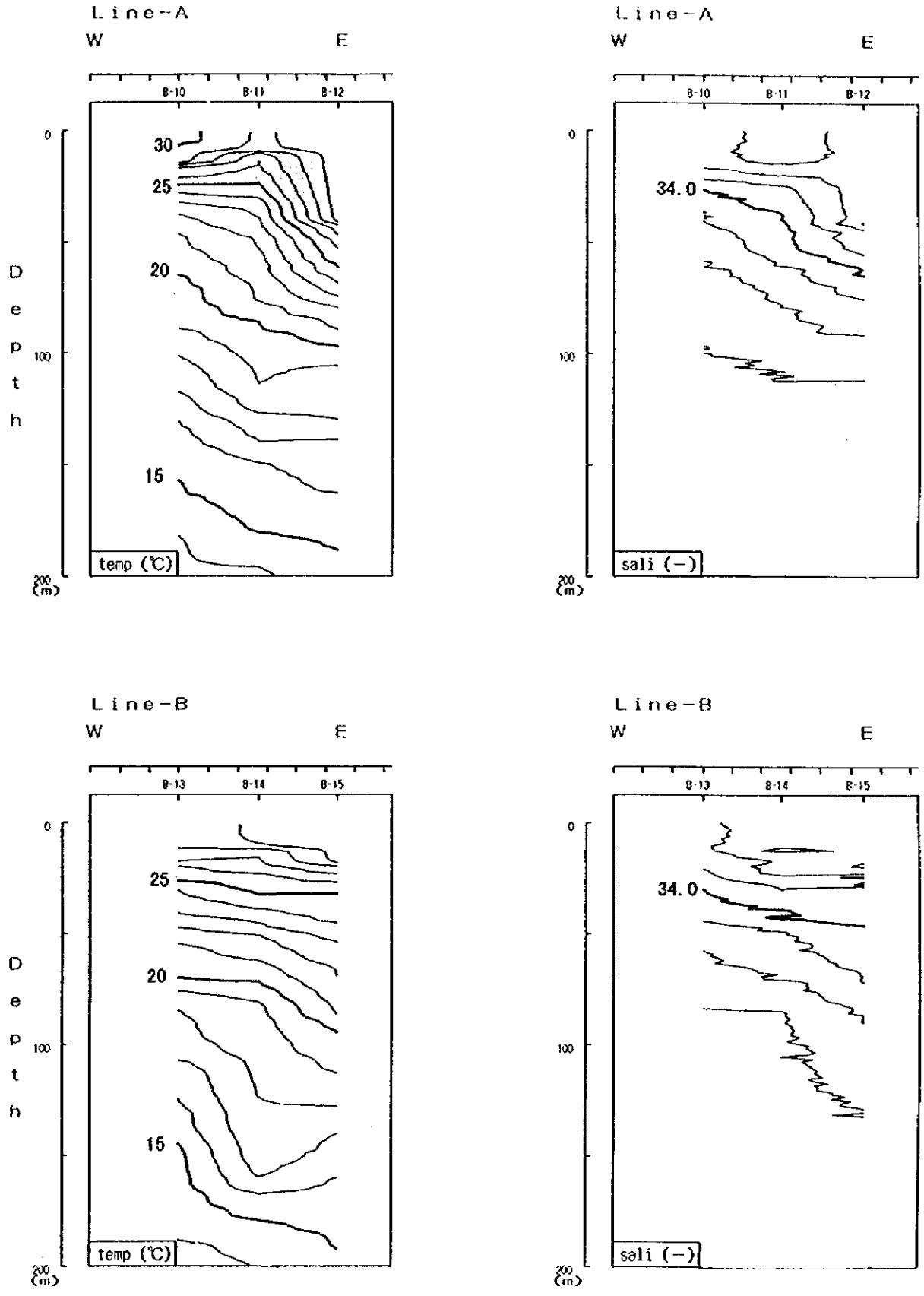


App. Figure 65 Vertical profile of temperature (1℃ interval) and salinity (0.2 interval) at the cross section of LINE-2. (From May to June 1997, 4th cruise)

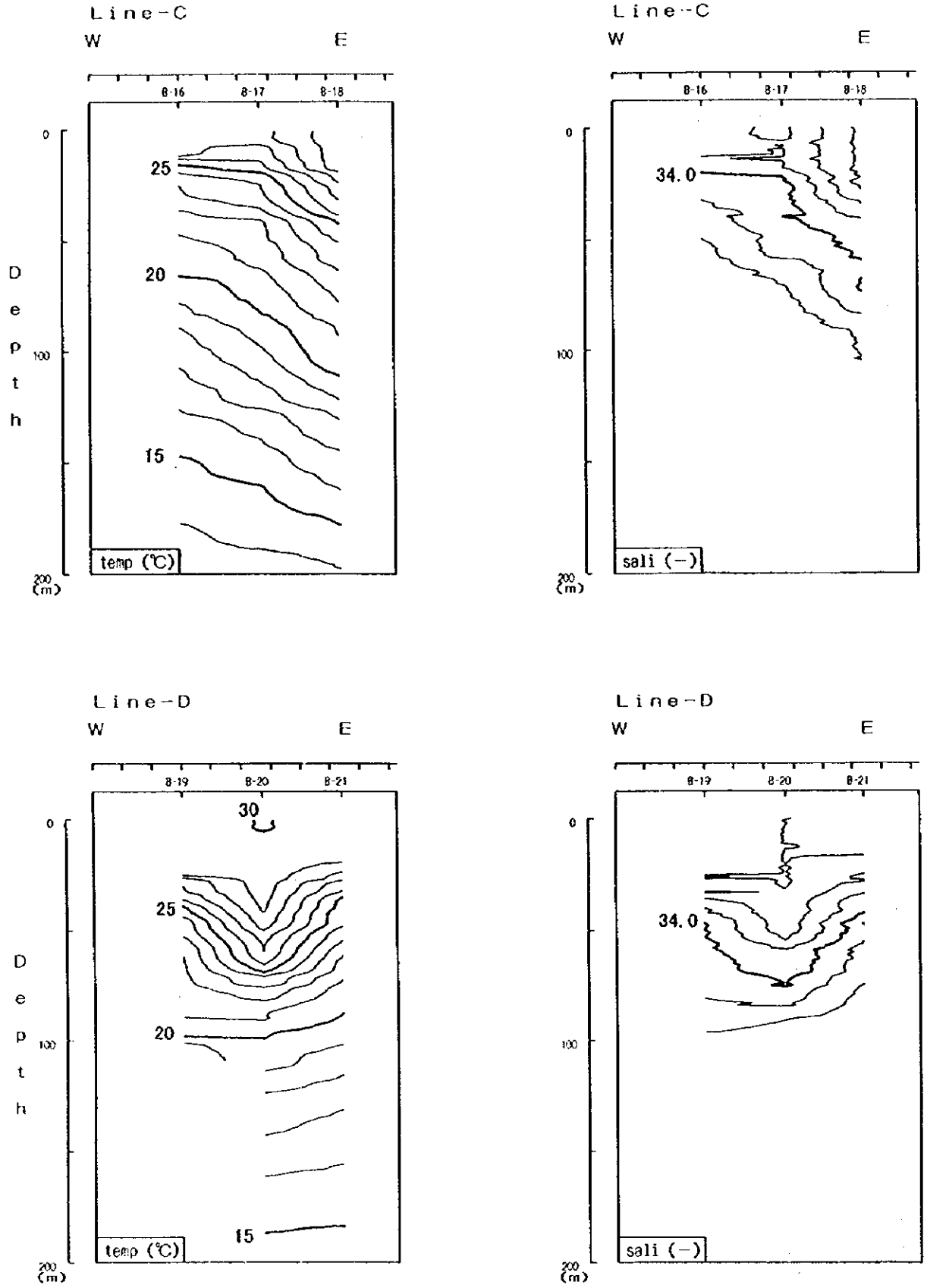




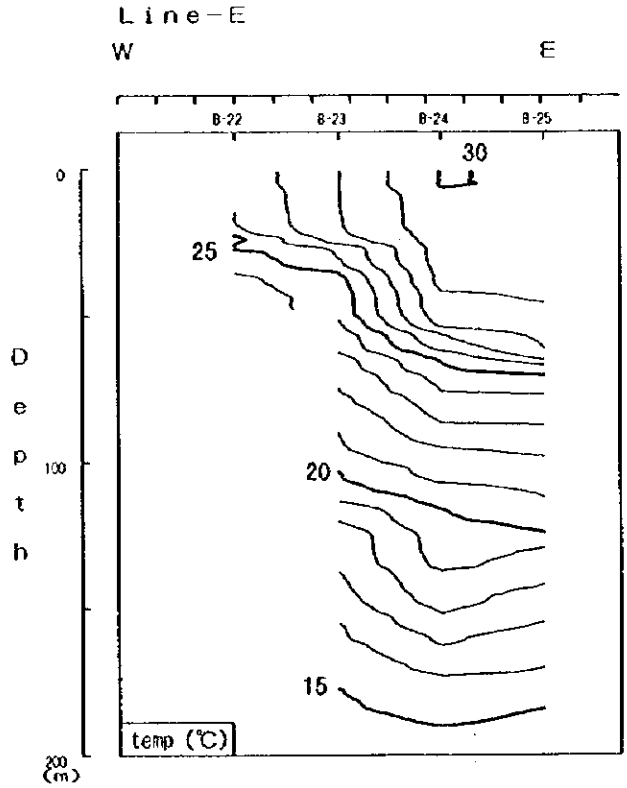
App. Figure 66 Vertical profile of temperature (1℃ interval) and salinity (0.2 interval) at the cross section of LINE-3. (From May to June 1997, 4th cruise)

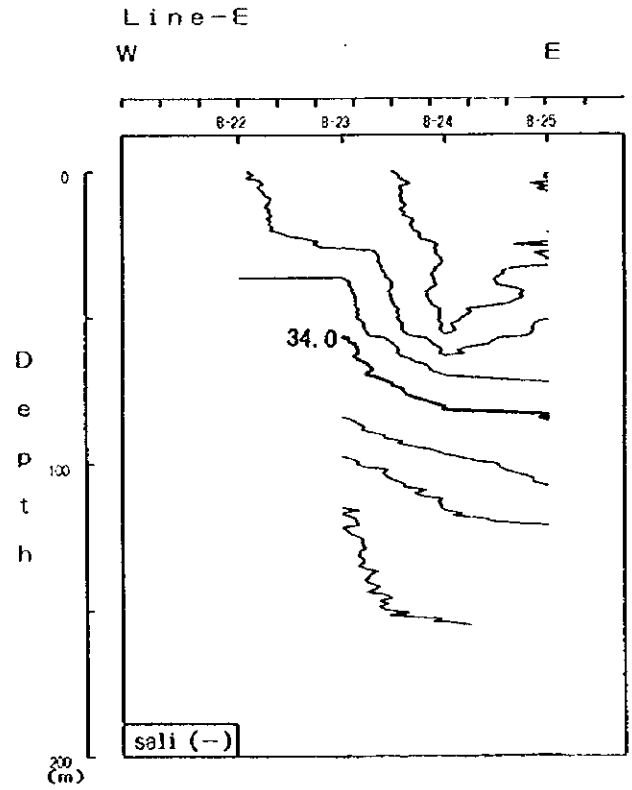


App. Figure 67 Vertical profile of temperature (1℃ interval) and salinity (0.2 interval) at the cross section of LINE-A and B. (From May to June 1997, 4th cruise)

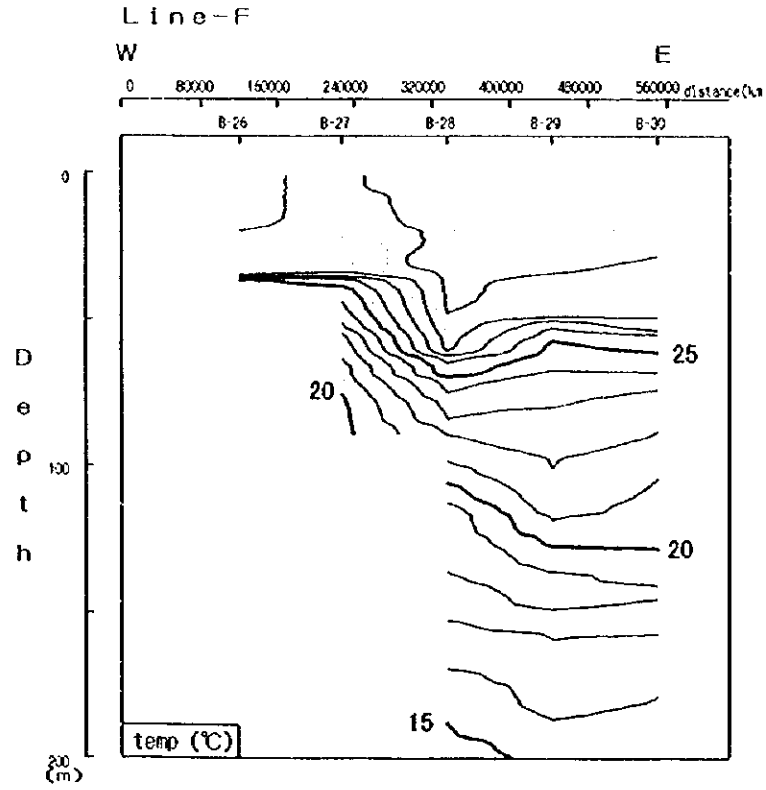


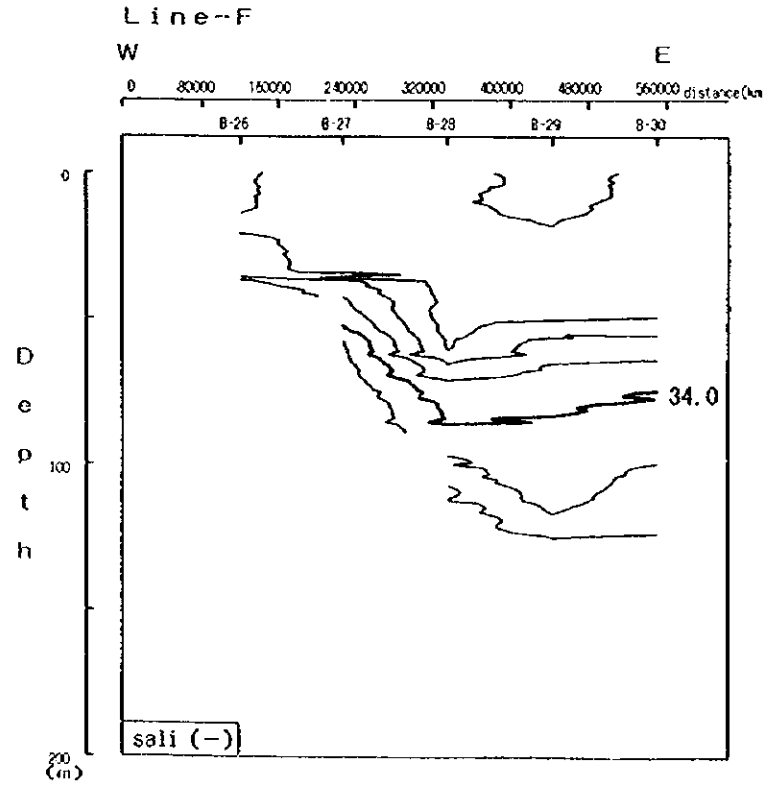
App. Figure 68 Vertical profile of temperature (1℃ interval) and salinity (0.2 interval) at the cross section of LINE-C and D. (From May to June 1997, 4th cruise)



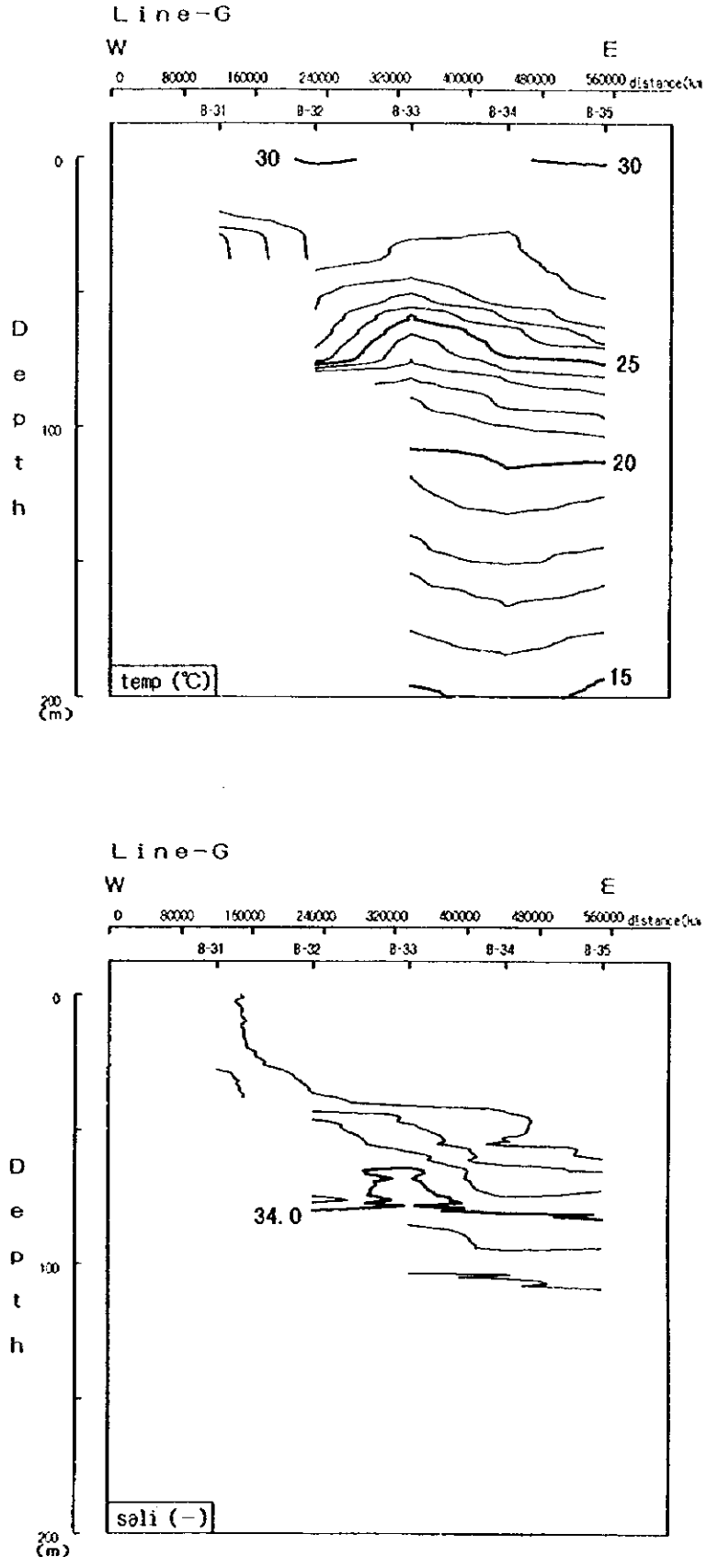


App. Figure 69 Vertical profile of temperature (1℃ interval) and salinity (0.2 interval) at the cross section of LINE-E. (From May to June 1997, 4th cruise)

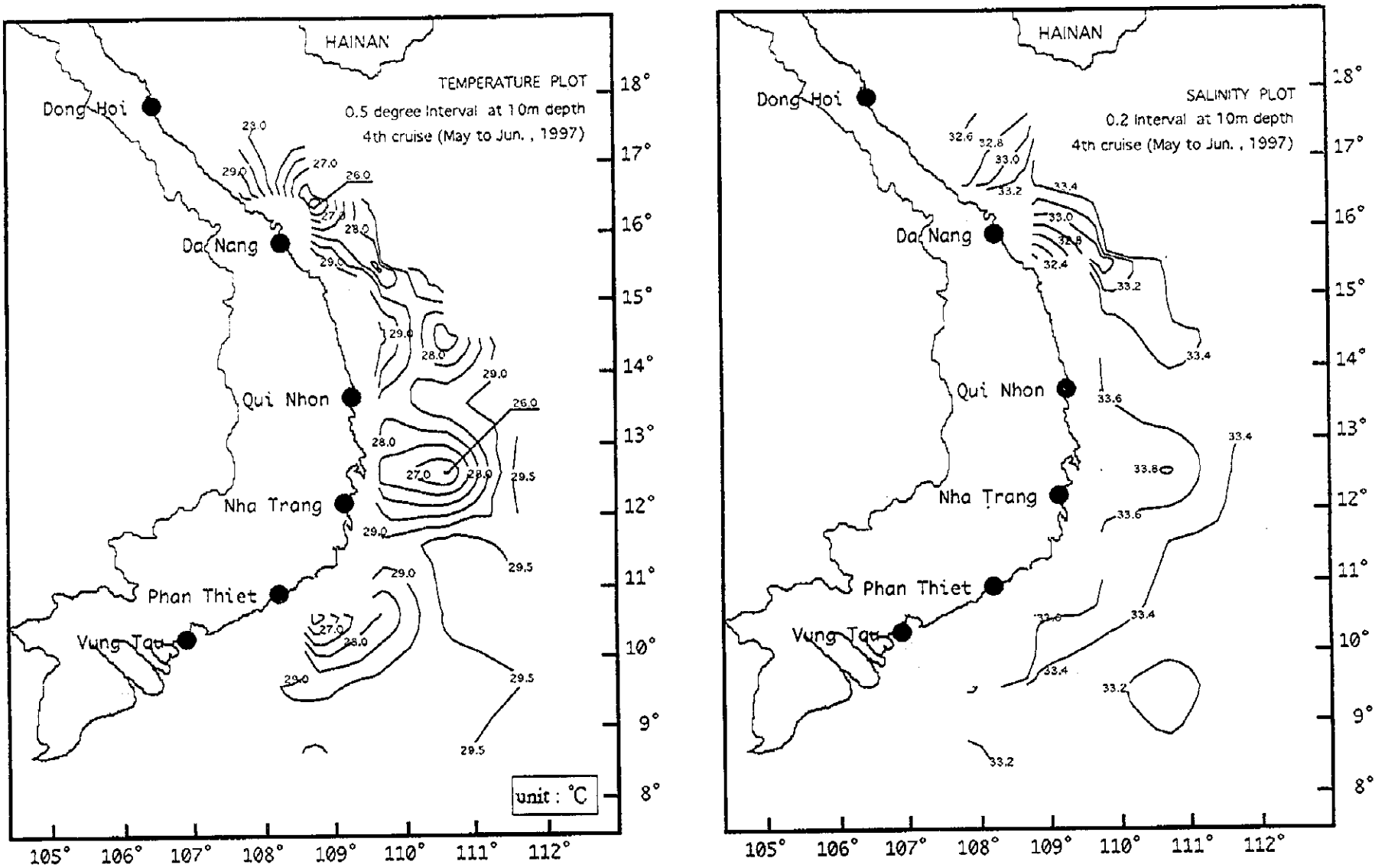




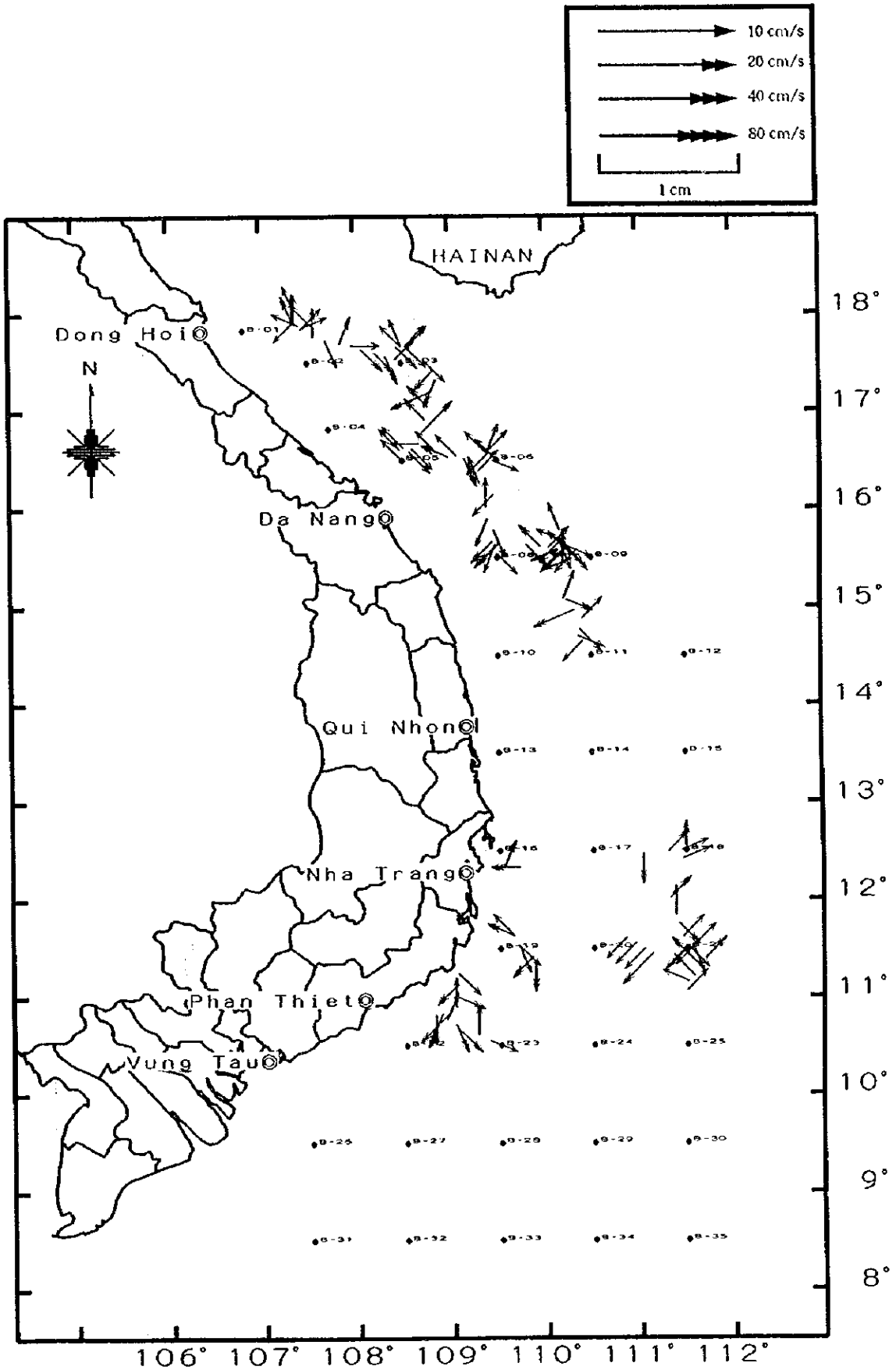
App. Figure 70 Vertical profile of temperature (1℃ interval) and salinity (0.2 interval) at the cross section of LINE-F. (From May to June 1997, 4th cruise)



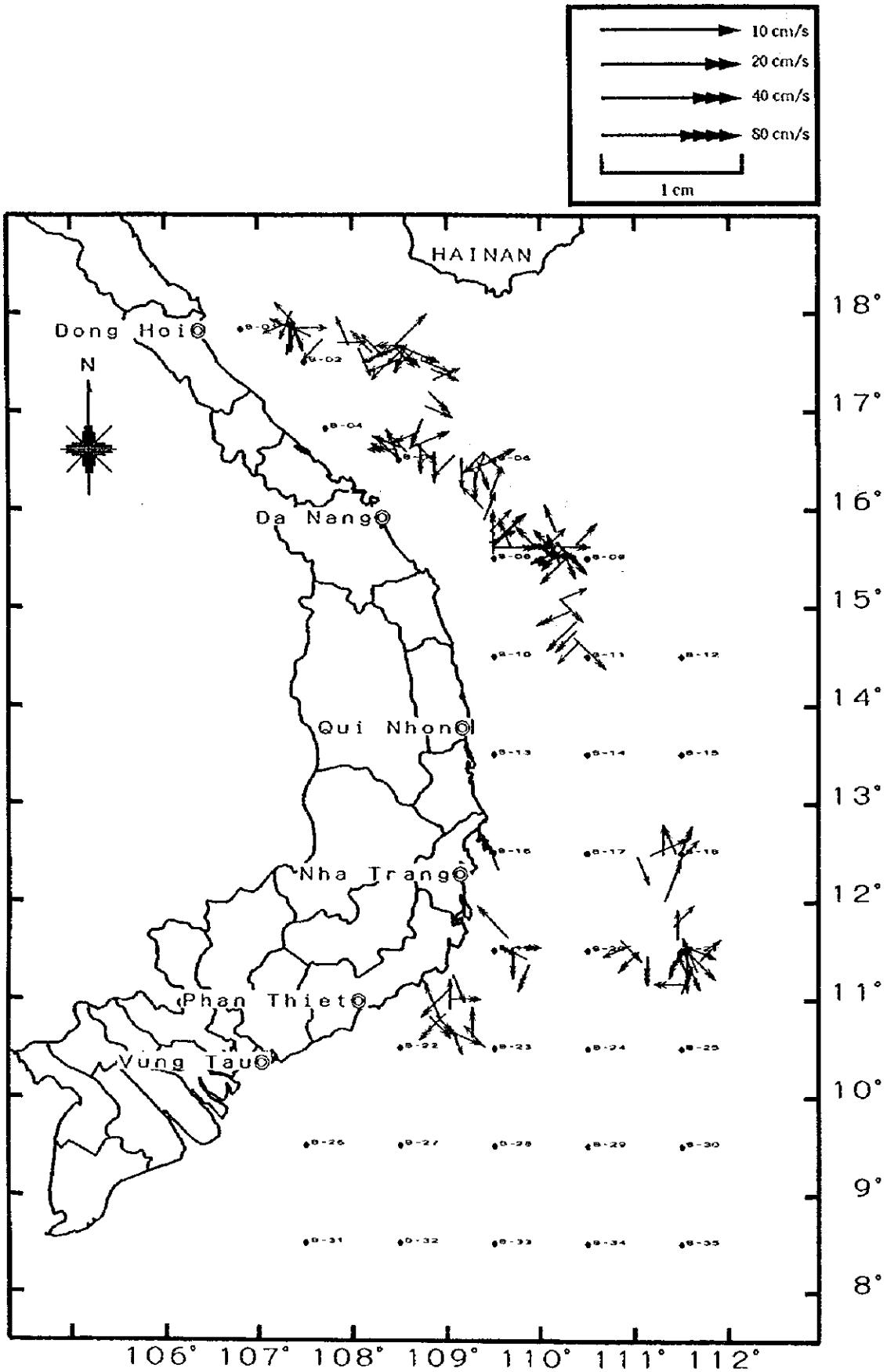
App. Figure 71 Vertical profile of temperature (1℃ interval) and salinity (0.2 interval) at the cross section of LINE-G. (From May to June 1997, 4th cruise)



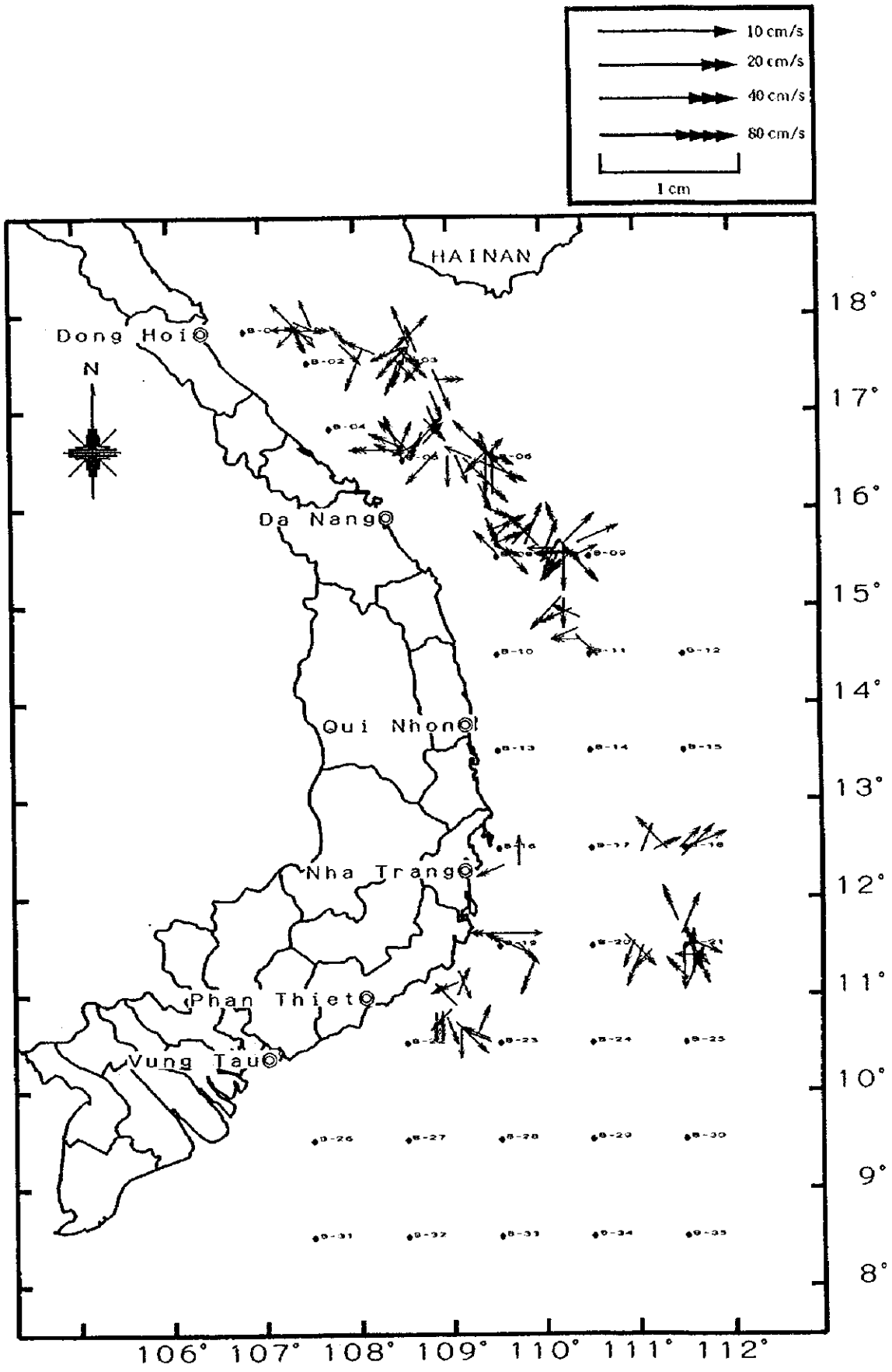
App. Figure 72 Horizontal distribution of temperature (0.5℃ interval) and salinity (0.2 interval)



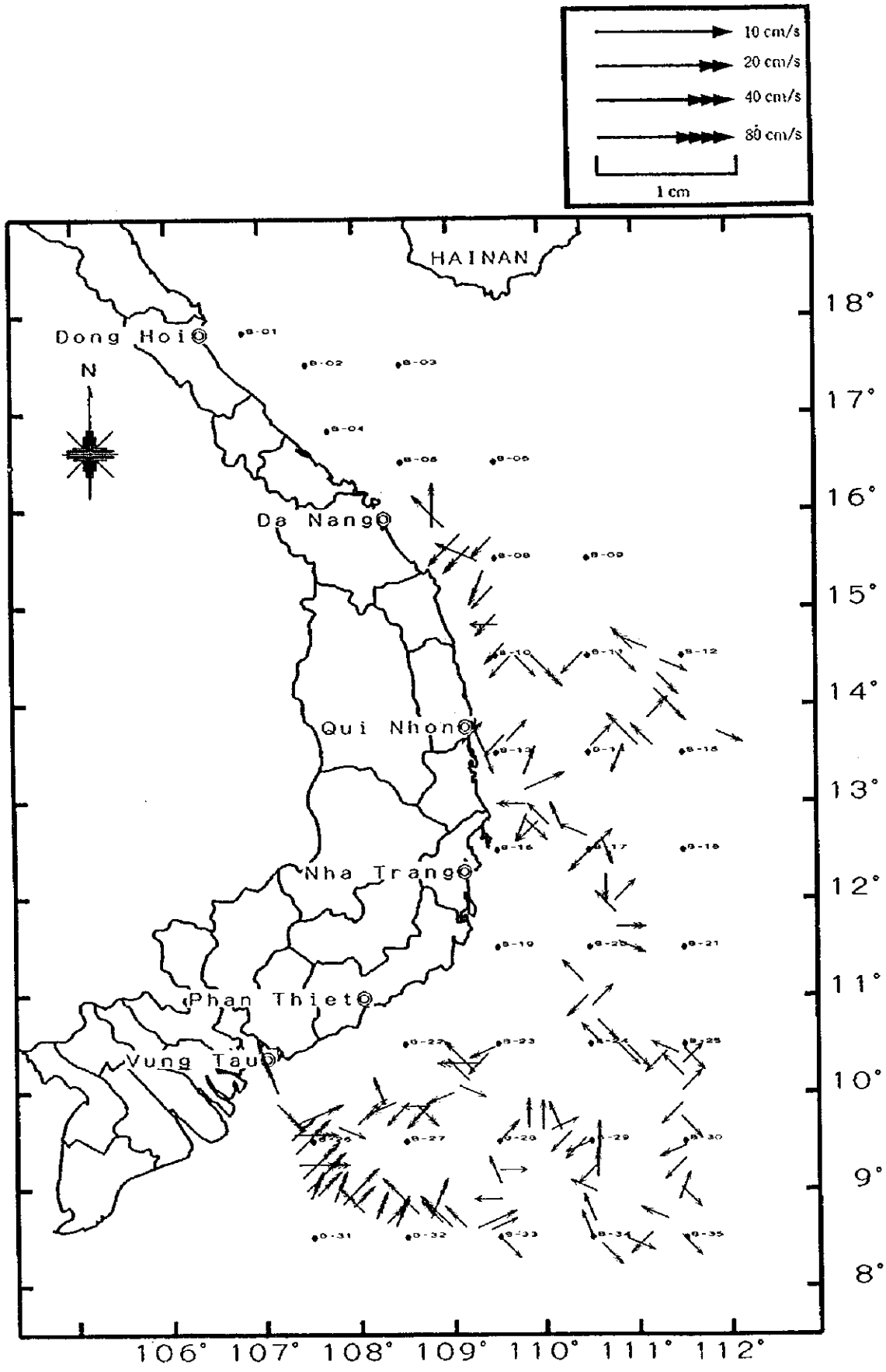
App. Figure 73 Distribution of current direction and velocity at 2m depth (May in 1997)



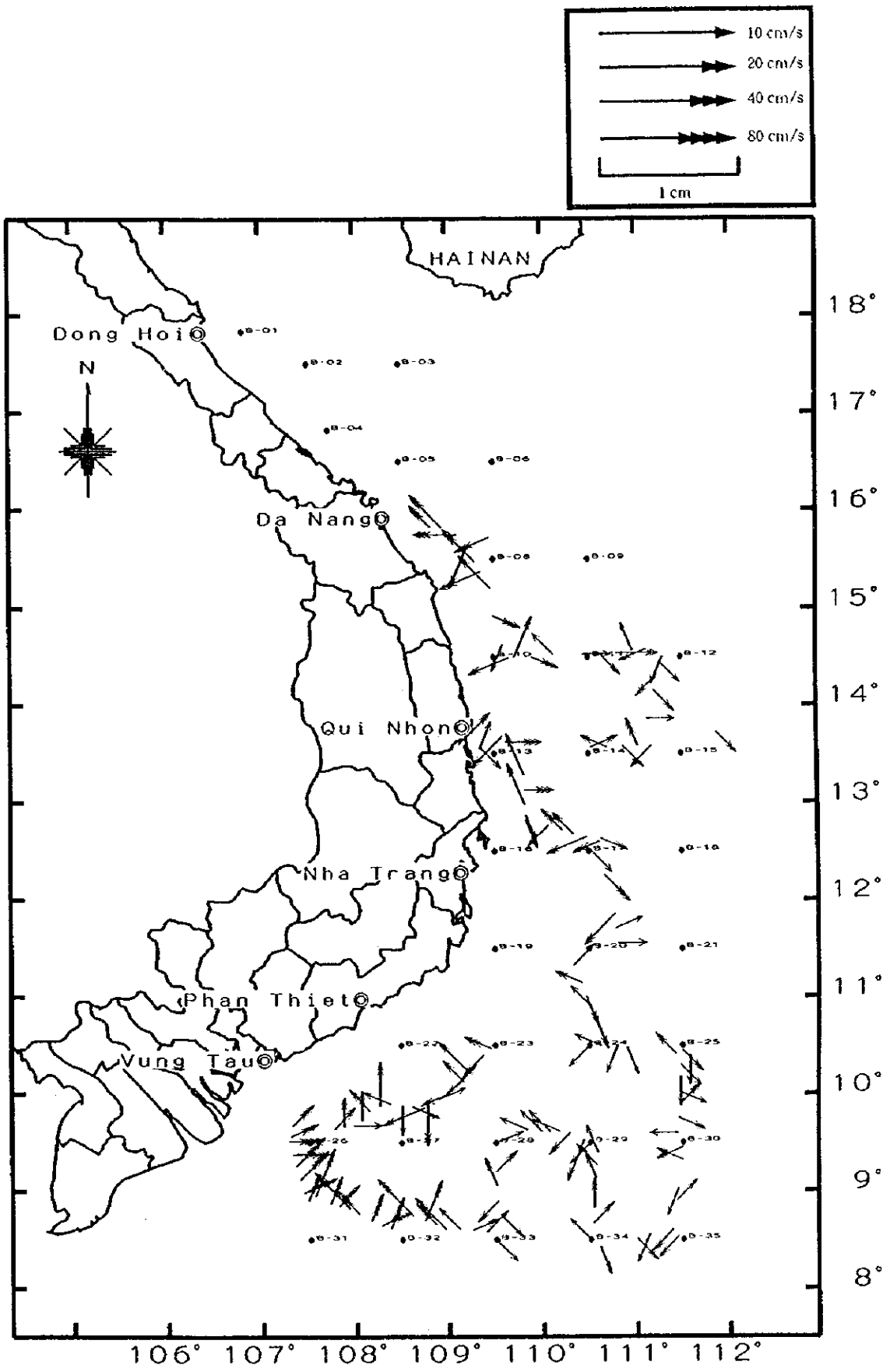
App. Figure 74 Distribution of current direction and velocity at 10m depth (May in 1997)



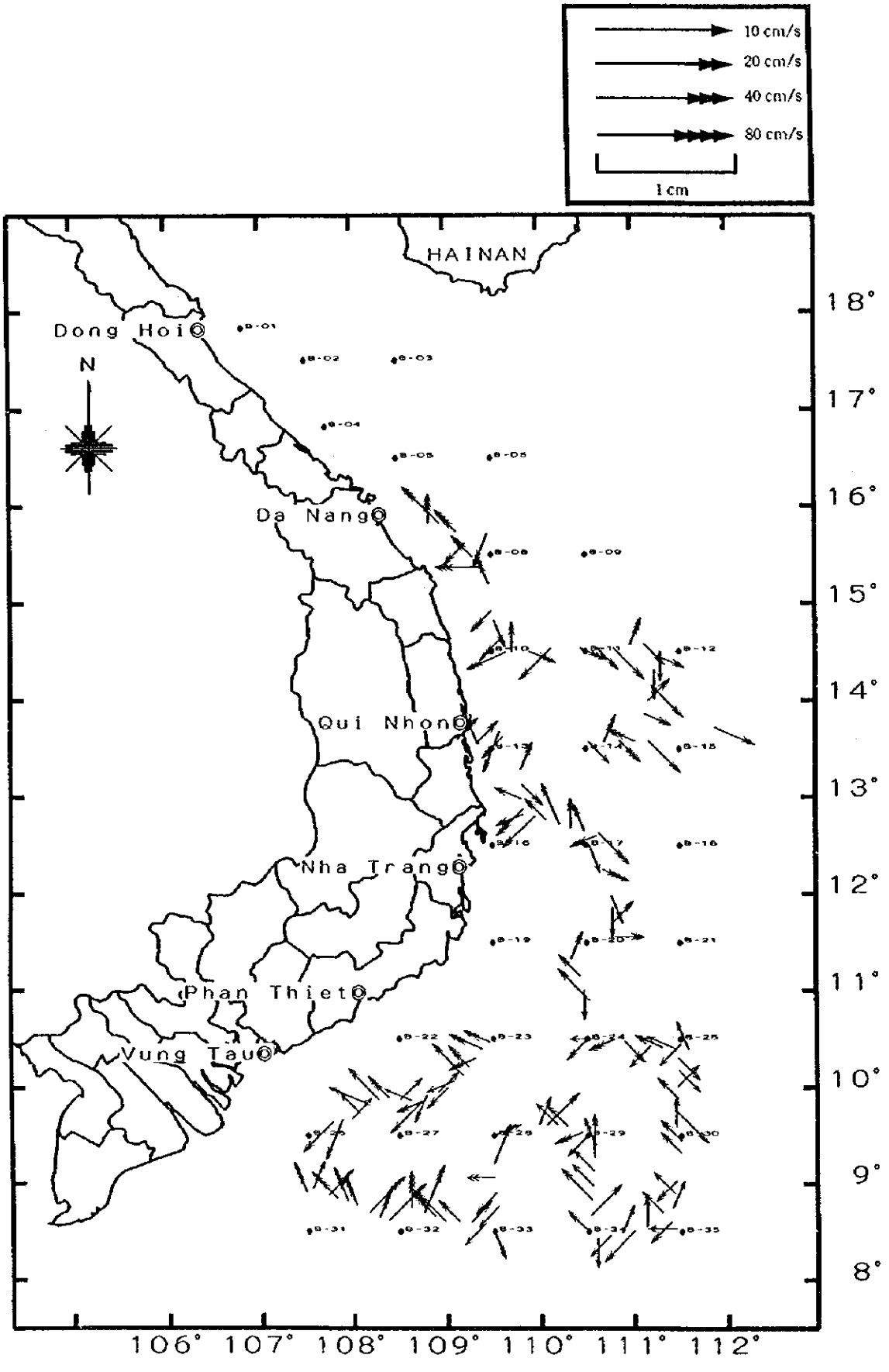
App. Figure 75 Distribution of current direction and velocity at 30m depth (May in 1997)



