the fraction of high molecular weight proteins (#1&#2) is $22 \pm 5\%$(n3) in urine and $59 \pm 2.8\%$(n5) in plasma.

Although the disappearance curve of PVP from *Lophius'* plasma (Fig. 3) follows a time course similar to that in mammalian species the renal clearance of this molecule is incomparably less. In the rat, for example, clearance of PVP (MW 40,000) is 10,000 x the value calculated here for *Lophius*. The extrarenal disposal of this macromolecule is therefore of considerable interest.

When relative clearances of PVP and protein are compared within species another striking difference is found. In *Lophius* (Table 1) the clearance of PVP is 3 or 4 x tht of total plasma protein, in the rat it is about 1000 x. This dixcrepancy may be explained by the relatively small molecular weight of fish plasma proteins and the large fraction of LMW proteins in the plasma of *Lophius*.

These preliminary data allow no more than inference regarding the mode of access of plasma roteins to the urine in this aglomerular species. The fact that all plasma proteins find urinary representatation speaks against secretion since it seems unlikely that secretory mechanisms for every protein would be evolved. Also LMW proteins predominate in urine whereas known secretory proteins (IgA,uromucoid) are of high molecular weight. It is possible that the very small rate of urinary protein excretion (12 g/hr/kidney) represents leakage of plasma proteins through intercellular spaces. The bulk flow of urine across these epithelial structures may assist the movement of proteins. The predominance of LMW proteins in the urine of *Lophius* is consistent with this process of proteinuria.

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Metabolism of the Standing Dead Plant Community in Several Maine Salt Marshes

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The salt marsh, like many natural grasslands, is a detritus based ecosystem. Relatively few grazers are present and most of the photosynthate enters the food web via microbial degradation. Microbes are active in southeastern United States marshes throughout the year, but in Maine a strong seasonality in plant decay would be expected.

Aerial and aquatic respiration of the dead plant communities and dissolved organic carbon (DOC) release were measured in stands of *Spartina alterniflora* Loisel., *Spartina patens* (Ait.) Muhl. and *Juncus gerardi* Loisel. Samples were collected from marshes at Northeast Creek and Hog Bay in Hancock County. Aquatic respiration of the community associated with the standing dead plants was measured as oxygen consumption by the Winkler method and aerial respiration was quantified as Co_2 release with an infrared gas analyzer. DOC discharge was measured by the method described by Gallagher *et al* (*Estuar. Coast Mar. Sci., in press*).

Aquatic respiration rates of the three dead plant communities were similar in April when the temperature was 1°C. They were 14.9($\pm$ 0.6), 12.6($\pm$ 1.0), 15.4(0.5) g C hr^{-1} gram dry $weight^{-1}$ ($\pm$ SE) for the *alterniflora*, *S. patens* and *J. gerardi* respectively. Ov the wide temperature range used to compare the Ma (ambient 1°C) and Georgia (ambient 25°C) communiti the Q_{10} was 2.75. Aerial respiration rates in April we slightly lower than those measured under aqua conditions. In May the aerial Q_{10} for the *S. alterniflo* community averaged 3.89 over the temperature range 2-18°C, while that for *S. patens* was 2.77. These val are higher than similar values for Georgia and in indicate the saprophages in Maine communities a adapted to take advantage of short periods of wa weather. Carbon dispersion from the dead pla communities by DOC leaching was more than 4 tim that of respiration rate. These compounds released fr the dead plant communities are readily absorbed planktonic heterotrophs. Chemical analyses of the de plant communities for sugars, starch and crude pro are not complete, but similar studies in Georgia ha shown a strong correlation between respiration rate a protein content of the dead plants.

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Free Amino Acids In Tissues Of The Skate, *Raja erinace* Regulation Of Concentrations And Transport Duri Adaptation To A Dilute Sea Water Environment.

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Study of intracellular osmoregulatory processes difficult in higher vertebrates because these anima not survive large changes in osmolarity of body flu However, certain fish (euryhaline elasmobranchs) a suited ideally for this type of study, for they tole relatively large alterations in body fluid osmol Previous studies (*Forster and Goldstein, Am. J. Physi in press*) have shown that amino acids play a major ro intracellular osmoregulation in the skate *Raja erinacea*; total free amino acids in skeletal muscle and RBC skates kept in seawater (SW) comprise more than percent of the osmotically active solutes, and th concentration is reduced significantly when the fish adapted to half-strength sea-water (½ SW). In the pres study, we measured the levels of individual amino acid RBC, wing muscle and heart of skates maintained in and ½ SW.

Blood was drawn from a caudal vessel. The sk was pithed and a piece of wing muscle and heart qui removed and immediately freeze-clamped with alumin blocks precooled in liquid nitrogen. Blood was separa into packed RBC and plasma and the latter deprotein with 10 percent trichloroacetic acid (TCA). The TCA removed with ether. Frozen, packed RBC, wing mu and heart were powdered separately in mor surrounded with dry ice and extracted with 9 vol percent sulfosalicylic acid. The tissue and plasma ext were dried under vacuum, over conc. H_2SO_4, at 40 The dried residues were dissolved in appropriate volu