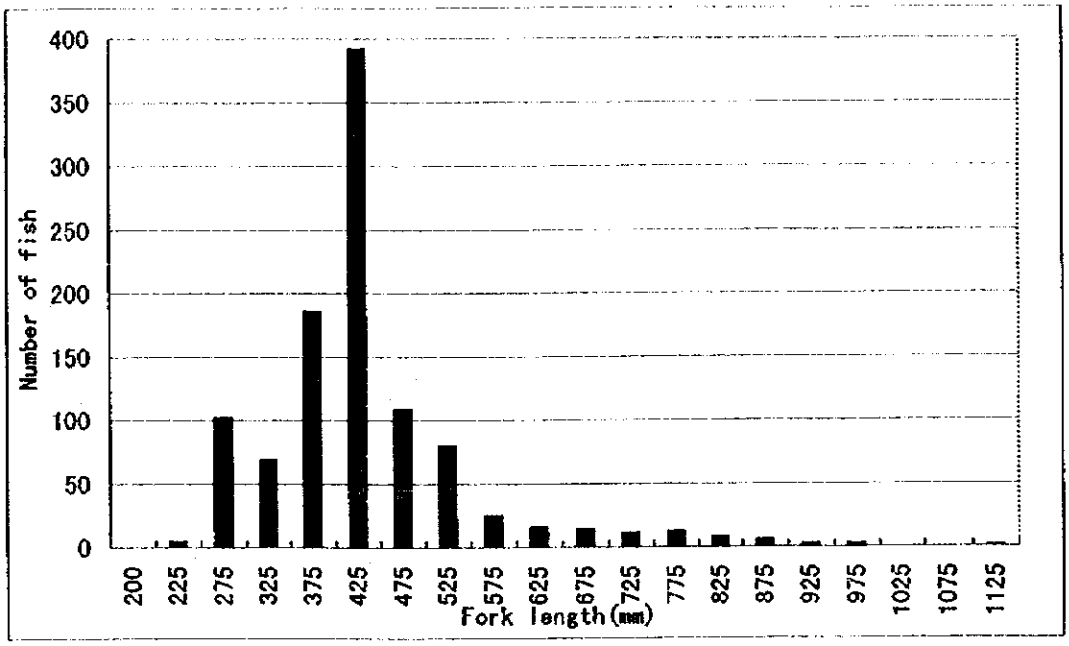
App. Figure 76 Distribution of current direction and velocity at 2m depth (June in 1997)

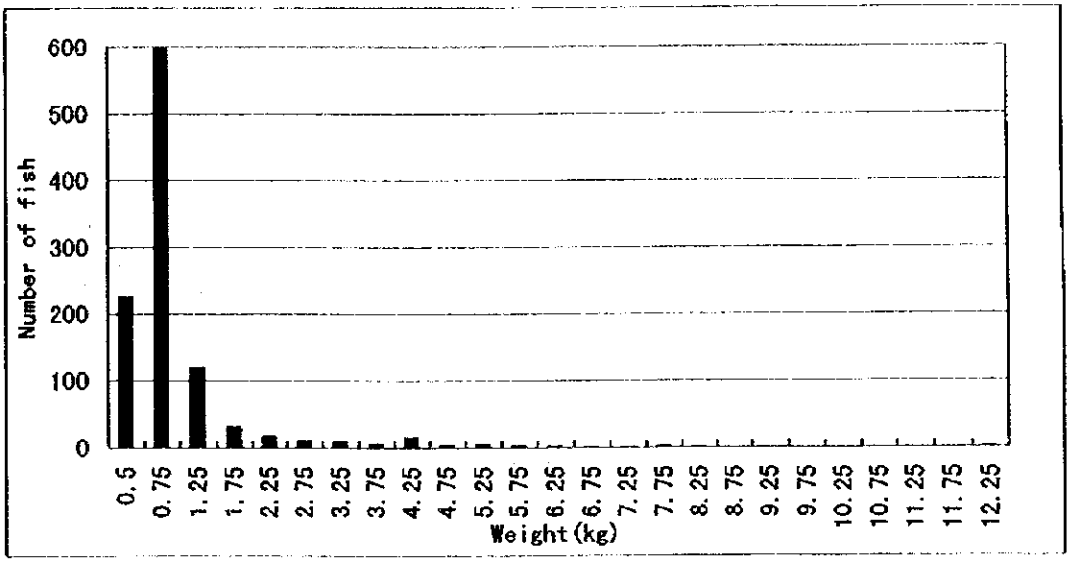


App. Figure 77 Distribution of current direction and velocity at 10m depth (June in 1997)

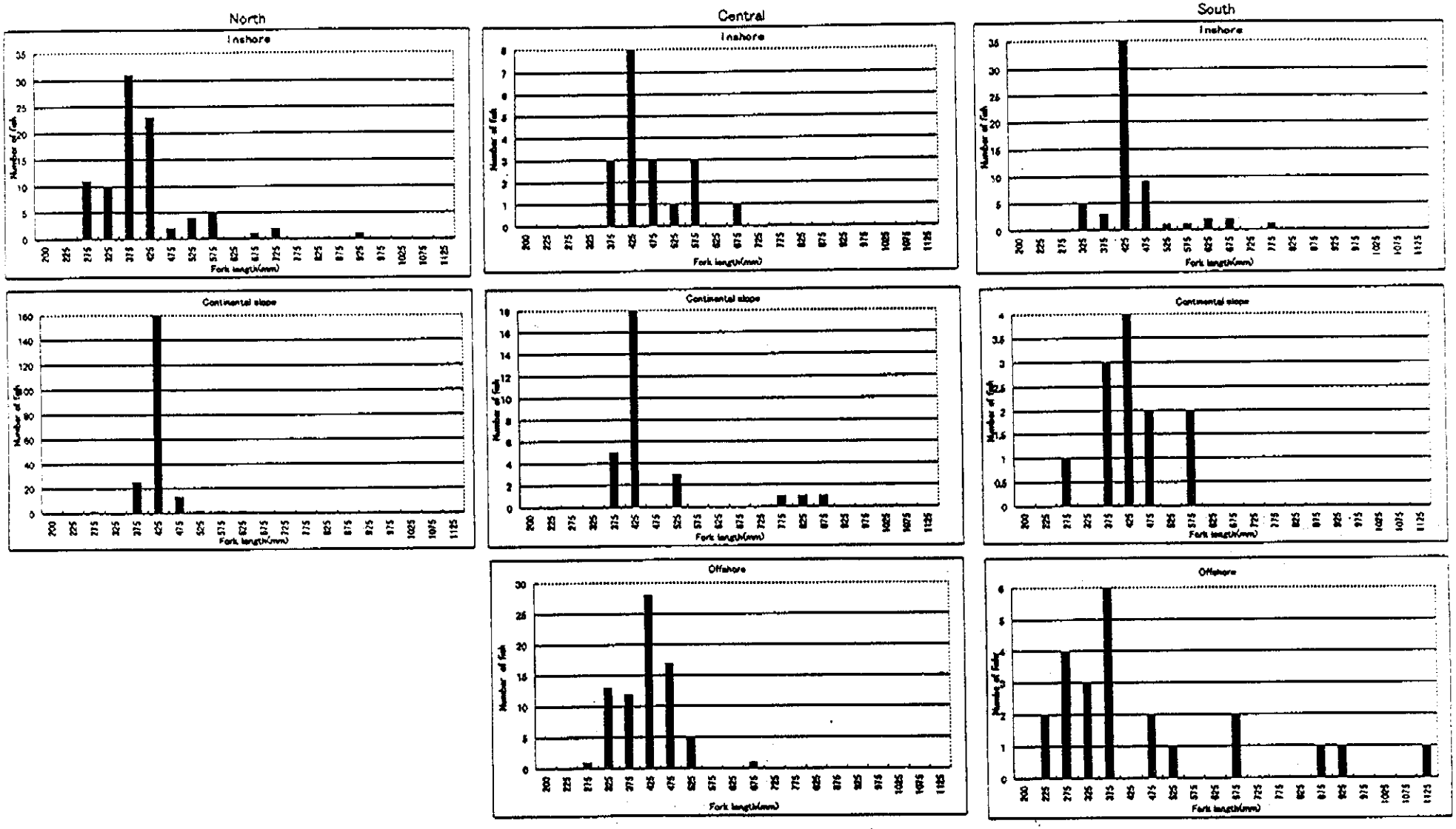


App. Figure 78 Distribution of current direction and velocity at 30m depth (June in 1997)

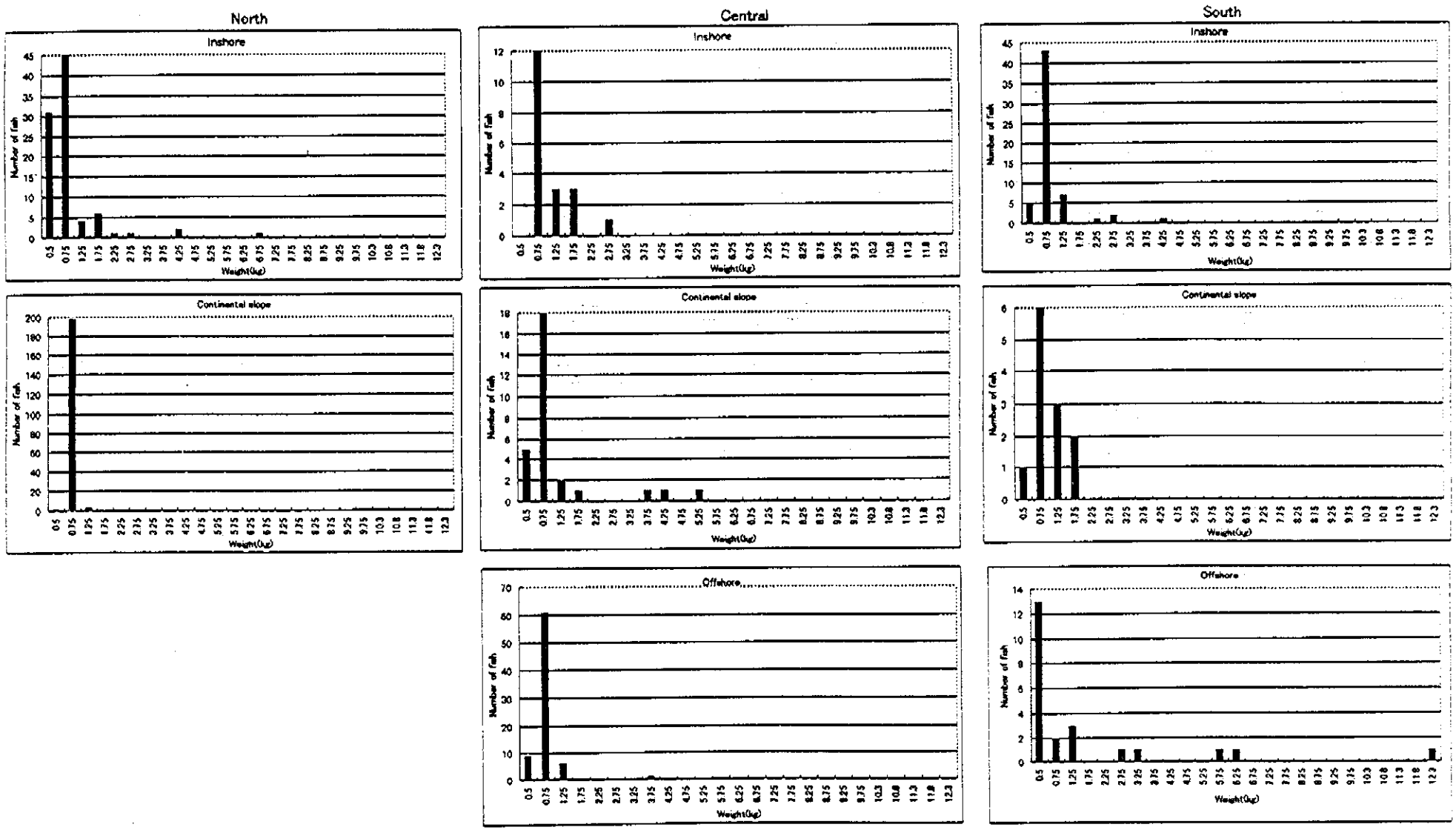




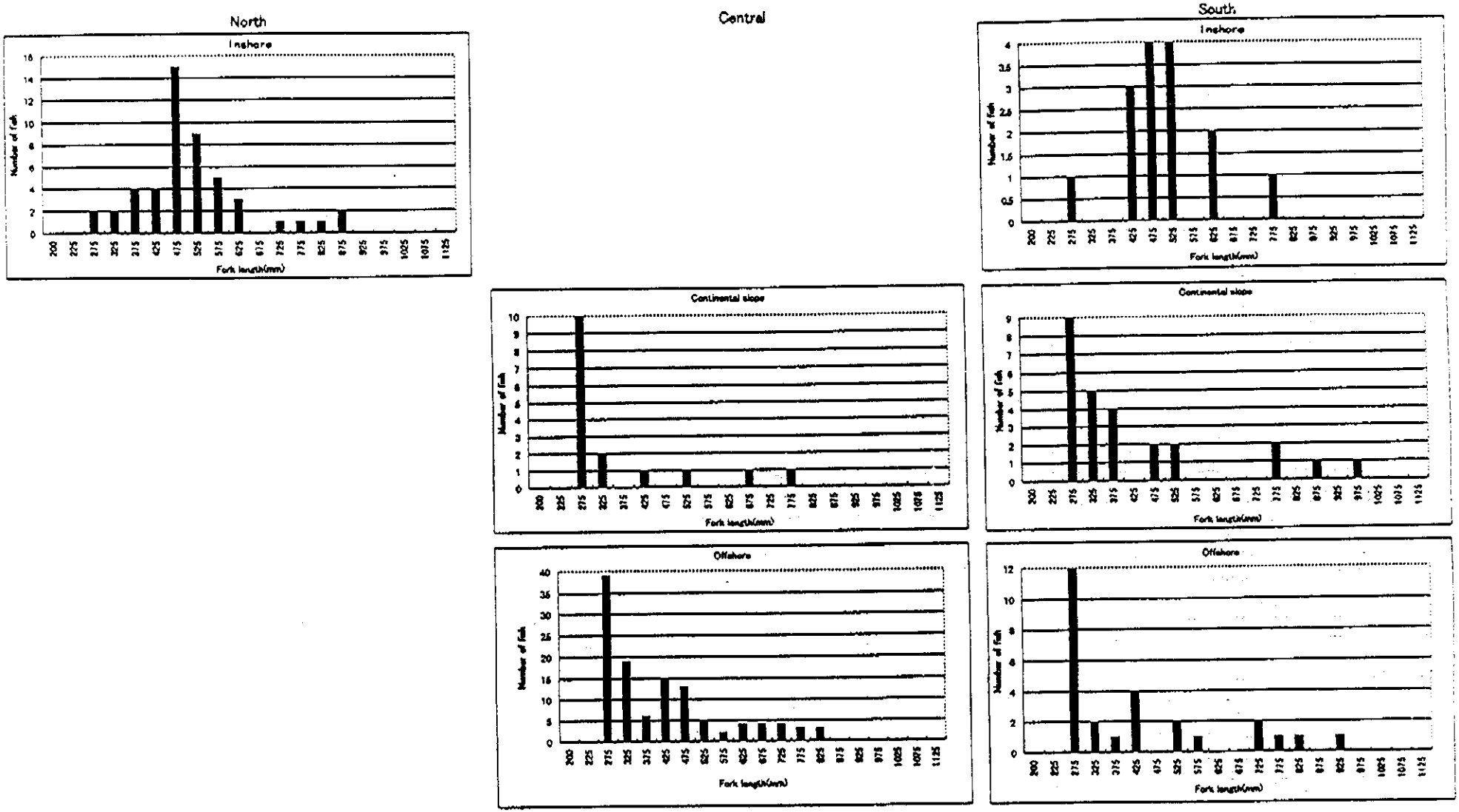
App. Figure 79. Body size composition of *Coryphaena hippurus* caught in 1996 -1997.



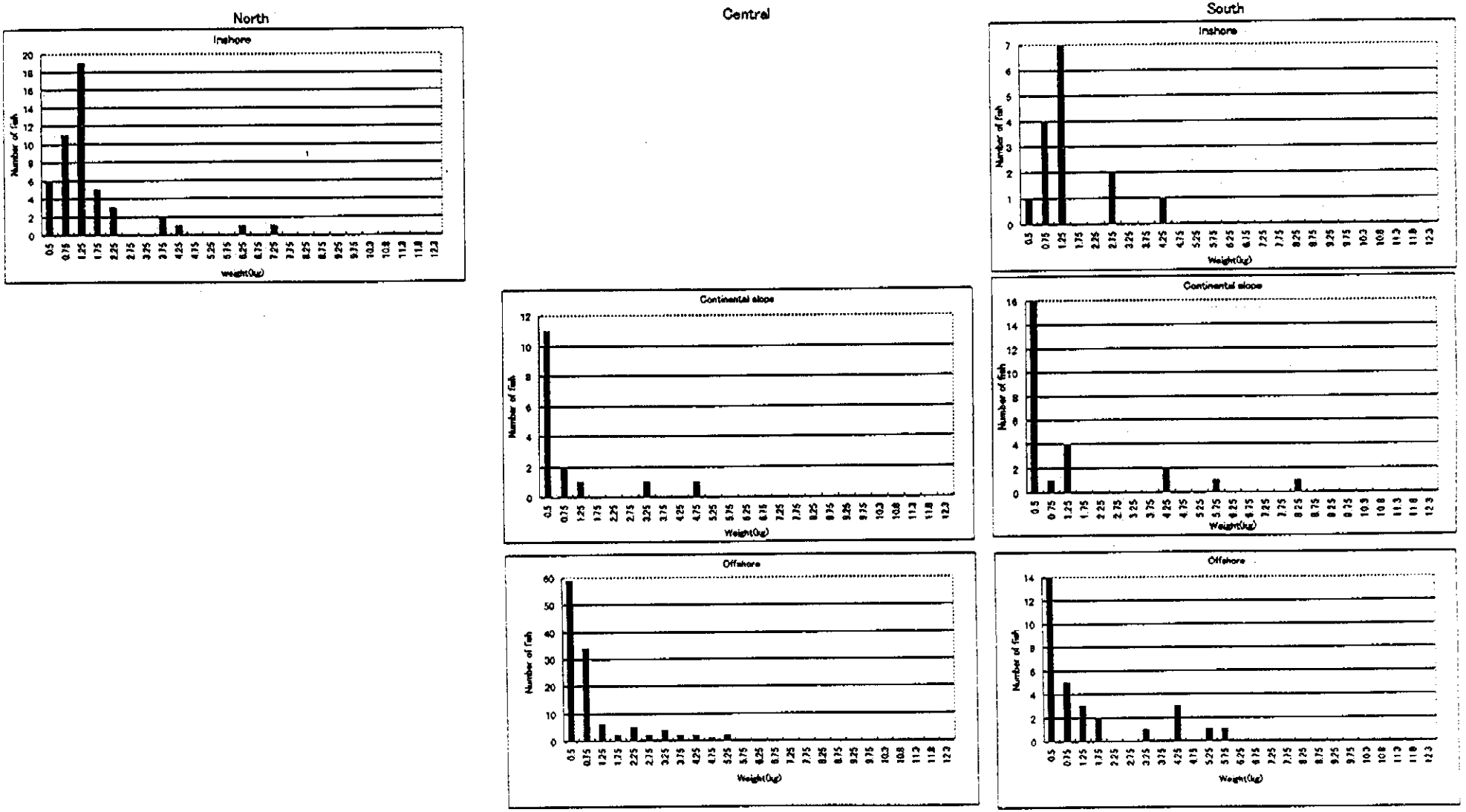
App. Figure 80. Fork length composition of *Coryphaena hippurus* caught at each area in May - June, 1996.



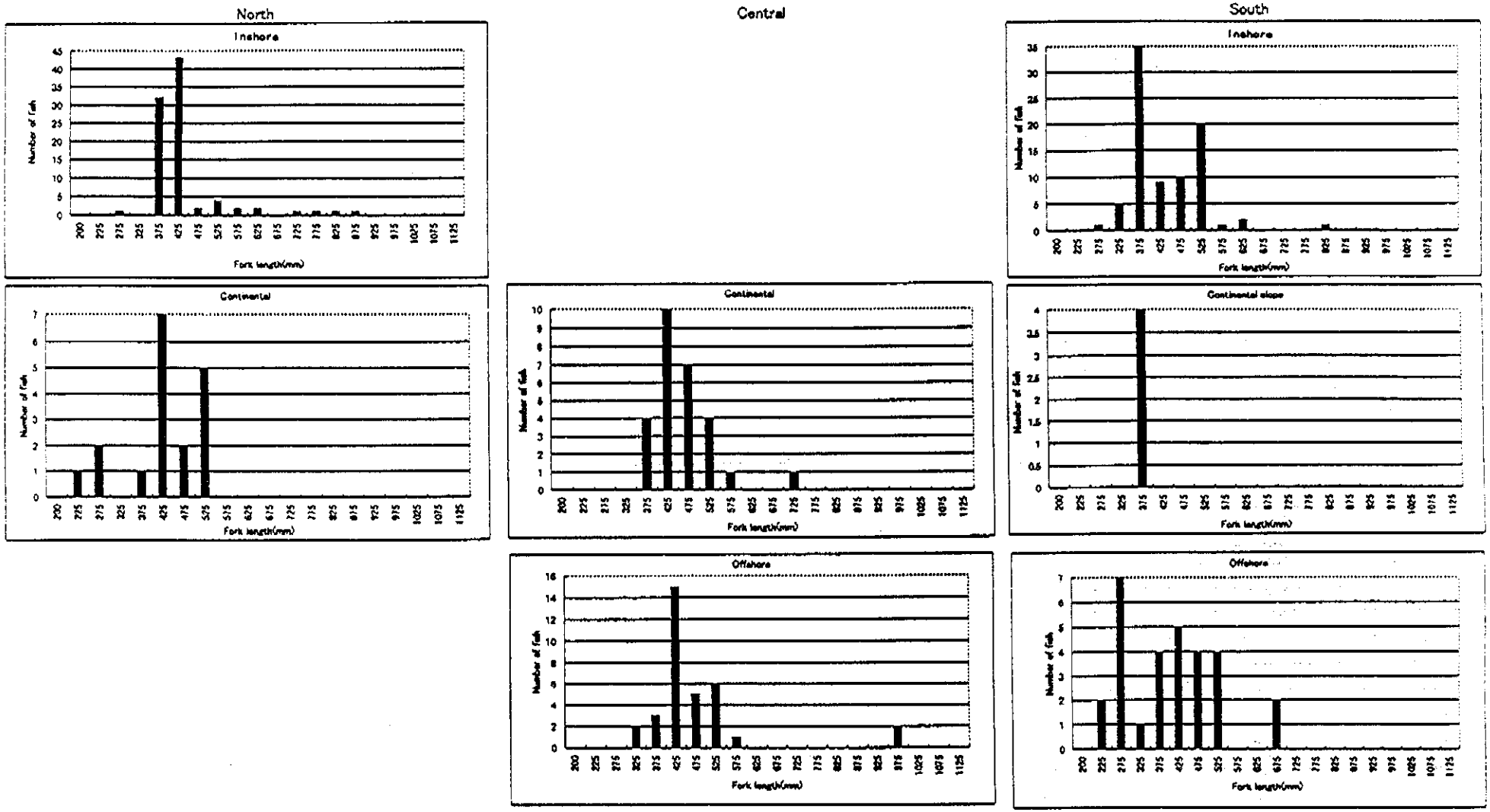
App. Figure 81. Body weight composition of *Coryphaena hippurus* caught at each area in May - June,1996.



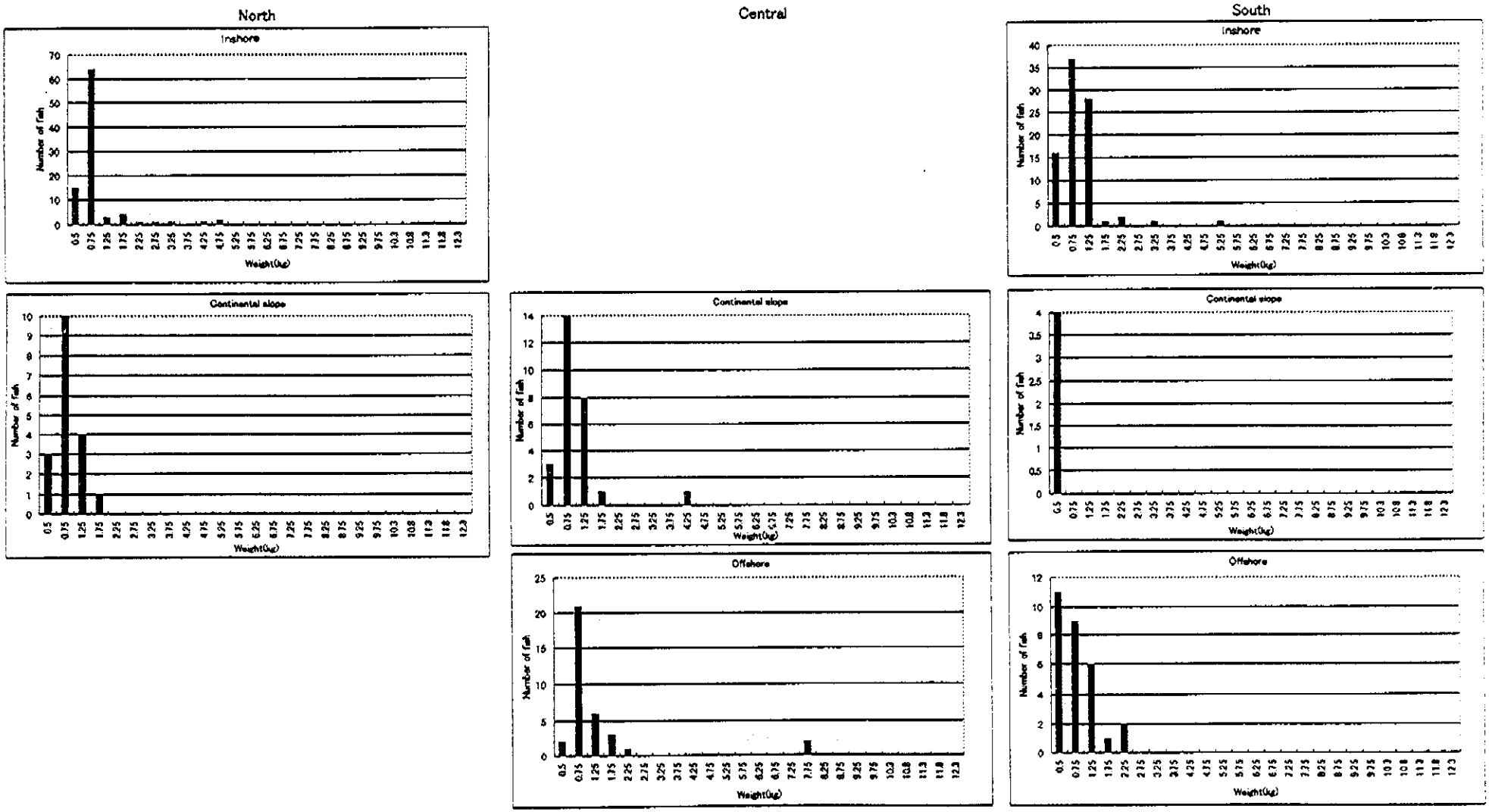
App. Figure 82. Fork length composition of *Coryphaena hippurus* caught at each area in Sept. - Oct. 1996.



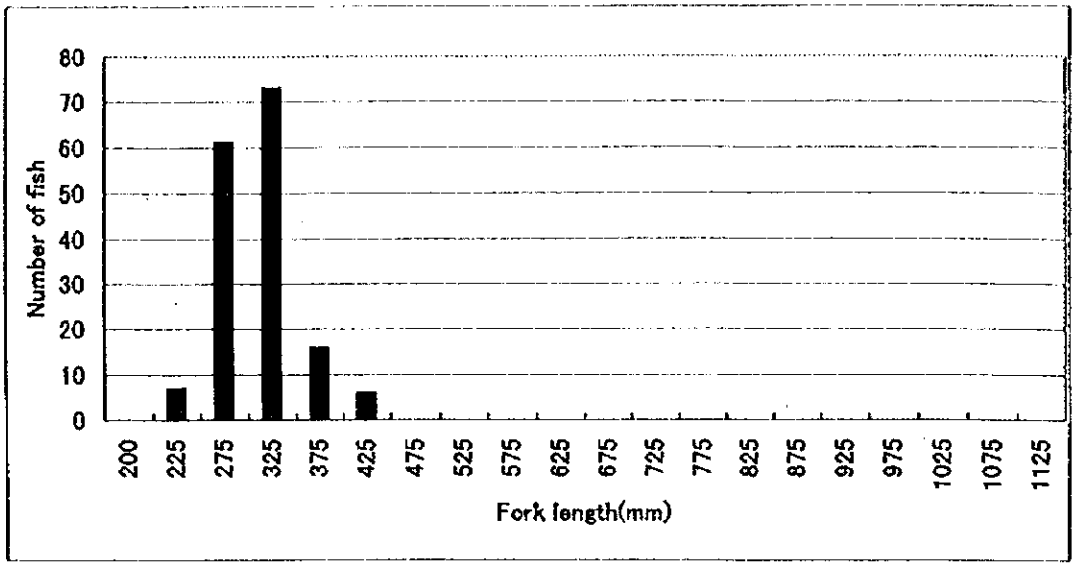
App. Figure 83. Body weight composition of *Coryphaena hippurus* caught at each area in Sept. - Oct. 1996.

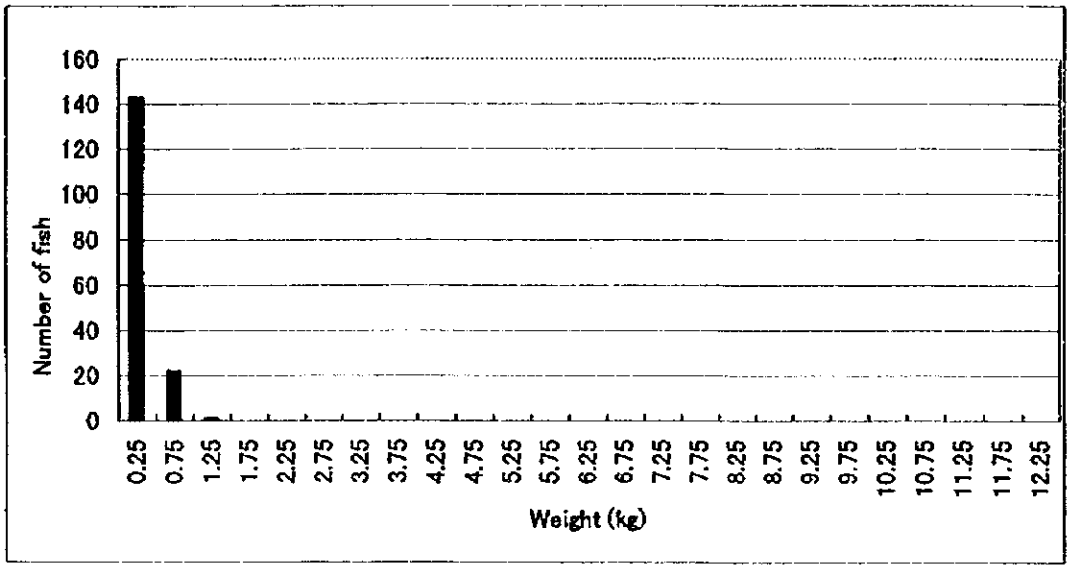


App. Figure 84. Fork length composition of *Coryphaena hippurus* caught at each area in May - June, 1997.

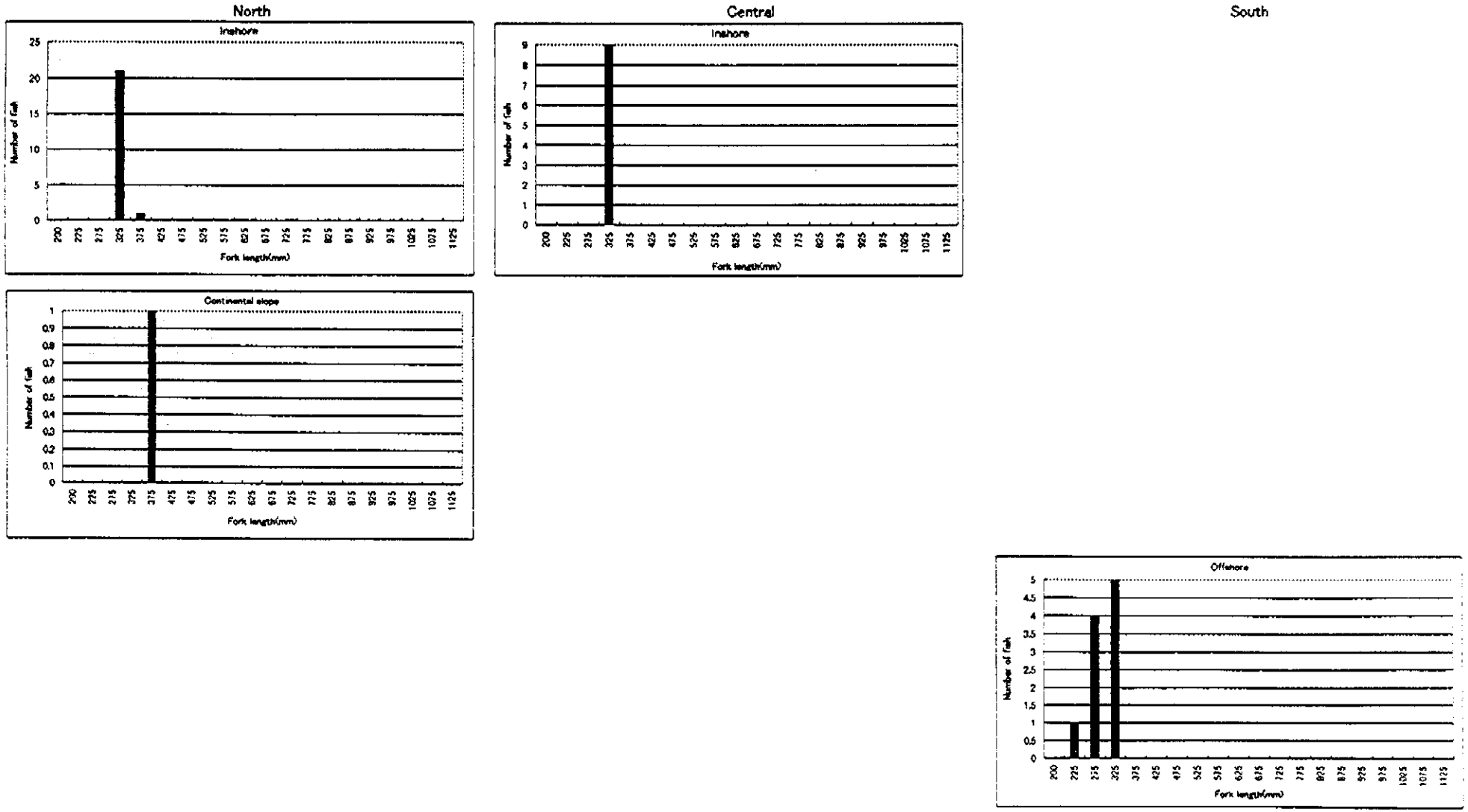


App. Figure 85. Body weight composition of *Coryphaena hippurus* caught at each area in May - June, 1997.



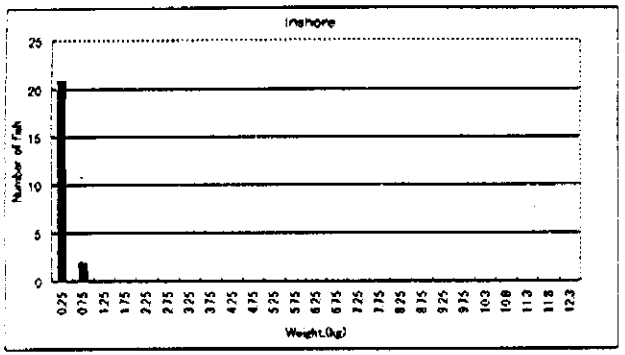


App. Figure 86. Body size composition of *Coryphaena equiselis* caught in 1996 -1997.

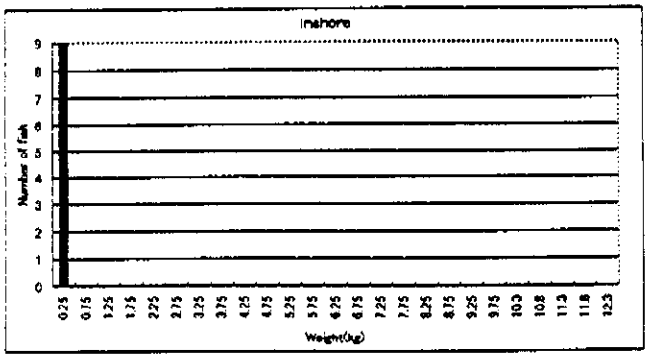


App. Figure 87. Fork length composition of *Coryphaena equiselis* caught at each area in May - June, 1996.

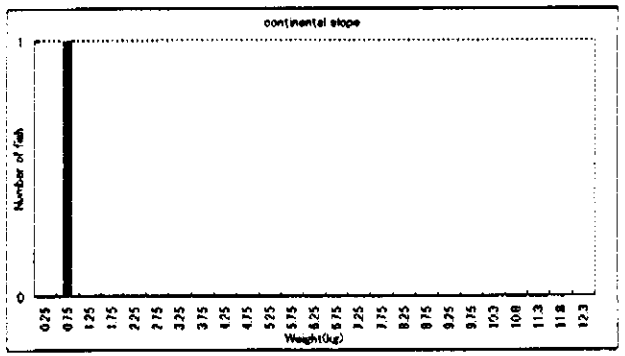
North

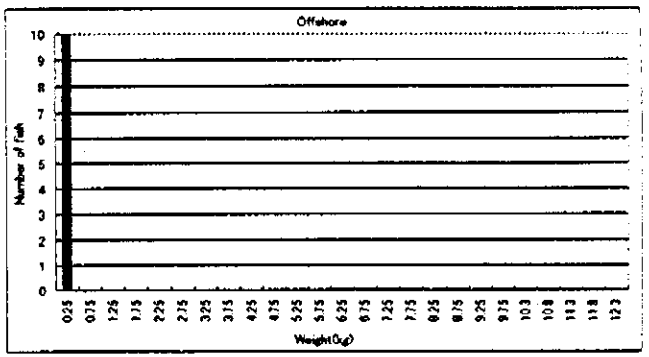


Central

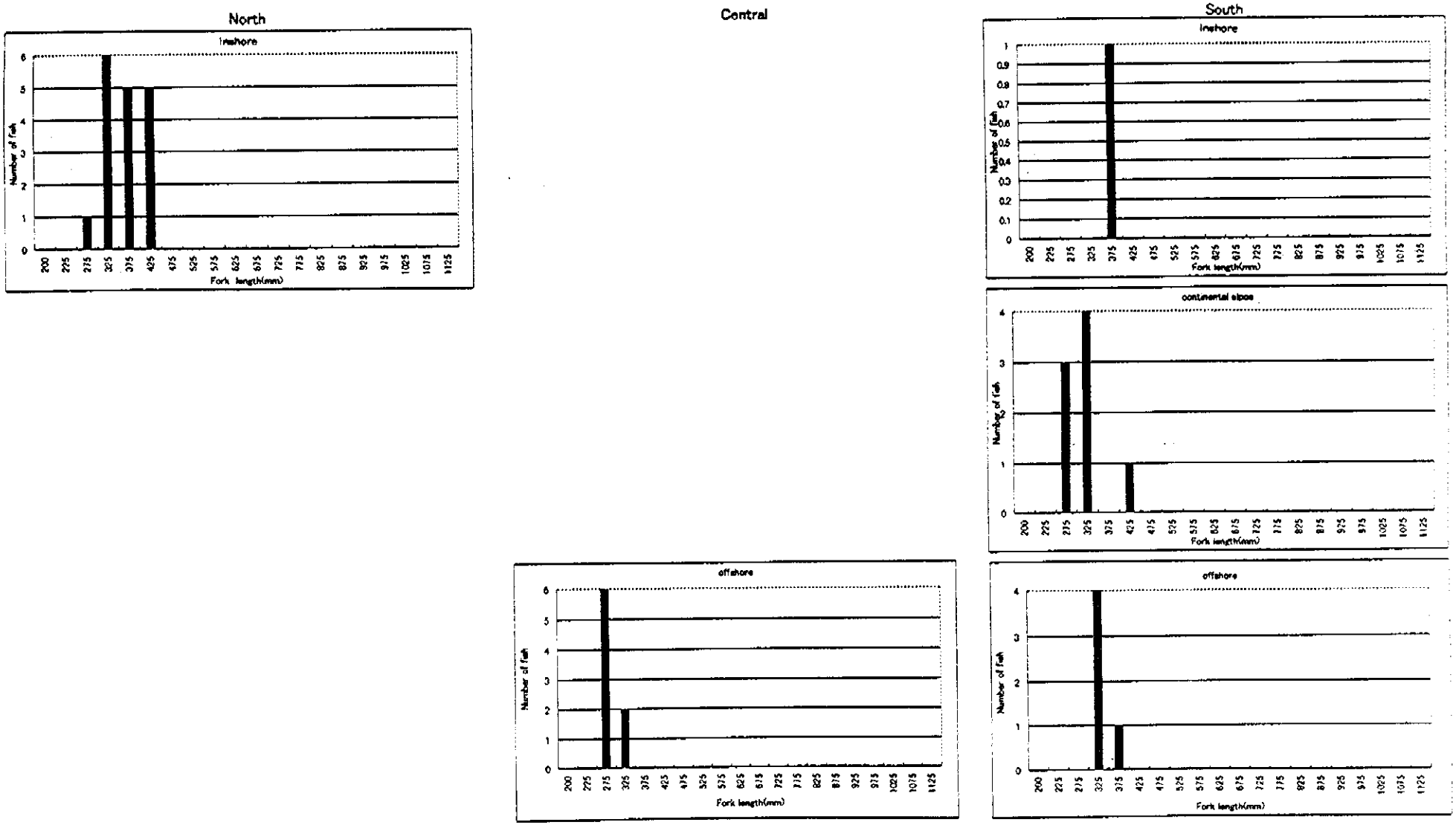


South

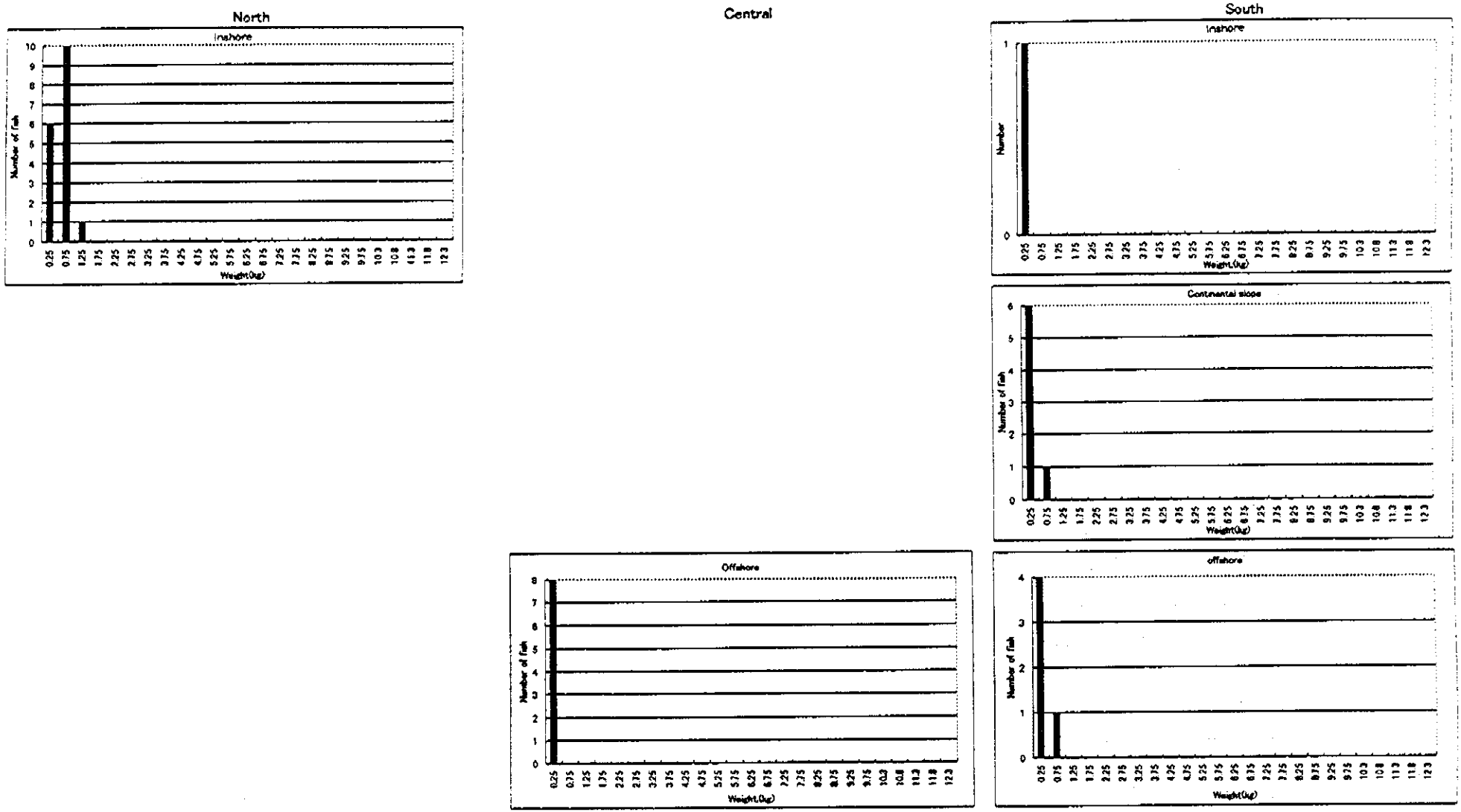




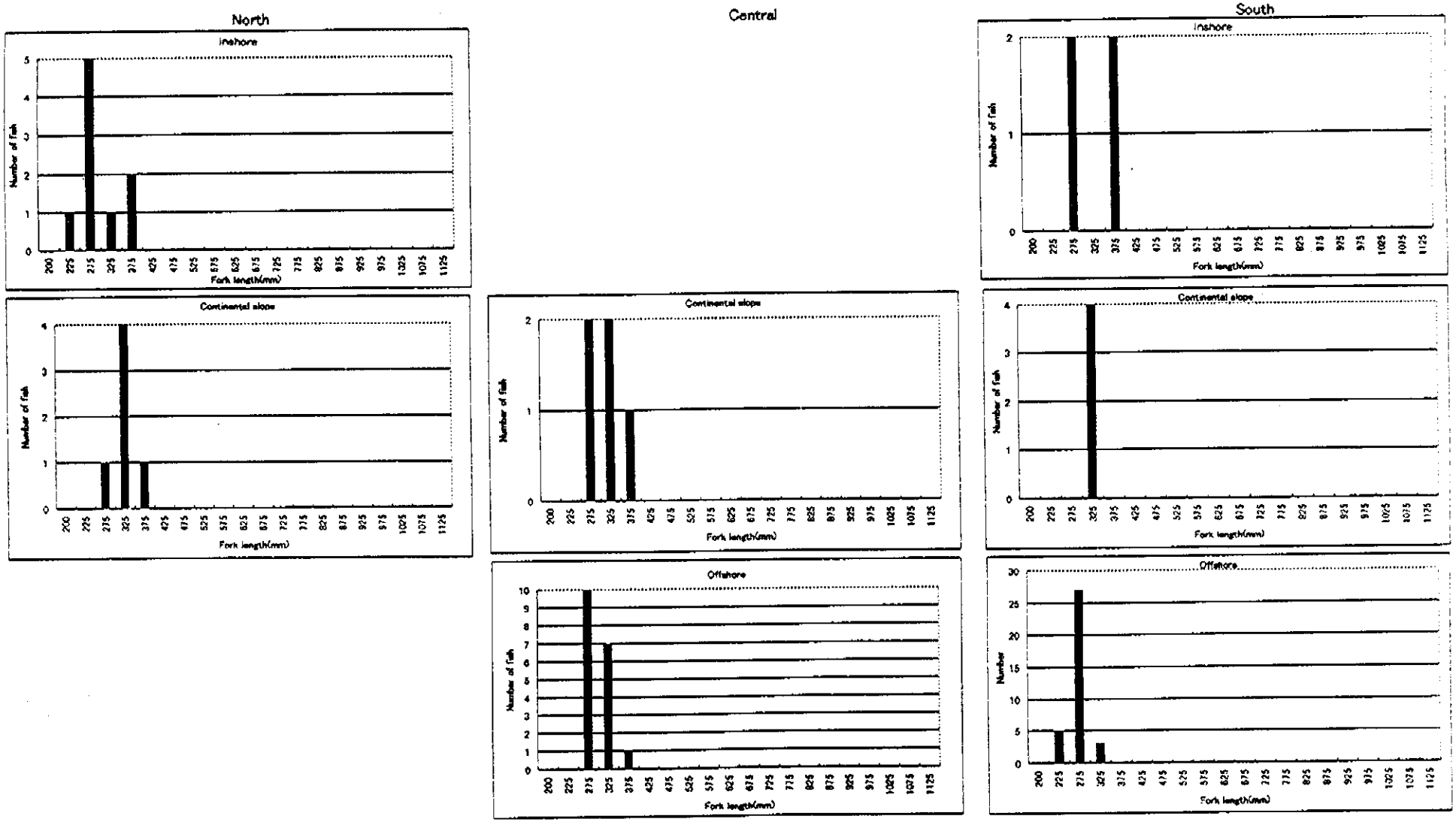
App. Figure 88. Body weight composition of *Coryphaena equiselis* caught at each area in May - June,1996.



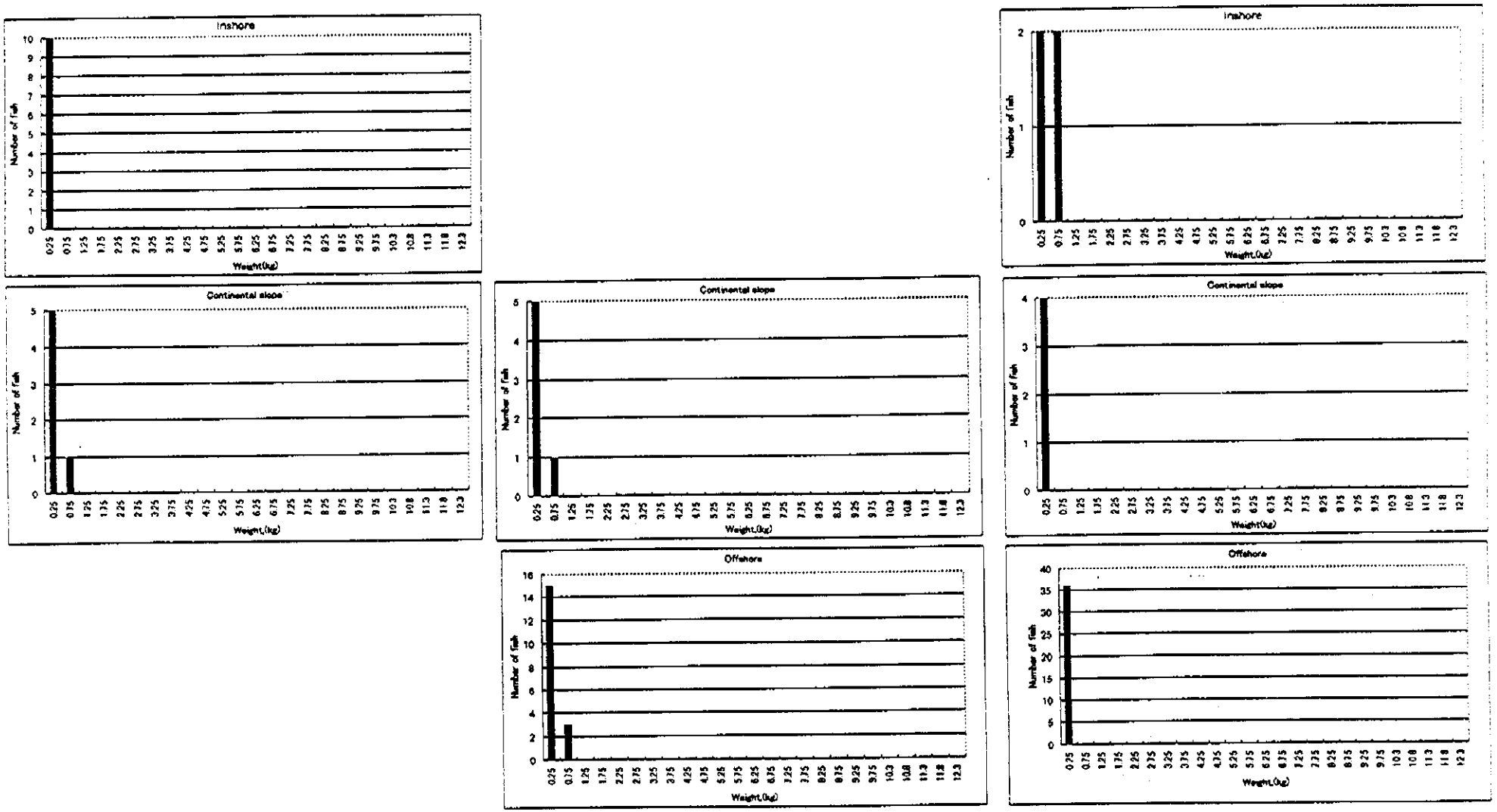
App. Figure 89. Fork length composition of *Coryphaena equiselis* caught at each area in Sept. - Oct. 1996.



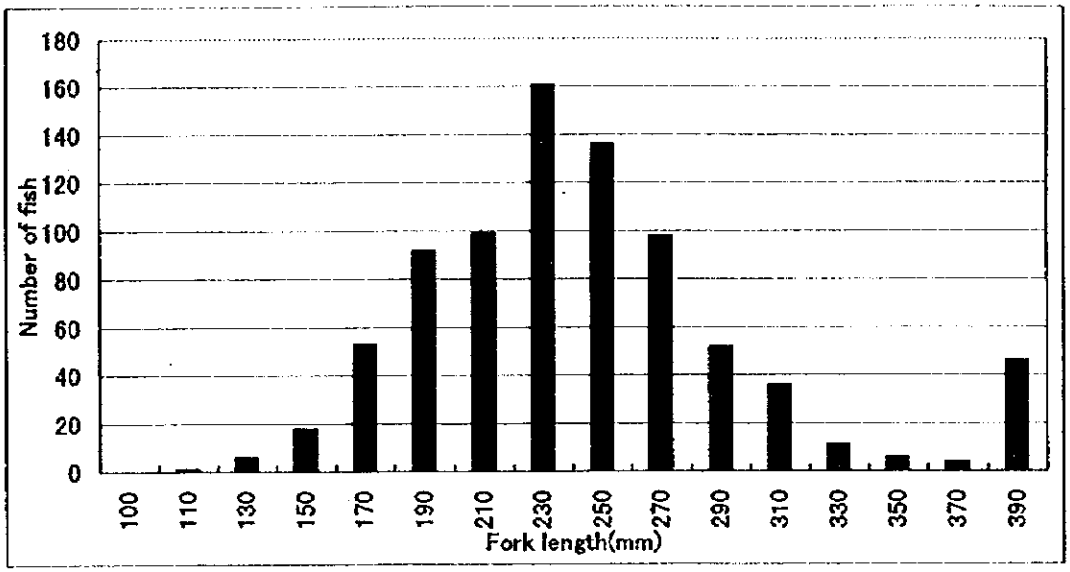
App. Figure 90. Body weight composition of *Coryphaena equiselis* caught at each area in Sept. - Oct. 1996.

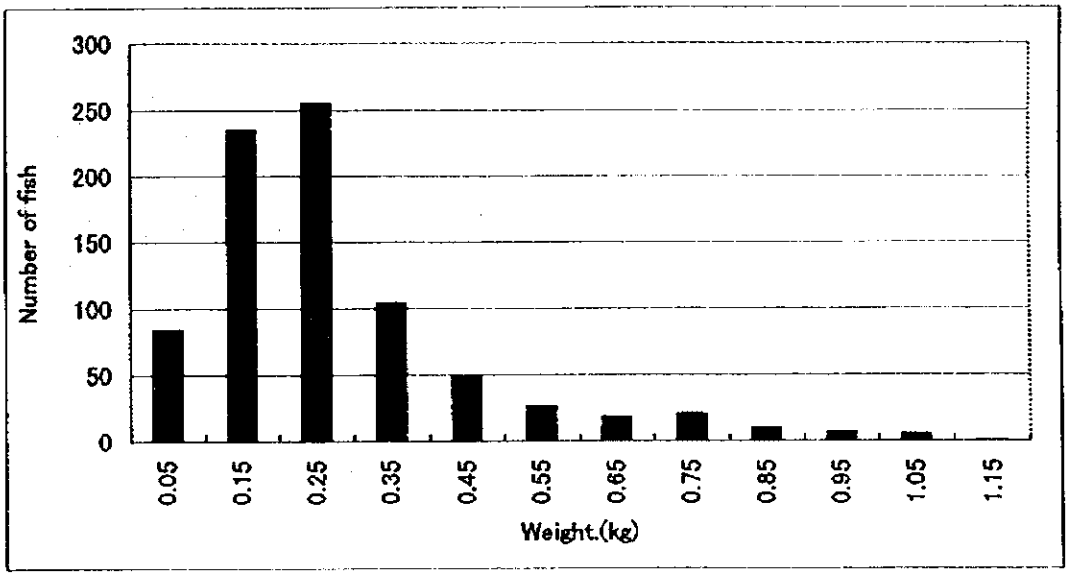


App. Figure 91. Fork length composition of *Coryphaena equiselis* caught at each area in May - June, 1997.



App. Figure 92. Body weight composition of *Coryphaena equiselis* caught at each area in May - June, 1997.



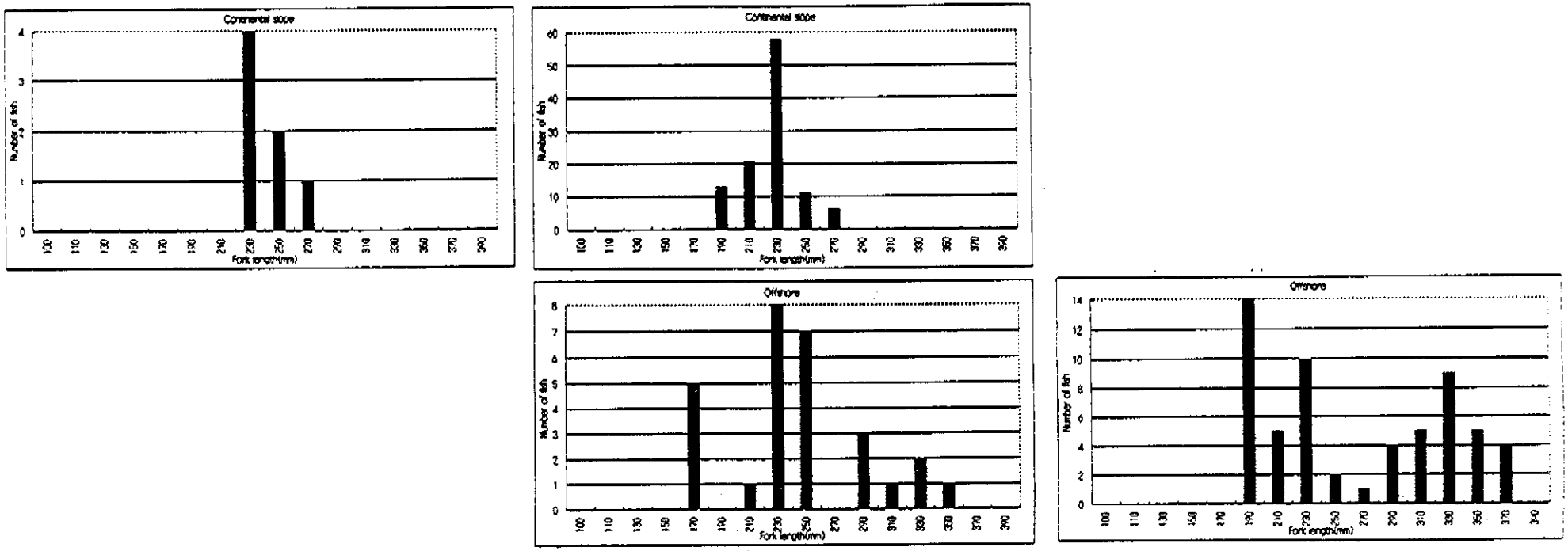


App. Figure 93. Body size composition of *Brama orcini* caught in 1996 -1997.

North

Central

South

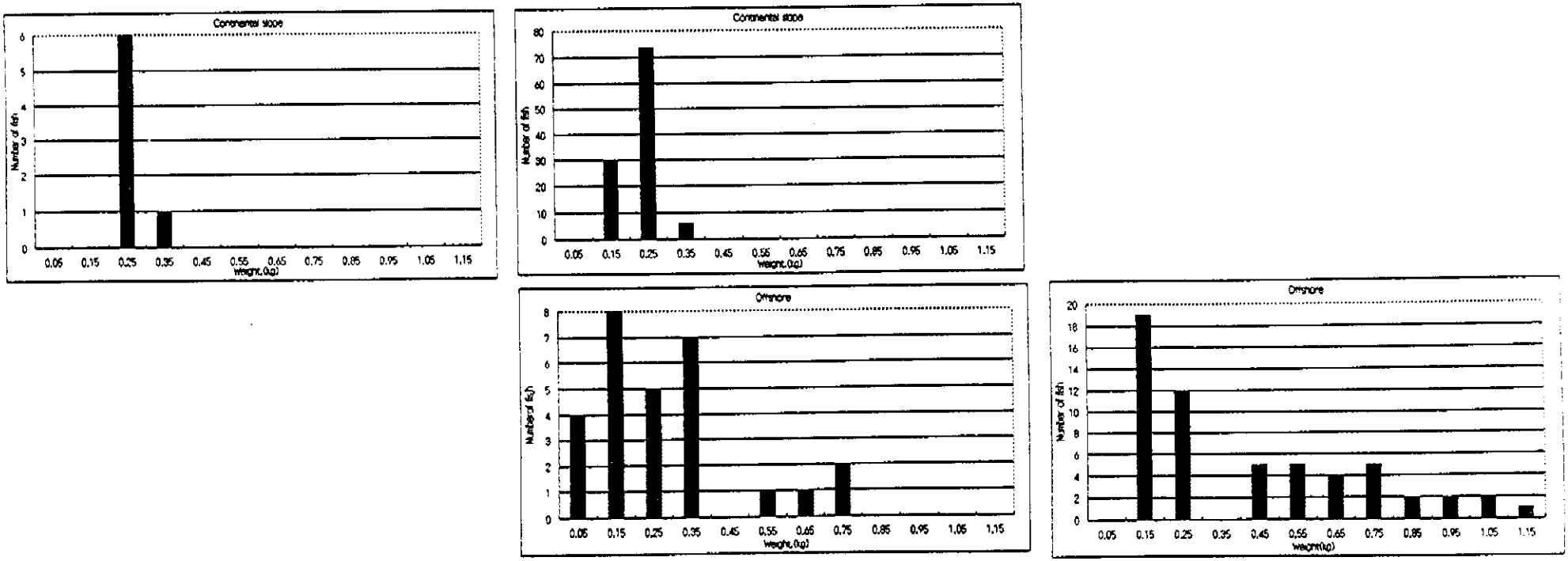


App. Figure 94. Fork length composition of *Brama orcini* caught at each area in May -June, 1996.

North

Central

South

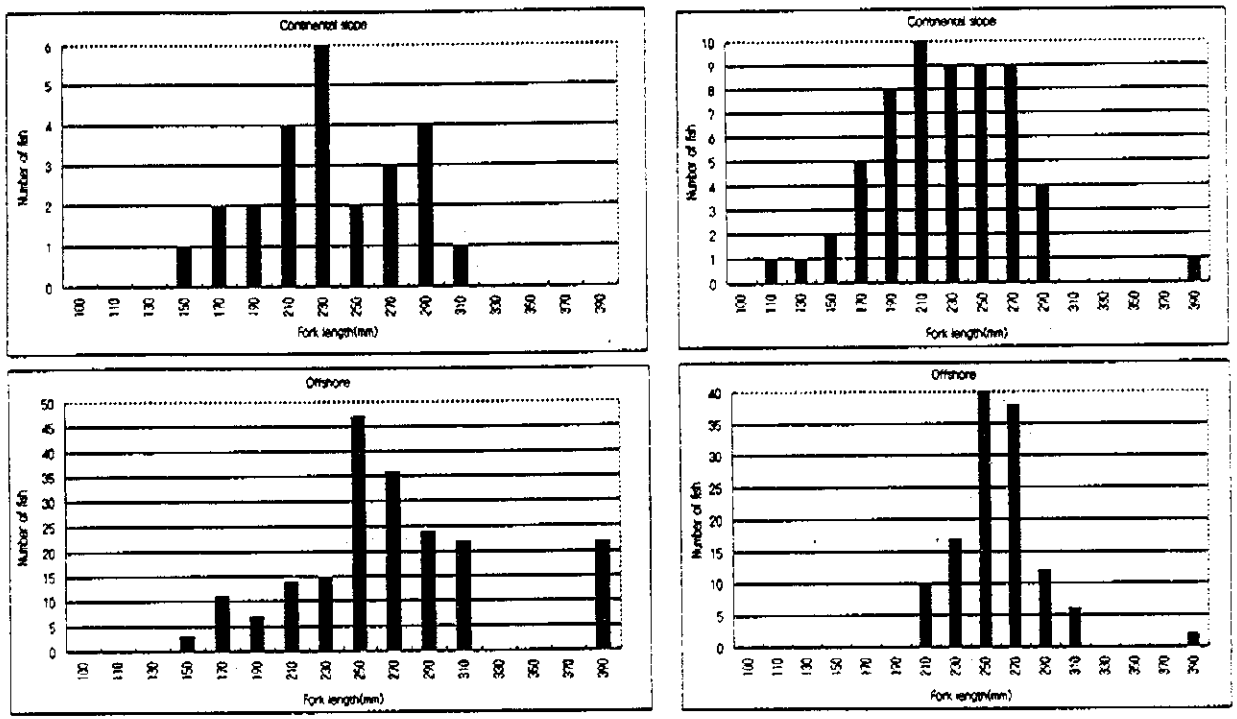


App. Figure 95. Body weight composition of *Brama orcini* caught at each area in May - June,1996.

North

Central

South

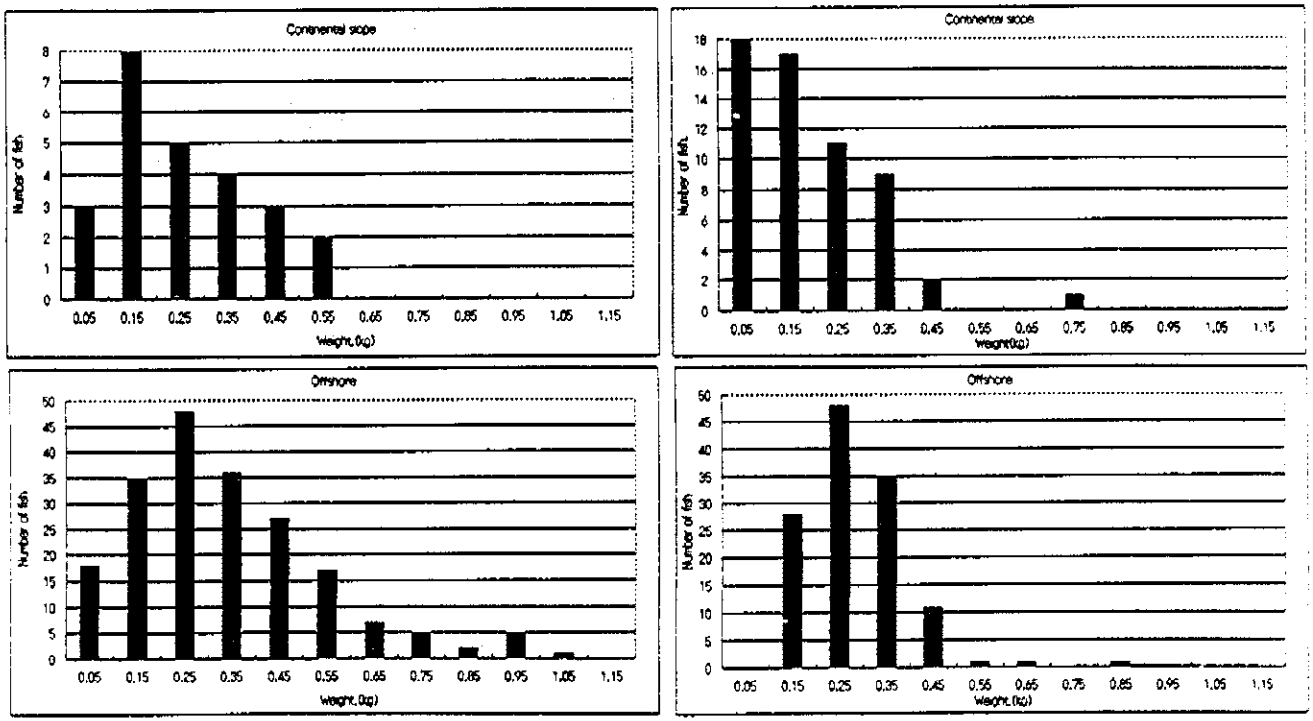


App. Figure 96. Fork length composition of *Brama orcini* caught at each area in Sept. - Oct. 1996.

North

Central

South

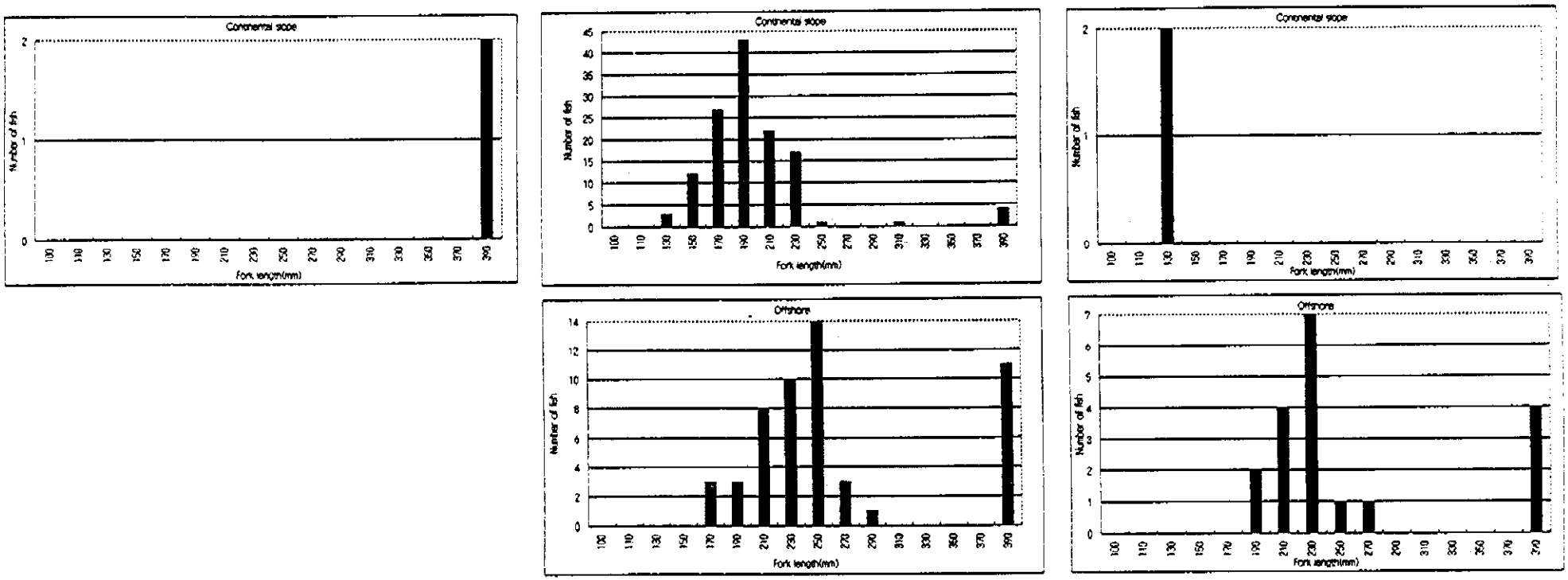


App. Figure 97. Body weight composition of *Brama orcini* caught at each area in Sept. - Oct. 1996.

North

Central

South

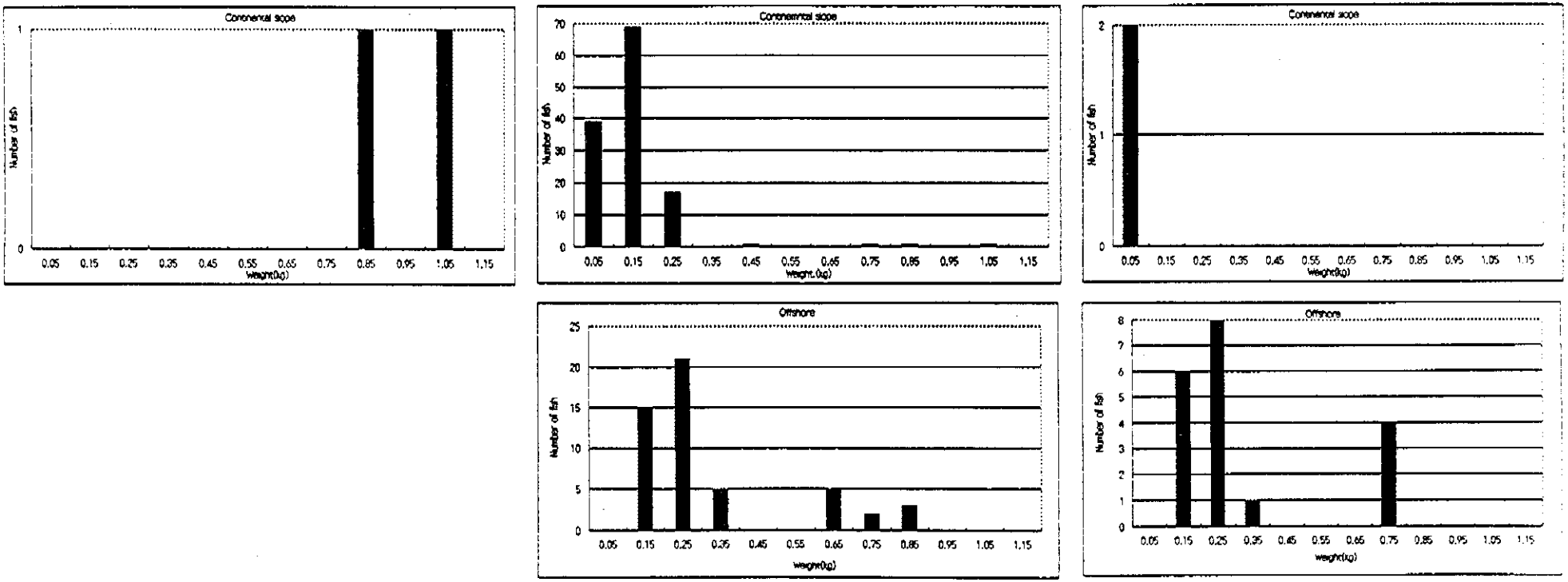


App. Figure 98. Fork length composition of *Brama orcini* caught at each area in May -June, 1997.

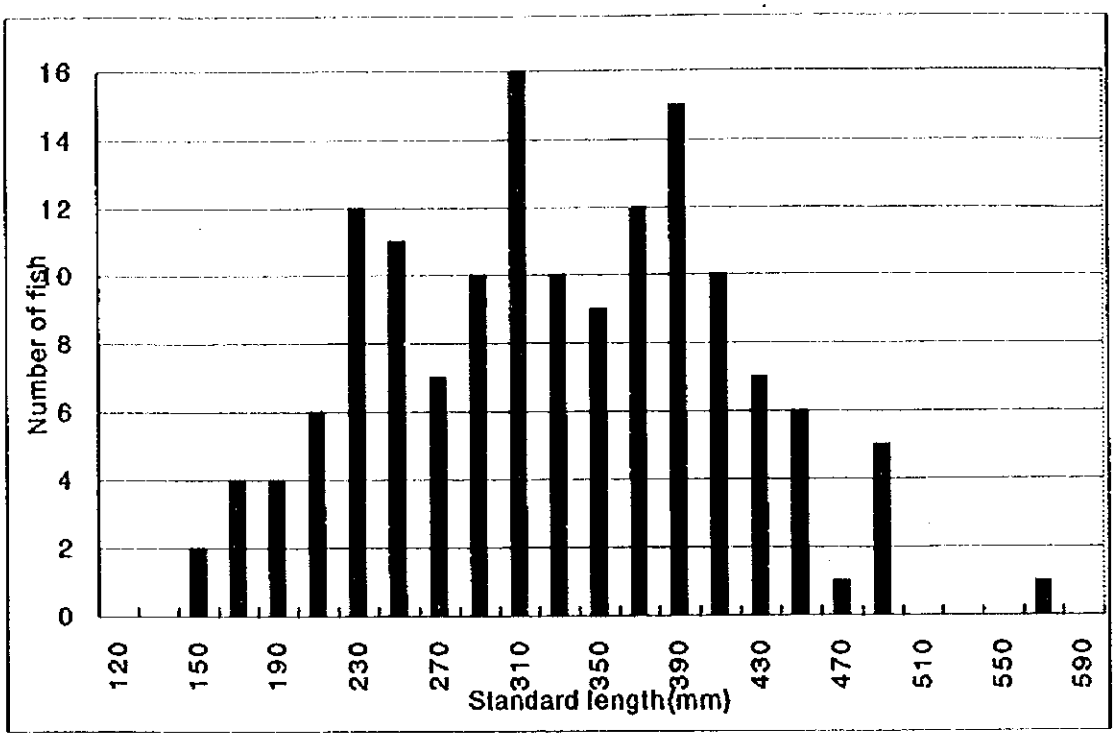
North

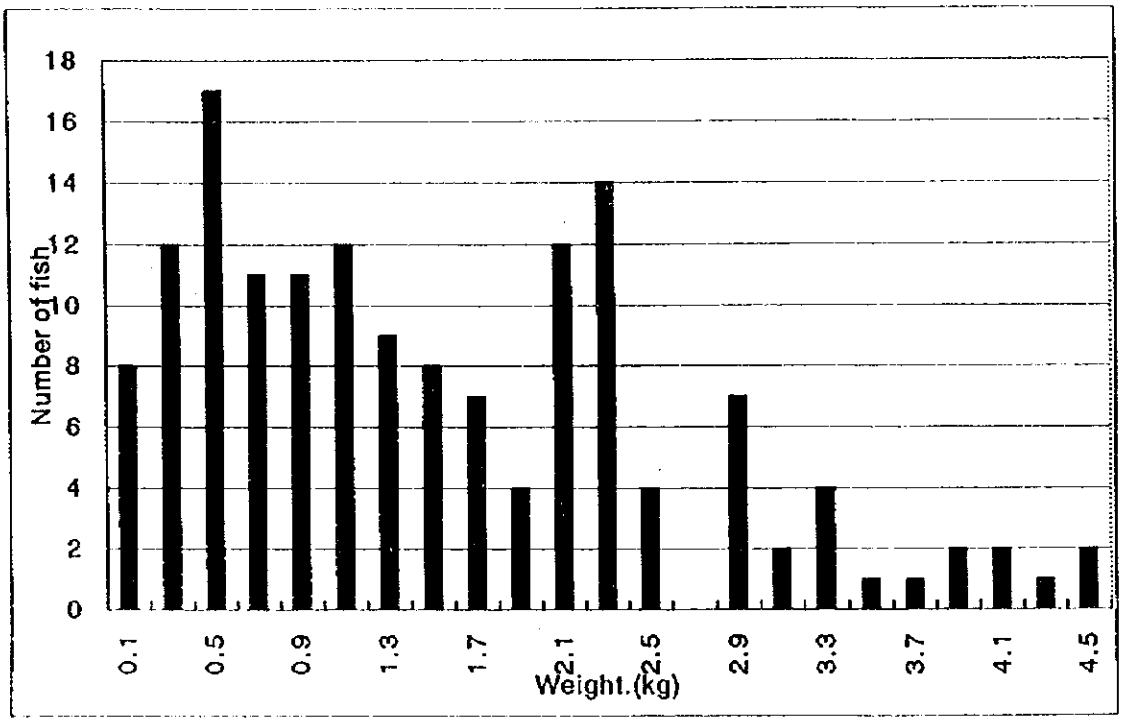
Central

South

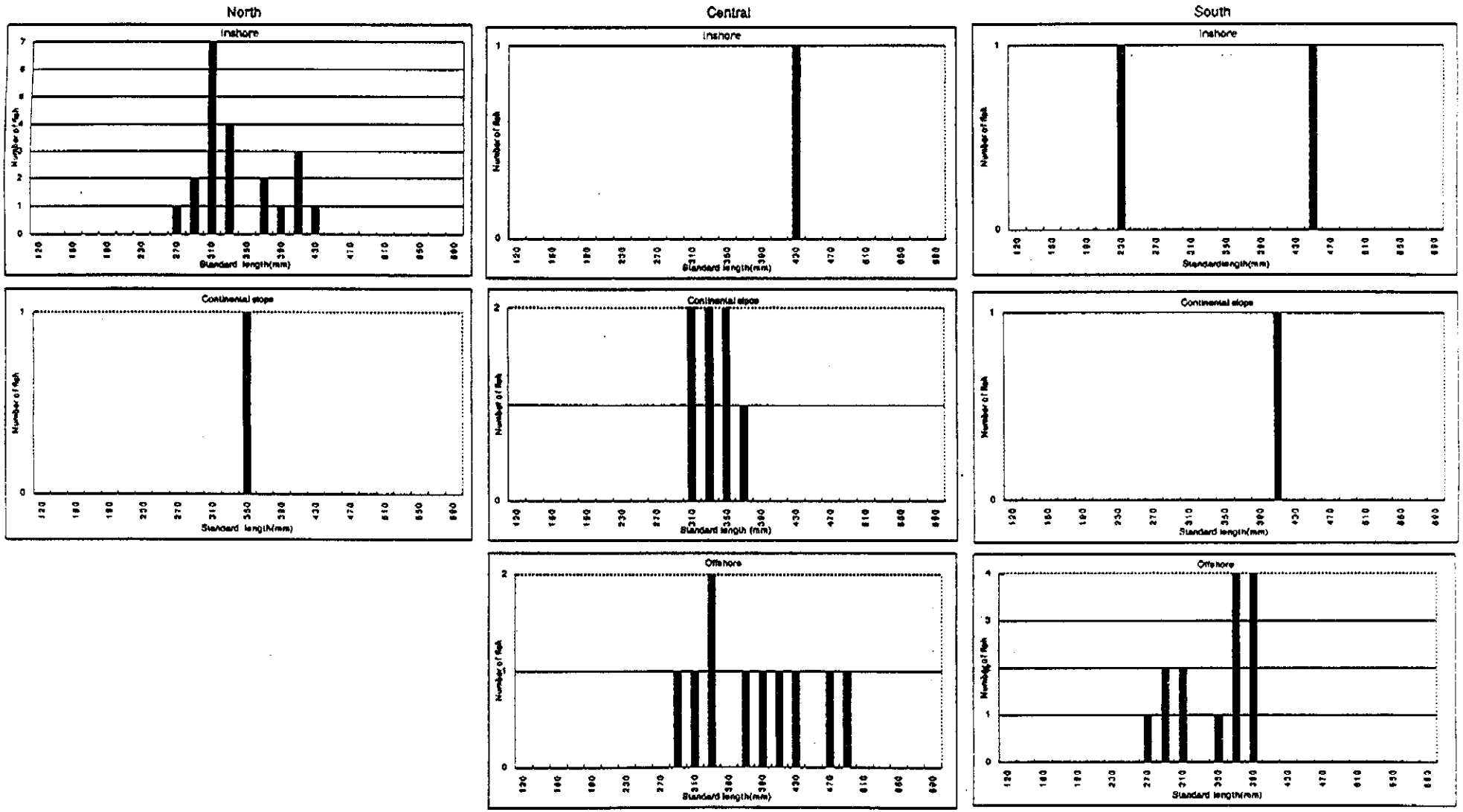


App. Figure 99. Body weight composition of *Brama orcini* caught at each area in May - June,

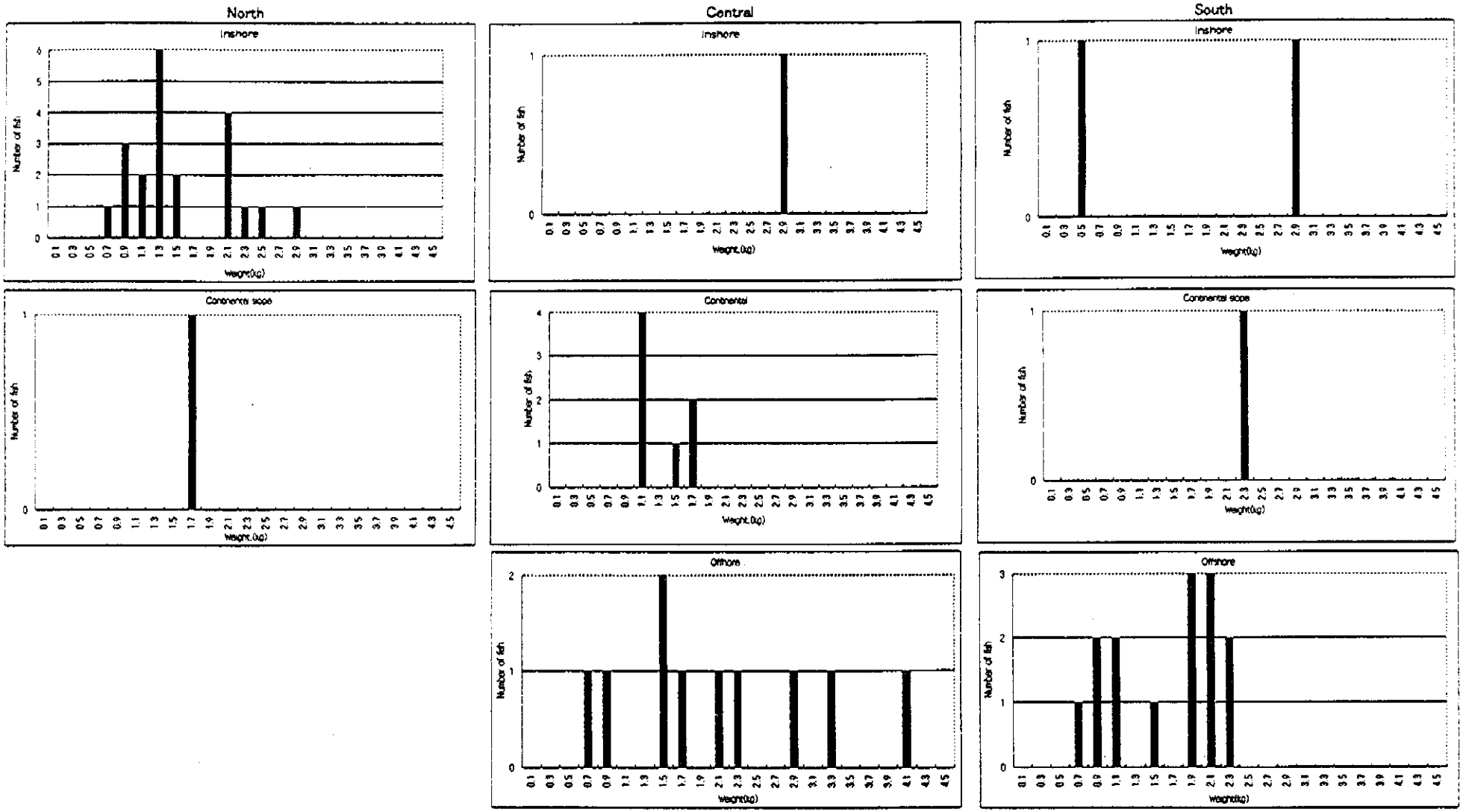




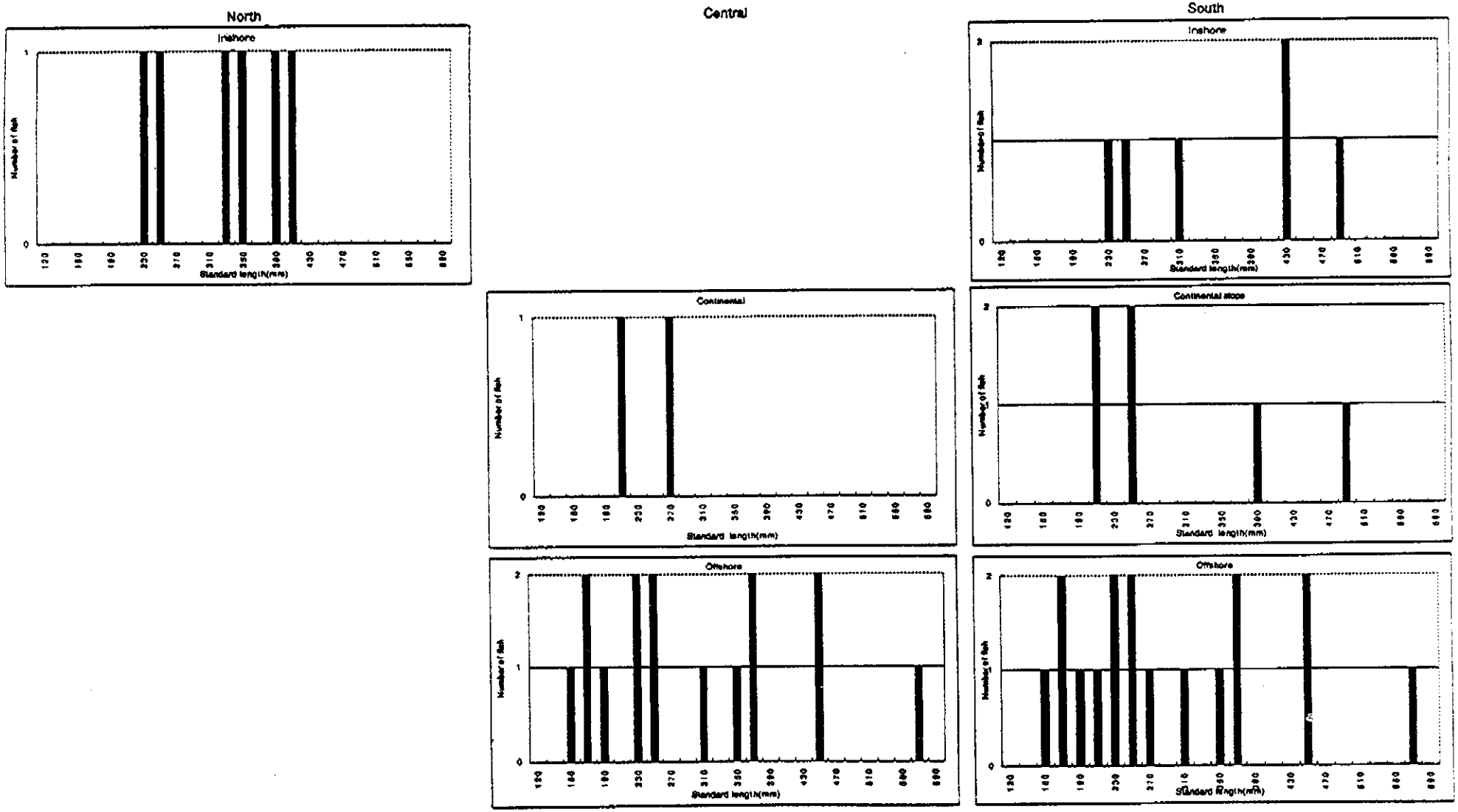
App. Figure 100. Body size composition of *Lobotes surinamensis* caught in 1996 -1997.



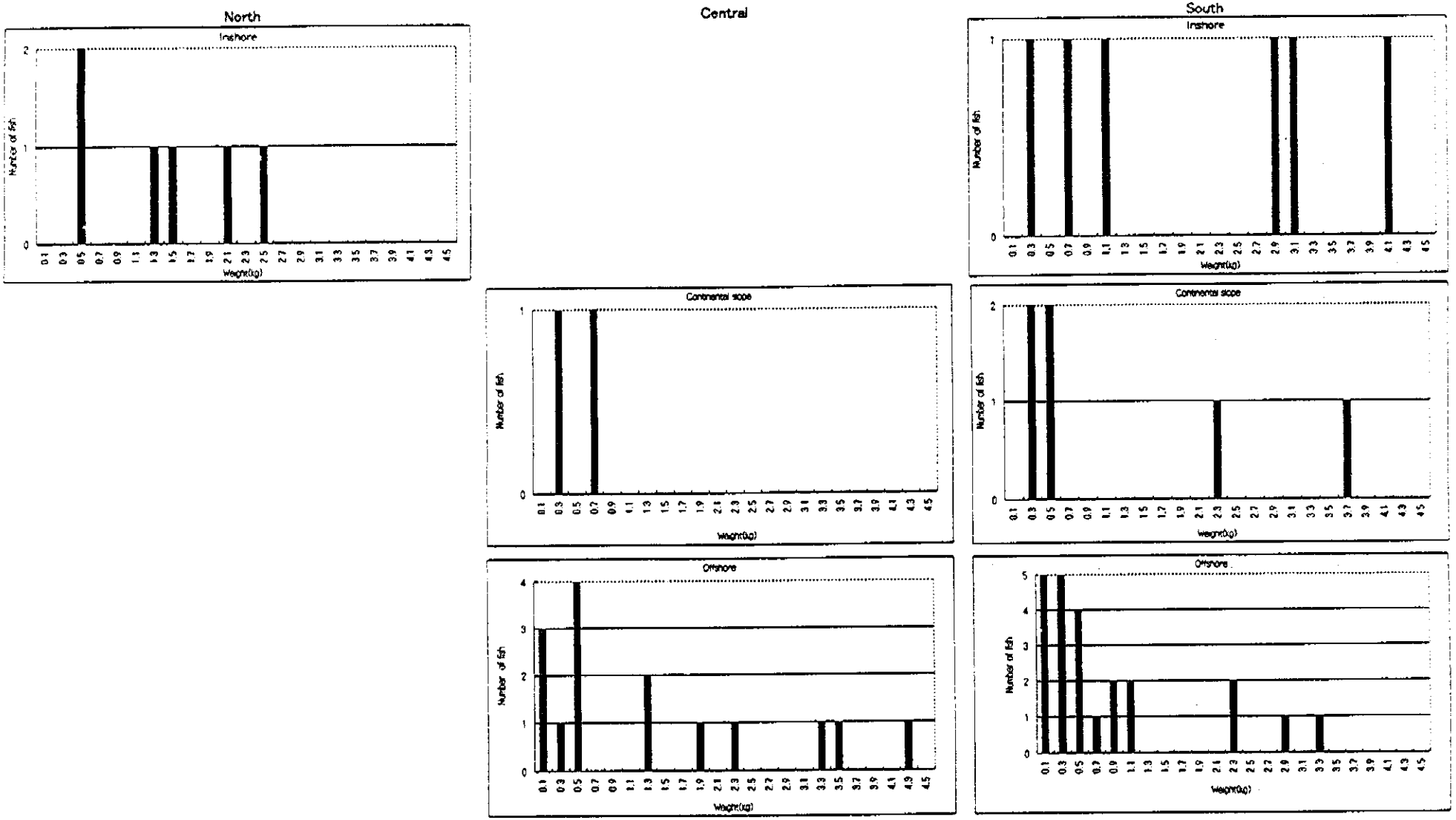
App. Figure 101. Standard length composition of *Lobotes surinamensis* caught at each area in May-June, 1996.



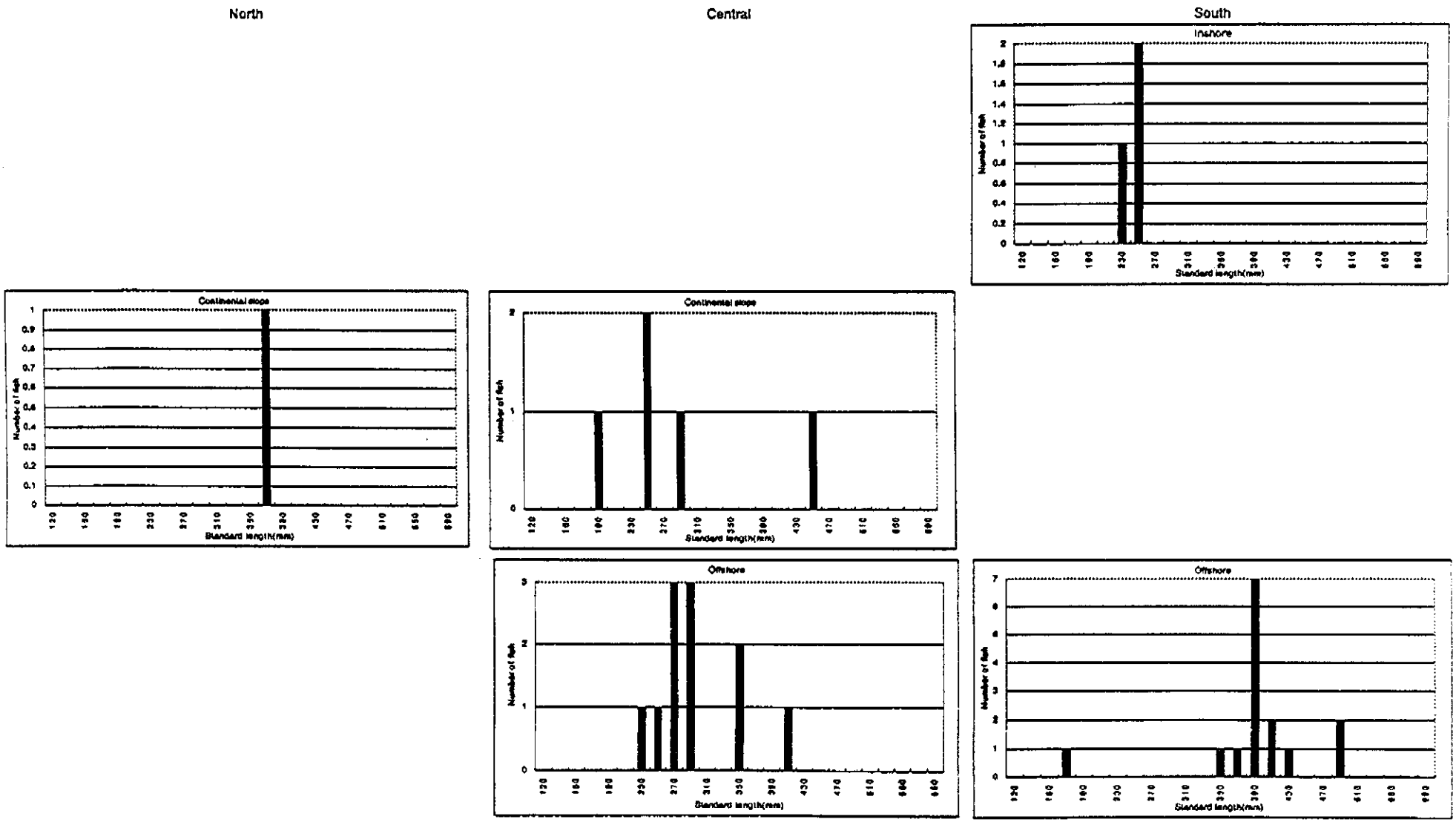
App. Figure 102. Body weight composition of *Lobotes surinamensis* caught at each area in May - June,1996.



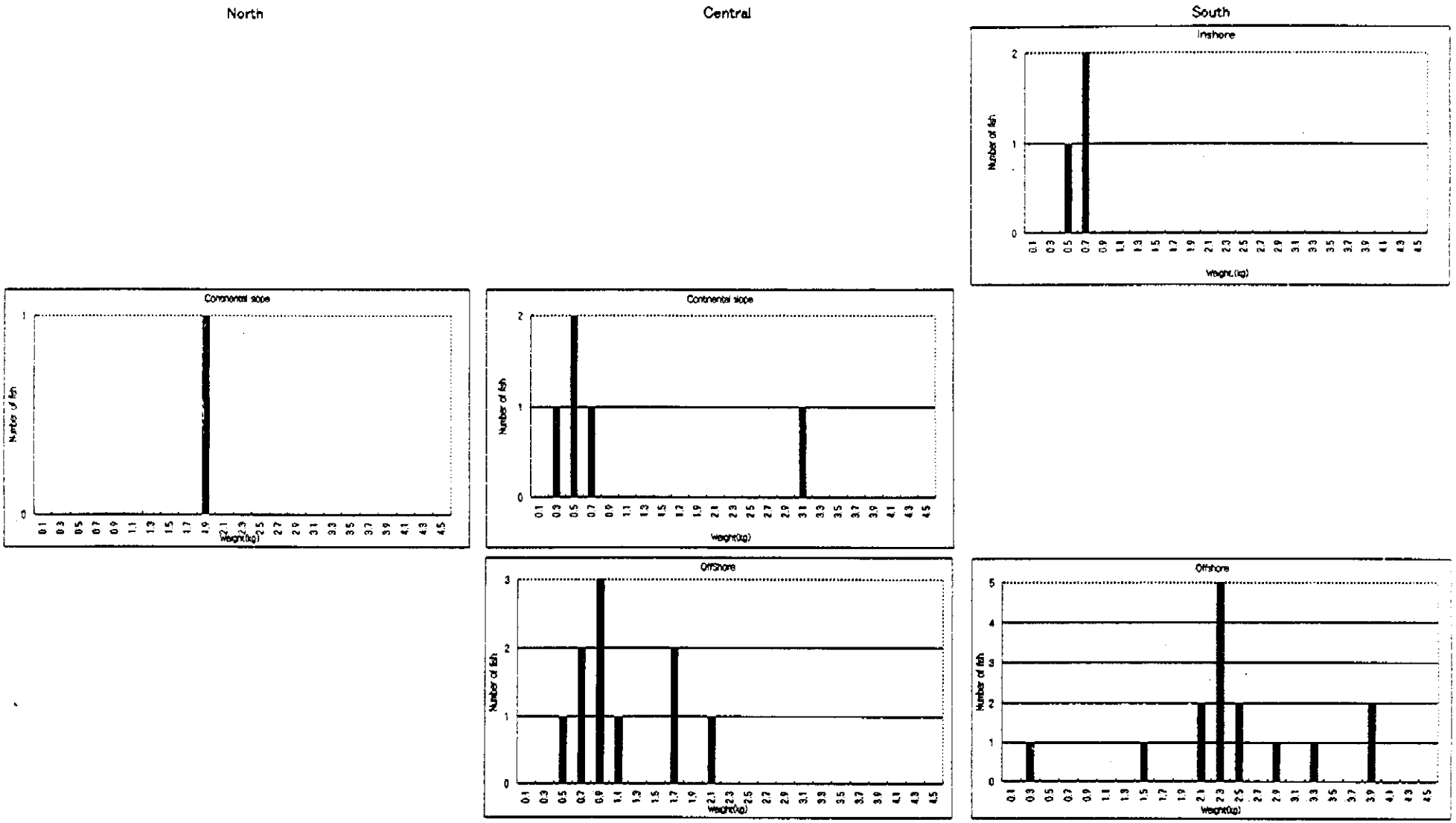
App. Figure 103. Standard length composition of *Lobotes surinamensis* caught at each area in Sept. - Oct. 1996.



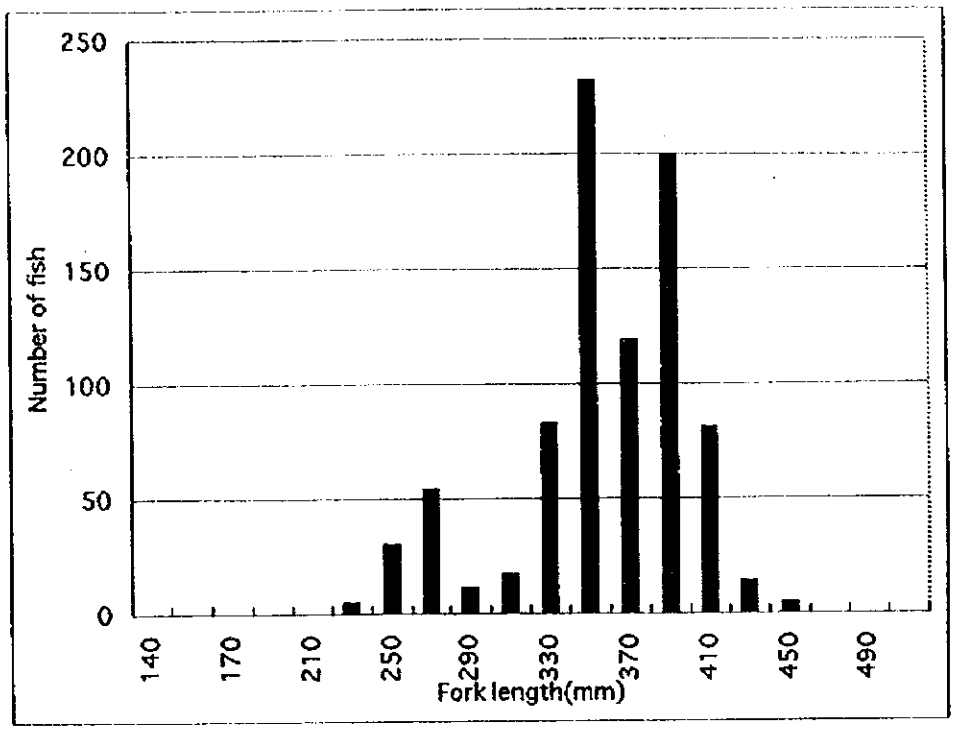
App. Figure 104. Body weight composition of *Lobotes surinamensis* caught at each area in Sept. - Oct. 1996.

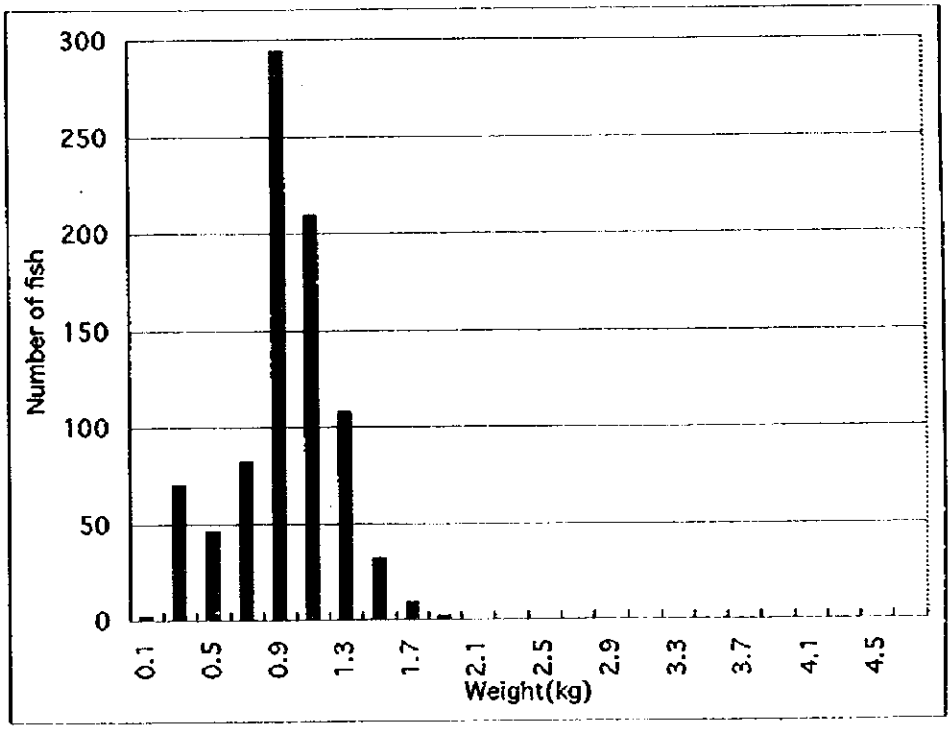


App. Figure 105. Standard length composition of *Lobotes surinamensis* caught at each area in May -June, 1997.

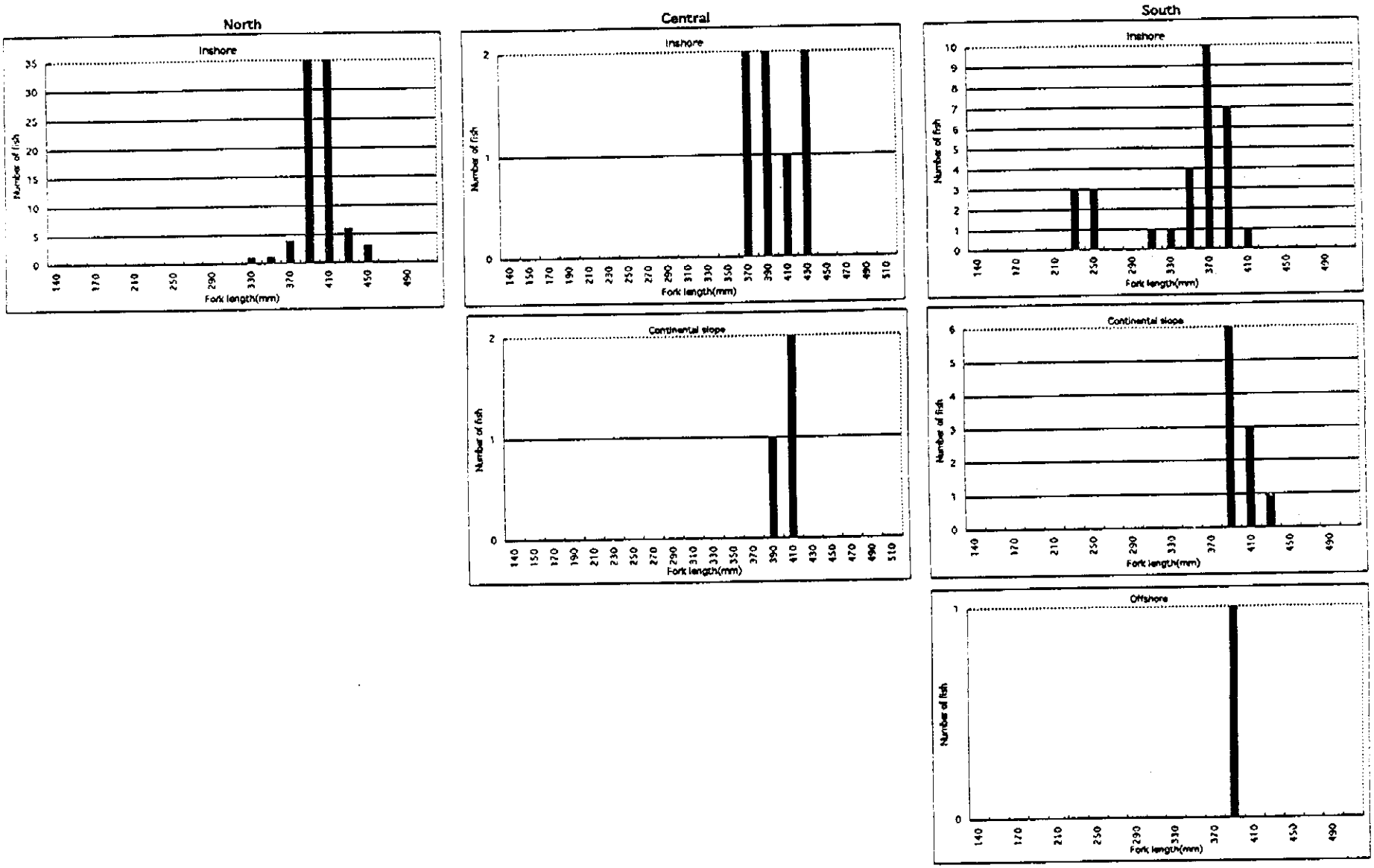


App. Figure 106. Body weight composition of *Lobotes surinamensis* caught at each area in May - June, 1997.

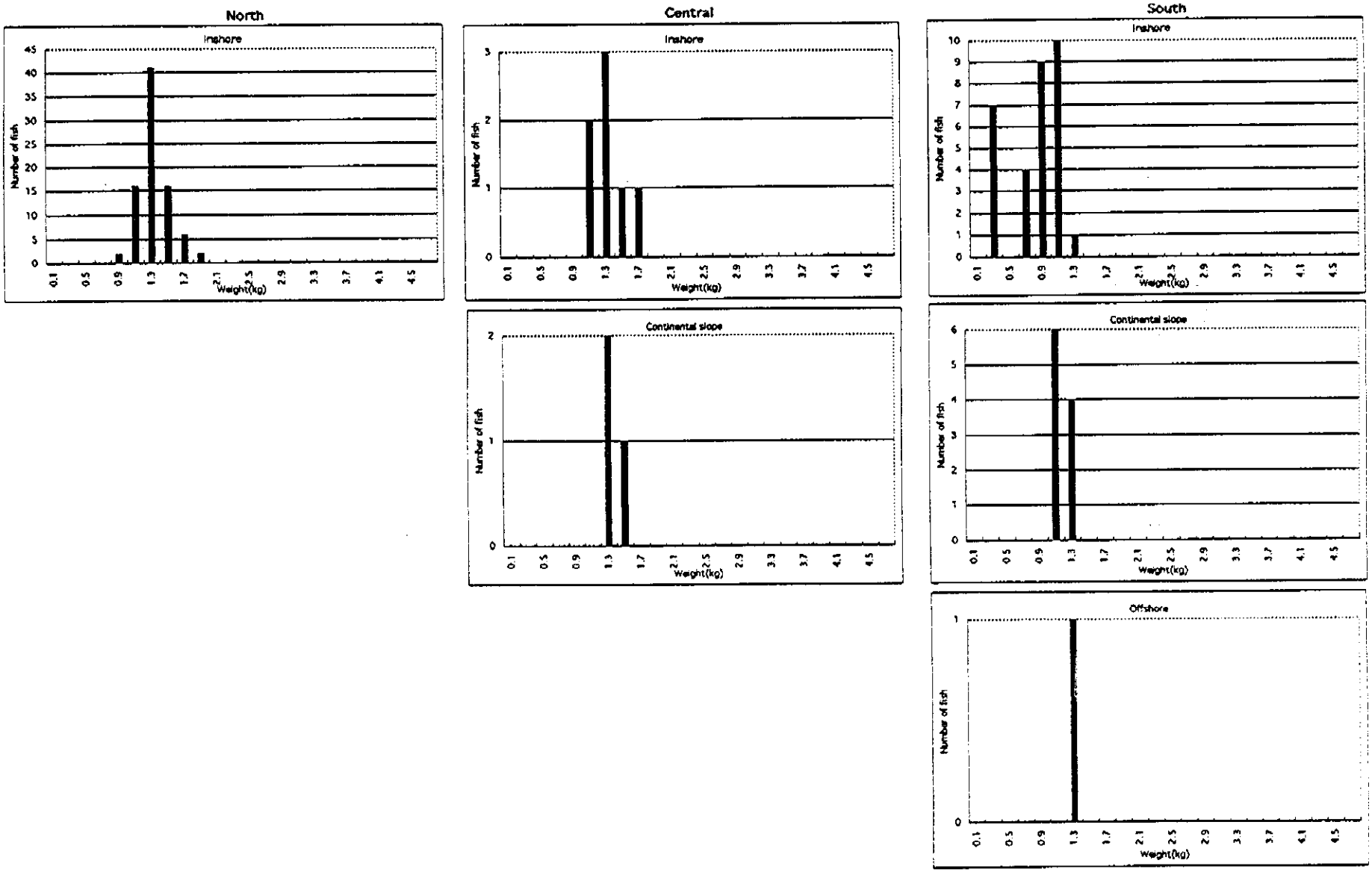




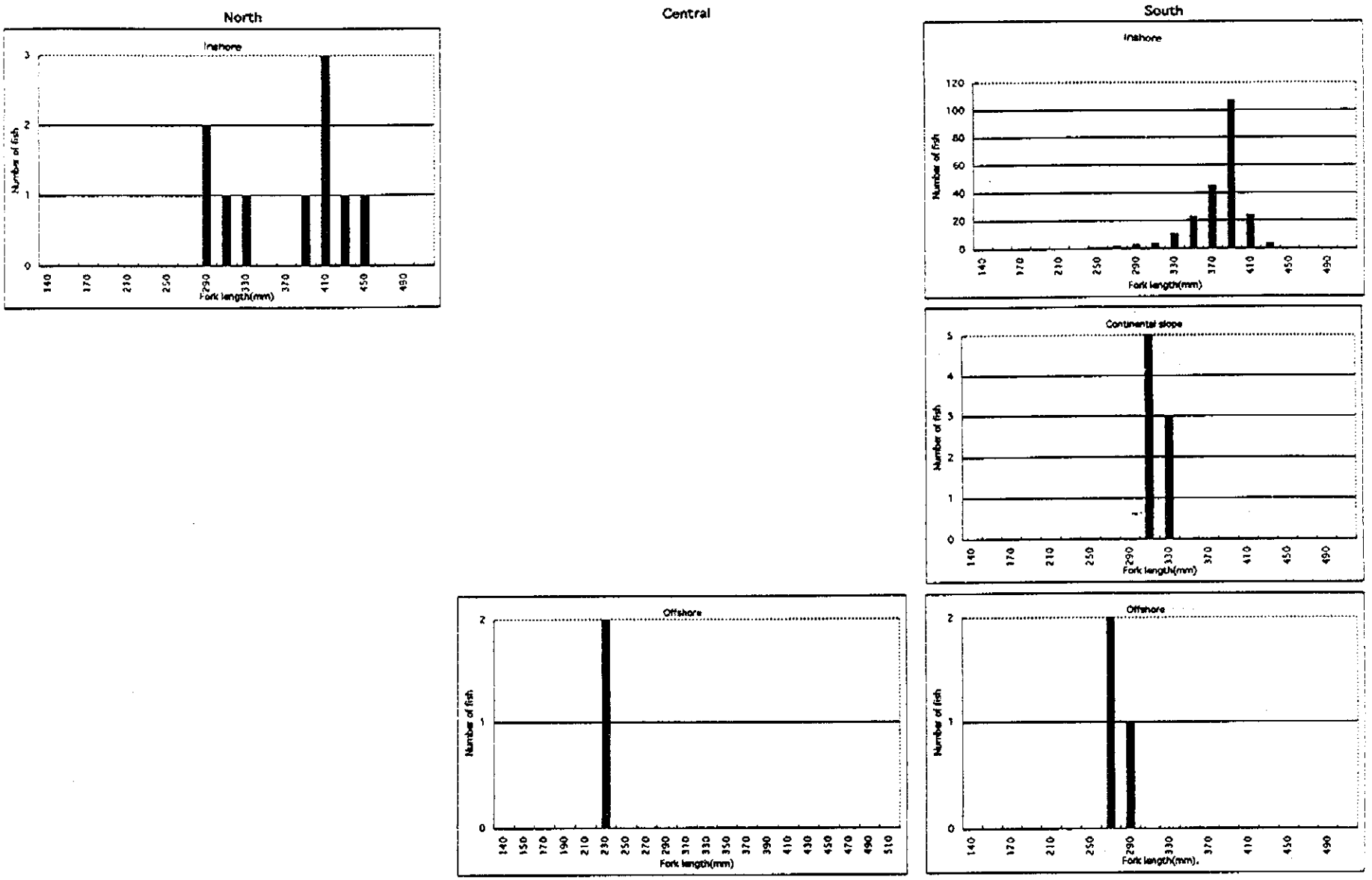
App. Figure 107. Body size composition of *Auxis thazard* caught in 1996 -1997.



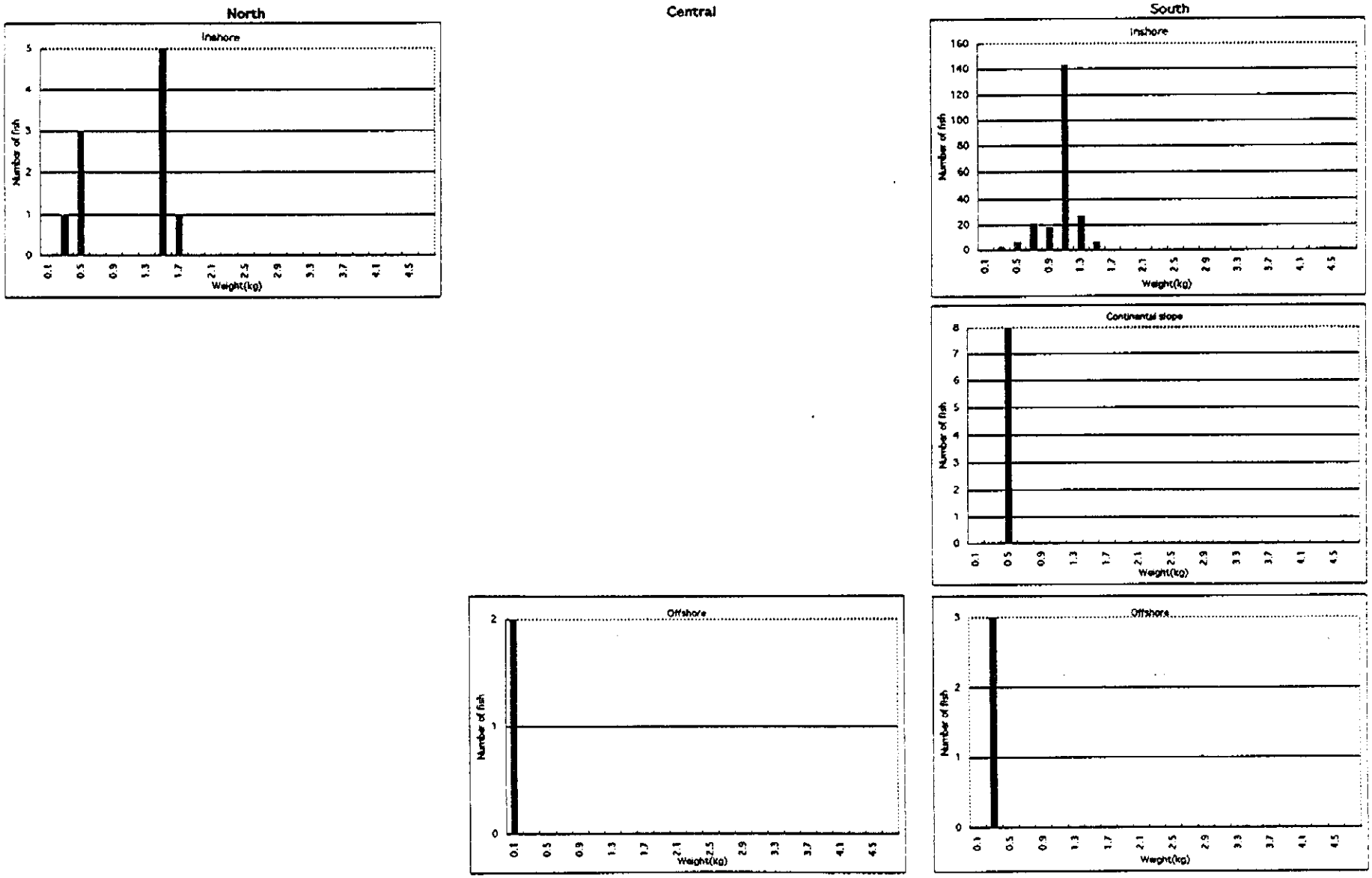
App. Figure 108. Fork length composition of *Auxis thazard* caught at each area in May -June, 1996.



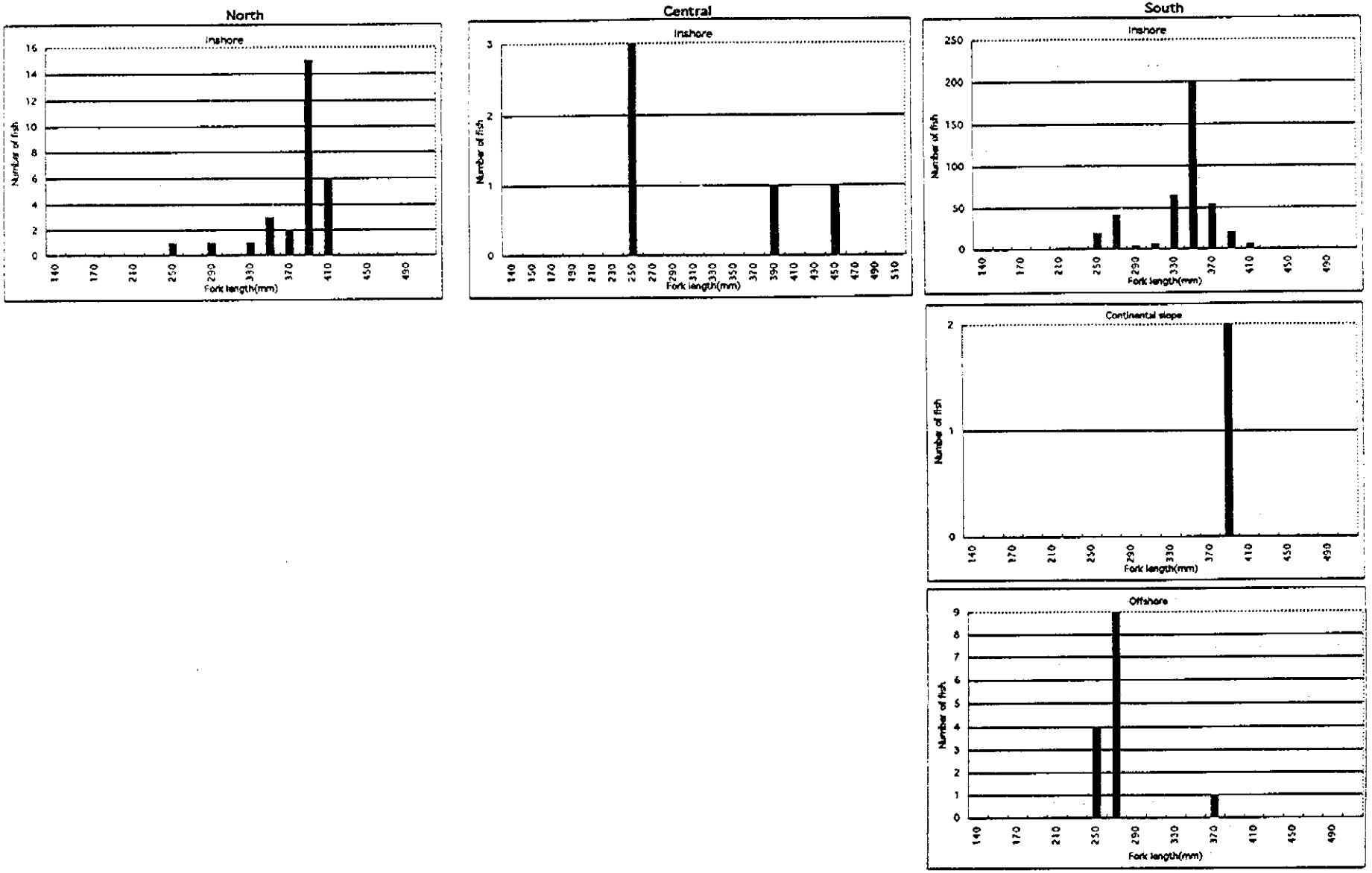
App. Figure 109. Body weight composition of *Auxis thazard* caught at each area in May - June,1996.



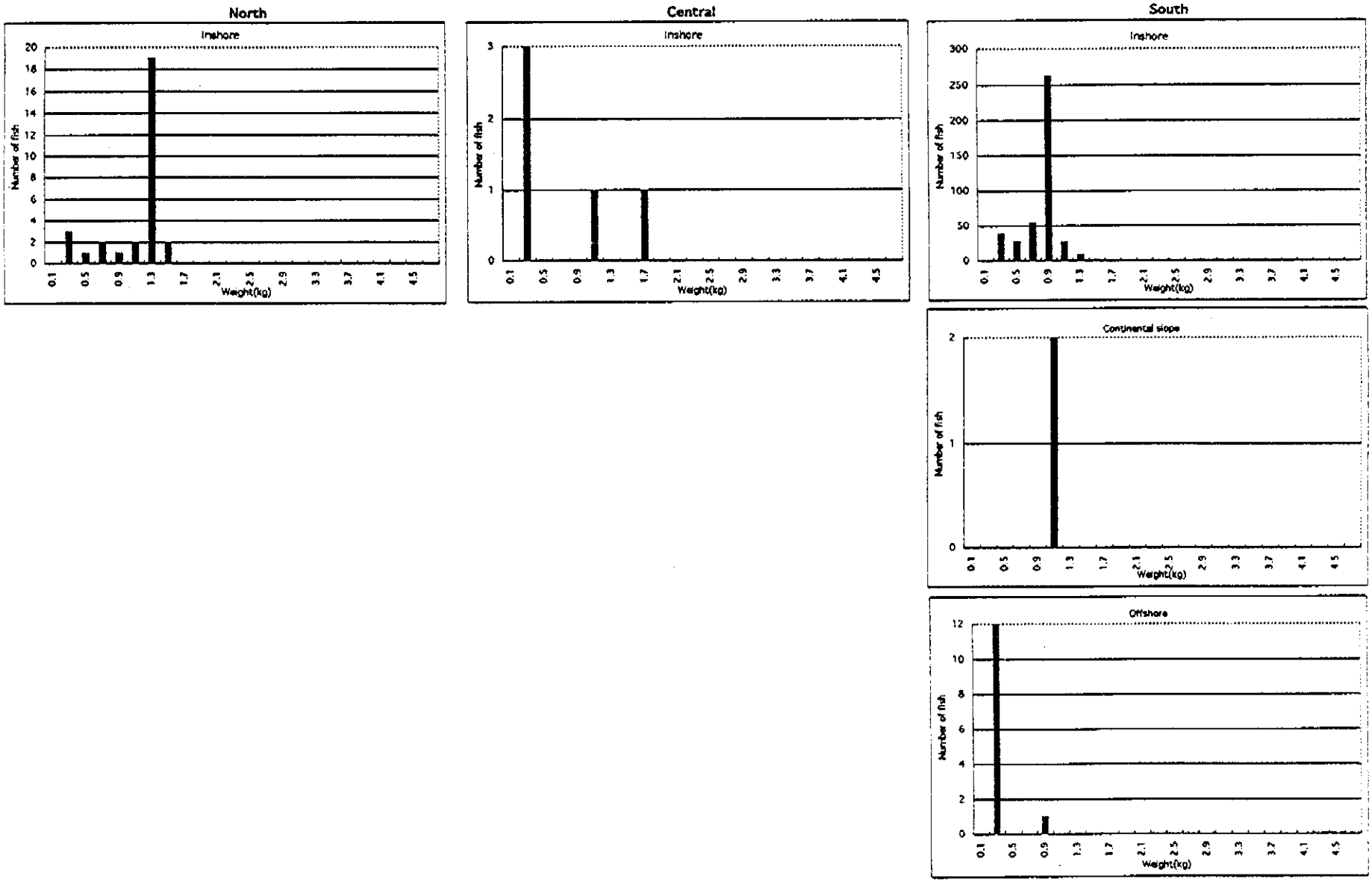
App. Figure 110. Fork length composition of *Auxis thazard* caught at each area in Sept. - Oct. 1996.



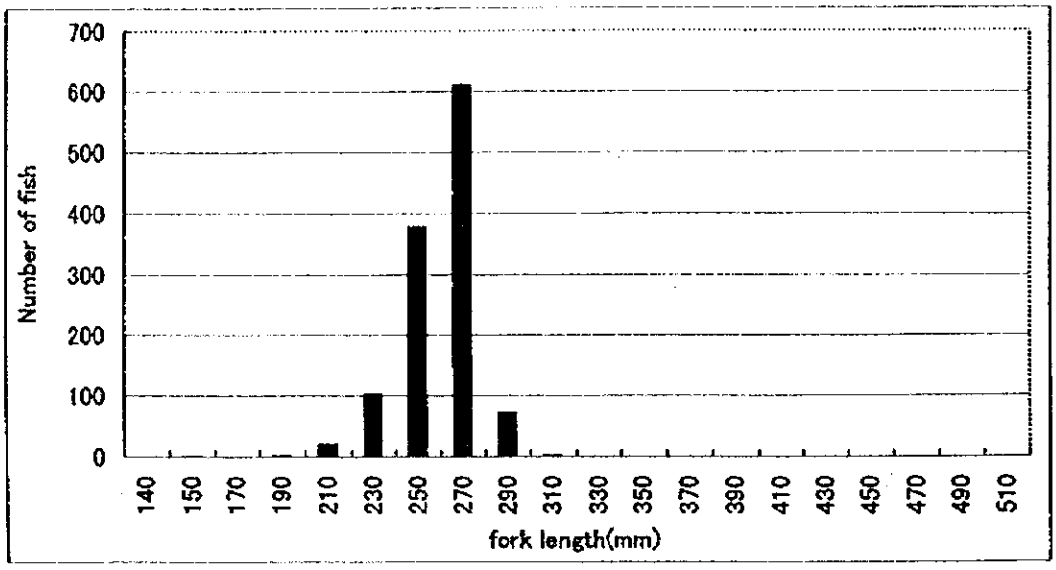
App. Figure 111. Body weight composition of *Auxis thazard* caught at each area in Sept. - Oct. 1996.

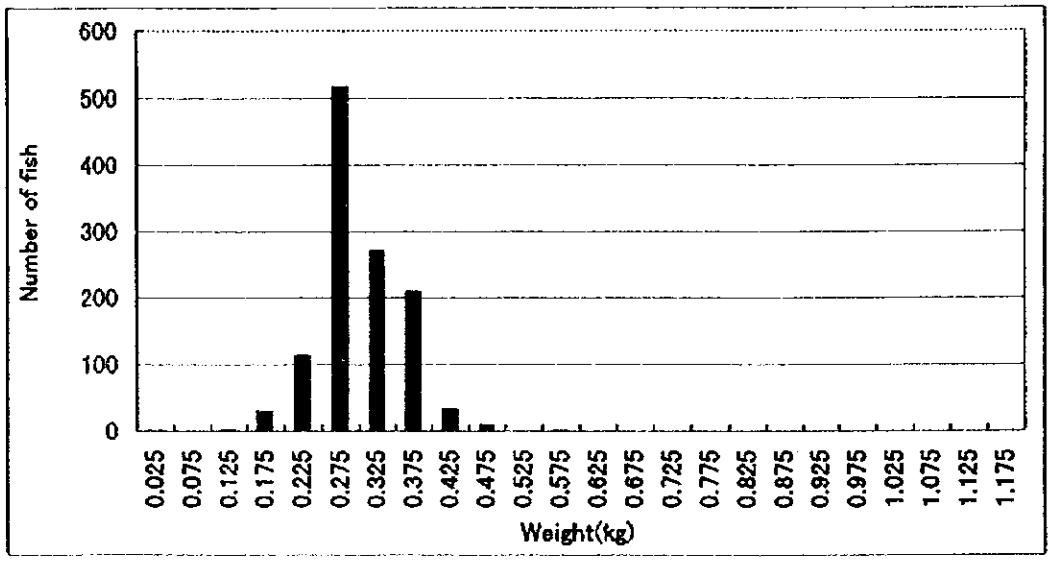


App. Figure 112. Fork length composition of *Auxis thazard* caught at each area in May -June, 1997.

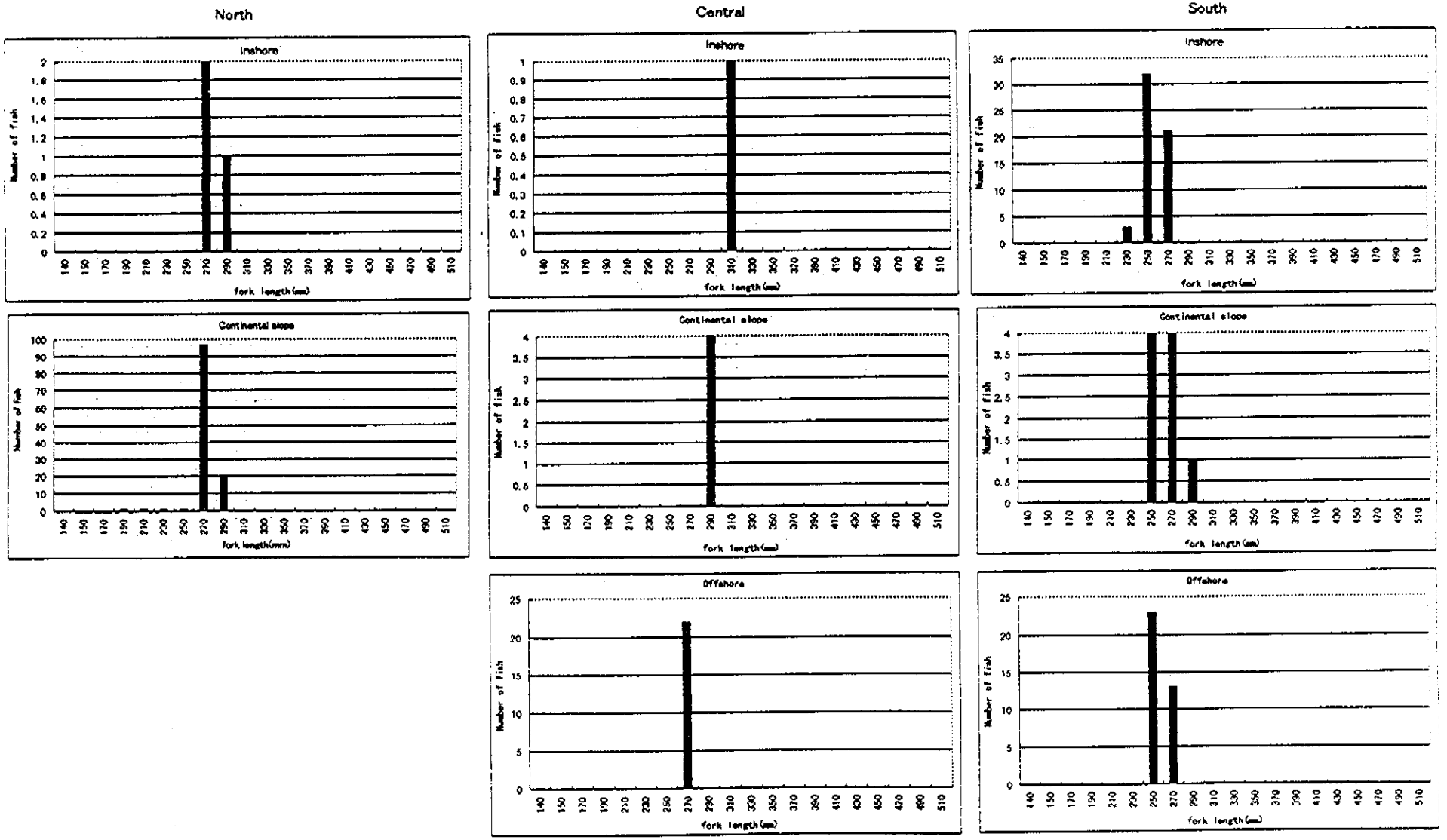


App. Figure 113. Body weight composition of *Auxis thazard* caught at each area in May - June, 1997.

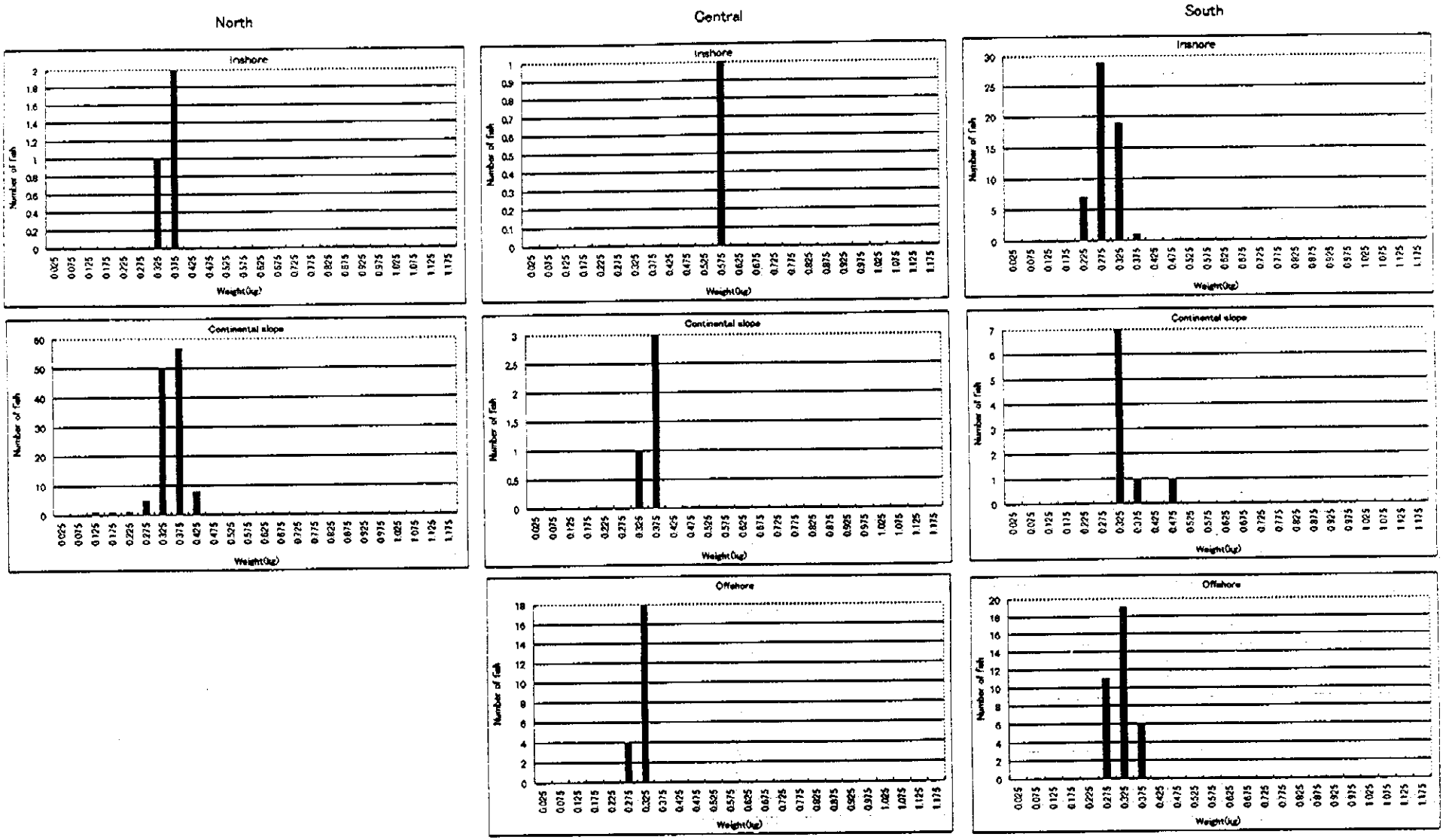




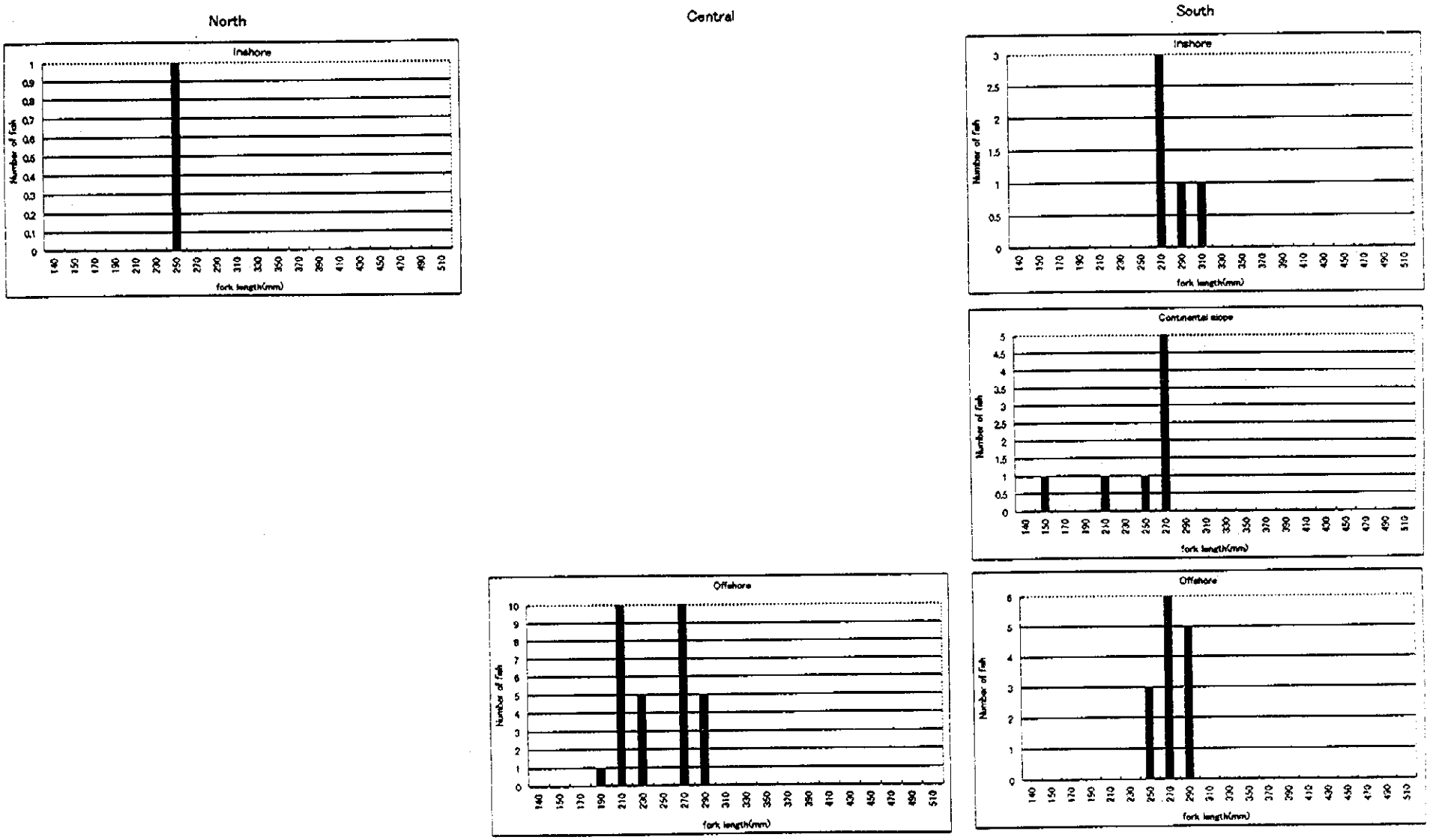
App. Figure 114. Body size composition of *Auxis rochei* caught in 1996 -1997.



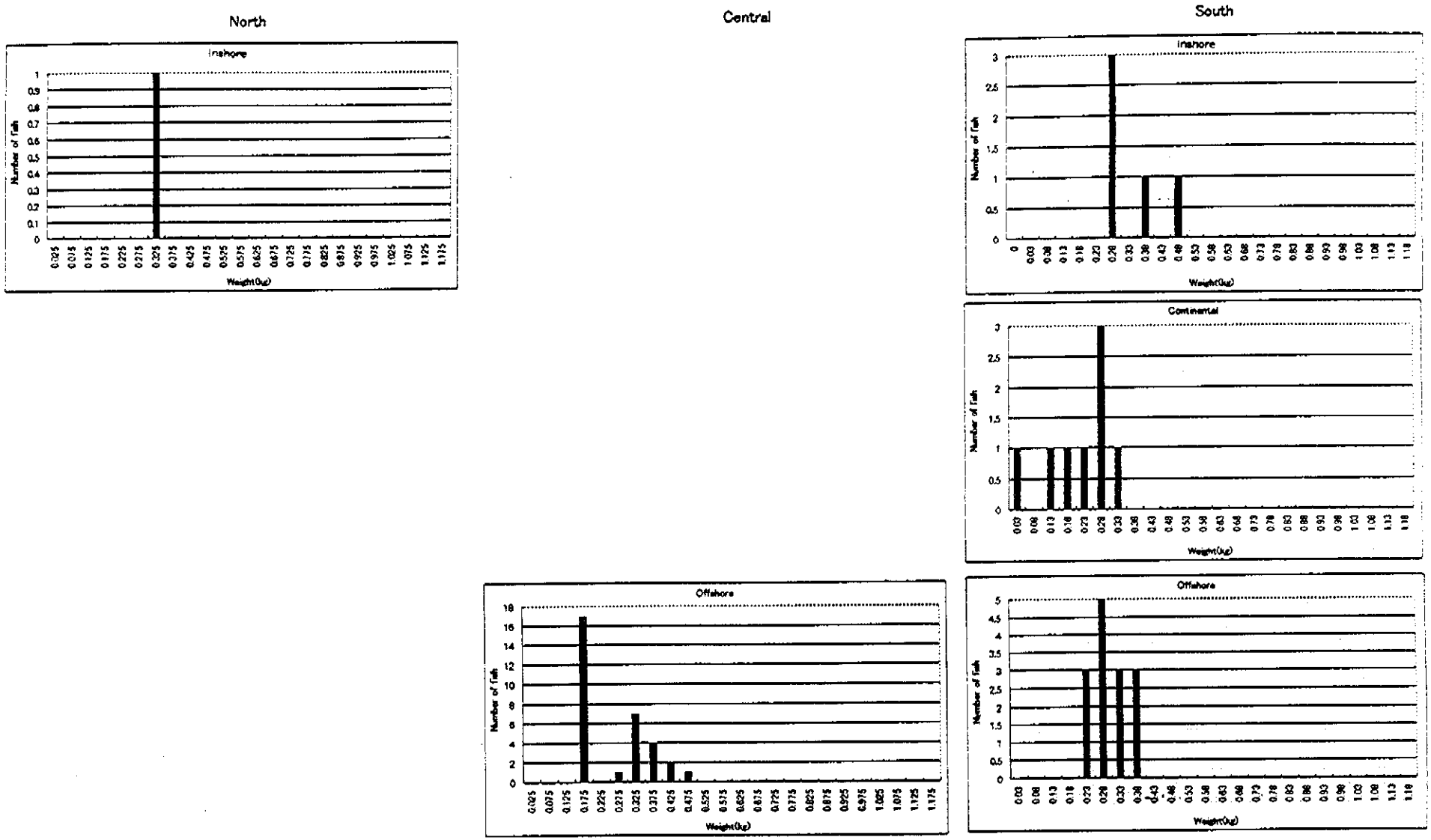
App. Figure 115. Fork length composition of *Auxis rochei* caught at each area in May -June, 1996.



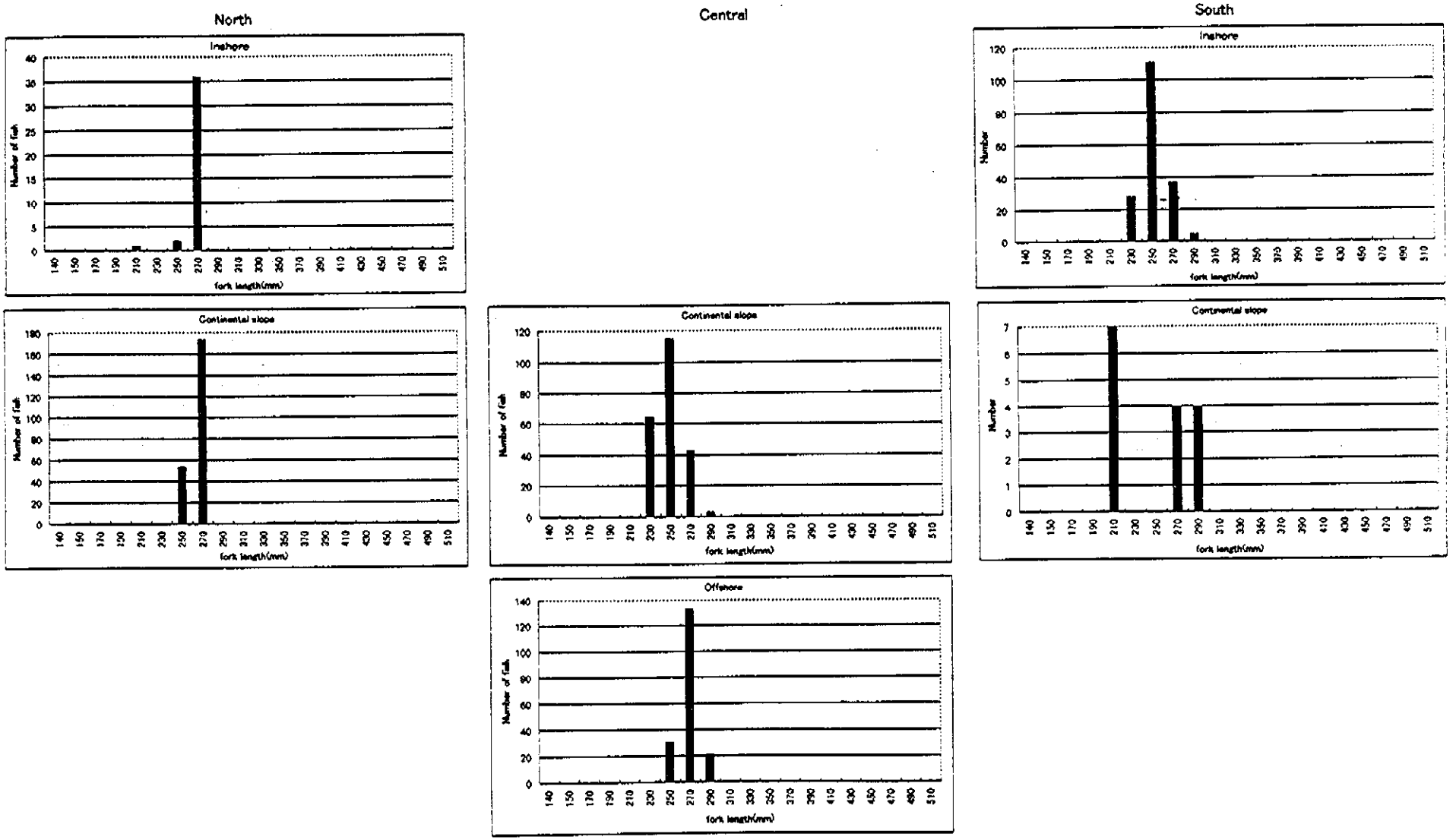
App. Figure 116. Body weight composition of *Auxis rochei* caught at each area in May - June,1996.



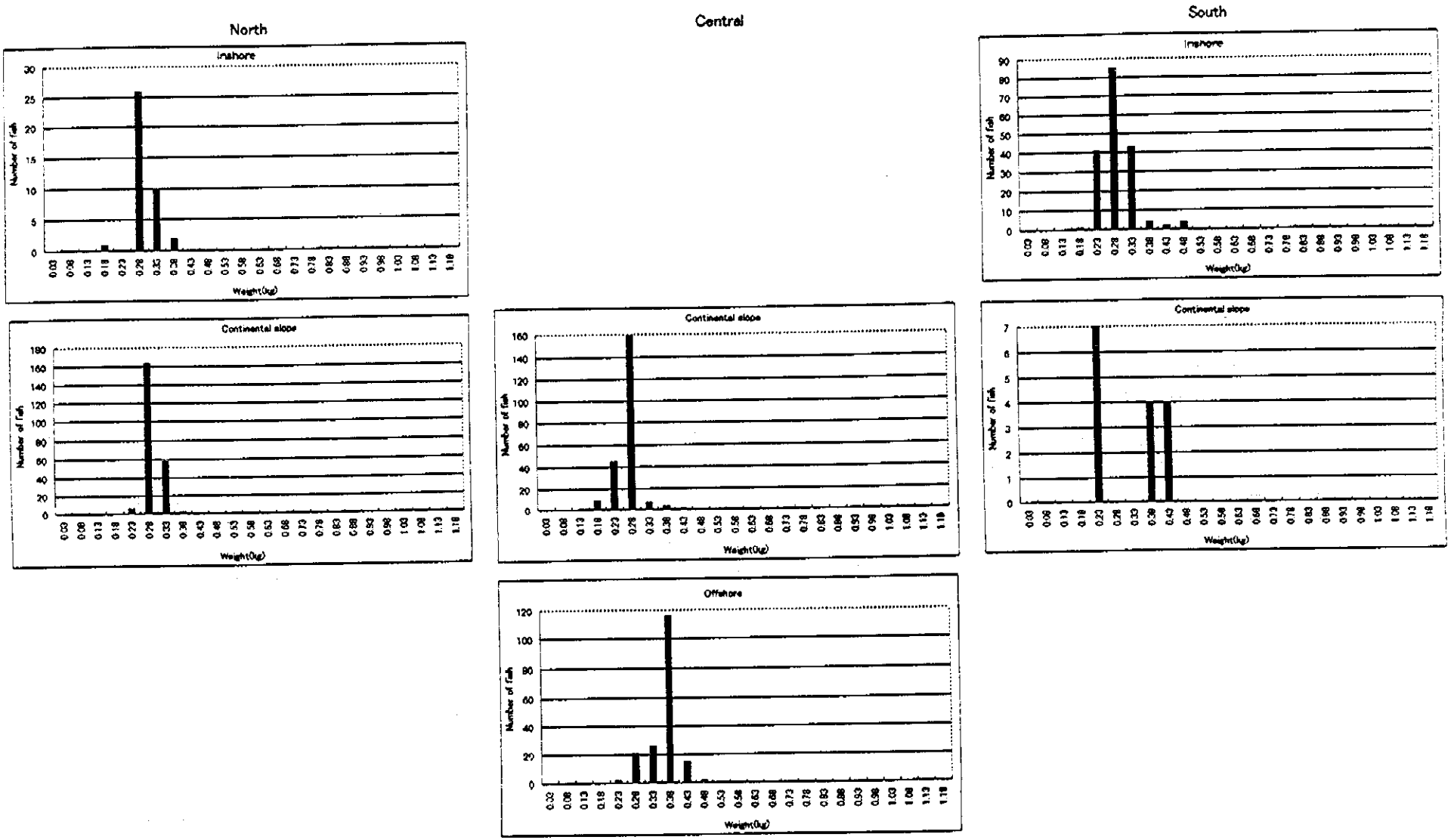
App. Figure 117. Fork length composition of *Auxis rochei* caught at each area in Sept. - Oct. 1996.



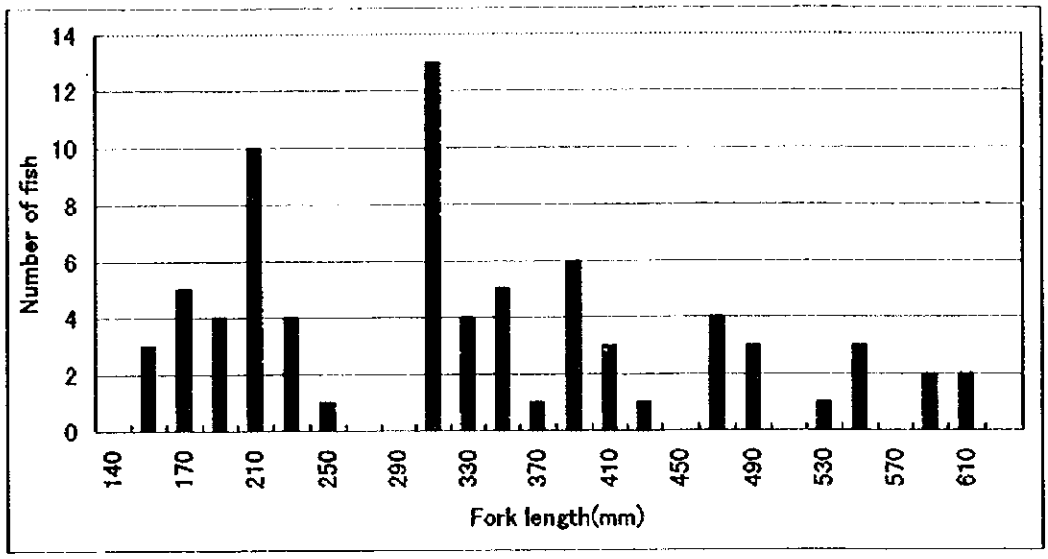
App. Figure 118. Body weight composition of *Auxis rochei* caught at each area in Sept. - Oct. 1996.

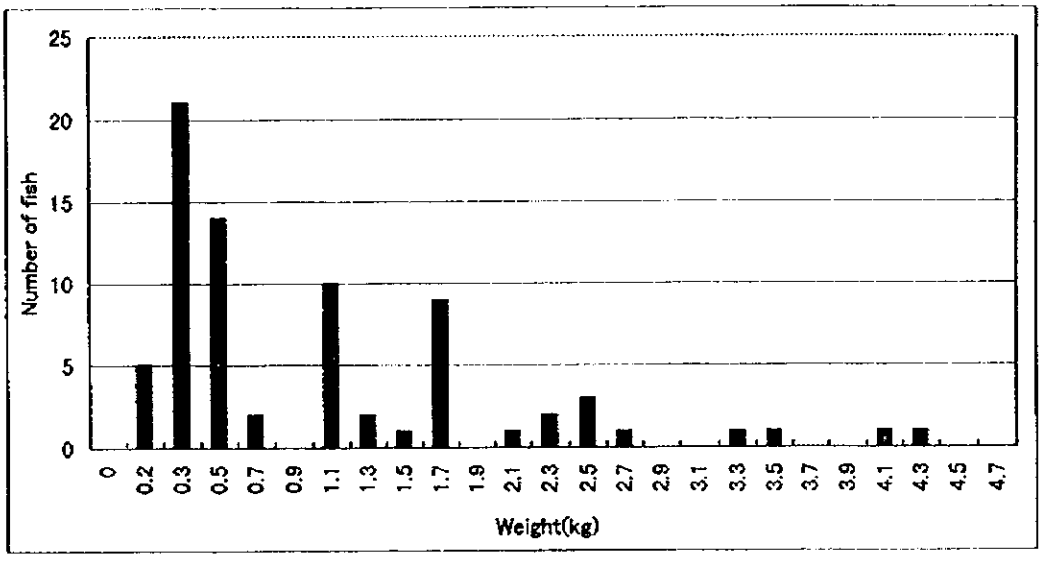


App. Figure 119. Fork length composition of *Auxis rochei* caught at each area in May -June, 1997.

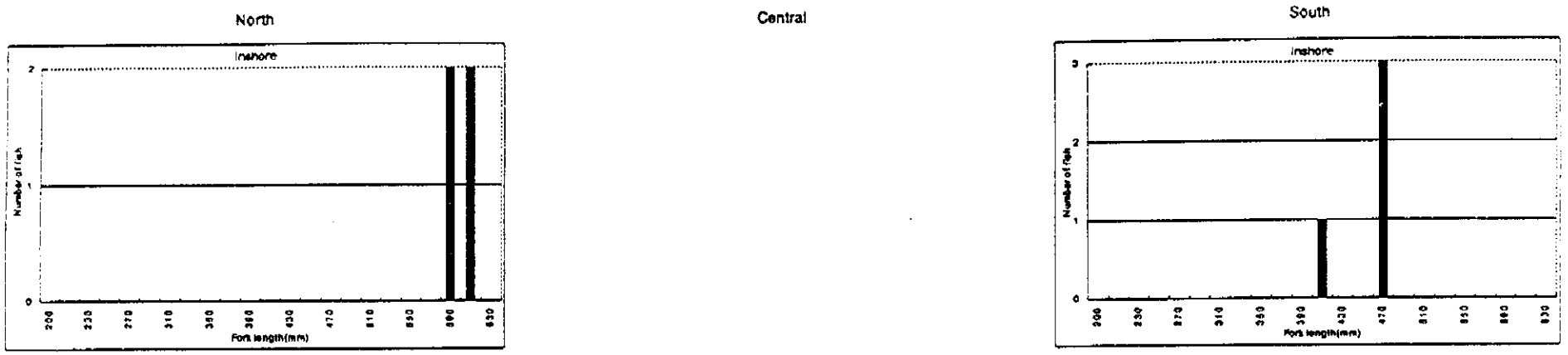


App. Figure 120. Body weight composition of *Auxis rochei* caught at each area in May - June, 1997.



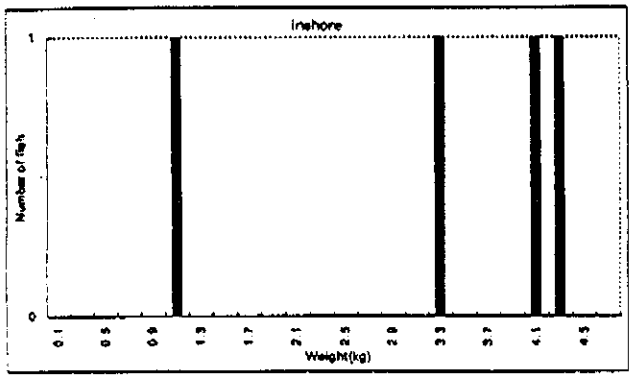


App. Figure 121. Body size composition of *Euthynnus affinis* caught in 1996 -1997.



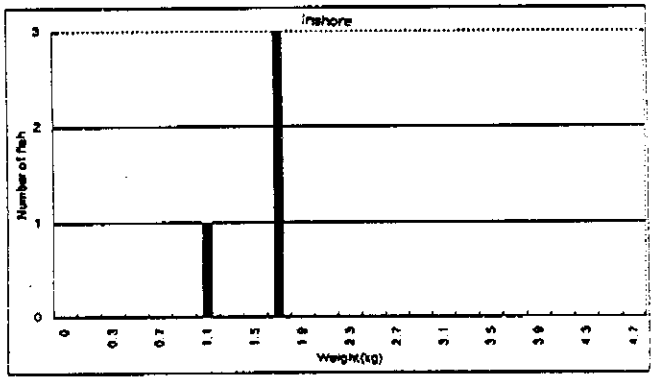
App. Figure 122. Fork length composition of *Euthynnus affinis* caught at each area in May - June, 1996.

North

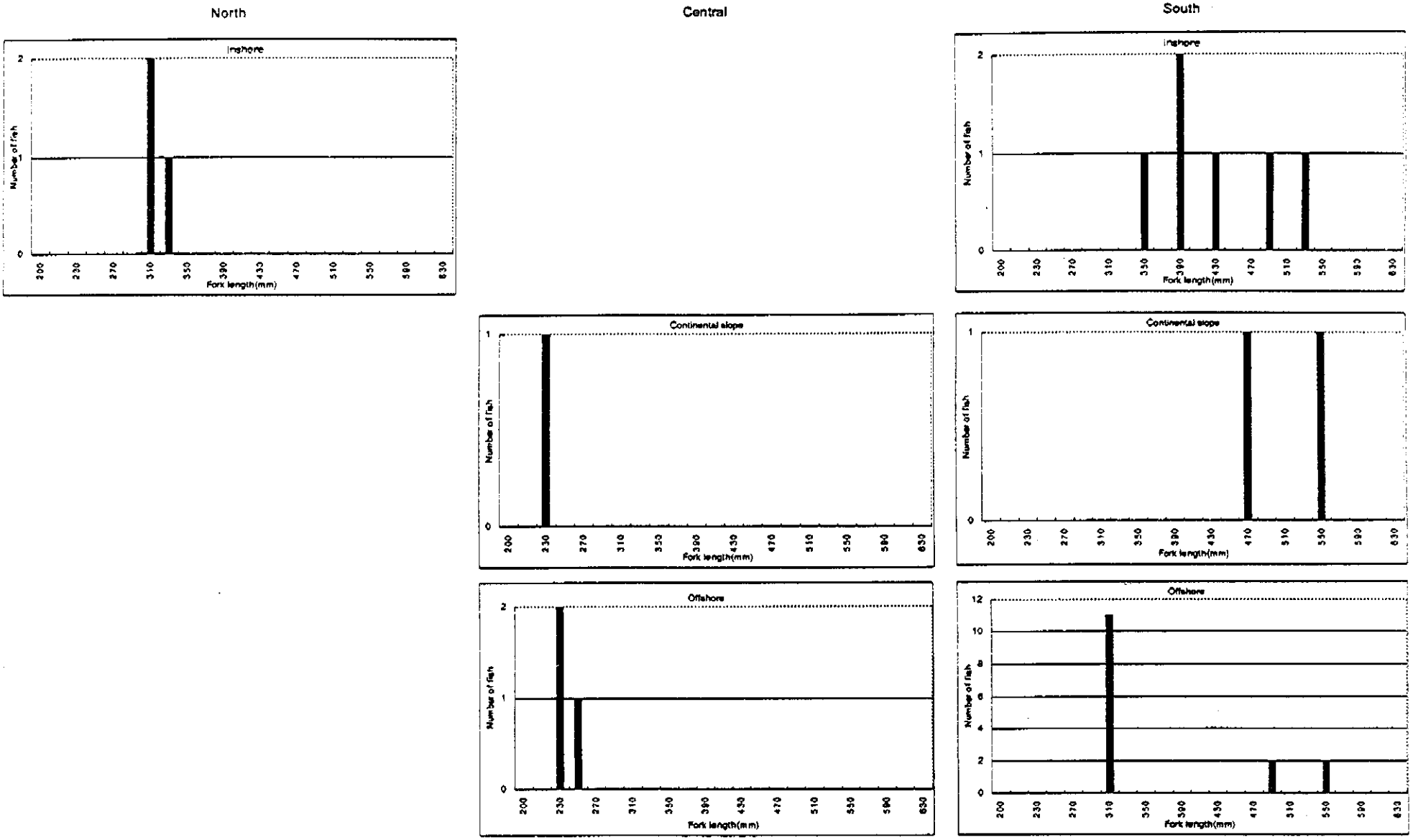


Central

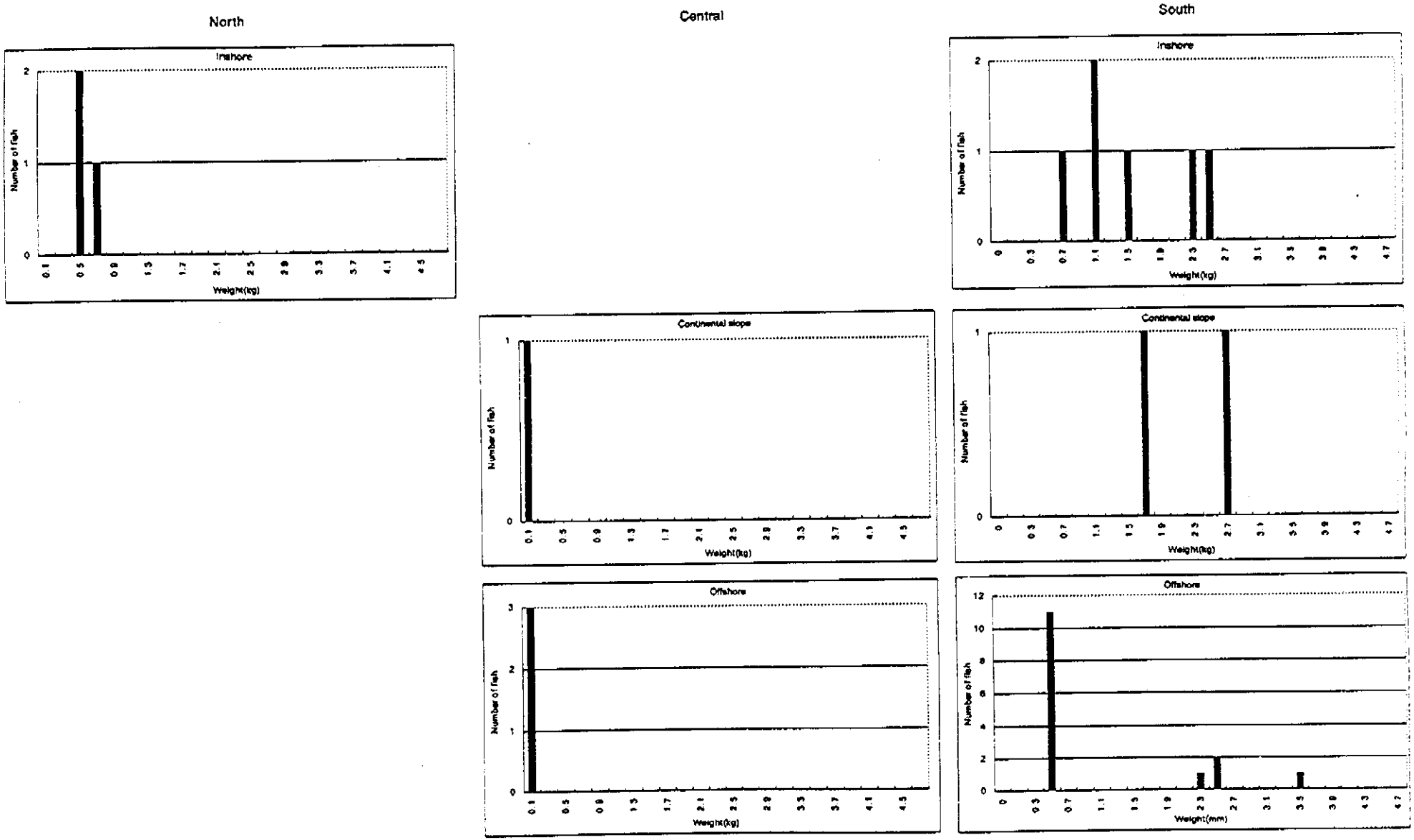
South



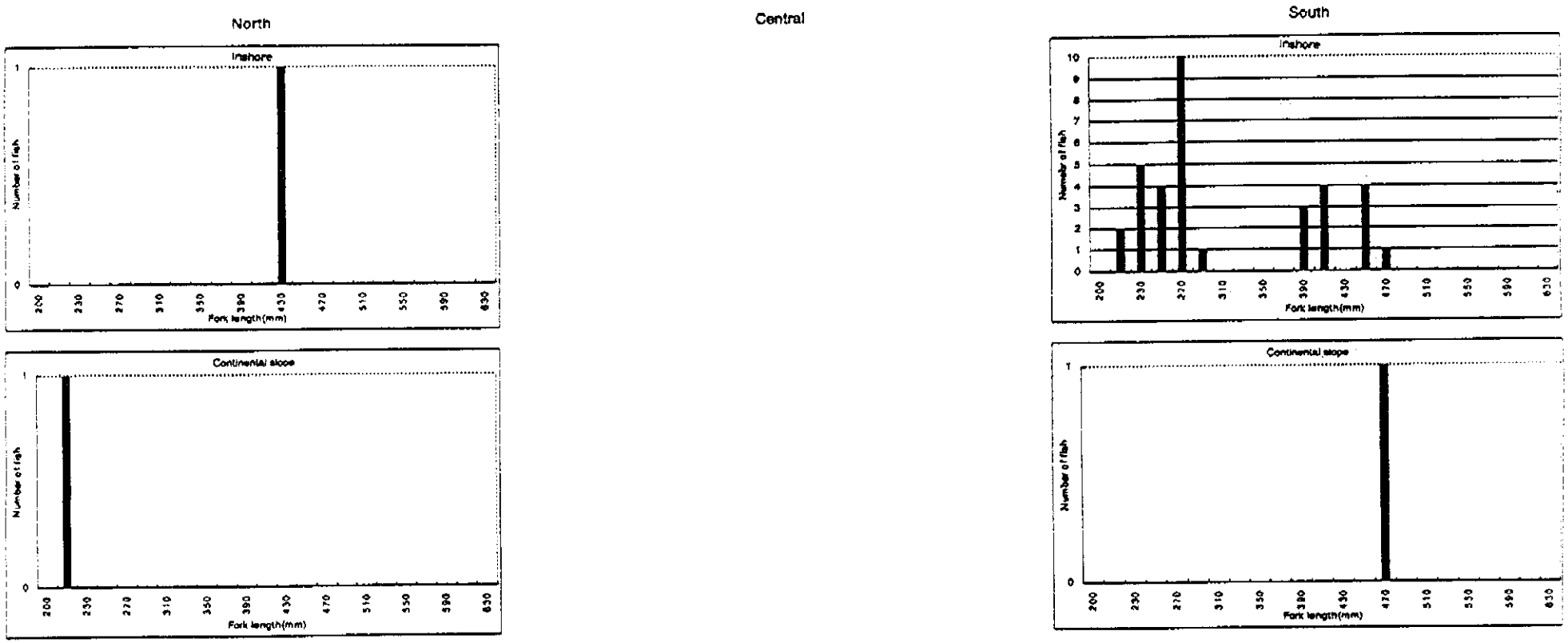
App. Figure 123. Body weight composition of *Euthynnus affinis* caught at each area in May - June, 1996.



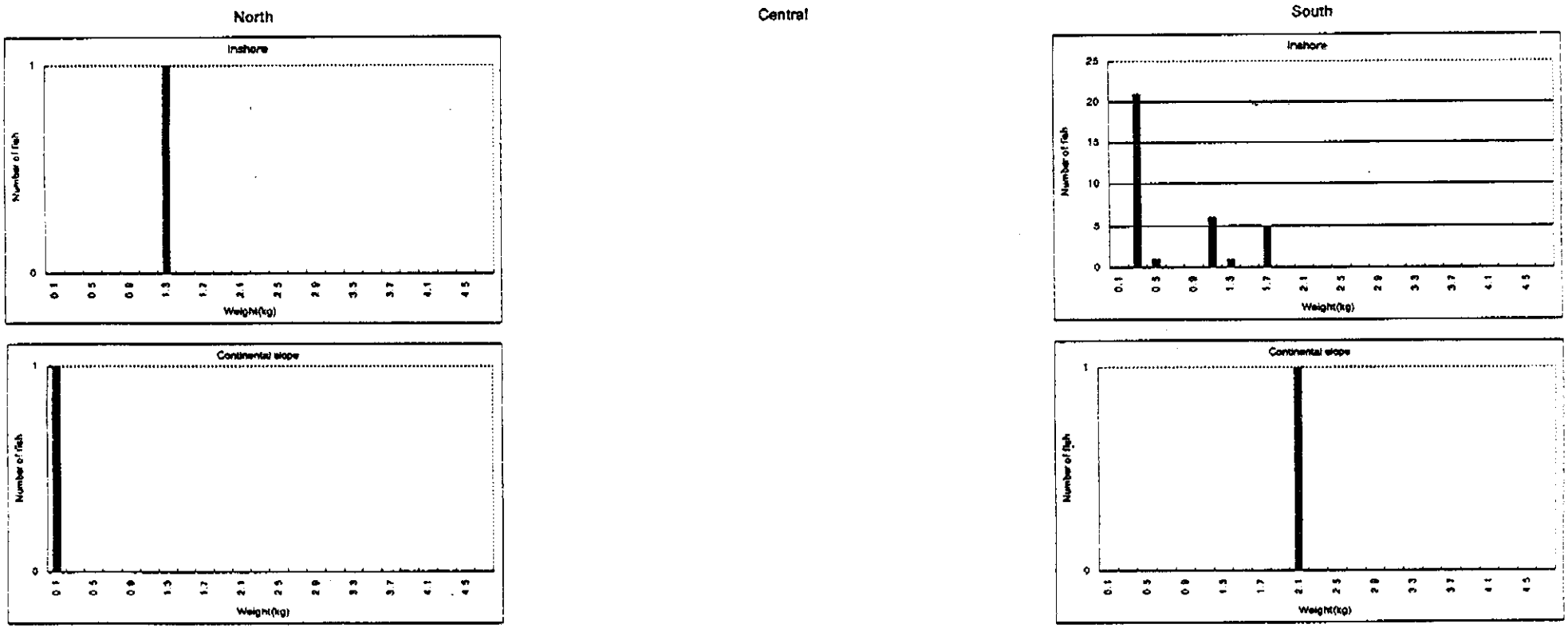
App. Figure 124. Fork length composition of *Euthynnus affinis* caught at each area in Sept. - Oct. 1996.



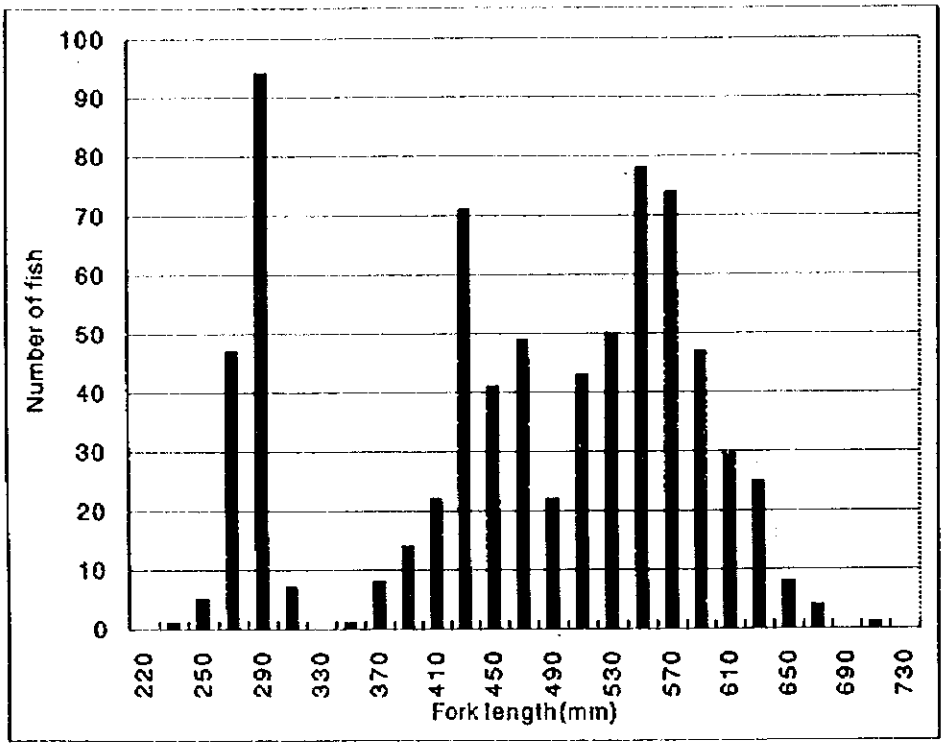
App. Figure 125. Body weight composition of *Euthynnus affinis* caught at each area in Sept. - Oct. 1996.

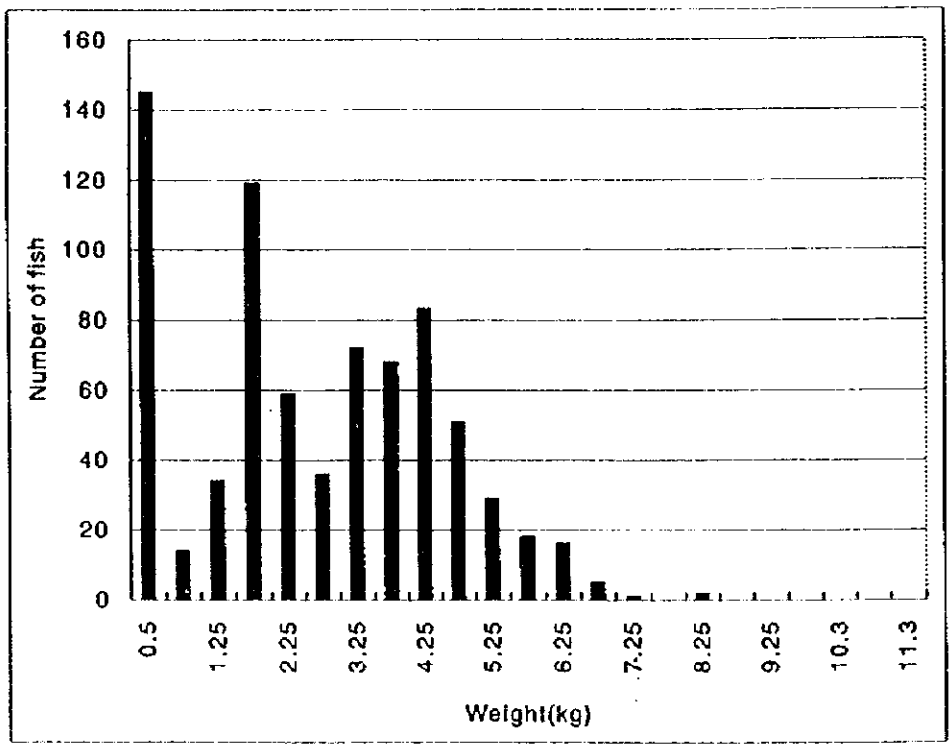


App. Figure 126. Fork length composition of *Euthynnus affinis* caught at each area in May - June, 1997.

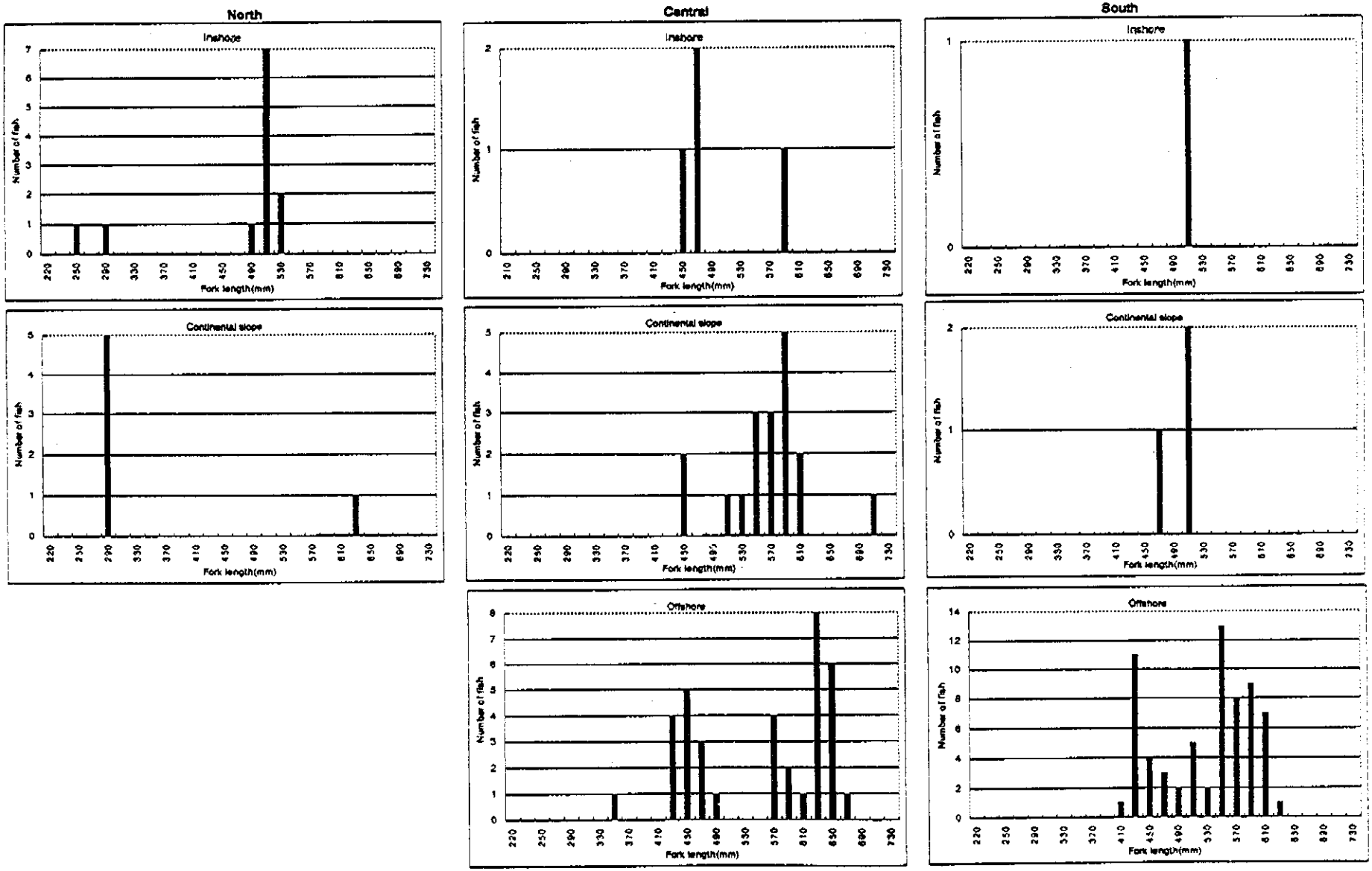


App. Figure 127. Body weight composition of *Euthynnus affinis* caught at each area in May - June, 1997.

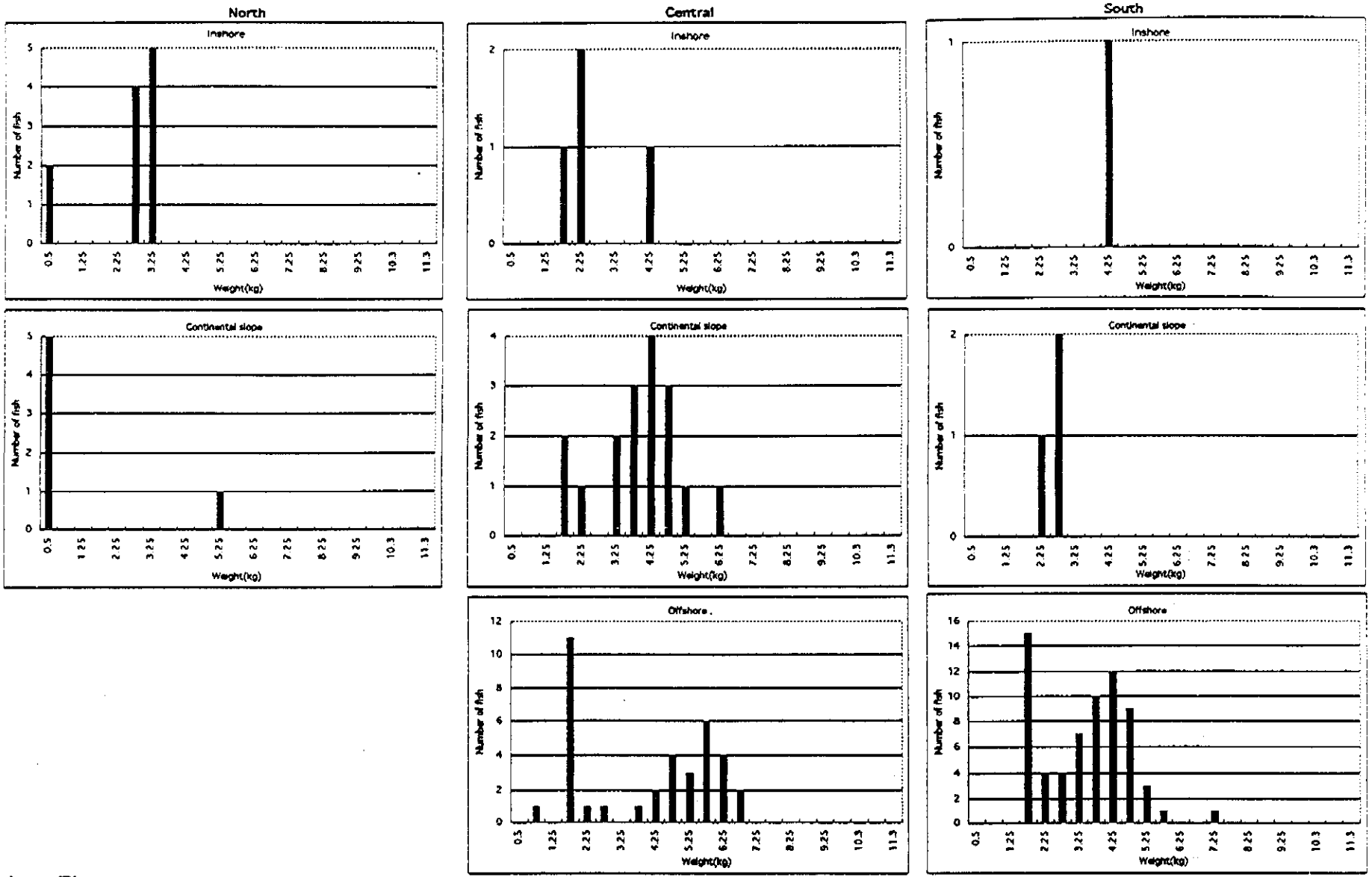




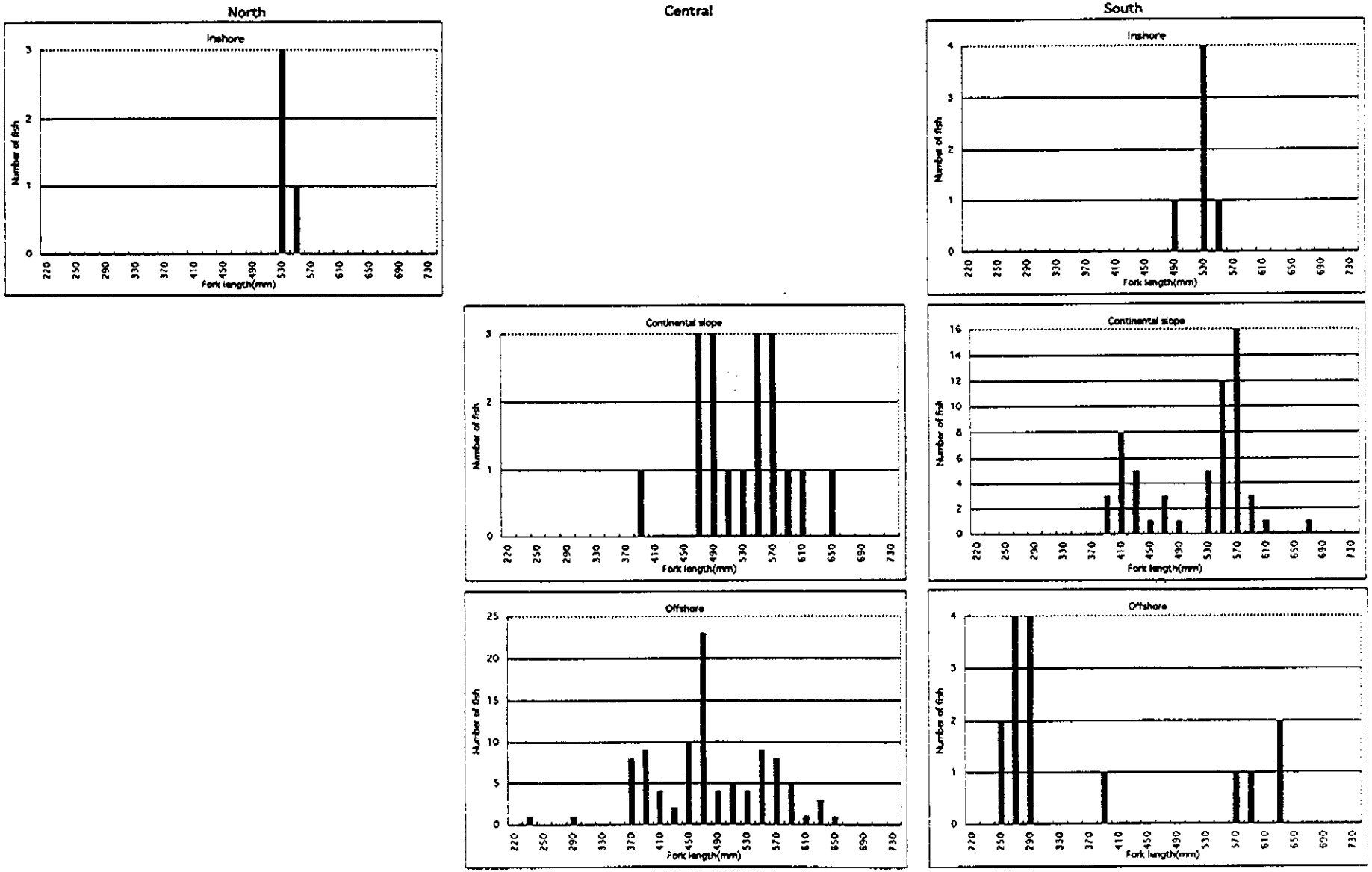
App. Figure 128. Body size composition of *Katsuwonus pelamis* caught in 1996 -1997.



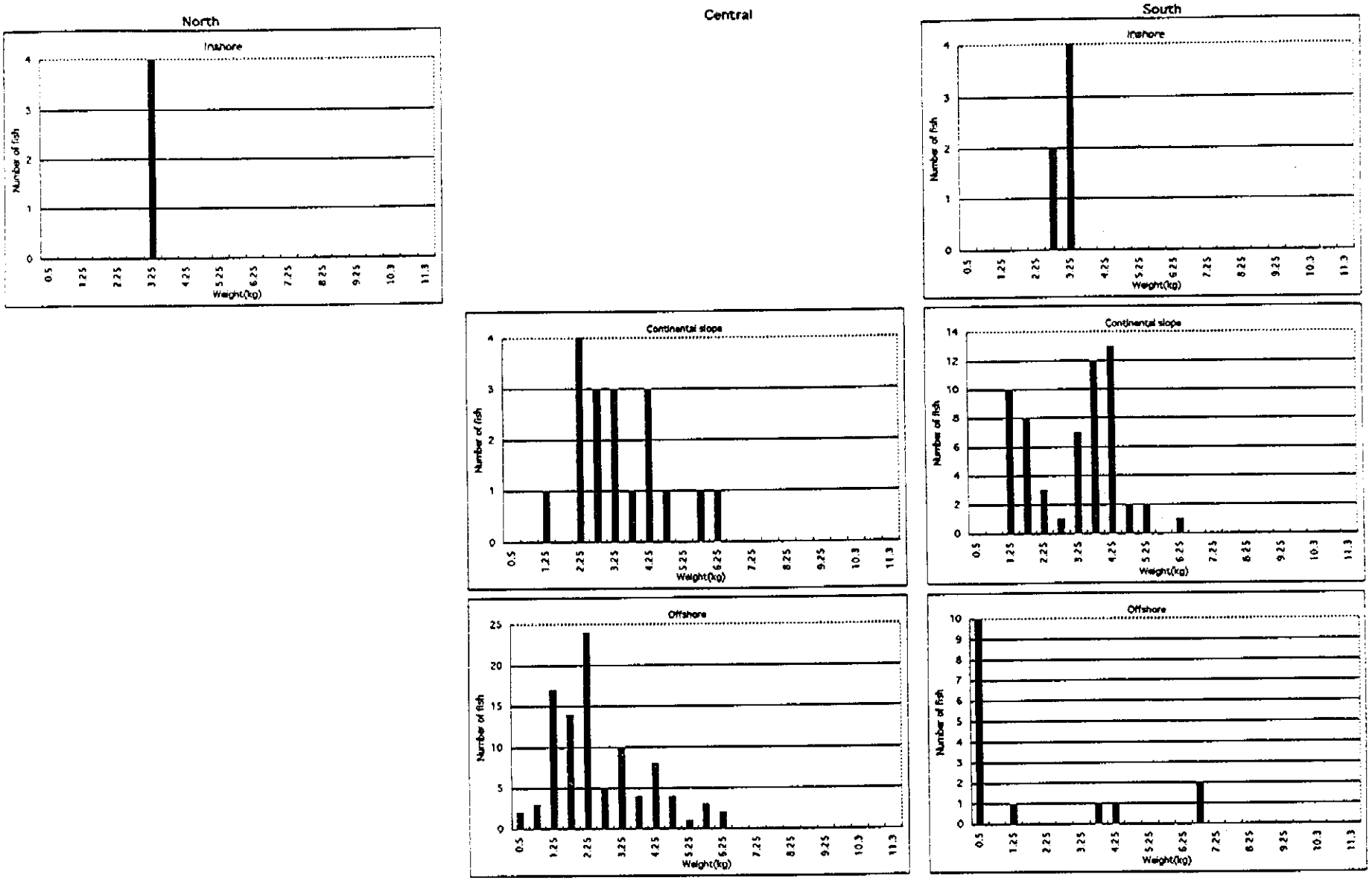
App. Figure 129. Fork length composition of *Katsuwonus pelamis* caught at each area in May - June, 1996.



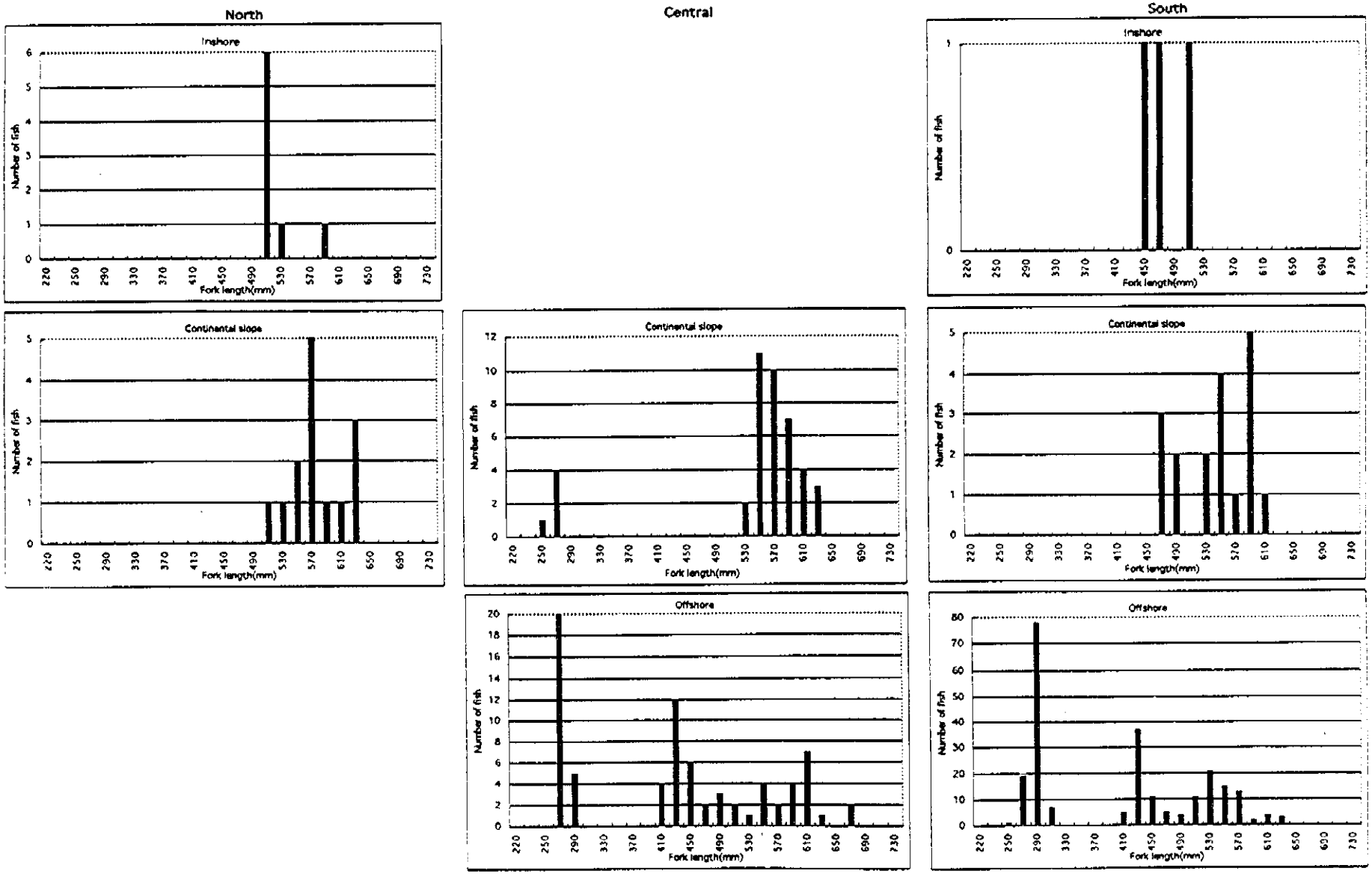
App. Figure 130. Body weight composition of *Katsuwonus pelamis* caught at each area in May - June, 1996.



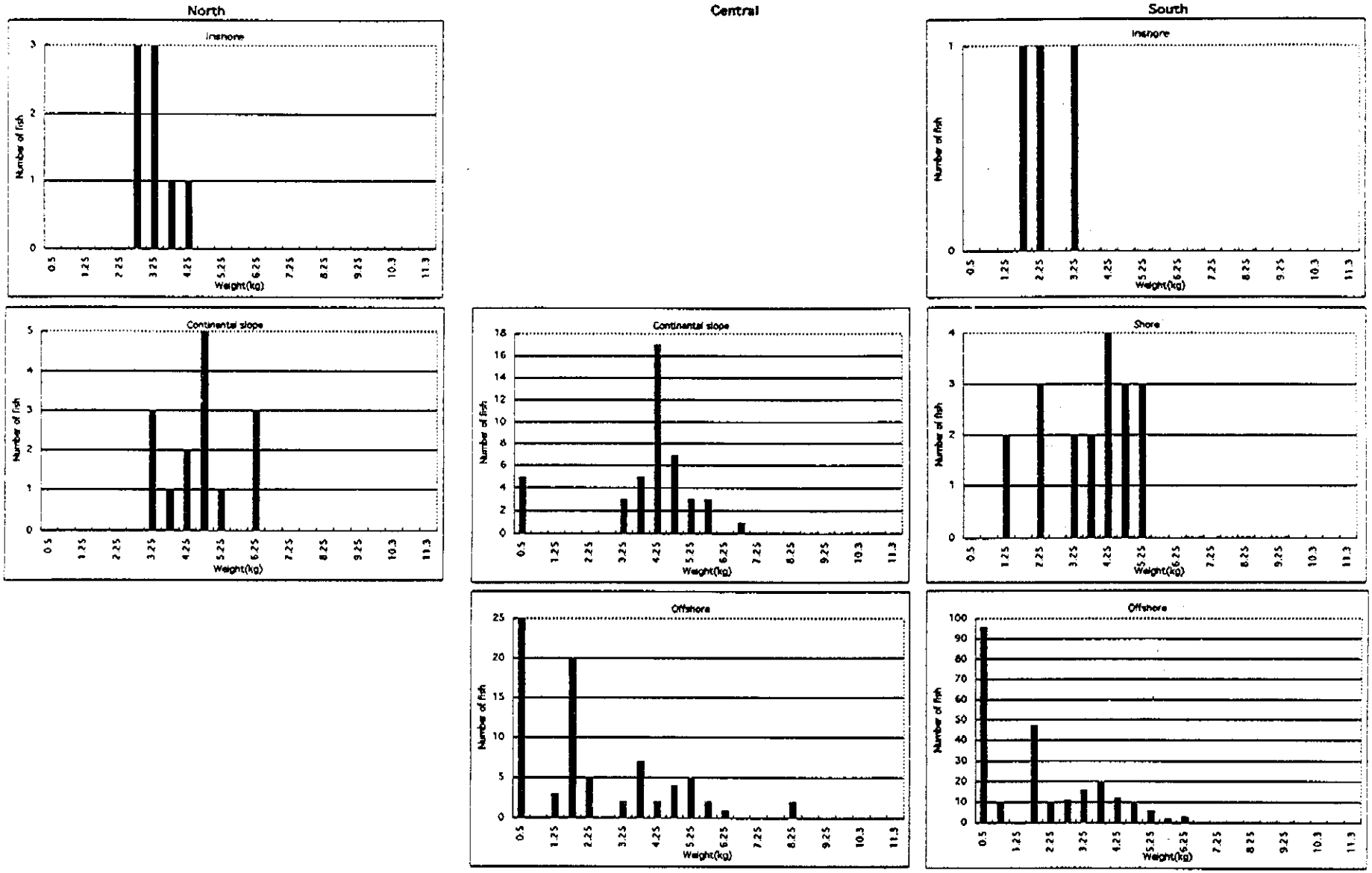
App. Figure 131. Fork length composition of *Katsuwonus pelamis* caught at each area in Sept. - Oct. 1996.



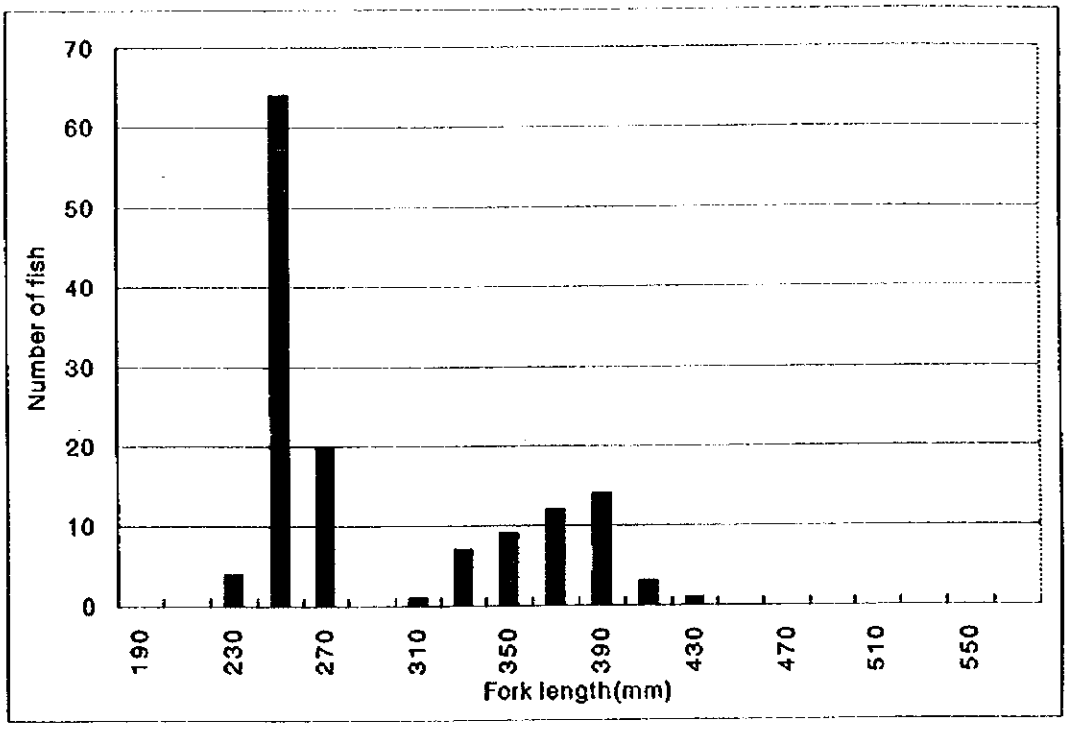
App. Figure 132. Body weight composition of *Katsuwonus pelamis* caught at each area in Sept. - Oct. 1996.

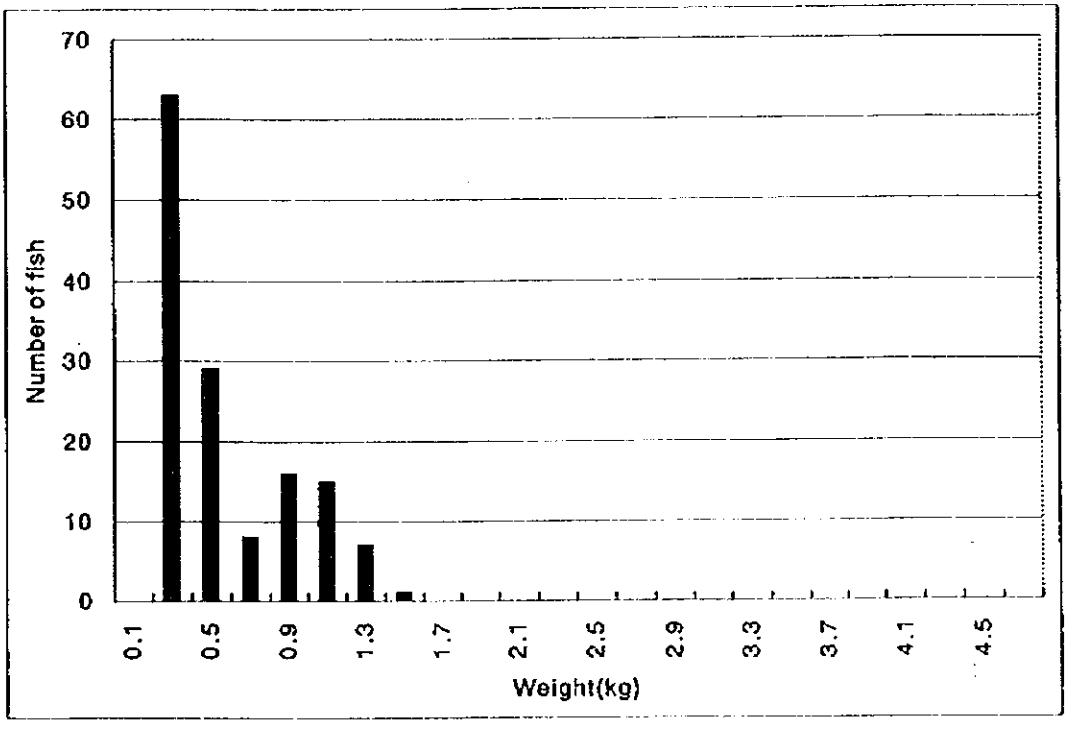


App. Figure 133. Fork length composition of *Katsuwonus pelamis* caught at each area in May - June, 1997.

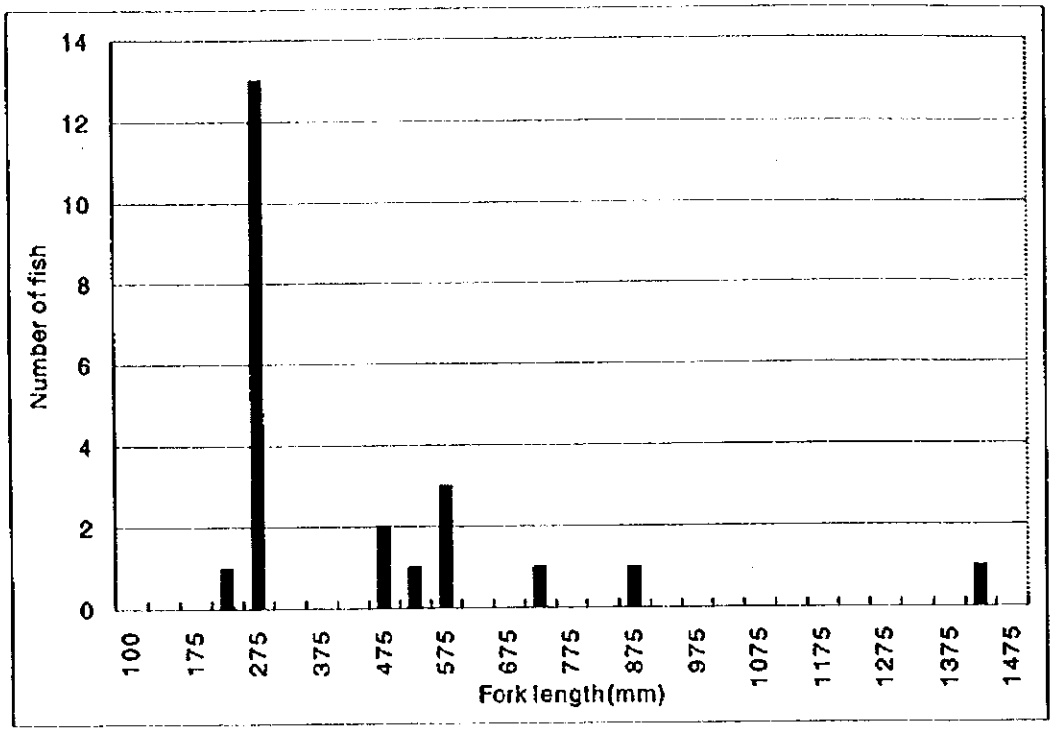


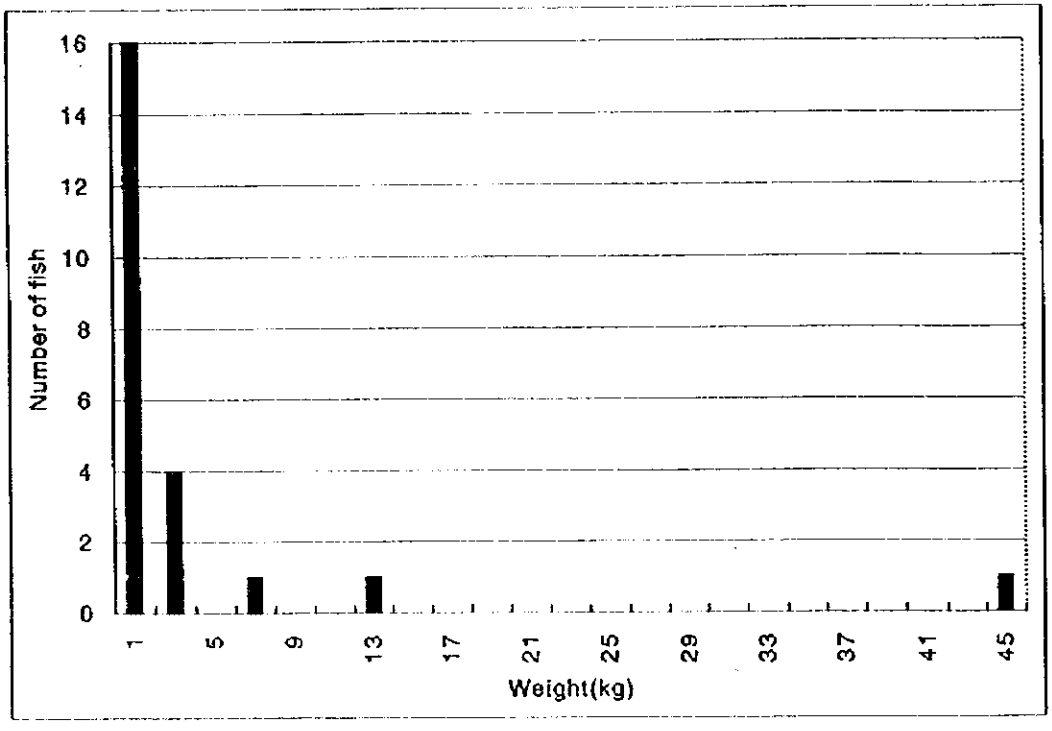
App. Figure 134. Body weight composition of *Katsuwonus pelamis* caught at each area in May - June, 1997.



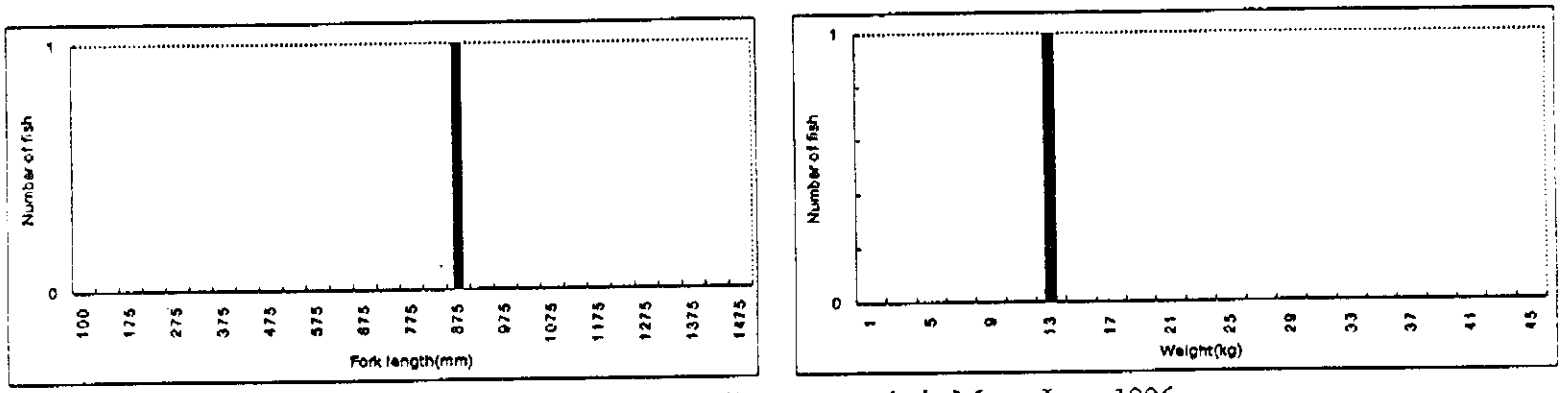


App. Figure 135. Body size composition of *Thunnus tonggol* caught in 1996 -1997.

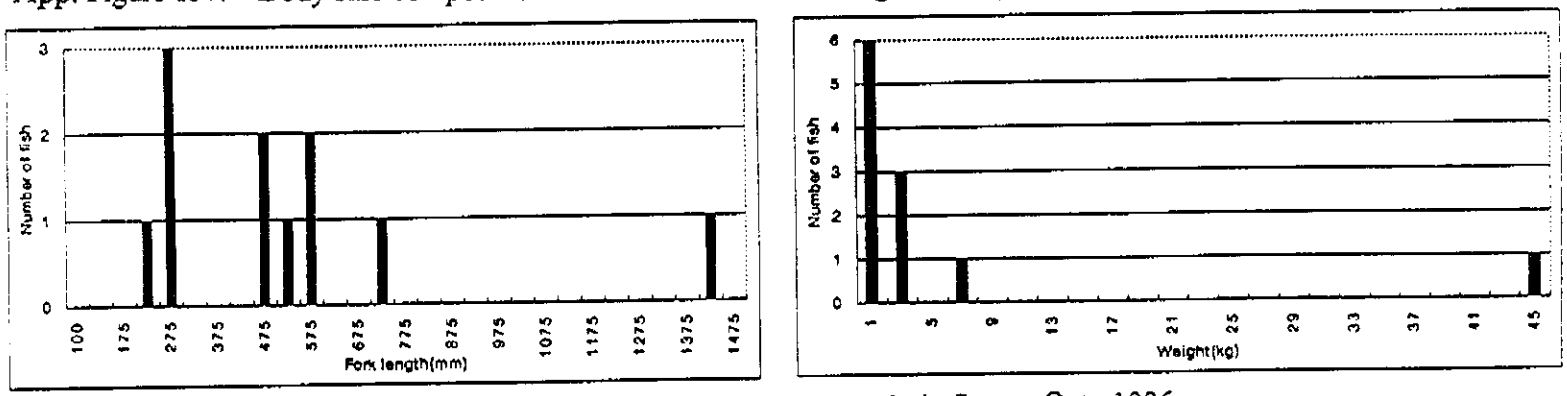




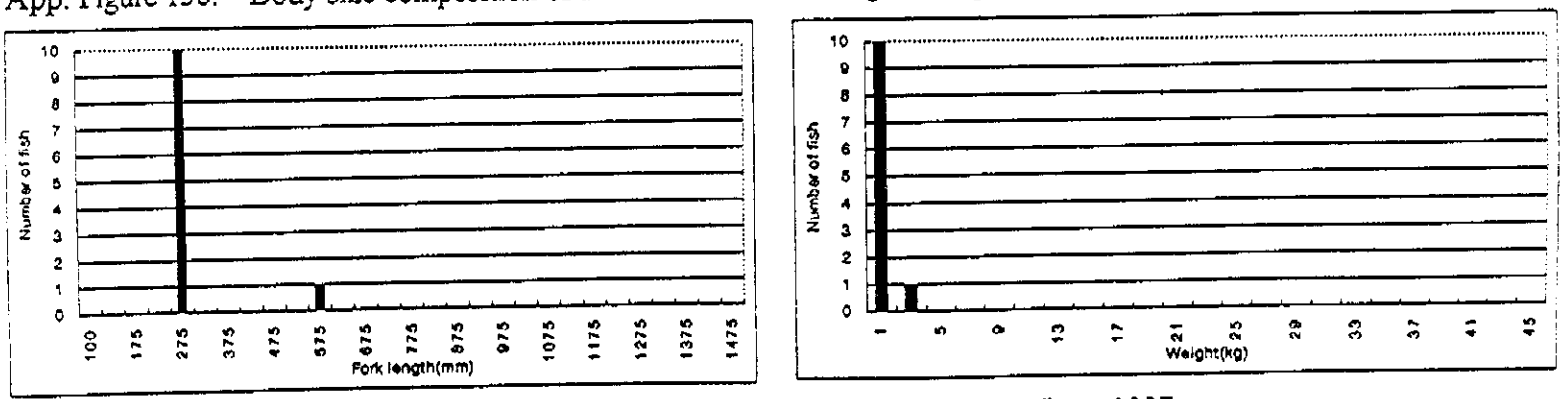
App. Figure 136. Body size composition of *Thunnus albacares* caught in 1996 -1997.



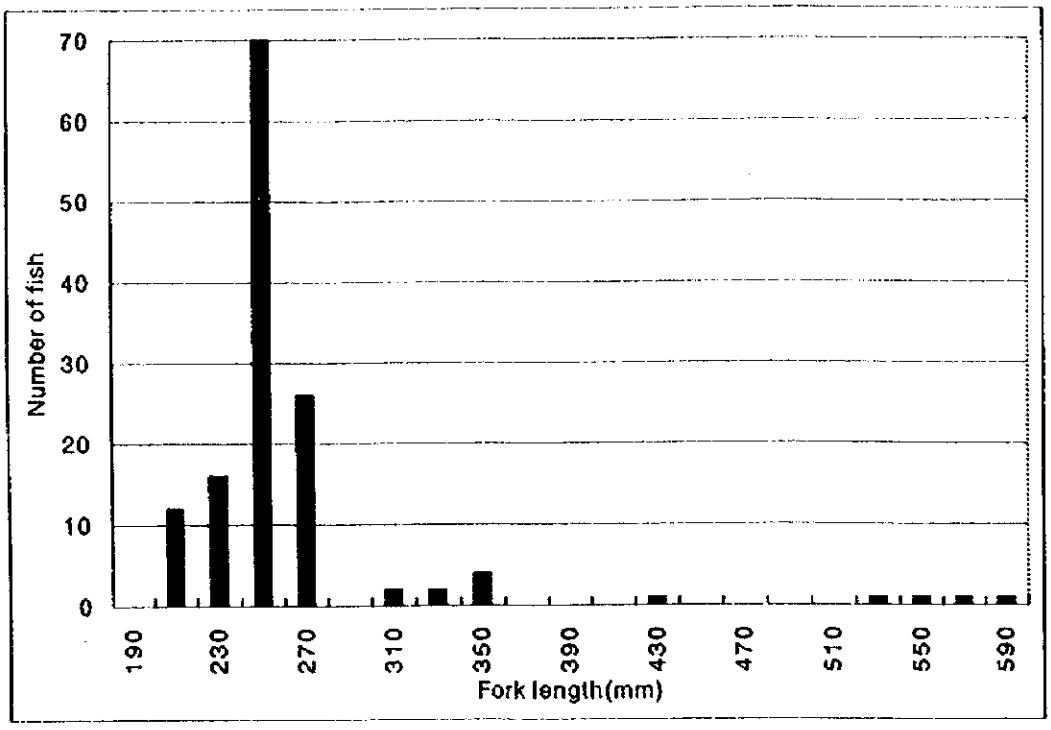
App. Figure 137. Body size composition of *Thunnus albacares* caught in May - June, 1996.

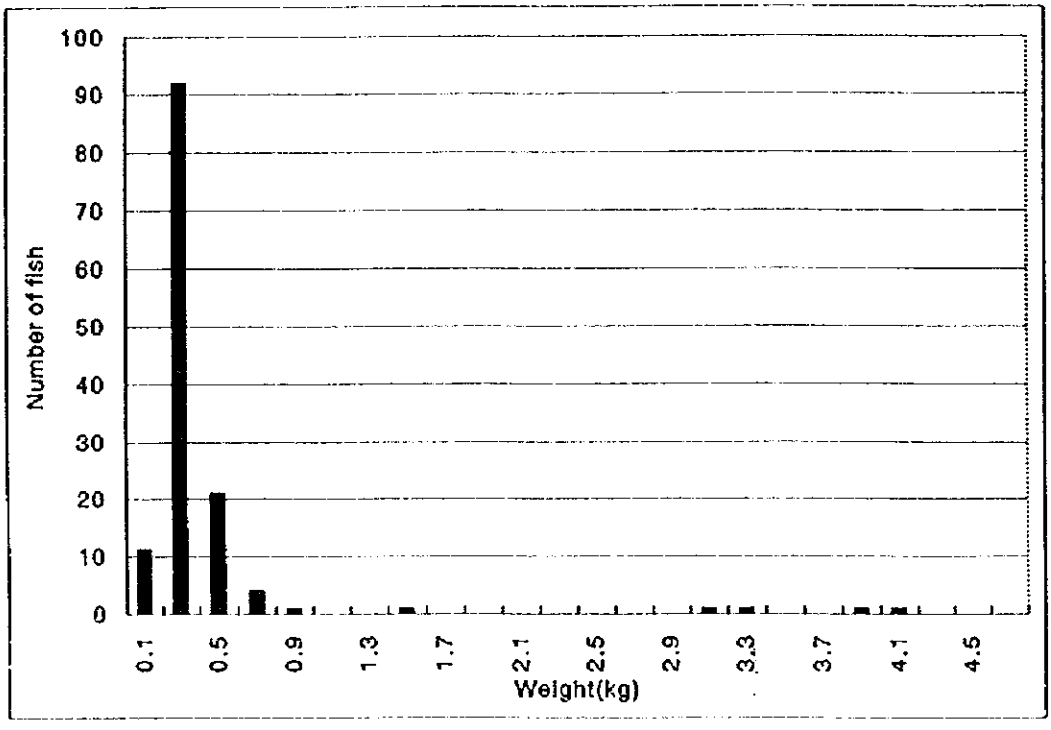


App. Figure 138. Body size composition of *Thunnus albacares* caught in Sept. - Oct., 1996.

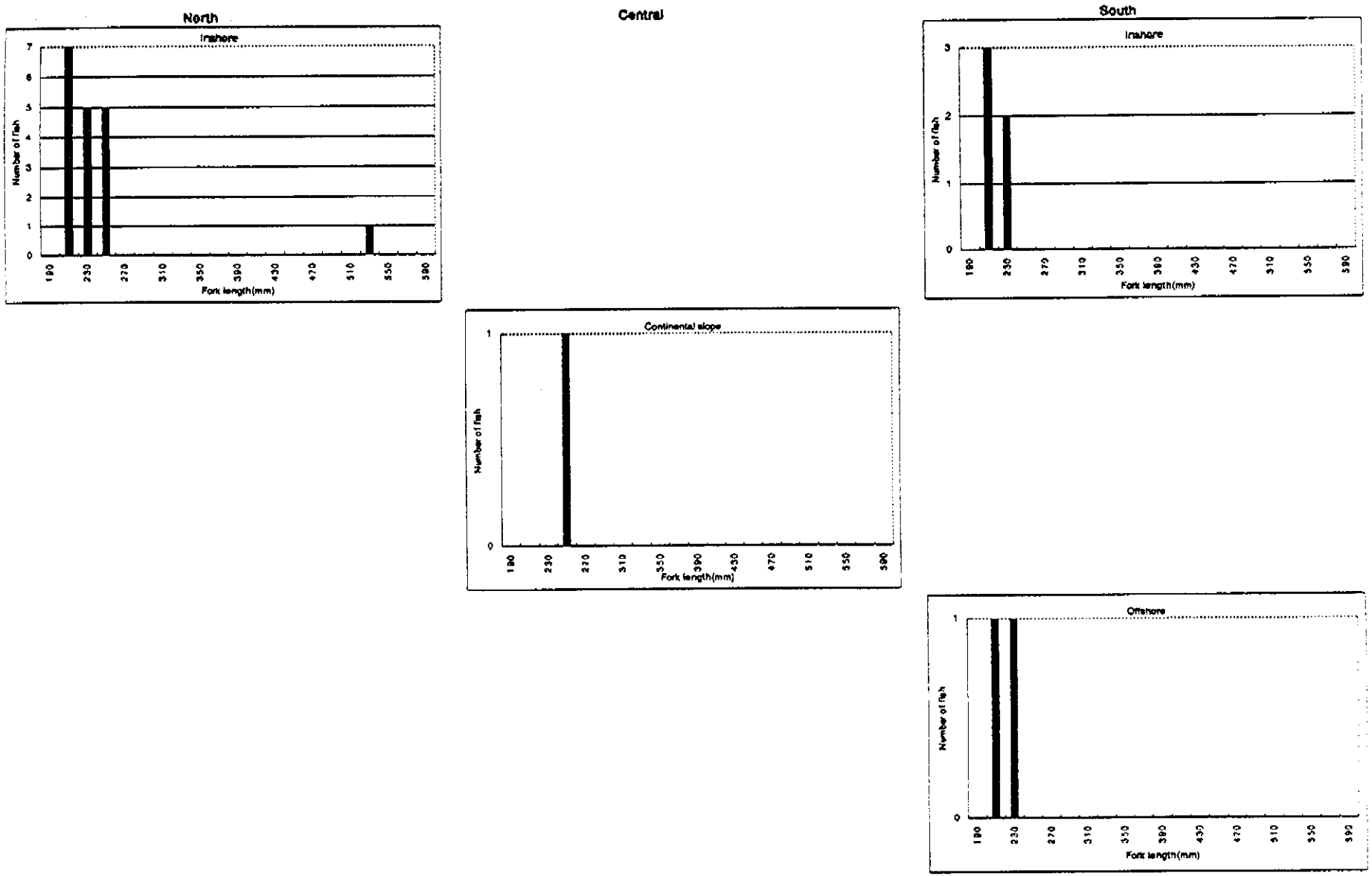


App. Figure 139. Body size composition of *Thunnus albacares* caught in May - June, 1997.

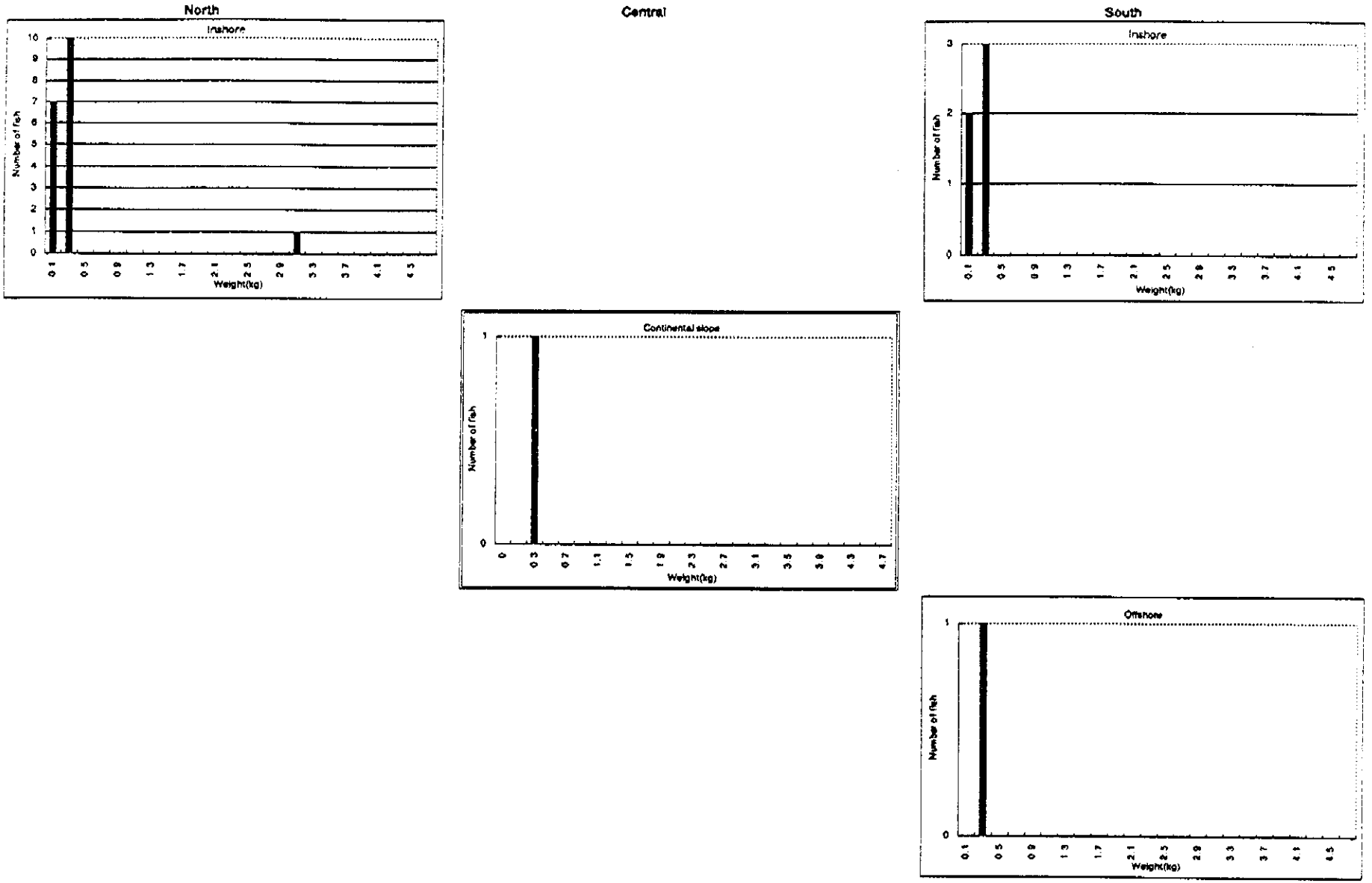




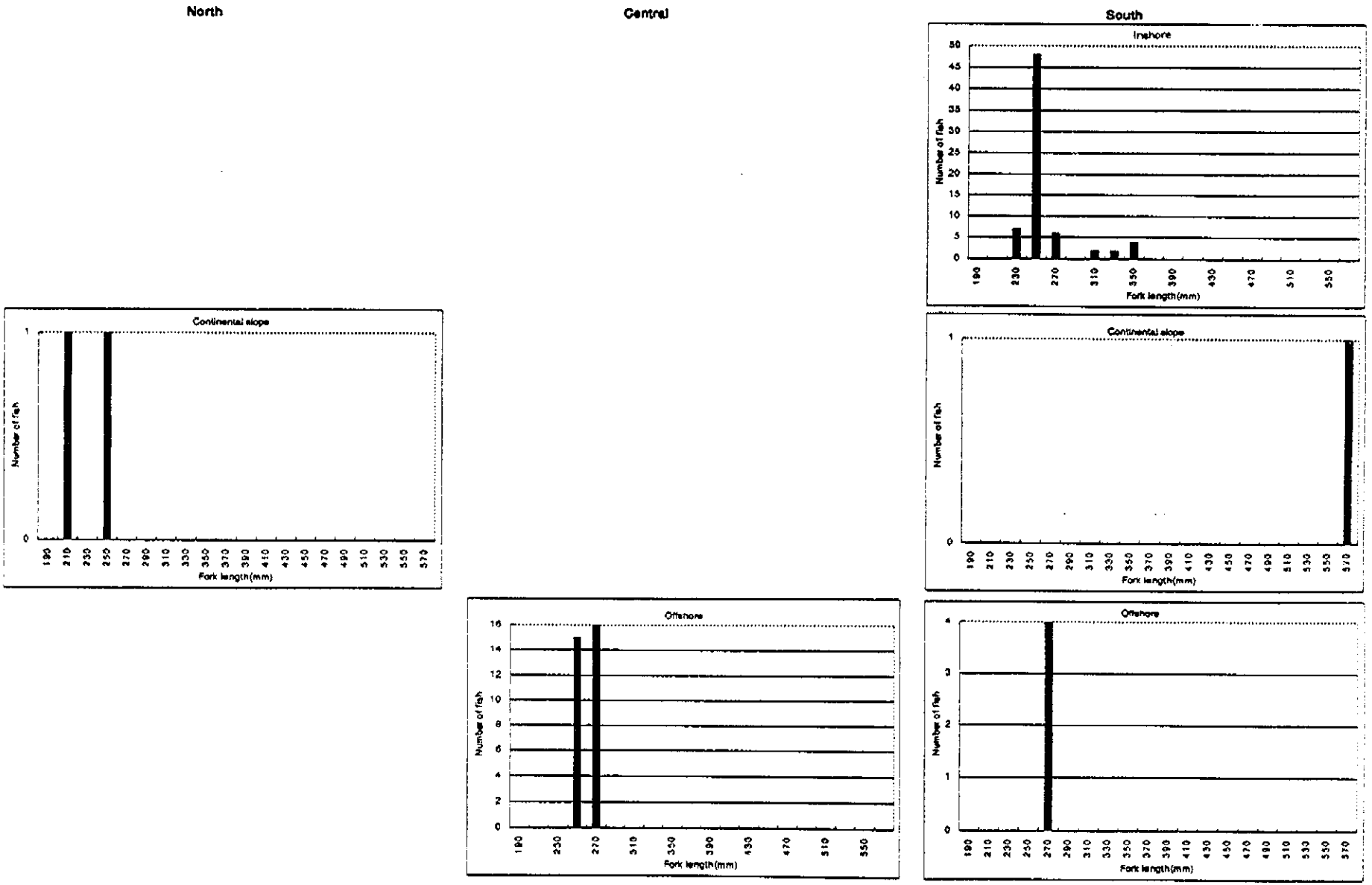
App. Figure 140. Body size composition of *Thunnus obesus* caught in 1996 -1997.



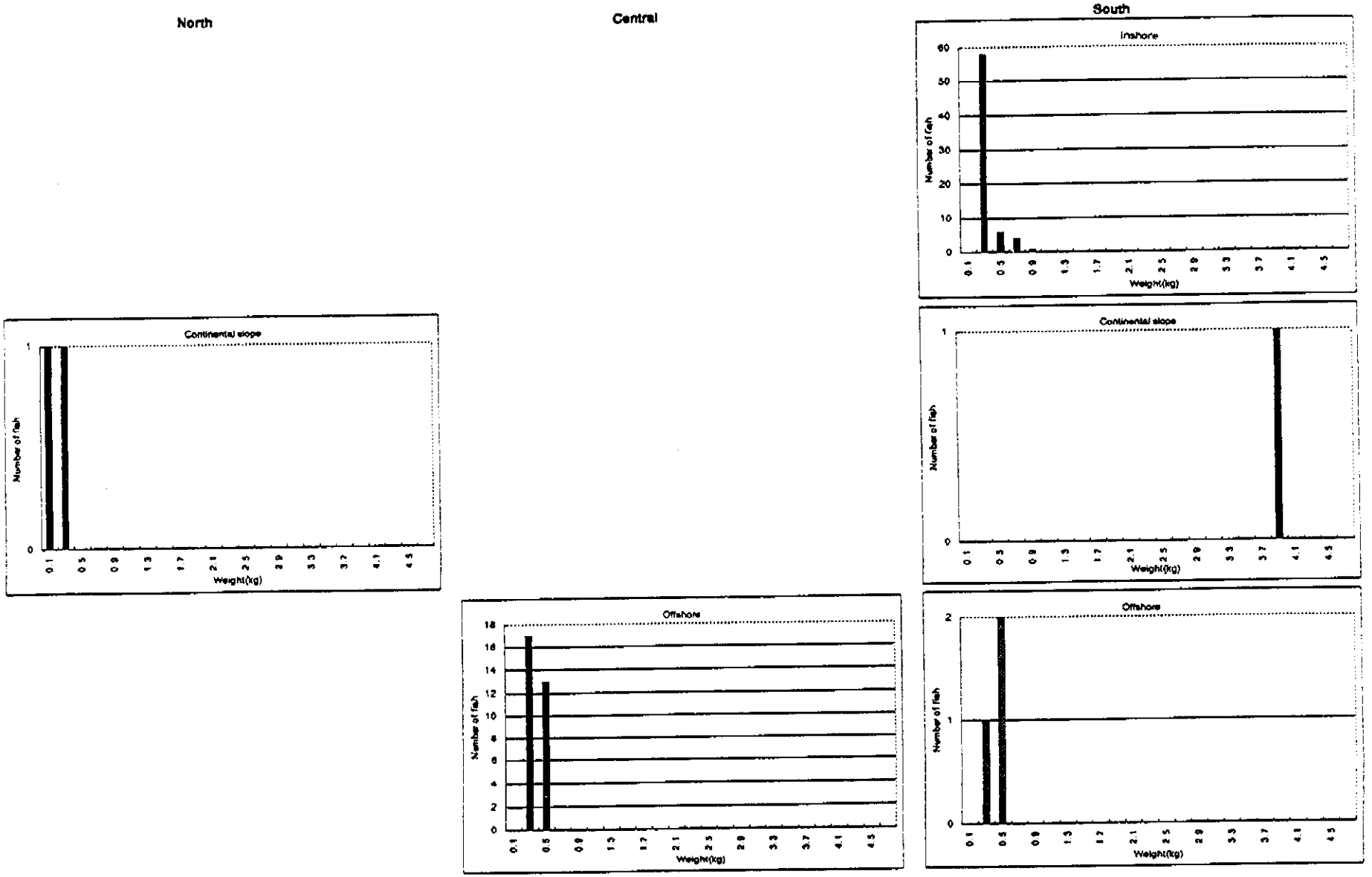
App. Figure 141. Fork length composition of *Thunnus obesus* caught at each area in May - June, 1996.



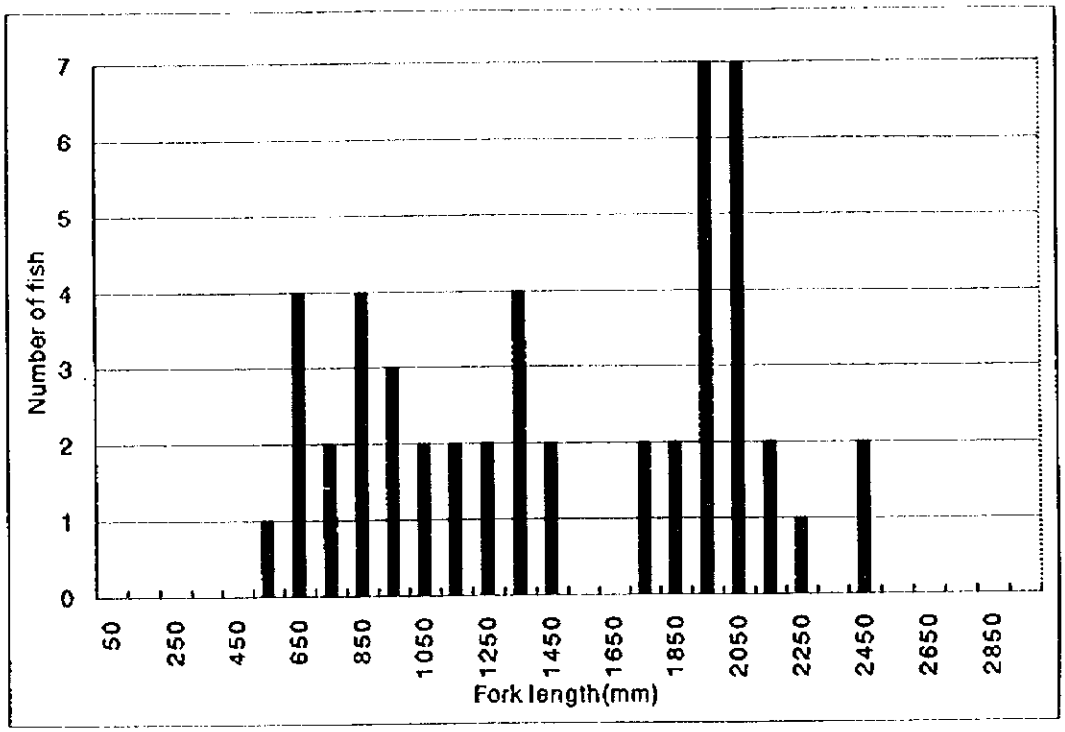
App. Figure 142. Body weight composition of *Thunnus obesus* caught at each area in May - June, 1996.

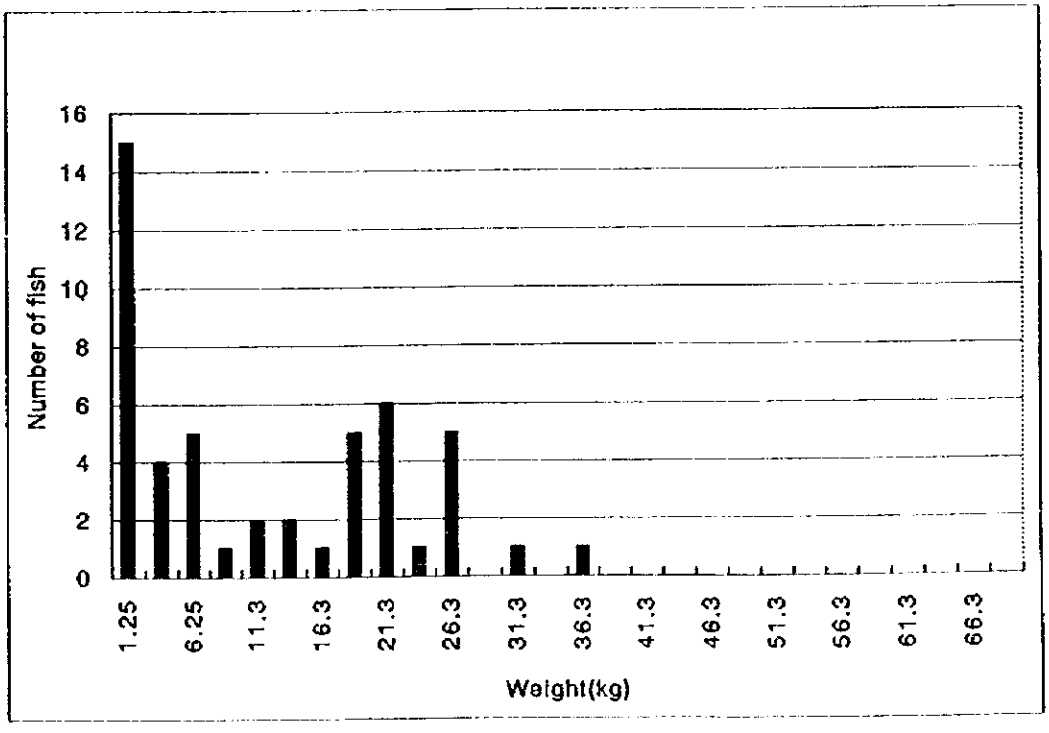


App. Figure 143. Fork length composition of *Thunnus obesus* caught at each area in May - June, 1997.

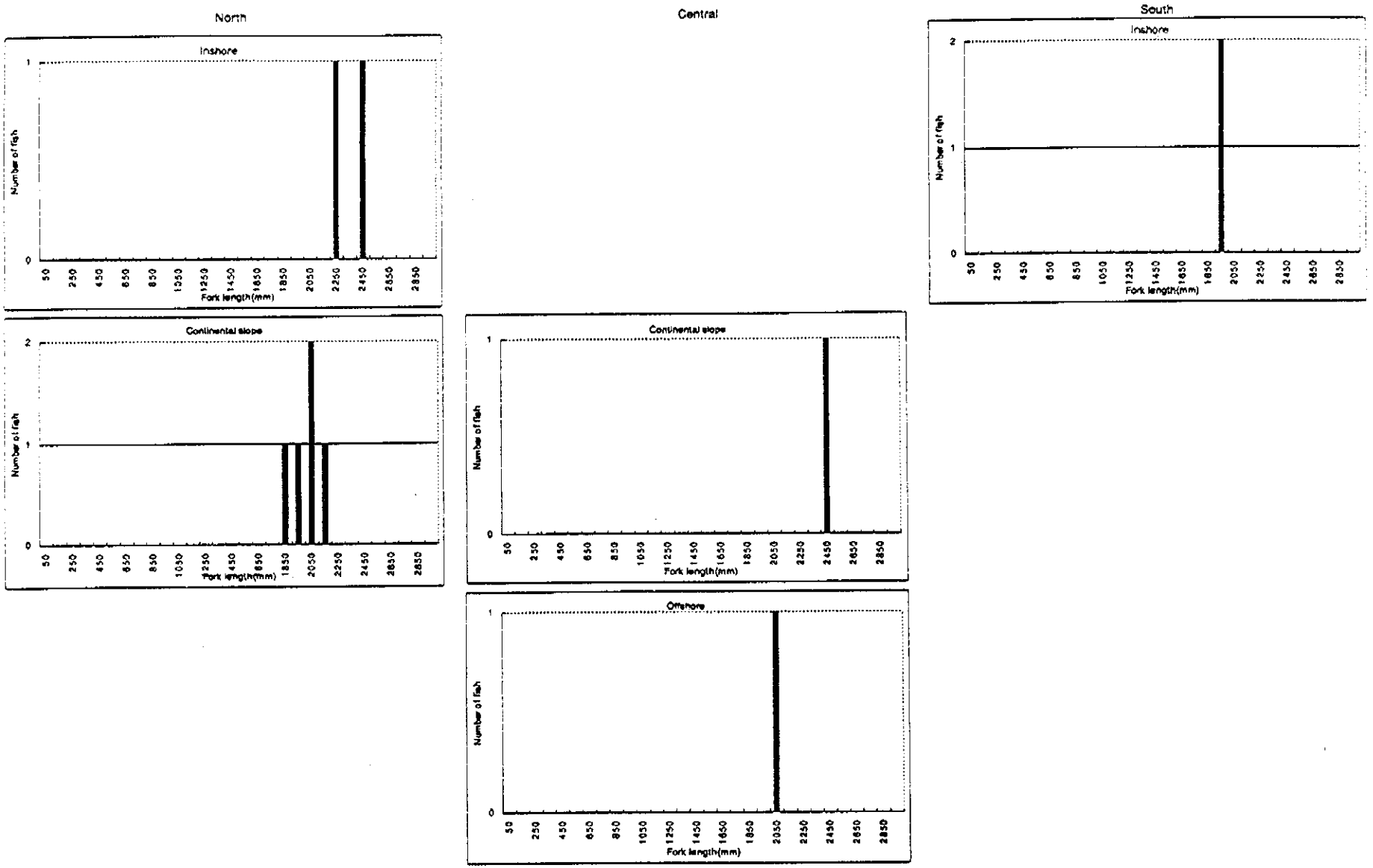


App. Figure 144. Body weight composition of *Thunnus obesus* caught at each area in May - June, 1997.

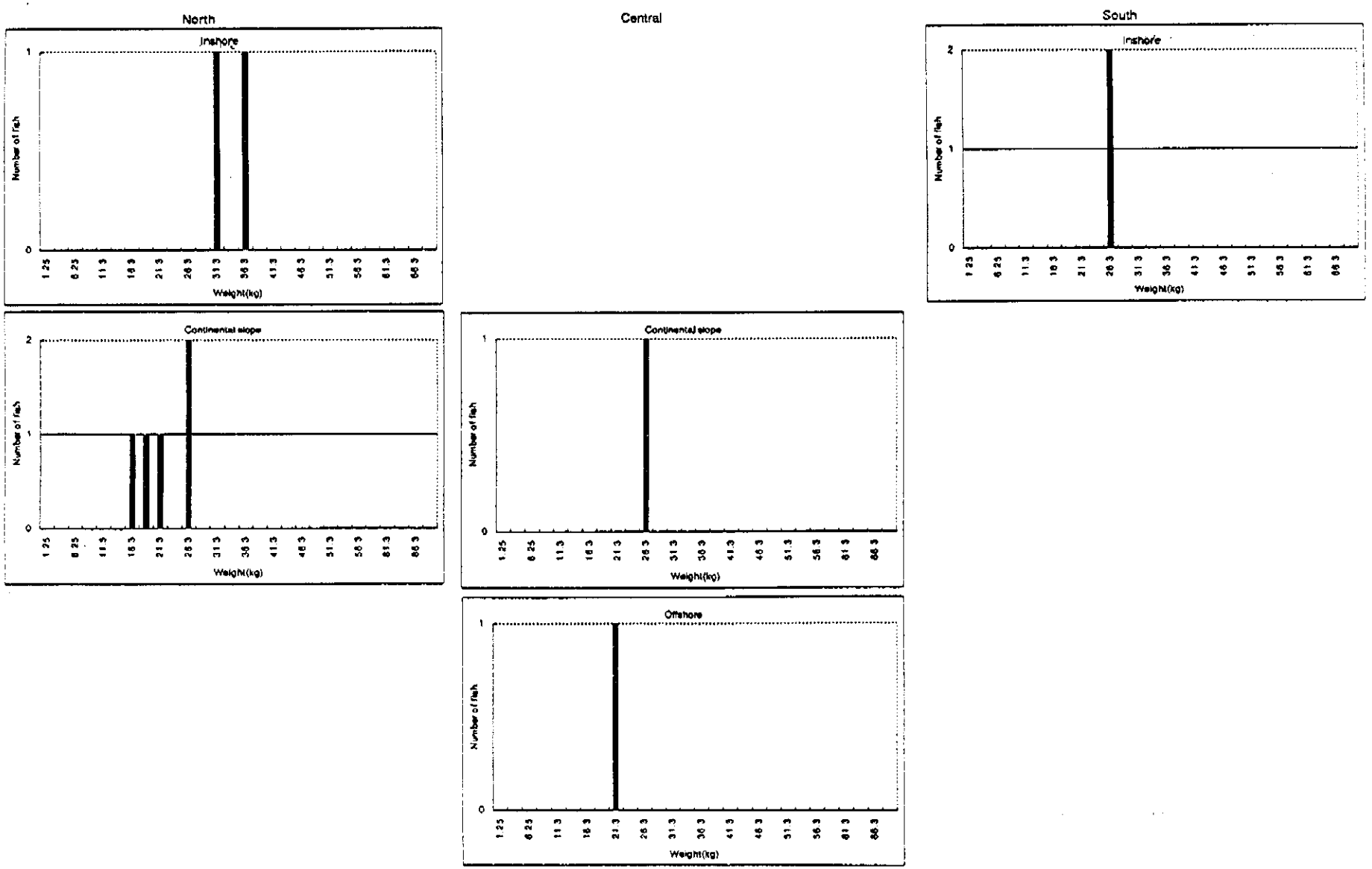




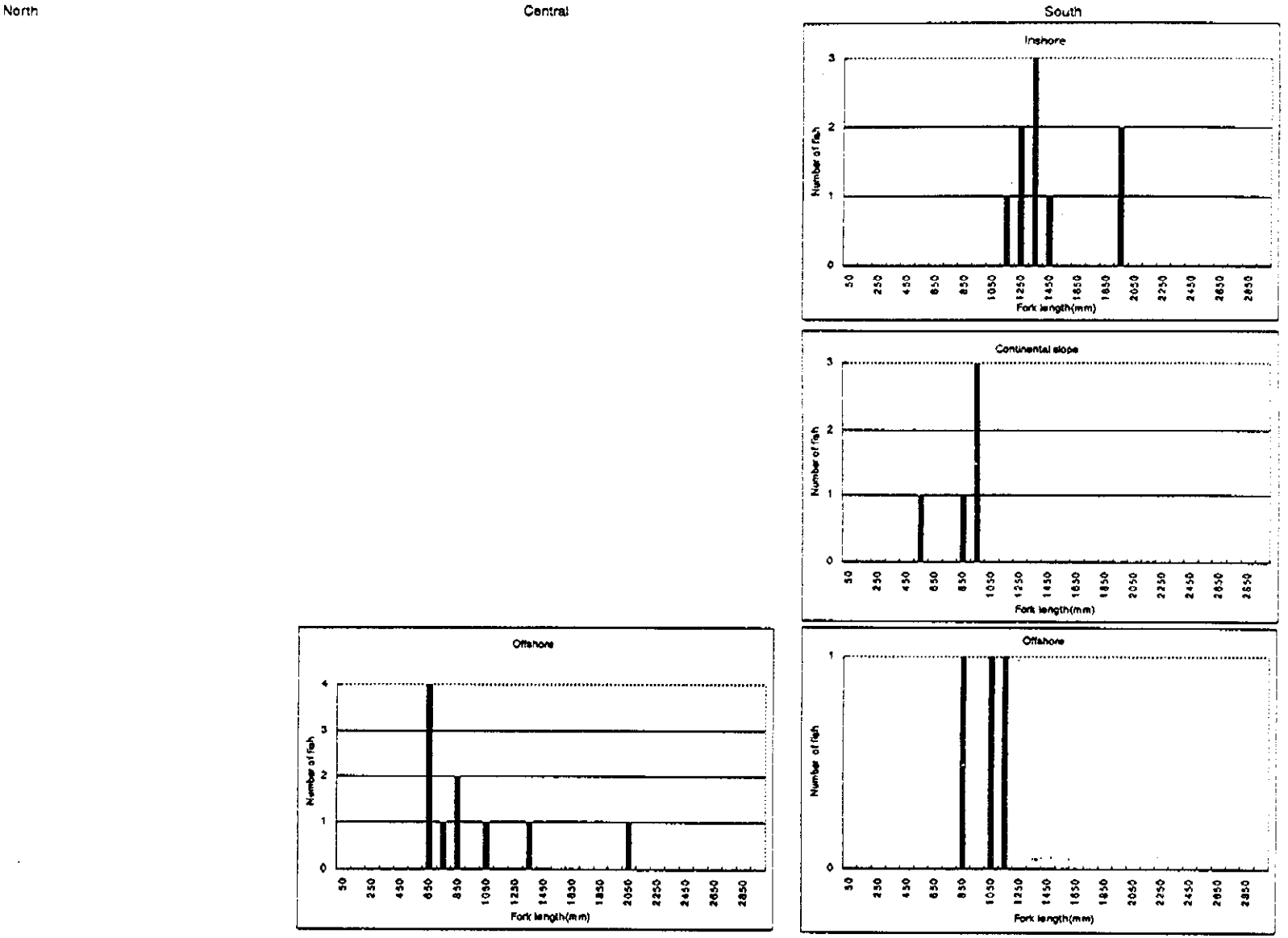
App. Figure 145. Body size composition of *Istiophorus platypterus* in 1996 - 1997.



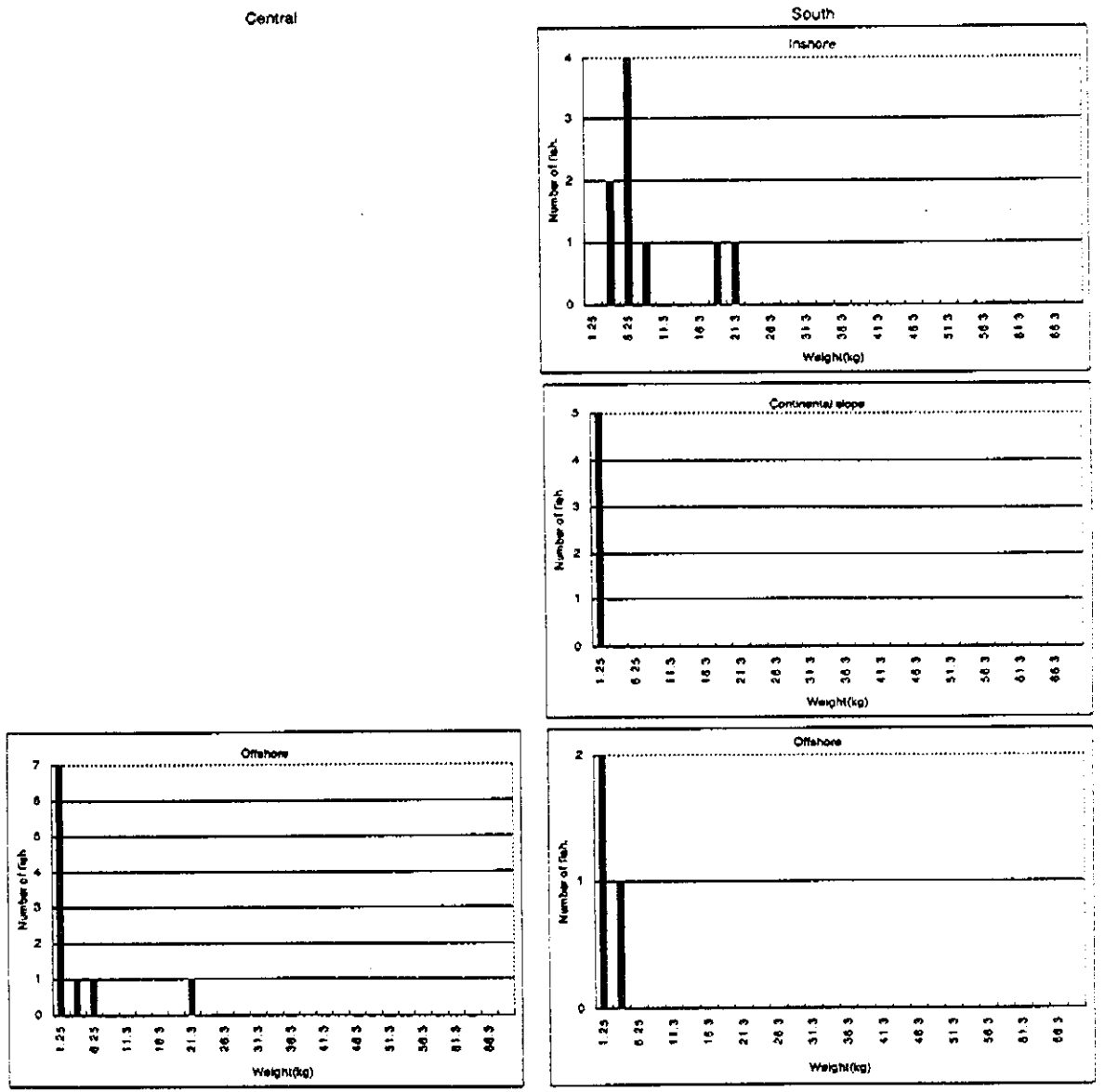
App. Figure 146. Fork length composition of *Istiophorus platypterus* caught at each area in May - June, 1996.



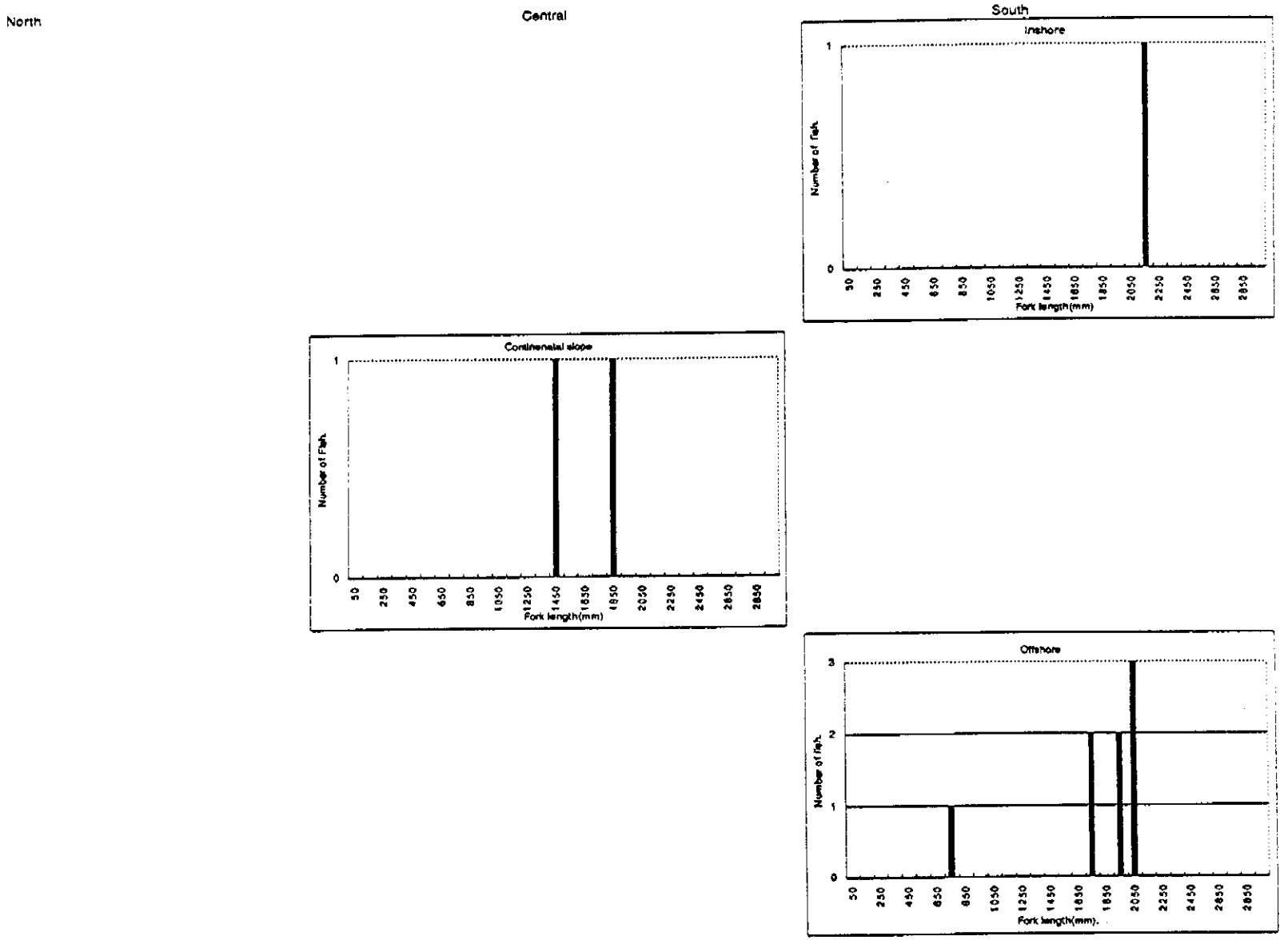
App. Figure 147. Body weight composition of *Istiophorus platypterus* caught at each area in May - June, 1996.



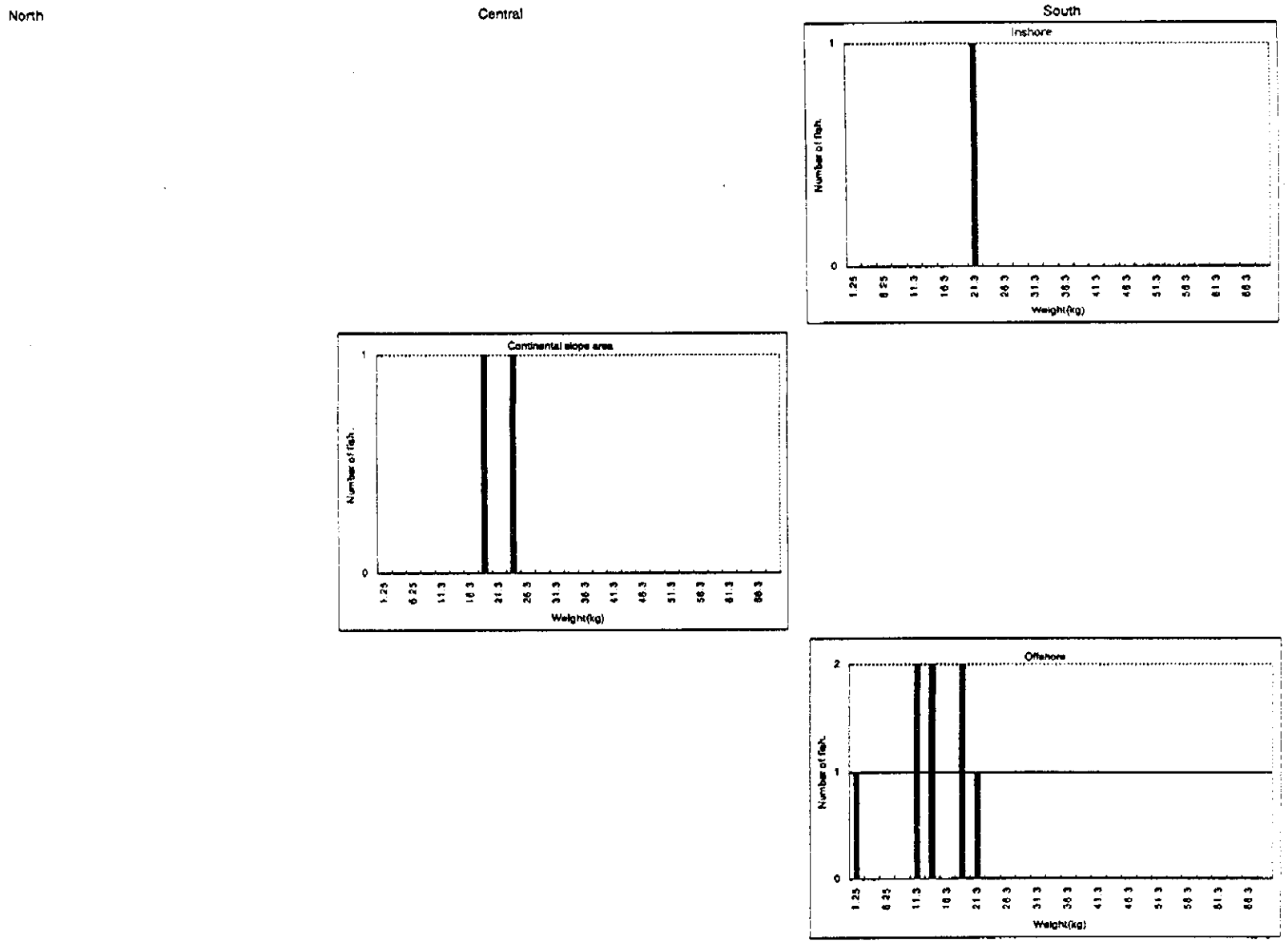
App. Figure 148. Fork length composition of *Istiophorus platypterus* caught at each area in Sept. - Oct., 1996.



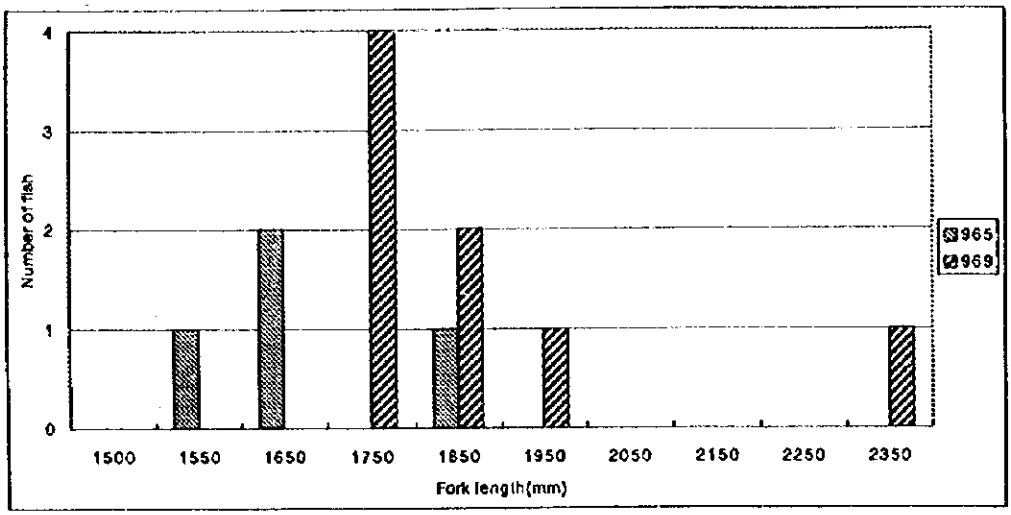
App. Figure 149. Body weight composition of *Istiophorus platypterus* caught at each area in Sept. - Oct., 1996.

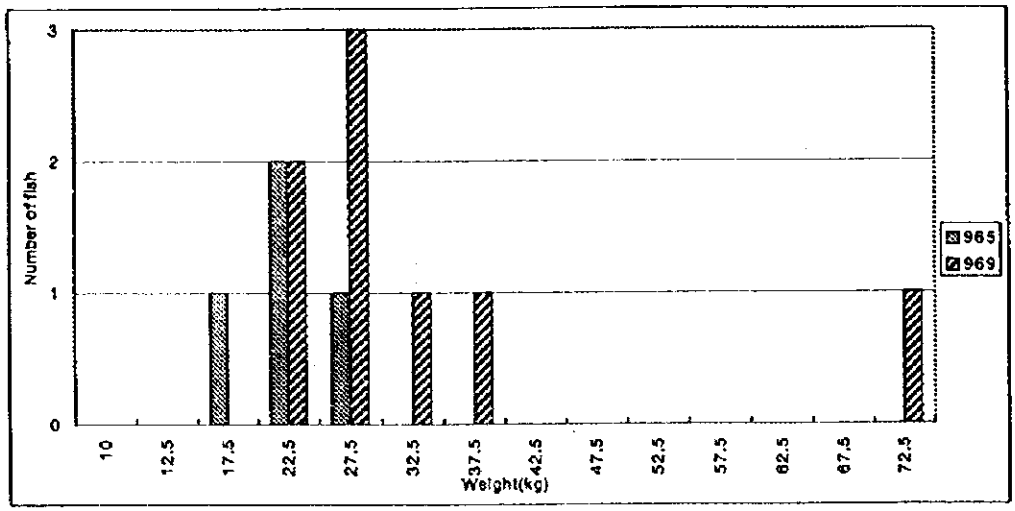


App. Figure 150. Fork length composition of *Istiophorus platypterus* caught at each area in May - June, 1997.

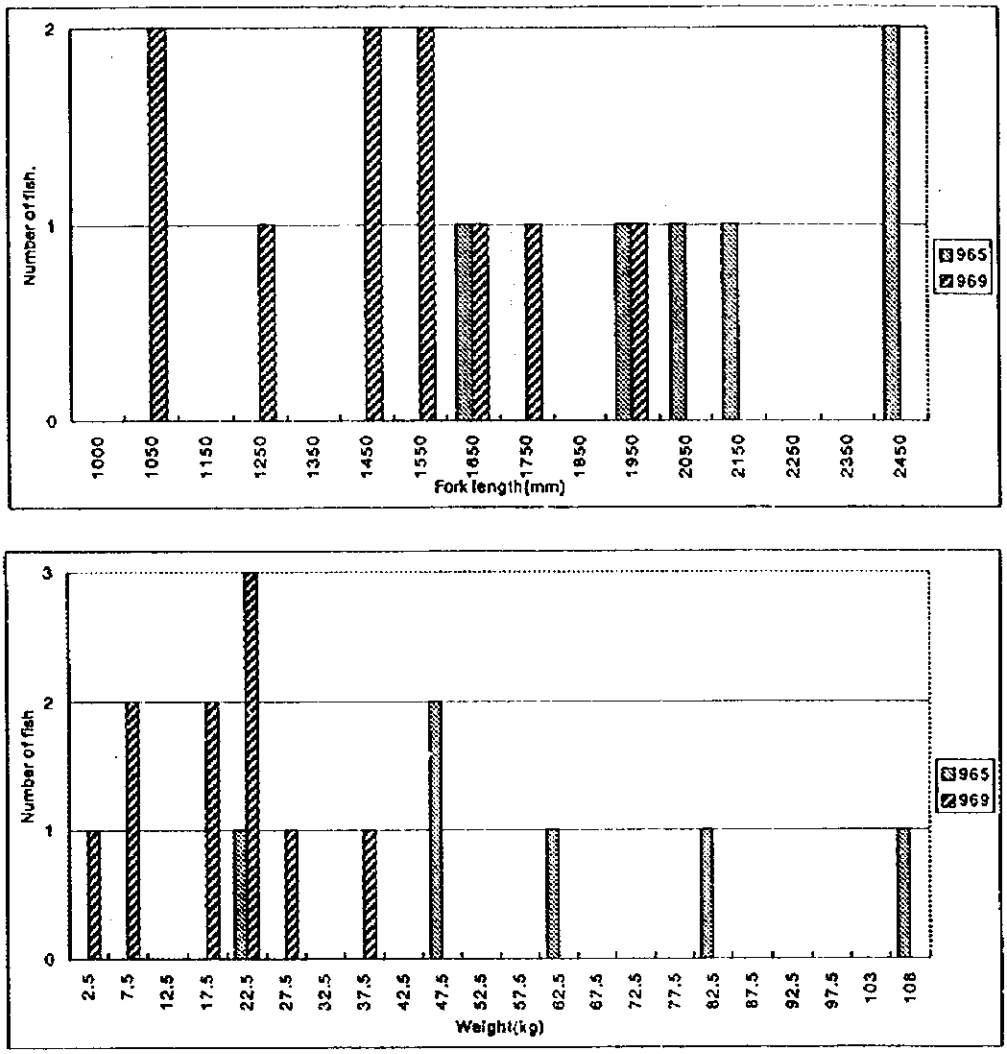


App. Figure 151. Body weight composition of *Istiophorus platypterus* caught at each area in May - June, 1997.

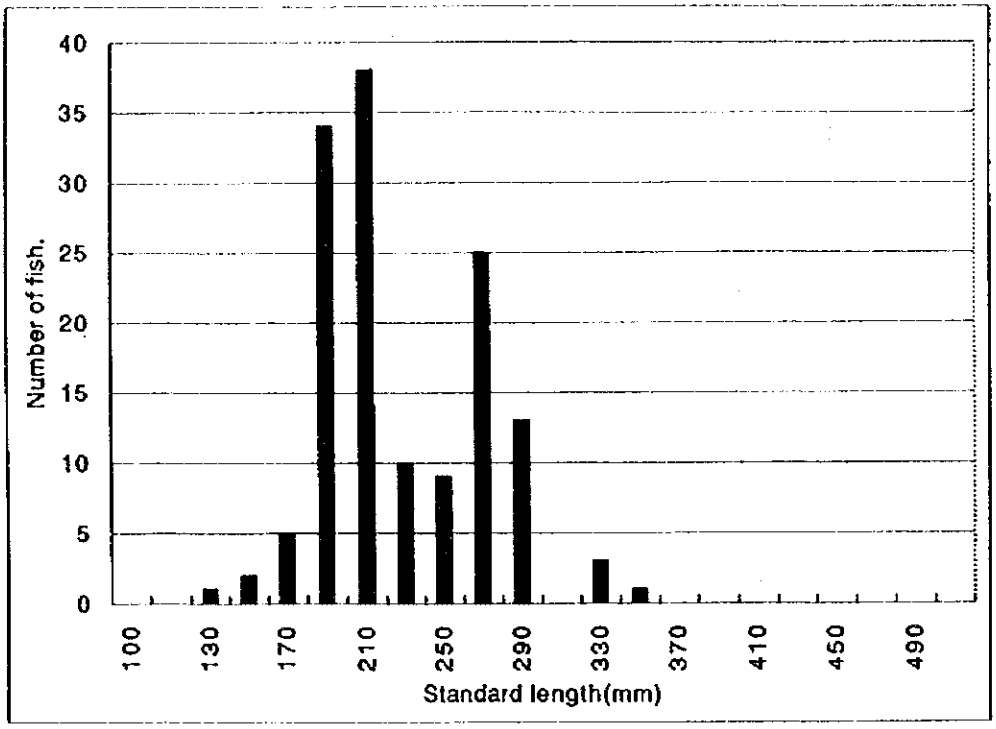


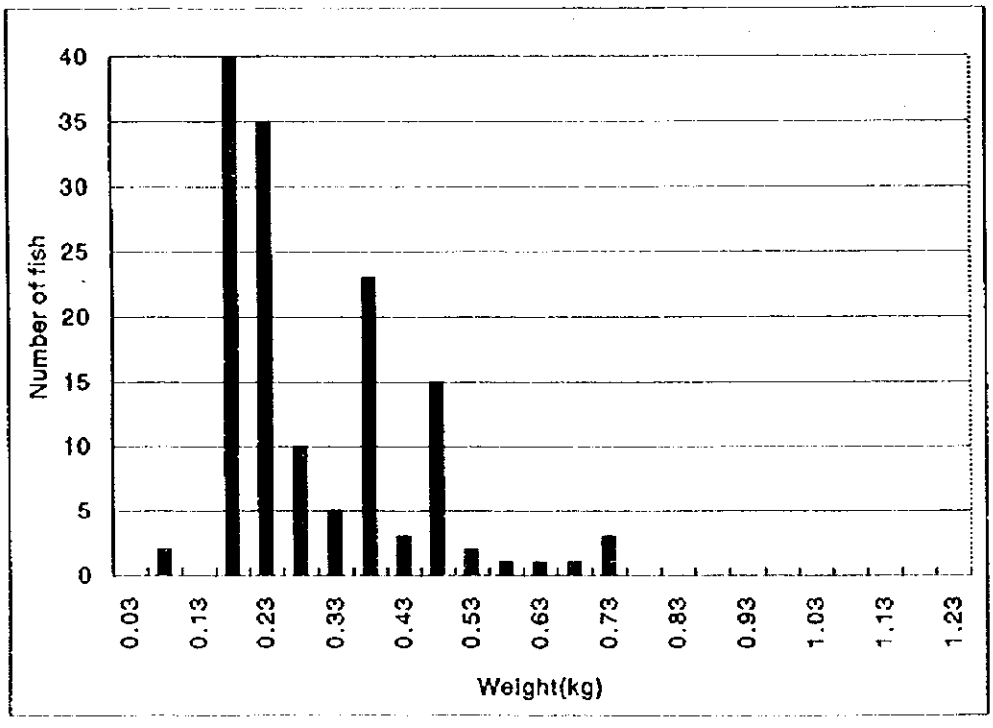


App. Figure 152. Body size composition of *Makaira indica* caught in 1996.

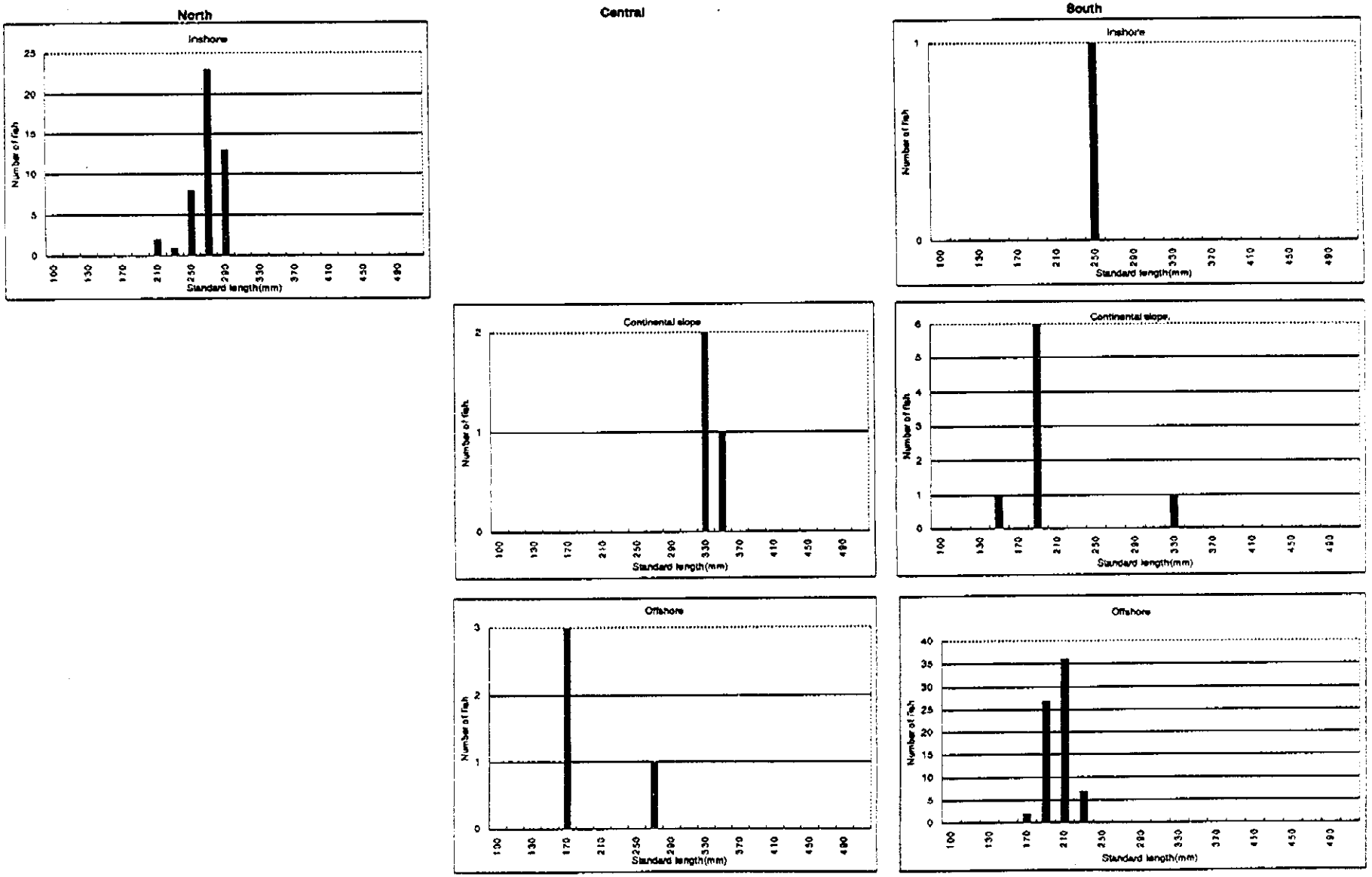


App. Figure 153. Body size composition of *Makaira mazara* caught in 1996.

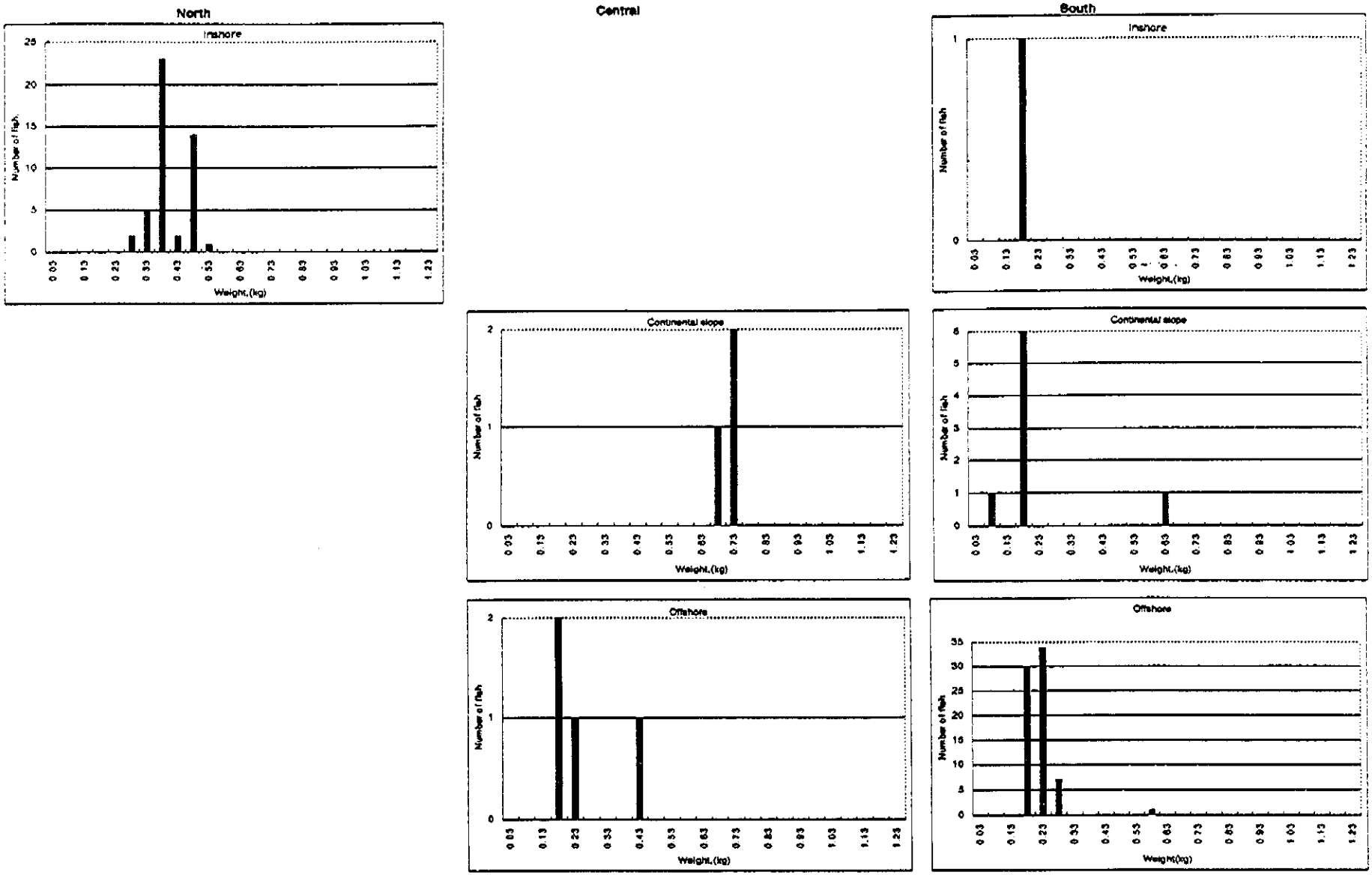




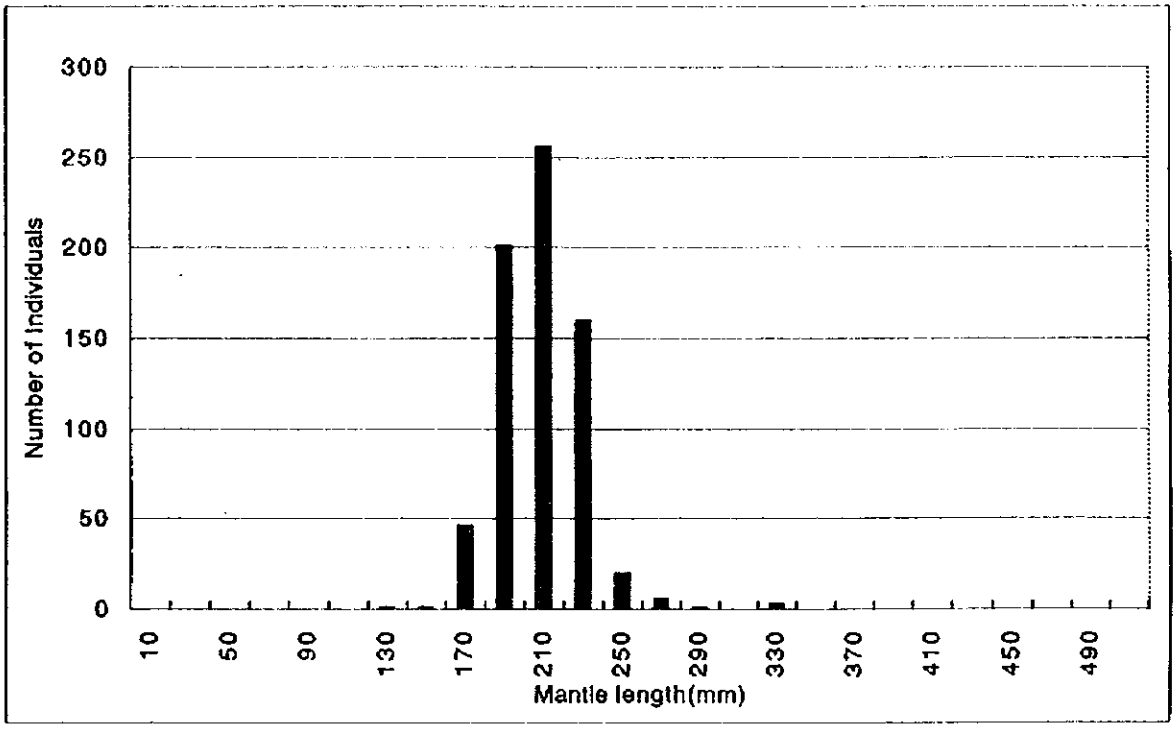
App. Figure 154. Body size composition of *Aluterus monocerus* caught in 1996 - 1997.

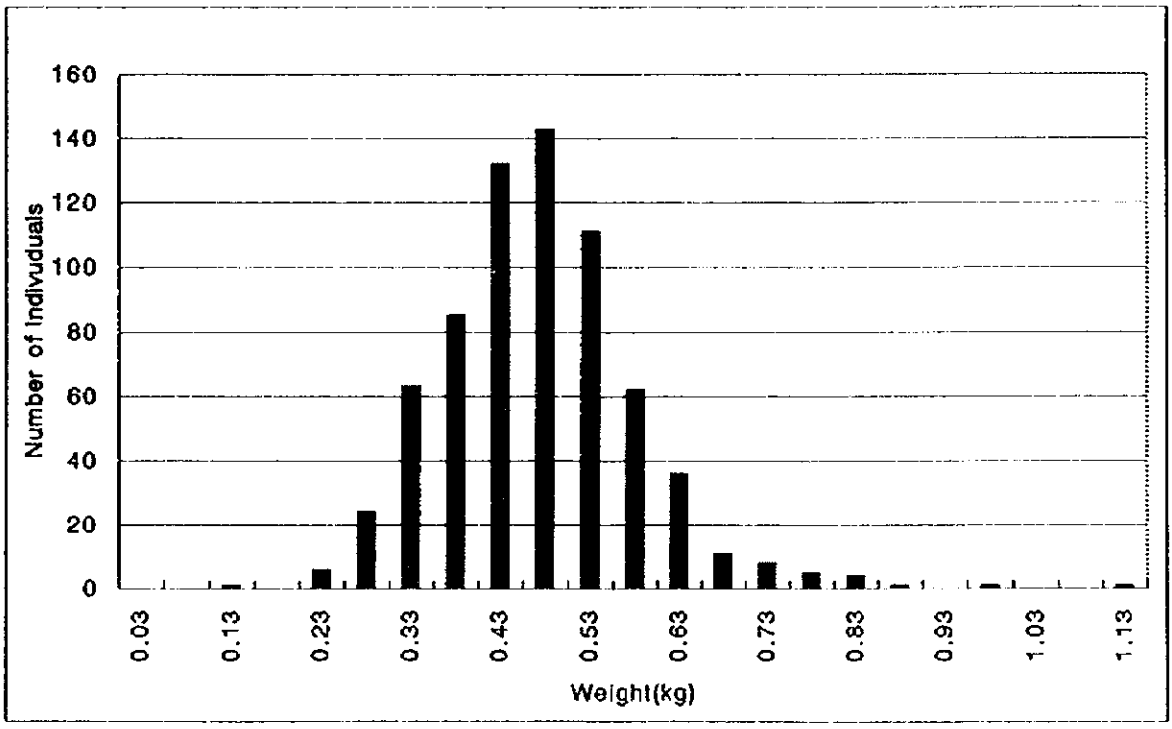


App. Figure 155. Standard length composition of *Aluterus monocerus* caught at each area in May - June, 1996.



App. Figure 156. Body weight composition of *Aluterus monocerus* caught at each area in May - June, 1996.



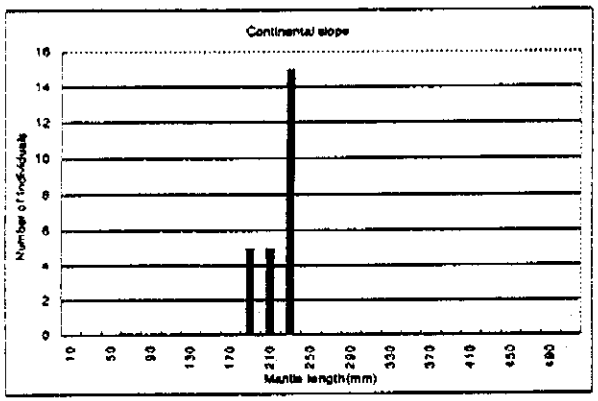


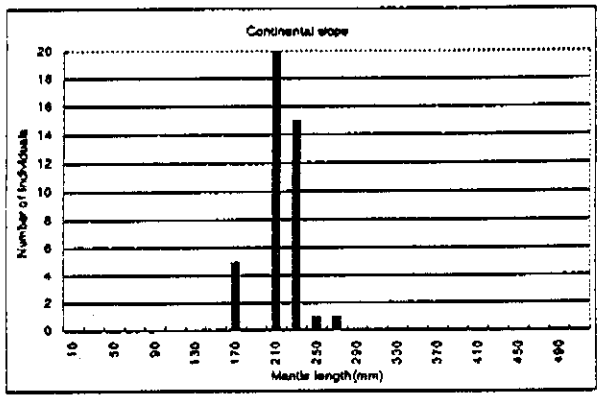
App. Figure 157. Body size composition of *Sthenoteuthis oualaniensis* in 1996 - 1997.

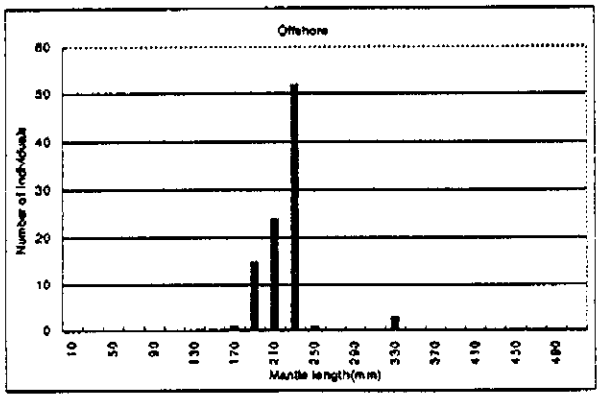
North

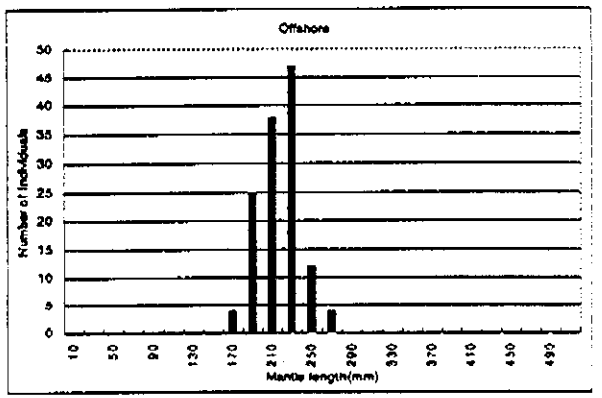
Central

South







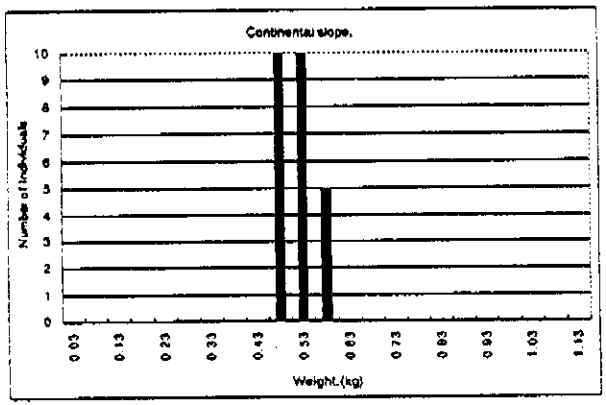


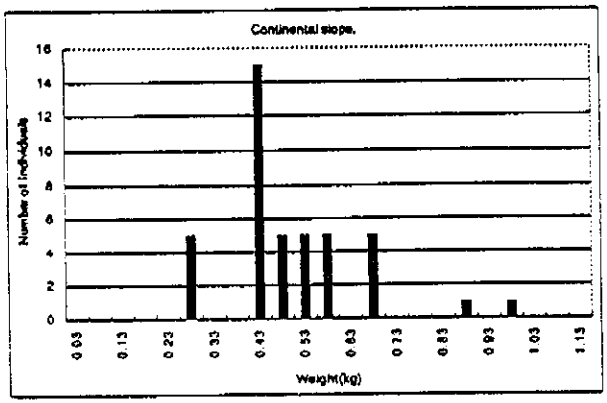
App. Figure 158. Mantle length composition of *Sthenoteuthis oualaniensis* in May - June, 1996.

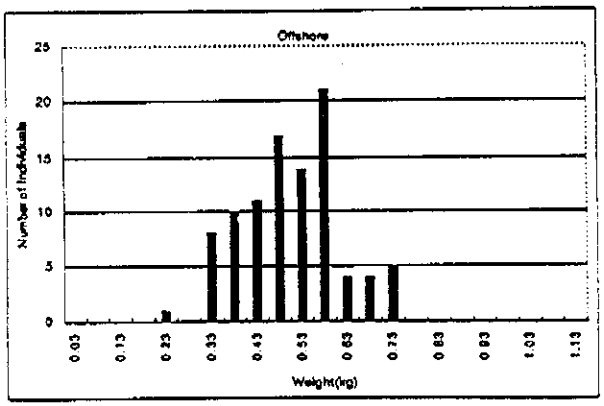
North

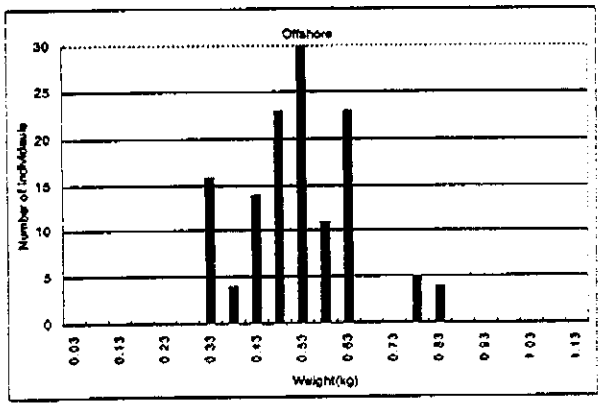
Central

South

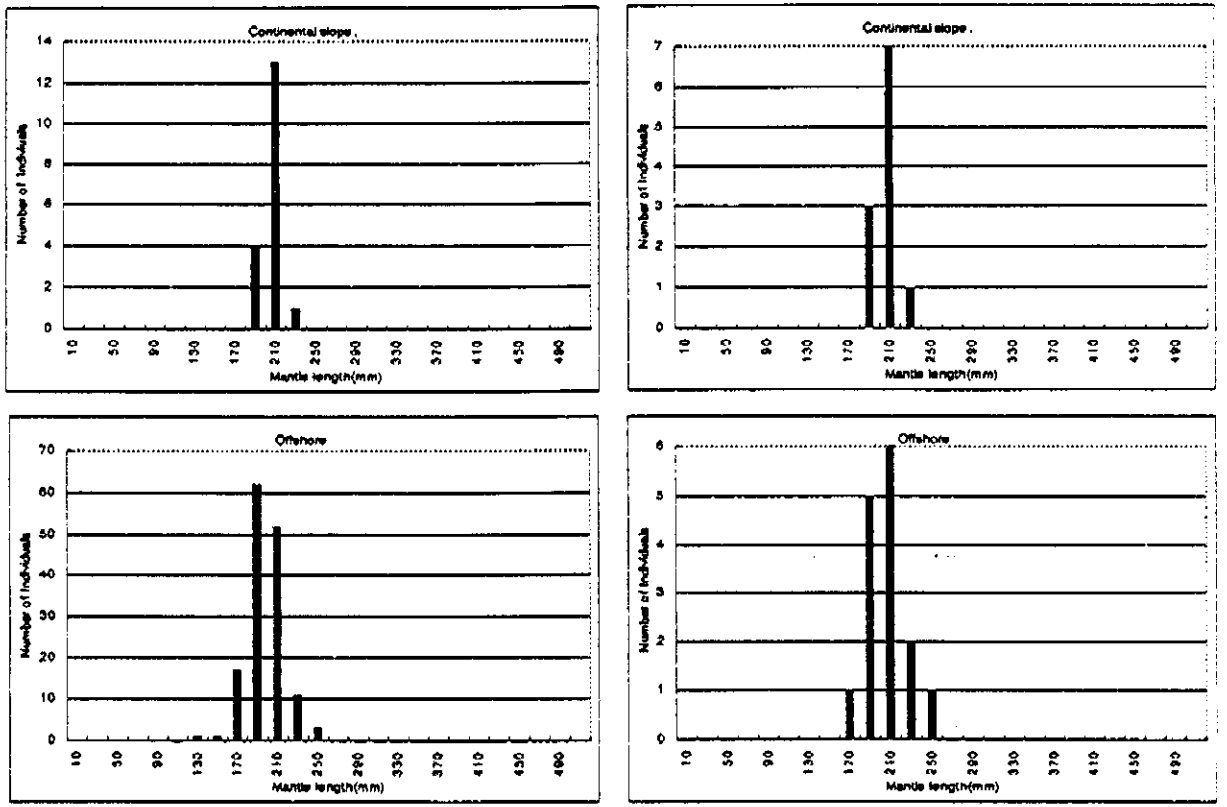








App. Figure 159. Body weight composition of *Sthenoteuthis oualaniensis* in May - June, 1996.

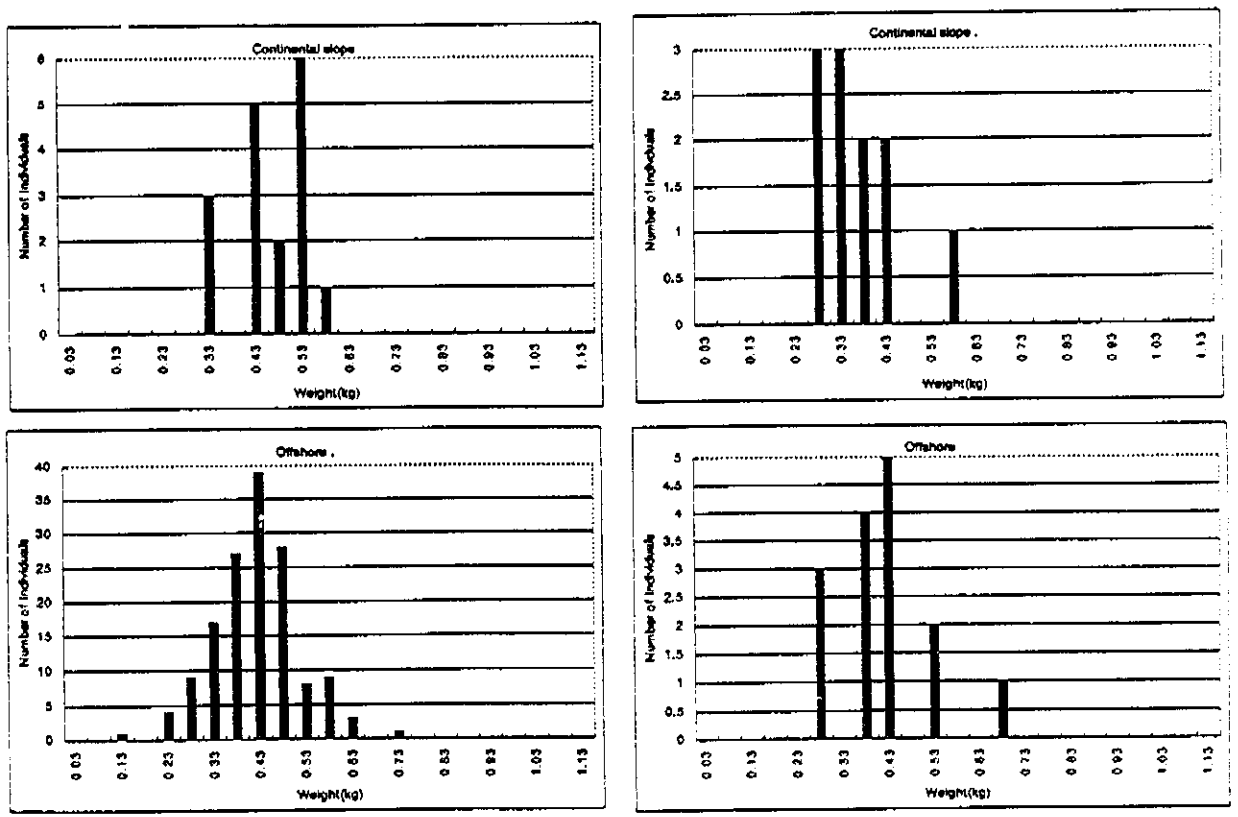


App. Figure 160. Mantle length composition of *Sthenoteuthis oualaniensis* in Sept. - Oct., 1996.

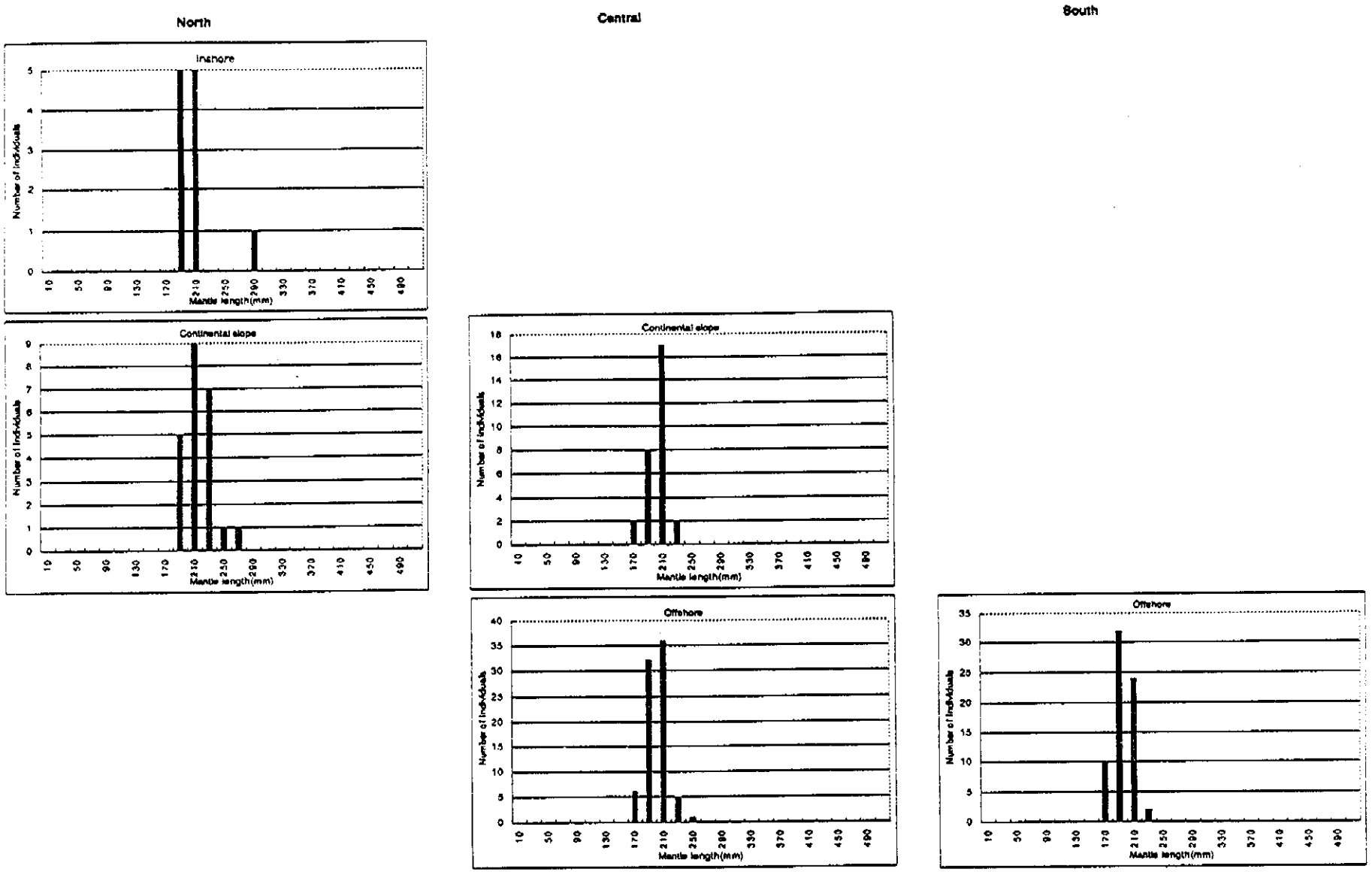
North

Central

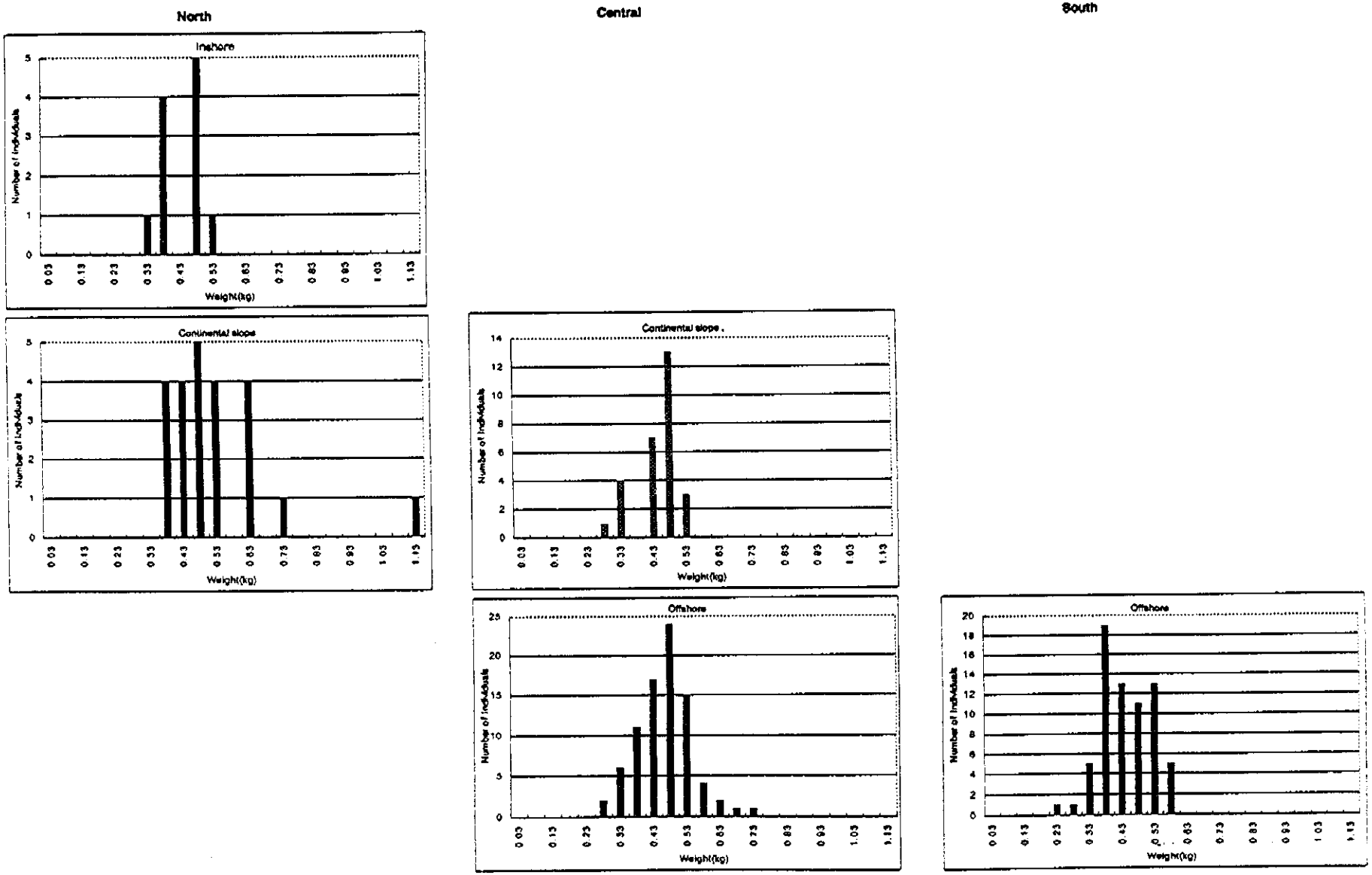
South



App. Figure 161. Body weight composition of *Sthenoteuthis oualaniensis* in Sept. - Oct., 1996.



App. Figure 162. Mantle length composition of *Sthenoteuthis oualaniensis* in May - June, 1997.



App. Figure 163. Body weight composition of *Sthenoteuthis oualaniensis* in May - June, 1997.